Joint Committee on Pensions

2018 Interim Report

Annapolis, Maryland
January 2019

Contributing Staff

Writers
Phillip S. Anthony
Dana K. Tagalicod
Matthew B. Jackson

For further information concerning this document contact:

Library and Information Services
Office of Policy Analysis
Department of Legislative Services
90 State Circle
Annapolis, Maryland 21401

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MARYLAND GENERAL ASSEMBLY

JOINT COMMITTEE ON PENSIONS

December 19, 2018

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

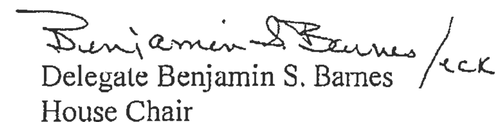
Ladies and Gentlemen:

The Joint Committee on Pensions herewith submits a report of its 2018 interim activities and legislative recommendations. The joint committee met three times during the 2018 interim and addressed one pension topic and 14 legislative proposals requested by the Board of Trustees for the State Retirement and Pension System. The joint committee made recommendations on these items at its final meeting for the 2018 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, Matthew B. Jackson, Cathy Kramer, Ria Hartlein, and Brett Ogden of the Department of Legislative Services and the staff of the Maryland State Retirement Agency for their assistance.

Sincerely,

Senator Guy Guzzone
Senate Chair



Delegate Benjamin S. Barnes
House Chair

GG:BSB/PSA:DKT/eck

Enclosure
cc: Ms. Victoria L. Gruber
Mr. Ryan Bishop

Room 226 Legislative Services Building · 90 State Circle · Annapolis, Maryland 21401-1991
410-946-5510 · Fax 410-946-5529 · TTY 410-946-5401
301-970-5510 · Fax 301-970-5529 · TTY 301-970-5401

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2018 Interim
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Patrick G. Young, Jr.

Committee Staff

Phillip S. Anthony
Dana K. Tagalicod
Matthew B. Jackson

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Joint Committee on Pensions
2018 Interim Report

Over the course of three meetings during the 2018 interim, the Joint Committee on Pensions had a briefing on one pension topic and 14 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 2018 Actuarial Valuation and Fiscal 2020 Contribution Rates

From fiscal 2017 to 2018, SRPS's funded status (the ratio of projected actuarial assets to projected actuarial liabilities) improved from 70.9% at the end of fiscal 2017 to 71.6% at the end of fiscal 2018 (these figures exclude funding for local governments that participate in the State plan). Several combined factors set the system up for continued improvement in its funding status, including the increasing number of new members entering the system under the reformed benefit structure enacted in 2011, the elimination of the corridor funding method, and continued supplemental contributions. The total State unfunded liability increased from $18.854 billion to $19.038 billion.

Fiscal 2020 Contribution Rates

Exhibit 1 shows that the employer contribution rate for the Teachers' Combined Systems (TCS) will increase from 16.16% in fiscal 2019 to 16.30% in fiscal 2020, and the contribution rate for the Employees' Combined Systems (ECS) will increase from 19.23% in fiscal 2019 to 20.22% in fiscal 2020. The aggregate contribution rate, including contributions for public safety employees and judges, increases from 18.15% in fiscal 2019 to 18.54% in fiscal 2020. Based on projected payroll growth and other factors, the SRPS actuary estimates that total employer pension contributions will increase from $1.930 billion in fiscal 2019 to $1.991 billion in fiscal 2020. The fiscal 2020 contribution rates are the actuarially determined contribution rates and reflect the Board of Trustees decision to lower the investment return assumption from 7.50% to 7.45%. The funding rates and contribution amounts are inclusive of the $75 million supplemental contribution required by Chapter 489 of 2015.

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Exhibit 1
State Pension Contributions
Fiscal 2019 and 2020
($ in Millions)

	2019		2020	
Plan	Rate	Contribution	Rate	Contribution
Teachers' Combined	16.16%	$1,130.0	16.30%	$1,166.5
Employees' Combined	19.23%	648.5	20.22%	670.2
State Police	79.41%	83.6	80.58%	84.7
Judges	44.53%	21.9	44.44%	22.1
Law Enforcement Officers	40.81%	45.7	42.40%	47.9
Aggregate	**18.15%**	**$1,929.6**	**18.54%**	**$1,991.3**

Note: Except for the Teachers' Combined System (TCS), contribution rates and dollar amounts reflect State funds only, excluding municipal contributions. For TCS, it reflects the combined total of State and local contributions. Figures also reflect the $75 million supplemental contribution required by Chapter 489 of 2015.

Source: Gabriel, Roeder, Smith, & Co., *June 30, 2018 Actuarial Valuation for Fiscal Year 2020*

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 and further reduction of the assumed rate of investment return exert upward pressure on the fiscal 2020 contribution rates. Increased membership under the reformed benefit structure exerts downward pressure on the rates. Chapter 489 eliminated the corridor funding method, which restricted the growth of contribution rates for TCS and ECS, the two largest plans within SRPS. This ensures that the budgeted contribution rate is the actuarially determined rate necessary to fully fund the system.

In addition to eliminating the corridor method and returning the system to full actuarially determined funding, Chapter 489 also provides for a supplemental contribution of $75.0 million each year until the system is 85% funded. Additionally, Chapter 489 included a sweeper provision, which directs a portion of unspent general funds to the system as an additional supplemental payment in fiscal 2020. Since fiscal 2018 ended with an unappropriated fund balance totaling $503.8 million, the Administration is required to include an additional $50.0 million appropriation for State pension contributions, the maximum required by Chapter 489.

State Retirement and Pension System Investment Performance

The SRPS investment return for the fiscal year that ended on June 30, 2018, was 8.06%, exceeding the assumed rate of return of 7.50%. System assets grew to a market value of almost $52 billion, as of June 30, 2018. The performance was driven primarily by the system's growth equity holdings, which returned 12.75% for the fiscal year, exceeding its benchmark by 0.79% (79 basis points). Within this asset class, private equity had another strong year with a return of 19.64%, outperforming its benchmark of 15.88%. Absolute return underperformed its benchmark by 1.89% (189 basis points), with a return of 3.26%.

Investment returns exceeded the assumed rate of investment return for the second year in a row, with returns exceeding the assumed rate of return in three of the last five years. The system as a whole outperformed its policy benchmark by 0.46% (46 basis points). Total system return for fiscal 2014 through 2018 is 7.15%, which is 0.43% (43 basis points) above the plan return benchmark for that period.

Board Requested Legislation

Maryland Pension Administration System– Notarization

One of the goals of the Maryland Pension Administration System (MPAS) is to allow members to complete necessary retirement forms online, including a form that allows a participant to designate a beneficiary. Currently, the law requires that designation of beneficiary forms be notarized prior to submission to the State Retirement Agency (SRA). As MPAS moves into its last phase, notarization of designation of beneficiary forms that are completed online will not be possible. The Board of Trustees for the SRPS recommended amending this provision of law to eliminate the requirement that designation of beneficiary forms be notarized. For forms completed online, other electronic identifying features will be put in place to authenticate the identity of the member completing the form. For designation of beneficiary forms that continue to be submitted in writing to SRA, the board's regulations will still require notarization.

The joint committee will sponsor the requested legislation.

MPAS – Certification and Payment of Member Contributions

Current law states that as each payroll is paid, participating employers are required to submit both member contributions and payroll data supporting these contributions to SRA. However, the contributions and data are not required to be submitted simultaneously. The law provides for a five-day window between when a participating employer submits the member contributions and when the supporting data follows. SRA indicates that often member contributions do not match payroll data, which can be attributable to members withdrawing or dying in the intervening period between when the member contributions and payroll data are submitted. SRA indicates that member contributions are not accepted until they are reconciled to

the payroll data. This creates administrative burdens on staff to work with the participating employer to resolve discrepancies.

One of the features of MPAS will be to accept member contributions and payroll data simultaneously. The board recommended the current law be amended to remove the lag time of five days between submitting member contributions and payroll data and instead require participating employers to submit both components simultaneously.

The joint committee will sponsor the requested legislation.

Alternate Contributory Pension Selection – Vesting

An individual who vested as a member of the Alternate Contributory Pension Selection (ACPS) of the Employees' or Teachers' Pension System (EPS or TPS) before July 1, 2011, and then leaves membership for any length of time, may resume membership in ACPS (if the member returns to a position that is eligible for participation in ACPS). However, a deferred vested member who vested in the ACPS after July 1, 2011, is required to join the Reformed Contributory Pension Benefit (RCPB) tier of the EPS or TPS if the member has a break in service of more than four years. To allow for consistency in dealing with all deferred vested members in ACPS, the board recommended legislation that would allow *all* ACPS deferred vested members to re-enter ACPS, regardless of the length in the break in service.

The joint committee will sponsor the requested legislation.

Workers' Compensation Offset

Current law generally prevents a member of SRPS who is receiving both a workers' compensation award and a disability retirement allowance from recovering twice for the same injury. Section 29-118 of the State Personnel and Pensions Article requires the board to reduce an accidental or special disability retirement benefit by any related workers' compensation benefit paid during the same 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 the State Personnel and Pensions Article. 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 award and a line-of-duty disability retirement, the disability retirement is offset.

The offset arrangement governing offsets and reductions for workers' compensation and disability retirements is complicated and has resulted in a process that is disjointed and sometimes inconsistent in application. SRA indicates it can be especially complicated when the agency retroactively awards a line-of-duty disability after the retiree has begun receiving an ordinary disability and has been subject to an offset on the workers' compensation award by the amount of

the ordinary disability. In these instances, the individual is subject to having the same offset taken twice.

The board proposed two options for consideration.

- Require the Workers' Compensation Commission (WCC) to modify its award and unwind any employer offset for a retiree who has been subject to an employer offset to the retiree's workers' compensation benefit as a result of also receiving an ordinary disability benefit that is later converted to a line-of-duty disability benefit; or

- Require SRA to reduce the offset to a line-of-duty disability benefit to reflect any offset awarded to an employer by the WCC for the ordinary disability benefit.

The joint committee will sponsor legislation to require SRA to reduce an offset to a line-of-duty disability benefit to reflect any offset by the Workers' Compensation Commission for an ordinary disability benefit.

Purchase of Eligibility Service by EPS Members

Chapter 618 of 2006 (HB 1430) clarified that under federal law a member of EPS may only purchase up to five years of eligibility service as a postsecondary school teacher. During the 2006 legislative session, the bill was amended and provisions in the original bill regarding this limitation of purchasing eligibility service mistakenly remained. The original language that remained in Chapter 618 inadvertently negates the purchase limitations added through Chapter 618 and other purchase limitations that were already in the law prior to 2006. The board recommended correcting this section of law addressing purchases of eligibility service credit.

The joint committee will sponsor the requested legislation.

Optional Retirement Program – Regulations

Title 30 of the State Personnel and Pensions Article establishes the Optional Retirement Program and provides that the board shall adopt regulations that are necessary to carry out the title. The requirement for regulations was included in Chapter 423 of 1993. Chapter 423 expanded the number of companies that could provide annuity contracts to participants from one to five. Since the passage of Chapter 423, federal regulations require a 403(b) plan to be maintained pursuant to a written plan document that must comply in form and operation with the requirements of the Internal Revenue Code and regulations. The board has adopted a plan document to carry out the provisions of Title 30. The board requested legislation to require the board to adopt and maintain a written plan document, and to permit – but not require – the adoption of regulations to implement the title.

The joint committee will sponsor the requested legislation.

State Police Retirement System – Reemployment

The board has noted that certain provisions governing the reemployment of retirees of the State Police Retirement System (SPRS) are not a model of clarity. The board recommended nonsubstantive legislation to clarify these provisions.

The joint committee will sponsor the requested legislation.

Unused Sick Leave – Local Employer Cash Outs

Under current law, a member of the Employees' or Teachers' Retirement System (ERS or TRS), EPS, or TPS may receive additional service credit at the time of retirement for any unused sick leave the individual has accrued over the course of the individual's career with the State (this credit may not be used to qualify for retirement). As pension law allows an individual to convert unused sick leave to service credit, the State does not offer cash payments for this time. However, a number of participating employers, including boards of education, libraries, and community colleges that participate in TRS or TPS do provide payment for some portion of a retiring member's unused sick leave. Those employers that pay for unused sick leave at retirement also certify and include that paid leave in the total days of unused leave reported to SRA for additional service credit.

This issue was brought before the joint committee during the 2007 interim as board requested legislation to prohibit the receipt of unused sick leave credit to the extent that a member has received a cash payout for the unused sick leave. The joint committee agreed to sponsor the legislation during the 2008 session. However, both bills were withdrawn prior to any committee votes. The agency's most recent legislative audit findings referenced the inclusion of sick leave as service credit when compensation is provided for the sick leave. Due to this audit finding, the board recommended legislation to require days reported for unused sick leave should only be those days for which the retiring employee was not compensated.

The joint committee will not sponsor the requested legislation.

Unused Sick Leave – EPS Members Required to Join the Correctional Officers' Retirement System

Legislation during the 2016, 2017, and 2018 sessions requires certain members of the EPS and ERS to be moved into the Correctional Officers' Retirement System (CORS). The affected members, after being moved into CORS, have the option to transfer their EPS/ERS service into CORS. Those who elect not to transfer may receive two benefits at retirement – an EPS/ERS benefit based on their previous service and a CORS benefit, if they vest after being moved.

Current law provides that at retirement a member is entitled to receive creditable service for unused sick leave if the member retires on or before 30 days after the member is separated from employment. Therefore, a member who has been moved to CORS would not be eligible for

unused sick leave in EPS because he or she will not be retiring from EPS directly upon separation from service. Current law also provides that a member may not accumulate more than 15 days of sick leave per year in the system from which the member is retiring. Therefore, if the total number of days of unused sick leave earned by the employee exceeds 15 days per year of service in the member's current plan, the member does not receive credit for any additional unused sick leave. This typically results in the forfeiture of all or most of the leave earned while a member of the former plan.

The 2016 to 2018 legislation did not address the issue of unused sick leave, and the board believes this was an oversight. The board notes that legislation was passed in 2013 addressing a similar situation when members were being promoted out of CORS into EPS. The 2013 legislation was drafted specifically to protect the unused sick leave of those individuals who were promoted out of CORS into EPS, but who did not elect to transfer their CORS service into EPS. The board recommended similar legislation to preserve unused sick leave for individuals affected by the 2016, 2017, or 2018 legislation that required an individual to move from EPS into CORS.

The joint committee will sponsor the requested legislation.

Rescission of Designated Beneficiary Change

Section 21-404 of the State Personnel and Pensions Article allows retirees of the several systems (except for retirees of the Judges' Retirement System) to change their designated beneficiary at any time after they have retired. Retirees who opt to change their designated beneficiary have their allowance recalculated based on the value of the balance in the retiree's annuity reserve and pension reserve when the change is made. A change to the designated beneficiary will almost always result in a lower monthly benefit to the retiree. In light of this, SRA's practice has been to allow for a rescission of this change up until the first monthly payment following the change. This follows numerous correspondence between the agency and the retiree intended to ensure the retiree comprehends the reduction that will occur as a result of the change in beneficiary. However, SRA reports that many retirees continue to be taken aback once they received their first benefit check under the change and see the reduction resulting from the change in designated beneficiary. SRA reports contact from retirees stating that they did not understand what was communicated to them and that they cannot support themselves on the revised monthly benefit.

To address this issue, the board recommended legislation that would allow retirees to rescind their prior designated beneficiary change if they notify the board, in writing, before the second payment due date following the month that the revised retirement benefit becomes due. The board additionally recommended that a rescission only be allowed if the newly designated beneficiary is alive at the time that the rescission is requested.

The joint committee will sponsor the requested legislation, but noted the oversight committees may reexamine the need for prohibiting a rescission when the newly designated beneficiary has died.

Employees', Teachers', and Correctional Officers' Active Death Benefit

If an active member of EPS or TPS dies after reaching age 55 with at least 15 years of service or after accruing 25 years of eligibility service, regardless of age, the member's spouse may elect to receive a survivorship benefit equal to what the member would have received, had the member been retired at the time of death and selected Option 2 (a 100% joint and survivor allowance, subject to an actuarial reduction). Spouses of deceased active members of ERS, TRS, and CORS are entitled to a similar benefit if the active member dies after reaching age 55 with at least 15 years of service. Additionally, spouses of deceased active members of EPS, ERS, TPS, TRS, or CORS may elect to receive this death benefit if, at the time of death, the member was eligible to retire from the member's system.

The provisions governing death benefits for active members of SPRS and the Law Enforcement Officers' Pension System (LEOPS) provide that if an active member of either of these systems dies with at least two years of eligibility service, regardless of age, the surviving spouse of the member shall receive an allowance equal to 50% of the member's average final compensation. If there is no surviving spouse, or if the surviving spouse dies, the benefit is paid to any children who are disabled or are under the age of 26. A surviving child who is disabled, may receive this benefit as long as the child is disabled, regardless of age. SPRS and LEOPS also provide that if there is no surviving spouse or minor or disabled child, the benefit may be paid to the member's dependent parents. Similar active death benefits are paid to spouses and minor children of deceased members of the Judges' Retirement System.

EPS, ERS, TPS, TRS, and CORS do not extend the Option 2 active death benefit to minor children of the deceased active members. The board noted that this may have been an oversight when extensive updates were enacted recently by the legislature for all death benefit provisions and recommended the joint committee consider extending the active death benefit to children of deceased active members.

The joint committee will sponsor legislation extending the active death benefit to children of deceased active members.

Modification of Municipal Pension Surcharges

The 2011 pension reform revised the benefit provisions and employee contribution rates for the SRPS Municipal Employees' Combined System. 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 ACPS participants, from 5% to 7%. Participating governmental units (PGU) with participants subject to the Non-Contributory Pension Benefit (NCPB) or the Employees' Contributory Pension Benefit (ECPB) (nine employers total) benefitted from the decrease in employer contributions although there was no offsetting increase in employee contributions from their NCPB and ECPB participants. This resulted from a provision in the 2011 reform that exempted these nine employers from having to participate in RCPB, as that would have resulted in an increase in benefits and liabilities.

The board recommended a surcharge of 2% of pay for each of the nine employers participating in NCPB or ECPB. Because of the impact on these nine PGUs, the board has also recommended that any legislation provide for a five-year phase-in, beginning with the December 2020 billing.

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

Reopening Disability Claims

SRA has reported several instances where shortly after a member of the several systems has been awarded a disability retirement benefit, staff has learned of information indicating that the individual was not eligible for the benefit. In one instance, after granting a disability benefit, SRA learned of an administrative determination by the former employer that the applicant acted with willful negligence during the occurrence of the disabling incident. In another instance, after awarding a disability retirement, SRA learned that the applicant had accepted a higher paying job in the same field while the applicant was applying for a disability retirement. However, current provisions of the State Personnel and Pensions Article do not explicitly address the board's authority when presented with such facts.

The board recommended legislation that would provide the board with express statutory authority to reopen and reevaluate a disability award when the agency receives information, post-award, that the retiree may have been ineligible for the benefit at the time of the award. The Department of Legislative Services notes that any legislation would need to address processes and procedures for exercising such authority.

The joint committee will not sponsor the requested legislation.

Queen Anne's County Joining CORS

Legislation enacted in 2017 requires the board to make recommendations to the joint committee when it determines that a governmental unit seeking to join EPS, CORS, or LEOPS would need legislation to be able to become a PGU. Queen Anne's County is seeking to move its correctional officers from EPS to CORS. Since the EPS employee contribution rate is different from the CORS contribution rate, the board determined that legislation will be needed to address the status of existing employees that will remain employed as correctional officers after Queen Anne's County moves them into CORS.

The joint committee will leave sponsorship of the requested legislation to the local legislative delegations.

Additional Topics

Briefing on Maryland Transit Administration Pension Plan

During the 2018 session, concerns were raised regarding the underfunding of the Maryland Transit Administration (MTA) pension plan, which provides a defined benefit for unionized workers. In fiscal 2017, the MTA pension plan had a funded ratio of only 40.9%, and MTA budgeted only 70.9% of the actuarially determined contribution. These concerns led to a request in the 2018 *Joint Chairmen's Report* for MTA to brief the joint committee on the features of the MTA pension plan, the actions that MTA intends to take to improve the funded status of the pension plan, and a projected timeline for the actions. The briefing request recognized that oversight of the MTA pension plan is complicated by the need to negotiate changes to the plan with the unions and that binding arbitration provisions present additional challenges. The State would lose a significant amount of federal transit funds if the State took away the right of MTA employees to collective bargaining with binding arbitration.

Key features of the MTA pension plan include a 5-year or a 7-to 10-year vesting period, depending on date of hire; a 1.7% multiplier regardless of date of hire; cost-of-living adjustments (COLA) tied to the Consumer Price Index (CPI) (but no greater than 3.0%); average final compensation that includes up to 2,392 hours of overtime each year; normal retirement age of 52 with 30 years of service or age 65 and fully vested; 2.0% employee contribution; and binding arbitration. In contrast, State employees hired on or after July 1, 2011, who are in the EPS have a 10-year vesting period, a 1.5% multiplier, and normal retirement age is 65 with 10 years of service or the employee's years of service and age must equal at least 90. State employees, regardless of date of hire, have COLA adjustments tied to the CPI, but not greater than 2.5%, or not greater than 1.0% if the fund's return is less than the actuarially assumed return; average final compensation does not include overtime; and the employee contribution is 7.0%.

MTA briefed the joint committee on the actions it intends to take to improve the funded status of the pension plan. MTA plans to increase employee contributions from 2.0% to 4.0%, effective July 1, 2019, from 4.0% to 6.0%, effective July 1, 2021, and from 6.0% to 7.0%, effective July 1, 2023. During the years employee contributions would increase, MTA would match the increased employee contribution dollar for dollar. Beginning in fiscal 2025 under the proposed changes, MTA's contribution is assumed to increase 1.5% per year until the plan reaches 100% funding. MTA projects that the pension plan would be 70% funded by 2027 and 100% funded by 2034. Once the plan is fully funded, MTA would contribute the actuarially determined contribution each year.

The joint committee will continue to monitor the financial health of the MTA pension plan. The joint committee is hopeful that actions to improve the funded status of the MTA pension plan will be implemented soon.

Maryland State Retirement and Pension System

Results of the June 30, 2018
Actuarial Valuation for Fiscal Year 2020

November 14, 2018 Joint Committee on Pensions

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GRS Retirement Consulting

BACKGROUND

GRS Retirement Consulting

Purpose of the Actuarial Valuations

- Measure the financial position of MSRPS
- Provide the Board with State and PGU contribution rates for certification including reinvested savings as appropriate
- Discuss risks associated with achieving the funding objectives of MSRPS
- Analyze aggregate experience over the last year
- Provide disclosure information for financial reporting
  - Provided by separate GASB 67 and 68 valuations

Funding Objectives

1. Benefit Security
   - Plan sponsor commitment, strong governance, effective administration, and accommodated by sources of revenue.
2. Stable pattern of contribution rates
   - Average State Contribution rate increased by 0.39% of payroll this year.
3. Intergenerational equity with respect to plan costs
   - This is a long term goal. We will only know in hindsight if it is achieved. The break with corridor funding was a step in the right direction.
4. Stable or increasing ratio of assets to liabilities
   - Funded ratio improved this year on an actuarial value of assets basis and on a market value basis.

GRS Retirement Consulting

2011 Benefit Reform Scorecard

	Projected June 30, 2018 Results Based on June 30, 2010 Valuation		Actual Result
	Before Reforms	After Reforms	2018 Valuation
FY 2020 Contribution Rates No Reinvestment			
ECS (State)	22.16%	18.51%	19.56%
TCS	21.82%	18.12%	15.59%
All State Plans	22.80%	19.06%	17.82%
June 30, 2018 Funded Ratio No Reinvestment			
All State Plans	65.8%	65.8%	70.7%
June 30, 2018 Funded Ratio Reinvestment			
All State Plans	65.8%	69.0%	71.6%

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 overall favorable experience since 2010 (except ECS) which decreased actuarial contribution rates and increased funded ratios.

GRS Retirement Consulting

Variables Affecting Valuation Results

- Benefits (Retirement, Disability, Survivor)
- Actual past experience
- Legislative Changes
  - 2018 General Assembly passed HB 1042 and 1049
    - Increased LEOPs maximum benefit and extended State Police DROP participation
  - 2017 General Assembly passed HB 28
    - Amended provisions of HB 72, below.
    - Beginning in FY 2021 and continuing until the System is 85% funded, 25% of the budget surplus in excess of $10 million, up to a maximum of $25 million, would be made as an additional contribution to SRPS.
  - 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.
    - $50 million was received in FY 2017.
    - These excess funds were eliminated in the FY 2018 and FY 2019 budgets.
  - 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
  - Investment return assumption lowered from 7.50% to 7.45%
  - Wage inflation assumption lowered from 3.15% to 3.10%
  - Price inflation assumption lowered from 2.65% to 2.60%

GRS Retirement Consulting

Primary Assumptions

- Actuarial assumptions based on the 2010-2014 experience study (first used in 2015 Valuation)
  - Economic Assumptions (updated for 2018 valuation; scheduled for review in early 2019)
    - 7.45% investment return; 3.10% payroll growth; 2.60% CPI
    - 2.23% COLA, 2.58% COLA, 2.60% COLA for service where COLA is capped at 3%, 5% or not capped, respectively
    - 1.46% 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
  - 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).

GRS Retirement Consulting

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 (20 years remaining in 2018 valuation)
  - Municipal Systems
    - ECS: Single period closed amortization period ending in FY 2043. Phased-in at 35 years in 2018 valuation grading down to 20 years for the 2022 valuation and declining one year per year thereafter
    - 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).
  - Should be reconsidered to control volatility once remaining period falls below about 10-15 years. (Statutory change would be required, implying a need for lead time).

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PARTICIPANT DATA

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State and Municipal Total Membership

	Statistics as of June 30				
	2018			2017	
Number Counts	**State**	**PGU**	**Total**	**Total**	**% Chg**
Active Members	166,762	25,669	192,431	192,742	-0.2%
Vested Former Members	45,533	6,768	52,301	53,628	-2.5%
Retired Members	141,739	18,635	160,374	156,366	2.6%
Total Members	354,034	51,072	405,106	402,736	0.6%
Total Valuation Payroll ($ in Millions)	$10,362.2	$1,204.0	$11,566.2	$11,419.0	1.3%
Active Member Averages					
Age	45.9	48.9	46.3	46.3	0.0%
Service	12.6	11.5	12.4	12.5	-0.7%
Pay	$ 62,138	$ 46,904	$ 60,106	$ 59,245	1.5%
Total Retiree Benefits ($ in Millions)	$3,515.7	$275.5	$ 3,791.2	$ 3,587.3	5.7%
Average Retiree Benefit	$ 24,804	$ 14,784	$ 23,640	$ 22,941	3.0%

Active Membership by Benefit Plan

	State				Municipal			
			Average				Average	
	Count	Payroll	Age	Service	Count	Payroll	Age	Service
ERS/TRS	718	$ 64,537,089	66.6	42.1	57	$ 3,577,856	63.6	41.5
NCPB	188	13,607,672	60.1	34.8	3,108	210,311,267	49.5	13.5
ECPB	-	-			117	4,472,686	46.5	10.5
ACPB	96,218	6,705,206,806	50.3	17.9	11,760	578,014,816	53.5	17.5
RCPB	59,017	2,952,309,818	38.8	3.4	9,503	339,283,351	44.0	3.3
Other	10,621	626,575,246	43.8	12.3	1,124	68,323,190	39.3	11.2
Total	166,762	$ 10,362,236,631	45.9	12.6	25,669	$ 1,203,983,166	48.9	11.5

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.

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State Demographic Data by System

	TCS	ECS	State Police	Judges	LEOPS	Total
Active Members						
2018 Count	106,846	56,663	1,347	316	1,590	166,762
2017 Count	106,302	57,615	1,371	312	1,564	167,164
2016 Count	105,547	58,083	1,402	298	1,577	166,907
% Change 2018/2017	0.5%	-1.7%	-1.8%	1.3%	1.7%	-0.2%
2018 Payroll ($Mill)	$6,941.1	$3,165.6	$100.3	$47.5	$107.7	$10,362.2
2017 Payroll ($Mill)	$6,780.8	$3,218.6	$100.4	$46.9	$106.8	$10,253.5
2016 Payroll ($Mill)	$6,611.0	$3,171.4	$93.5	$44.7	$102.1	$10,022.7
% Change 2018/2017	2.4%	-1.6%	-0.1%	1.3%	0.9%	1.1%
2018 Average Pay	$ 64,964	$ 55,867	$ 74,480	$ 150,311	$ 67,754	$ 62,138
2017 Average Pay	$ 63,788	$ 55,864	$ 73,220	$ 150,242	$ 68,303	$ 61,338
2016 Average Pay	$ 62,636	$ 54,600	$ 66,684	$ 150,038	$ 64,741	$ 60,050
% Change 2018/2017	1.8%	0.0%	1.7%	0.0%	-0.8%	1.3%

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State Demographic Data by System

	TCS	ECS	State Police	Judges	LEOPS	Total
Retired Members						
2018 Count	77,201	60,120	2,477	421	1,520	141,739
2017 Count	75,509	58,256	2,572	417	1,482	138,236
2016 Count	73,582	57,026	2,536	407	1,424	134,975
% Change 2018/2017	2.2%	3.2%	-3.7%	1.0%	2.6%	2.5%
2018 Benefits ($ Mill)	$2,189.6	$1,115.4	$123.9	$33.3	$53.5	$3,515.7
2017 Benefits ($ Mill)	$2,088.4	$1,039.8	$120.3	$31.4	$50.0	$3,329.7
2016 Benefits ($ Mill)	$2,012.2	$997.4	$117.7	$30.7	$47.4	$3,205.4
% Change 2018/2017	4.8%	7.3%	3.0%	6.1%	7.0%	5.6%
Vested Former Members						
2018 Count	25,188	20,047	99	9	190	45,533
2017 Count	25,493	20,887	90	9	190	46,669
2016 Count	25,298	21,087	84	7	194	46,670
% Change 2018/2017	-1.2%	-4.0%	10.0%	0.0%	0.0%	-2.4%

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Municipal Active Membership by PGU Type

	Count			Average	
	PGU's	Members	Payroll	Age	Service
Board of Education	19	12,769	$ 510,256,312	50.3	11.3
County Govt.	12	7,539	443,731,659	47.7	12.6
City/Town Govt.	57	3,363	169,027,840	46.1	11.1
City Agency/Authority	2	20	903,850	52.8	15.4
Community College	9	837	37,067,865	48.4	9.8
County Agency/Authority	10	229	11,161,804	46.7	12.1
Other	17	758	25,000,464	48.9	9.1
Library	7	154	6,833,372	48.5	8.1
Total	133	25,669	1,203,983,166	48.9	11.5

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ASSET DATA

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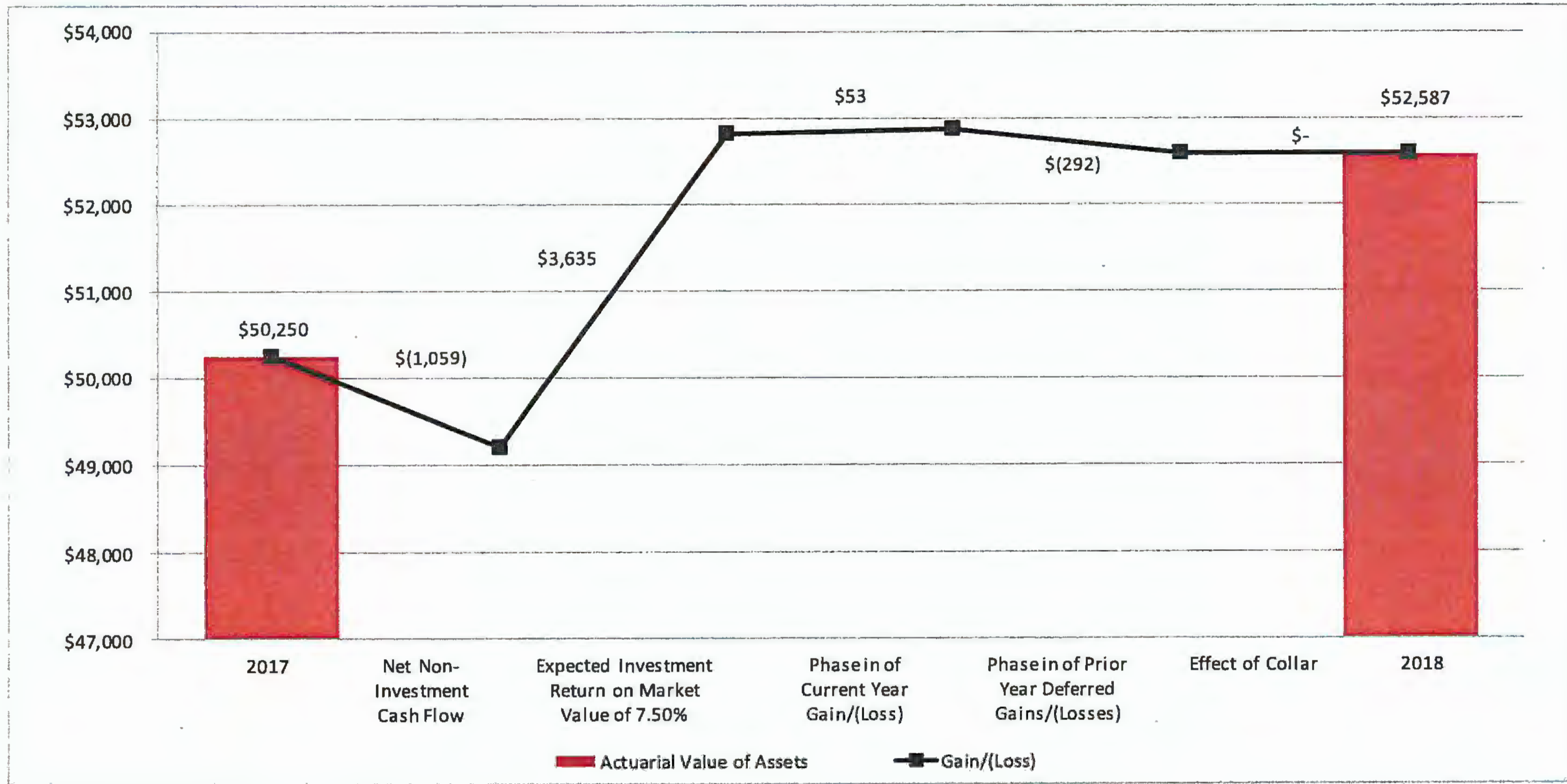
Actuarial Value of Assets - ($ Millions)



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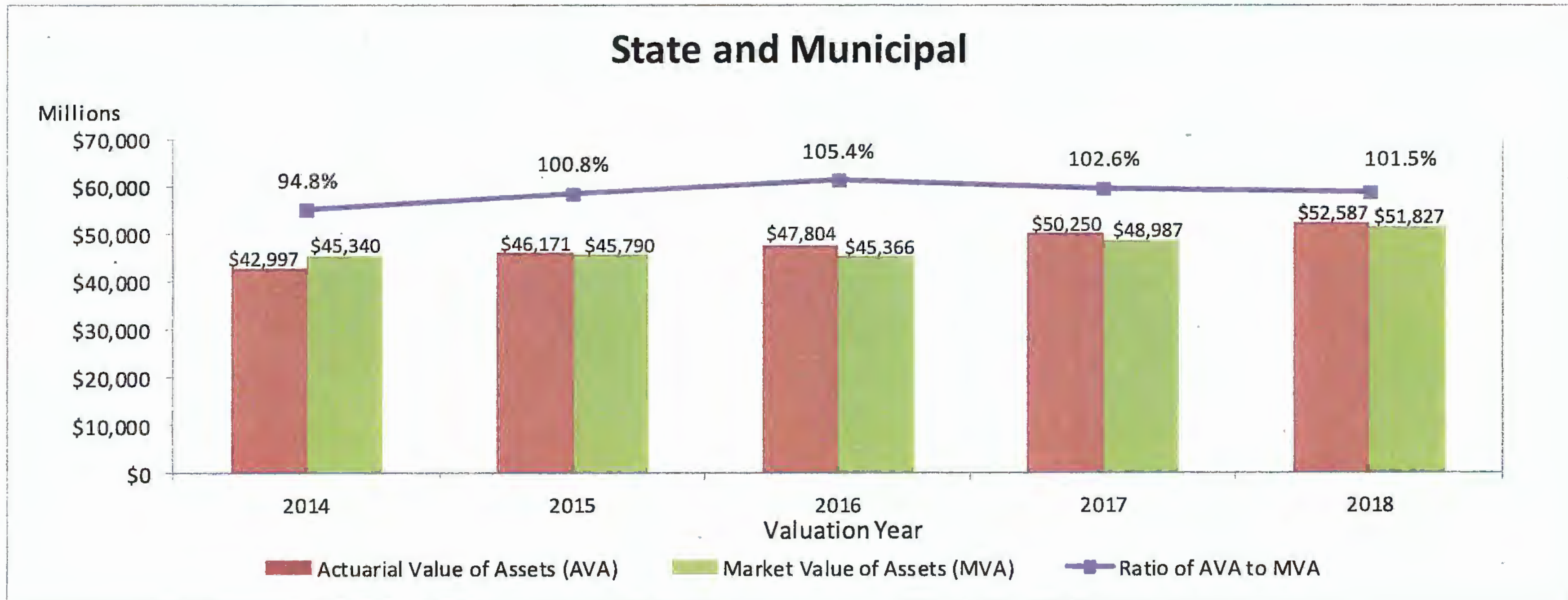
Actuarial Value of Assets - ($ Billions)



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.

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Actuarial Value of Assets – ($ Millions) State and Municipal Combined

Fiscal Year:	2018	2019	2020	2021	2022
1 Actuarial Value at July 1, 2017	$ 50,250.5				
2 Net Cash Flow	(1,059.3)				
3 Market Investment Return	3,899.4				
4 Expected Return	3,635.0				
5 Gain or loss (3-4)	264.4				
6 Amount for full recognition	3,635.0				
7 Phase-in amounts					
7a. From this year	52.9				
7b. From one year ago	216.0	$ 52.9			
7c. From two years ago	(585.1)	216.0	$ 52.9		
7d. From three years ago	(448.6)	(585.1)	216.0	$ 52.9	
7e. From four years ago	525.2	(448.6)	(585.1)	216.0	$ 52.9
8 Total Phase-ins	(239.6)	(764.8)	(316.2)	268.9	52.9
9 Adjustment to Remain within 20% Collar	-				
10 Actuarial Value June 30, 2018: 1+2+6+8	52,586.5				
11 Market Value June 30, 2018	51,827.2				

There is a net loss of about $0.76 billion to be recognized in the future ($0.70 billion State and $0.06 Billion Municipal), down from $1.26 billion last year.

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STATE RESULTS

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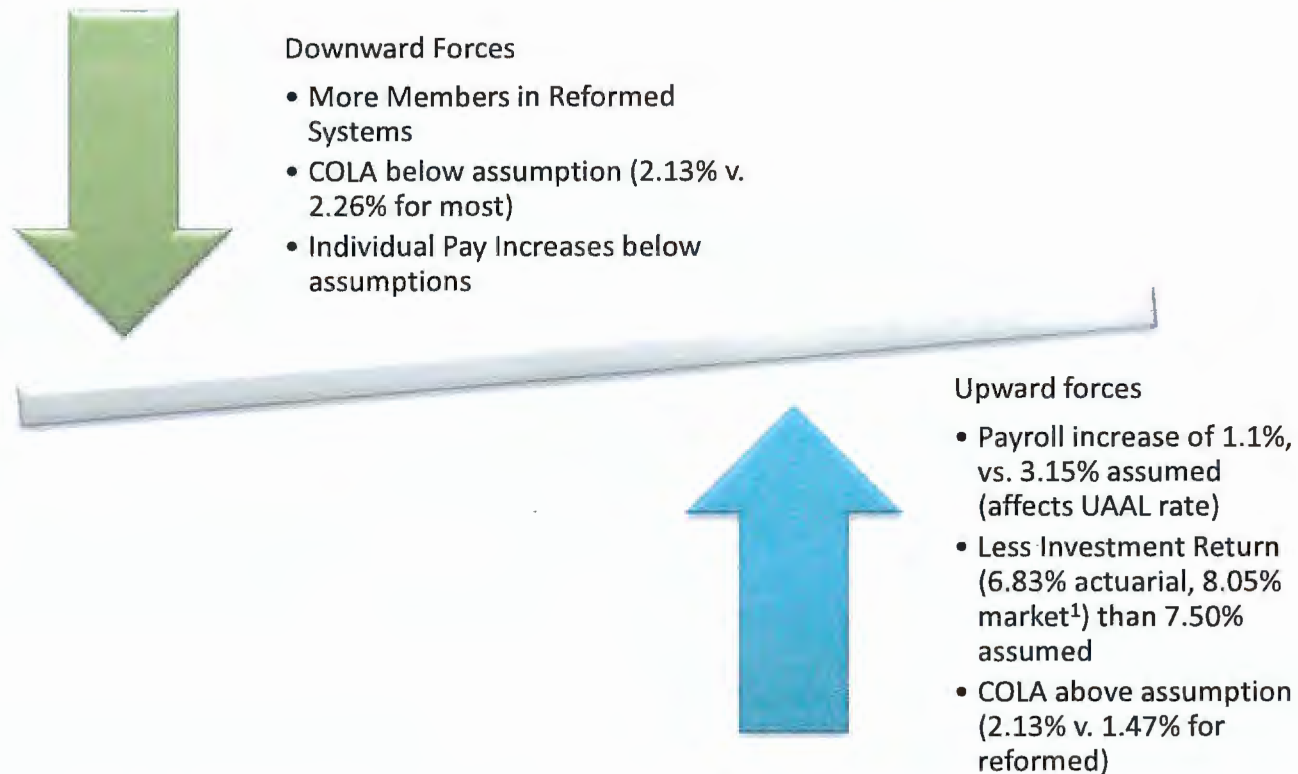
Net Increase in State Rates



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

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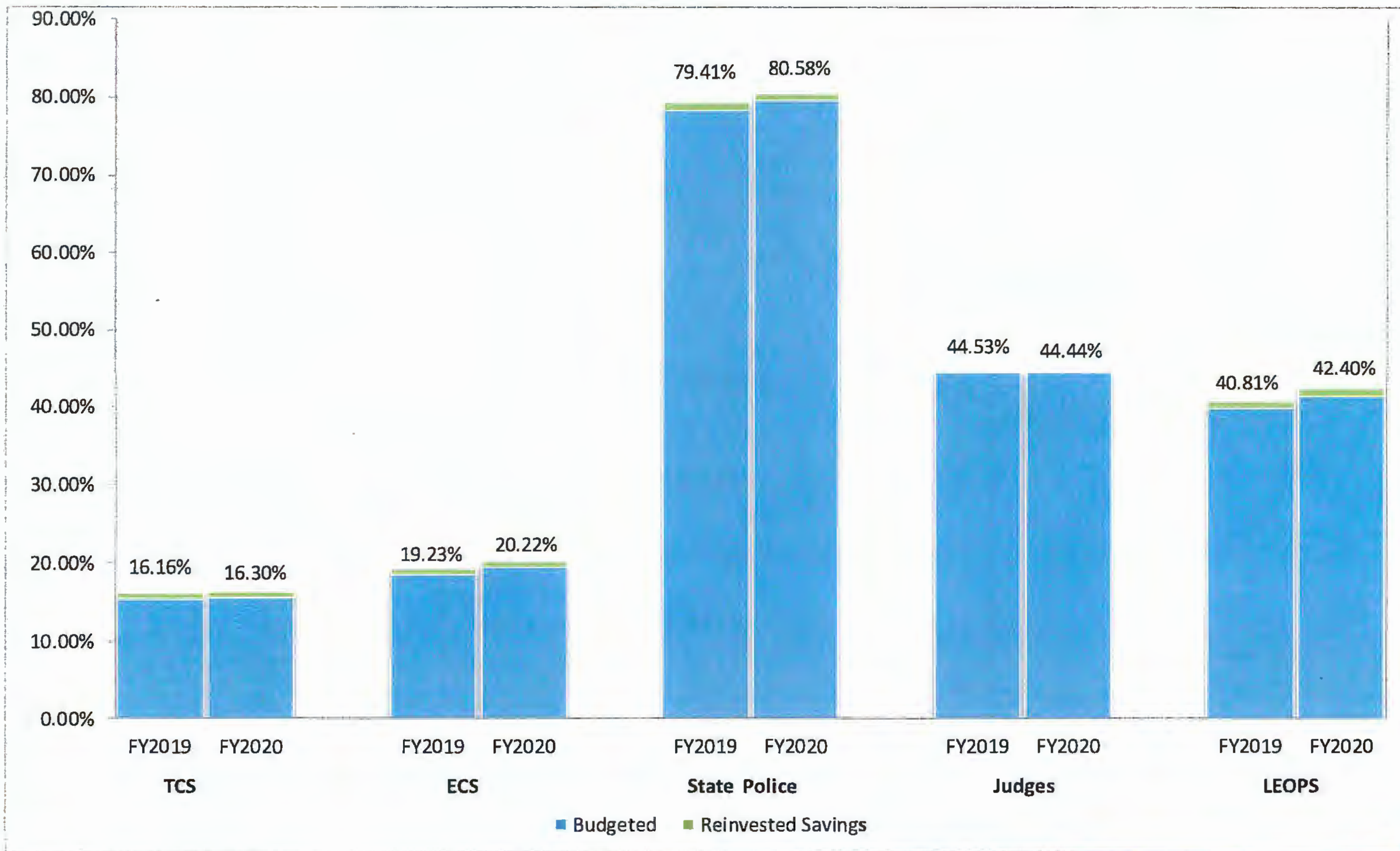
Actuarially Determined Contribution Rates



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Year to Year Comparison of Results

(STATE ONLY except as noted, $ in Millions)

	Teachers' Combined System	Employees' Combined System	State Police	Judges	LEOPS	Total
FY 2020 Contr. Rate (w. Reinv. Savings)	16.30%	20.22%	80.58%	44.44%	42.40%	18.54%
FY 2019 Contr. Rate (w. Reinv. Savings)	16.16%	19.23%	79.41%	44.53%	40.81%	18.15%
FY 2020 Actuarial Contribution Rate	15.59%	19.56%	79.58%	44.44%	41.37%	17.82%
FY 2019 Actuarial Contribution Rate	15.43%	18.58%	78.41%	44.53%	39.78%	17.42%
2018 Actuarial Value of Assets	$ 31,946	$ 13,410	$ 1,469	$ 477	$ 696	$ 47,997
2018 Unfunded Actuarial Liability	$ 10,794	$ 6,986	$ 782	$ 80	$ 397	$ 19,038
2017 Unfunded Actuarial Liability	$ 10,698	$ 6,901	$ 790	$ 83	$ 383	$ 18,854
Funded Ratios						
2018	74.8%	65.8%	65.3%	85.7%	63.7%	71.6%
(Including Municipal)		*69.4%*			*64.4%*	*72.5%*
2017	74.0%	65.1%	64.1%	84.6%	63.2%	70.9%
(Including Municipal)		*68.9%*			*63.8%*	*71.8%*

Municipal Actuarial Value of Assets of $4,589 Million and Municipal Unfunded Actuarial Liability of $950 Million are also included in the development of the Total Funded Ratio of 72.5%.

GRS Retirement Consulting

Year over year change by system

(STATE ONLY)

	Teachers' Combined System	Employees' Combined System	State Police	Judges	LEOPS	Total
FY 2020 Contribution Rates						
Actuarial Contribution Rate	15.59%	19.56%	79.58%	44.44%	41.37%	17.82%
Reinvested Savings Rate^	0.71%	0.66%	1.00%	0.00%	1.03%	0.72%
Total Contribution Rate	16.30%	20.22%	80.58%	44.44%	42.40%	18.54%
FY 2019 Contribution Rates						
Actuarial Contribution Rate	15.43%	18.58%	78.41%	44.53%	39.78%	17.42%
Reinvested Savings Rate^	0.73%	0.65%	1.00%	0.00%	1.03%	0.73%
Total Contribution Rate	16.16%	19.23%	79.41%	44.53%	40.81%	18.15%
Year over Year Change	0.14%	0.99%	1.17%	-0.09%	1.59%	0.39%

^ *Rate calculated based on allocated reinvested dollars and FY 2020 projected payroll. It is our understanding that the Retirement Agency will monitor contributions to ensure that the System receives the expected amount of reinvested savings during Fiscal Year 2020.*

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Reconciliation of Employer Contribution Rates

(STATE ONLY)

	Teachers' Combined System	Employees' Combined System	State Police	Judges	LEOPS	Total
FY 2019 Actuarial Contribution Rate	**15.43%**	**18.58%**	**78.41%**	**44.53%**	**39.78%**	**17.42%**
Change due to Investment Return	0.21%	0.19%	0.72%	0.52%	0.34%	0.21%
Change due to Demographic and Non-Inv. Exp.	-0.16%	-0.11%	-1.34%	-0.79%	0.25%	-0.16%
Change due to Benefit Provisions	0.00%	0.00%	-0.22%	0.00%	0.29%	0.00%
Change due to Assumption Changes	0.16%	0.15%	0.29%	-0.05%	0.32%	0.16%
Change due to Total Payroll Experience	0.09%	0.73%	1.74%	0.22%	0.58%	0.27%
Change due to Other	-0.14%	0.01%	-0.02%	0.02%	-0.19%	-0.09%
FY 2020 Actuarial Contribution Rate	**15.59%**	**19.56%**	**79.58%**	**44.44%**	**41.37%**	**17.82%**
Reinvested Savings Rate	0.71%	0.66%	1.00%	0.00%	1.03%	0.72%
Final FY 2020 Total Budgeted Contr. Rate	**16.30%**	**20.22%**	**80.58%**	**44.44%**	**42.40%**	**18.54%**

Contributions for FY 2019 were based upon the June 30, 2017 valuation. Contribution rates for FY 2020 are determined by the June 30, 2018 valuation.

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Allocation of TCS Contribution to Local Employers (Boards of Education)

FY2020 Contribution ($ in Millions)

	% of Pay	Total	Local Employers	State
Employer Normal Cost	4.38%	$ 313.4	$ 288.6	$ 24.8
UAAL Amortization	11.21%	802.2	-	802.2
Reinvested Savings	0.71%	50.8	-	50.8
Total	16.30%	$ 1,166.4	$ 288.6	$ 877.8

FY2019 Contribution ($ in Millions)

	% of Pay	Total	Local Employers	State
Employer Normal Cost	4.41%	$ 308.4	$ 283.8	$ 24.6
UAAL Amortization	11.02%	770.8	-	770.8
Reinvested Savings	0.73%	50.8	-	50.8
Total	16.16%	$ 1,130.0	$ 283.8	$ 846.2

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Illustrated State Contribution Dollars

(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 2020 Contributions						
Illustrated Dollar Contributions	$ 1,115.7	$ 648.2	$ 83.6	$ 22.1	$ 46.7	$ 1,916.3
TCS Local Employer Contributions	$ (288.6)	$ -	$ -	$ -	$ -	$ (288.6)
Reinvested Savings	$ 50.8	$ 22.0	$ 1.1	$ -	$ 1.2	$ 75.0
State Total Illustrated Contribution	**$ 877.9**	**$ 670.2**	**$ 84.7**	**$ 22.1**	**$ 47.9**	**$ 1,702.7**
FY 2019 Contributions						
Illustrated Dollar Contributions	$ 1,079.2	$ 626.5	$ 82.5	$ 21.9	$ 44.5	$ 1,854.6
TCS Local Employer Contributions	$ (283.8)	$ -	$ -	$ -	$ -	$ (283.8)
Reinvested Savings	$ 50.8	$ 22.0	$ 1.1	$ -	$ 1.2	$ 75.0
State Total Illustrated Contribution	**$ 846.2**	**$ 648.5**	**$ 83.6**	**$ 21.9**	**$ 45.7**	**$ 1,645.8**
State Year over Year Change	$ 31.7	$ 21.7	$ 1.1	$ 0.2	$ 2.2	$ 56.9

 # Based on Calculations from June 30, 2011 Valuation.

FY 2020 Contribution based on payroll as of June 30, 2018, projected to FY 2019 for TCS and FY 2020 for all other systems. FY 2019 Contribution based on payroll as of June 30, 2017, projected to FY 2018 for TCS and FY 2019 for all other systems. FY 2019 and FY 2020 Contributions for TCS would be $1,165 Million and $1,201 Million, respectively, if payroll was projected in the same manner as for the other systems (based on payroll projected one additional year to FY 2019 and FY 2020, respectively).

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MUNICIPAL RESULTS

Year-to-Year Comparison of Results: MUNICIPAL Systems

(MUNICIPAL ONLY, $ in Millions)

	Employees' Combined System	LEOPS	CORS	Total
FY 2020 Basic (Pooled) Contribution Rate	5.85%	32.22%	10.26%	7.25%
FY 2019 Basic (Pooled) Contribution Rate	5.47%	31.43%	9.85%	6.82%
2018 Actuarial Value of Assets	$ 4,270	$ 295	$ 25	$ 4,589
2018 Unfunded Actuarial Liability	$ 797	$ 151	$ 1	$ 950
2017 Unfunded Actuarial Liability	$ 739	$ 142	$ 1	$ 882
Funded Ratios				
2018	84.3%	66.1%	94.3%	82.9%
2017	84.7%	65.3%	95.7%	83.3%

The increase in the ECS pooled rate from FY 2019 to FY 2020 is mostly driven by a legislated change in amortization policy. The change was designed to deal with an otherwise scheduled doubling of the rate from FY 2021 to FY 2022.

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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			
Surcharge Group	**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

NCPB: Non Contributory Pension Benefit
ECPB: Contributory Pension Benefit
ACPB: Alternate Contributory Pension Benefit
RCPB: Reformed Contributory Pension Benefit

GRS Retirement Consulting

Year-to-Year Comparison of Results: MUNICIPAL Systems

(MUNICIPAL ONLY, $ in Millions)

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The increase in the ECS pooled rate from FY 2019 to FY 2020 is mostly driven by a legislated change in amortization policy. The change was designed to deal with an otherwise scheduled doubling of the rate from FY 2021 to FY 2022.

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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)
2012	$ 57,869	$ 37,179	$ 20,690	$ 10,337	64.2%	$ 32,779	56.6%	559.9%	359.7%
2013	60,060	40,363	19,697	10,478	67.2%	34,498	57.4%	573.2%	385.2%
2014	62,610	45,340	17,270	10,804	72.4%	36,077	57.6%	579.5%	419.7%
2015	66,282	45,790	20,492	11,064	69.1%	38,588	58.2%	599.1%	413.9%
2016	67,782	45,366	22,416	11,156	66.9%	39,785	58.7%	607.6%	406.7%
2017	69,987	48,987	20,999	11,419	70.0%	41,112	58.7%	612.9%	429.0%
2018	72,575	51,827	20,747	11,566	71.4%	43,237	59.6%	627.5%	448.1%

Assumption changes affected the 2015, 2017, and 2018 valuations

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Risk Measures Summary

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
2012			200.2%	$ (518)	-1.4%	0.3%	0.7%
2013			188.0%	(661)	-1.6%	10.4%	3.9%
2014			159.9%	(729)	-1.6%	14.3%	11.6%
2015	12.5%	51.7%	185.2%	(748)	-1.6%	2.7%	9.3%
2016	12.0%	48.8%	200.9%	(921)	-2.0%	1.1%	5.6%
2017	13.3%	57.1%	183.9%	(852)	-1.7%	10.0%	7.6%
2018	13.3%	59.6%	179.4%	(1,059)	-2.0%	8.1%	7.1%

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CONCLUSION

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Recommended Budgeted Contributions Fiscal Year 2020: STATE

	Fiscal 2020		Prior Year	
System	Budgeted Rate	Illustrated Dollars (Millions)	Budgeted Rate	Illustrated Dollars (Millions)
TCS	**15.59%**	$1,116	15.43%	$1,079
ECS	**19.56%**	648	18.58%	626
State Police	**79.58%**	84	78.41%	82
Judges	**44.44%**	22	44.53%	22
LEOPS	**41.37%**	47	39.78%	45
Total	17.82%	$1,916	17.42%	$1,855
TCS Local Employer Portion		289		284
Total State Only Portion		$1,628		$1,571

Reinvested savings of $75 Million are to be added to the amounts above. The final Illustrated State Total for FY 2020 is therefore $1,703 Million plus any amounts resulting from the sweeper amendment.

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Recommended Pooled Contributions Fiscal Year 2020: MUNICIPAL

System	FY 2020	FY 2019
ECS	5.85%	5.47%
LEOPS	32.22%	31.43%
CORS	10.26%	9.85%

PGU Contributions consist of the 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.

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Concluding Comments

- Experience was unfavorable during FY 2018 (although less than 0.2% of liability) which led to increased FY 2020 employer contribution rates.
- Combined funded ratio increased to 72.5% compared with 71.8% in the prior year.
- Upward pressure on contribution rates expected through FY 2022. Downward pressure after that.
- State Systems on a path to reach a 100% funded in FY 2039.
- Experience study will be scheduled for early 2019.
  - Economic and demographic assumptions will be updated.
  - Amortization policy will be reviewed.

Disclosures

- This presentation is intended to be used in conjunction with the June 30, 2018 actuarial valuation reports. This presentation should not be relied on for any purpose other than the purpose described in the valuation report. This presentation is not a substitute for reading the full reports.
- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- The actuaries submitting this presentation (Brian Murphy, Brad Armstrong, 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.

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, 2018.
- 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 2018

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 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:

> 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:
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> 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.
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> 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.
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> 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.

The assets allocation is structured into five categories:

- ***Growth Equity:*** public equity (domestic, international developed, and international emerging markets) and private equity investments;
- ***Rate Sensitive:*** long-term government bonds, securitized bonds, corporate bonds, and inflation-linked bonds;
- ***Credit:*** high yield bonds and bank loans and emerging market debt;
- ***Real Assets:*** real estate and natural resources and infrastructure investments; and
- ***Absolute Return:*** 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 approves adjustments to the asset allocations and sets transitional targets. The board also approves target ranges for sub-asset classes as well as constraints on hedge fund exposure, with total hedge fund investments capped across all asset classes. **Exhibit 1** shows system asset allocations in relation to the strategic targets in effect on June 30, 2018.

Exhibit 1

State Retirement and Pension System Asset Allocation

Asset Class	Target Allocation	Actual June 30, 2018
Growth/Equity	50.0%	50.0%
Rate Sensitive	19.0%	19.9%
Credit	9.0%	8.0%
Real Assets	14.0%	12.0%
Absolute Return	8.0%	8.4%
Cash and Cash Equitization	0.0%	1.8%
Total Fund	**100.0%**	**100.0%**

Note: Columns may not add to total due to rounding. Target allocation is as of October 1, 2017.

Source: State Street – State Retirement Agency of Maryland – Rates of Return – Net Mgr – Periods Ending June 30, 2018

Exhibit 1 also shows a continuation of a trend that began with significant restructuring of the portfolio in fiscal 2008 and 2009. As of June 30, 2018, the public equity allocation is 37.5%, with domestic public equity comprising 16.7% of fund assets. The allocation for private equity − one of the system's strongest performing asset classes − increased to 12.5% as of June 30, 2018. The overall strategy for public equity allocations is part of an approach by the board to decrease risk through diversification in the wake of the 2008 financial crisis, while increased investment in private equity has resulted in positive returns for the system with less experienced volatility than public equity. Lower allocations to public equity investments are expected to result in lower returns when public equities are in growth patterns. However, as public equity can be a highly volatile asset class, a more diverse investment allocation should provide protection when equity markets perform poorly or decline. While mitigating volatility will result in not taking full advantage of highly performing public equity markets, return volatility will exacerbate swings in employer contribution rates. The board of trustees and the investment committee monitor the allocation of assets and continue to discuss the appropriate allocation (in consultation with the system's investment staff and investment consultants) that will achieve the system's investment return needs. Given the certain nature of defined benefit payment obligations, prudent allocation strategy should consider both achieving positive returns as well as being positioned to avoid losses.

The current asset allocation targets were put in effect on October 1, 2017. Target allocations to the growth equity class were increased to 50%, with increased target allocations to emerging markets and private equity and a decreased international equity target. The rate sensitive class target was decreased to 19%. Within the credit class, the allocation targets increased the allocation to high yield bonds and bank loans and decreased the target allocation for emerging market debt. The system's *Investment Policy Manual* for the board of trustees for SRPS will reflect actions of the board altering the asset allocation and can be found on SRA's website.

Investment Performance

The system's investment return for fiscal 2018 was 8.06% net of management fees, exceeding the assumed rate of return for the third time in five years. The performance was driven primarily by growth equity returns, which made up 50.0% of the portfolio and returned 12.75% for the fiscal year. As shown in **Exhibit 2**, the system's assets totaled $52.0 billion as of June 30, 2018, an increase of almost $2.9 billion over fiscal 2017.

Exhibit 2
State Retirement and Pension System of Maryland
Fund Investment Performance for Periods Ending June 30, 2018
($ in Millions)

			Time Weighted Total Returns		
	Assets	**% Total**	**1 Year**	**5 Years**	**10 Years**
Growth Equity					
Public Equity	$19,484	37.5%	10.66%	9.79%	6.57%
Private Equity	6,484	12.5%	19.64%	15.69%	10.64%
Subtotal	***$25,969***	***50.0%***	***12.75%***	***10.95%***	***7.16%***
Rate Sensitive					
Nominal Fixed Income	$7,750	14.9%	0.10%	2.91%	4.64%
Inflation Sensitive	2,570	4.9%	2.10%	2.36%	3.67%
Subtotal	***$10,320***	***19.9%***	***0.55%***	***2.80%***	***4.58%***
Credit	**$4,159**	**8.0%**	**2.31%**	**4.94%**	**n/a**
Real Assets					
Real Estate	$4,636	8.9%	9.02%	10.70%	5.92%
Natural Resources and Infrastructure	1,558	3.0%	5.55%	3.32%	n/a
Subtotal	***$6,194***	***11.9%***	***8.16%***	***2.47%***	***3.58%***
Absolute Return	**$4,368**	**8.4%**	**3.26%**	**2.31%**	**2.76%**
Cash and Cash Equitization	**$947**	**1.8%**	**8.80%**	**3.80%**	**3.51%**
Total Fund	**$51,957**	**100.0%**	**8.06%**	**7.15%**	**5.55%**

Note: Returns beyond 1 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 – State Retirement Agency of Maryland – Rates of Return – Net Mgr – Periods Ending June 30, 2018.

As shown in **Exhibit 3**, the system as a whole performed 46 basis points above the benchmark. Public equity, private equity, and real estate all had returns above the assumed rate of return of 7.50%. Within public equity, the domestic equity, international developed equity, and global equity sub-classes returned 15.12%, 7.77%, and 12.46%, respectively. All three returns

exceeded the benchmarks. The emerging market equity sub-class returned 7.16% (which was 105 basis points below its benchmark) with significant underperformance in passive emerging market equity.

Exhibit 3
State Retirement and Pension System of Maryland
Benchmark Performance for Periods Ending June 30, 2018

	Return	Return Benchmark	Excess
Public Equity	10.66%	10.62%	0.04%
Private Equity	19.64%	15.88%	3.75%
Nominal Fixed Income	0.10%	-0.14%	0.24%
Inflation Sensitive	2.10%	2.26%	-0.16%
Credit	2.31%	2.34%	-0.03%
Real Estate	9.02%	7.75%	1.27%
Natural Resources and Infrastructure	5.55%	16.26%	-10.71%
Absolute Return	3.26%	5.16%	-1.89%
Cash and Cash Equitization	8.80%	1.33%	7.47%
Total Fund	**8.06%**	**7.60%**	**0.46%**

Note: Excess may not sum due to rounding.

Source: State Street – State Retirement Agency of Maryland – Rates of Return – Net Mgr – Periods Ending June 30, 2018

The real assets class returned 8.11% for the year, which was 129 basis points below the benchmark of 9.40%. However, within that asset class, real estate returned 9.02%, above a benchmark of 7.75%. The real assets class was negatively impacted by the performance of the natural resources and infrastructure sub-class return of 5.55% that was significantly below its benchmark of 16.26%. Absolute return's performance of 3.26% was again well below the assumed rate of return and was 189 basis points below the benchmark of 5.16%. The system's cash and cash equitization program (comprising only 1.8% of plan assets) had the best performance relative to its benchmark, returning 8.80% against a benchmark of 1.33%.

DLS requests SRA to comment on the 2018 return performance in relation to the policy benchmarks and for any asset classes and asset sub-classes that underperformed the benchmark, to comment on the factors that led to the underperformance, whether those factors are expected to negatively affect performance in fiscal 2018, and to comment on what actions are being taken to mitigate those factors impacting the fiscal 2019 returns.

Additionally, SRA should comment on the utilization of any strategic adjustments to asset allocation during fiscal 2018 and the impact on investment performance.

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 Wilshire 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 2018 total fund investment performance was rated in the seventy-fifth percentile among the public pension funds with at least $25 billion in assets, as shown in **Exhibit 4**. As the system has a low allocation to equity investments compared to its peers – and domestic equity in particular – the system's investment policy will have a low TUCS ranking when equity markets are experiencing strong performance, as was the case during fiscal 2018. The long-term relative performance rankings typically place SRPS relative total fund performance in the bottom quartile. The TUCS rankings are based on returns gross of fees.

Exhibit 4
TUCS Percentile Rankings for Periods Ending June 30
Fiscal 2015-2018

	2015	2016	2017	2018
1 Year	81	57	95	75
3 Years	88	95	91	94
5 Years	88	95	87	84
10 Years	91	95	100	94

TUCS: Wilshire Trust Universe Comparison Service

Note: Rankings for systems greater than $25 billion.

Source: Wilshire Trust Universe Comparison Service

Total system TUCS rankings will be driven by the asset allocation. 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. SRA has noted that in certain asset classes the system does outperform peers but that when the system as a whole is compared, the low allocation to public equity will drive down the system's overall ranking.

The impact of asset allocation on total system TUCS rankings can be seen in the system's TUCS rankings on performance within individual asset classes. While the system as a whole has relative low ranking when compared to peer systems, the system has experienced significantly better relative performance by asset class, as shown in **Exhibit 5**. The difference in relative rankings between the system as a whole and the system by asset class indicates that the asset allocation is impacting total system return, with relative lower allocations to public equity, and domestic public equity in particular. This effect can also be seen in the ranking for total equity. The system does not have a bias to U.S. equity, which had strong performance in fiscal 2018 and in recent years. While the system ranks well in its performance in U.S. equity, the lesser amount of assets in U.S. equity will impact the total equity ranking.

Exhibit 5

TUCS Percentile Rankings for Periods Ending June 30, 2018

Asset Class	1 Year	3 Year	5 Year	10 Year
Total Equity	65	67	67	68
U.S. Equity	28	42	32	30
International Developed	38	61	69	84
International Emerging	47	n/a	n/a	n/a
Fixed Income	43	43	36	31
US Fixed Income	62	35	45	37
Private Equity	1	8	8	9
Real Estate	45	57	46	25

TUCS: Wilshire Trust Universe Comparison Service

Note: Rankings for systems greater than $1 billion.

Source: Wilshire Trust Universe Comparison Service

As shown in Exhibits 2 and 3, SRPS returns in public equity, private equity, and real estate generated significant returns in fiscal 2018 above the actuarial return target. All things being equal, a system with a higher allocation in these asset classes would be expected to have performed better than SRPS in fiscal 2018. Allocations that limit exposure to more volatile assets will result in more stable employer contribution rates. Contribution rates take into account investment returns, so even fluctuations in returns that are near or above the assumed rate of return could cause swings in year-to-year employer contributions. An allocation that would result in mitigating volatility of returns (whether excess gains, returns below the assumed rate of return, or investment losses) will also mitigate the impact to employer contributions from contribution rate increases. It should be noted that a system's asset allocation should be impacted by a number of considerations that reflect a system's risk tolerance. A system's maturity (ratio of retirees to active members), funded status, assumed rate of return, benefit structure, regularity of full contributions, and other considerations

factor into a system's risk tolerance. The importance of these factors will vary from plan to plan leading to different tolerances for risk, variation in investment allocations, and differences in annual returns.

TUCS provides data on the risk-return profile of its members that shows that the system's level of risk over the three-year period ending June 30, 2018, 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 that can be a highly volatile asset class. The system's asset allocation strategy is intended to protect against more extreme losses in down markets. Due to the nature of the benefits that the system's investments ultimately fund, there is prudence in setting an asset allocation that achieves the necessary investment returns with the lowest level of risk capable of achieving those returns.

DLS requests that SRA comment on the relative TUCS performance rankings by asset class and how overall asset allocation impacts the total system's TUCS rankings.

Investment Management Fees

As shown in **Exhibit 6**, SRPS incurred $374.2 million in investment management fees during fiscal 2018, an increase from $335.6 million over fiscal 2017 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, has also contributed to the growth in fees over the past few years. While management fees increased, the total plan assets increased significantly, with the portion of fees relative to assets under management only growing from 71 basis points to 72.9 basis points, which is an increase of 0.019% of total assets. SRA credits its ability to negotiate favorable fee arrangements as a contributing factor in mitigating the impact of management fees on system returns.

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 375 basis points in excess of its fiscal 2018 benchmark with a return of 19.64%. The actively managed international developed equity return of 7.74% outperformed the passive international developed equity returns of 7.5%. International developed equity in the Terra Maria program outperformed passively managed international developed equity with a return of 9.23%. Actively managed investments in emerging market equity returned 7.46%, while passive investments sustained a loss of 2.09%. The system has demonstrated an ability to receive value when paying for active management by mitigating the extent of negative returns and achieving excess returns when market opportunity is available. Review of SRPS fees by the system's investment consultant has noted that SRPS has continued to be effective at negotiating more favorable fee arrangements than peer systems.

Exhibit 6

Asset Management Fees Paid by Asset Class

Fiscal 2017-2018

($ in Millions)

Asset Class	2017 Management Fee	2017 Incentive Fee	2017 Total	2018 Management Fee	2018 Incentive Fee	2018 Total
Equity	$58.0	$0.8	**$58.8**	$65.4	$0.6	**$66.0**
Rate Sensitive	13.9	2.6	**16.5**	12.7	4.4	**17.1**
Credit	8.9	n/a	**8.9**	10.5	n/a	**10.5**
Private Equity	87.2	0.1	**87.3**	104.3	n/a	**104.3**
Real Estate	29.7	2.7	**32.4**	29.2	1.5	**30.7**
REITs	1.8	n/a	**1.8**	2.4	n/a	**2.4**
Real Return	20.0	1.0	**21.0**	16.6	2.3	**18.9**
Absolute Return	46.8	9.7	**56.5**	44.5	10.9	**55.4**
Private Credit/Debt	22.0	0.9	**22.9**	19.3	3.1	**22.4**
Equity Long Short	19.8	1.8	**21.6**	18.2	18.7	**36.9**
Service Providers	2.2	n/a	**2.2**	3.3	n/a	**3.3**
Subtotal	***$316.0***	***$19.6***	***$335.6***	***$332.8***	***$41.4***	***$374.2***

REIT: real estate investment trust

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

Source: State Retirement Agency

Private Equity Fees

Private equity investments comprise 12.5% of total system assets as of June 30, 2018. 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. Management fees for private equity comprised nearly 28% of total management fees, despite only constituting 12.5% of system assets in fiscal 2018. 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 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 reflect increased investment commitments in fiscal 2018.

While private equity does involve substantial management fees, the system's private equity portfolio was the strongest performing sub-asset class in 2018, with a return of 19.64%. This return was 375 basis points above its benchmark. Investment in private equity has resulted in positive returns for the system with less experienced volatility than public equity. Returns for the one-, three-, and five-year periods ending June 30, 2018, were 19.64%, 15.27%, and 15.69%, respectively. Returns for those same periods also provided significant excess returns over the asset class benchmarks. Additionally, SRA has proposed utilizing co-investments in private equity. Such investments would be companion investments to private equity funds that SRPS is already investing in but would not carry the associated fee structure. Under this approach, SRPS would effectively be reducing its fees for any private equity investments it co-invests by increasing the invested funds with a portion of the investment not being subject to fees. While private equity markets have performed well for the system, private equity markets are maturing and becoming more developed that could impact opportunities to make profitable investments. Management of private equity assets will play a crucial role in the continued success of the asset class.

DLS requests SRA to comment on the amount of carried interest attributed to private equity returns for fiscal 2018, as well as any management fees attributable to unrealized gains on private equity investments. SRA should also brief the committees on any risks associated with private equity and how other large pension funds' policies are evolving.

Absolute Return Fees

Absolute return comprises 8.4% of SRPS investments. Absolute return was among the lower performing asset classes in fiscal 2018, underperforming its benchmark by 189 basis points with a return of 3.26%. The system's *Investment Policy Manual* describes the absolute asset class as, "investments whose performance is expected to exceed the three month U.S. Treasury bill by 4-5% over a full market cycle and exhibit low correlation to public stocks." Only four investments within the absolute return class achieved returns above the asset class benchmark, with a number of investments sustaining significant losses. Similar to private equity, absolute return asset fee structures include set management fees and incentive compensation based on performance. Fees paid for absolute return were $55.4 million in fiscal 2018 that was 14.8% of management fees. In contrast, private equity (with similar fee structures) returned 375 basis points above its benchmark where the absolute return asset class returned 189 basis points below its benchmark. Absolute return has returned below benchmarks for the one-, three-, and five-year periods ending June 30, 2018. The 10-year and since inception returns did exceed benchmarks by 122 and 157 basis points, respectively, but returned only 2.76% and 3.23%, respectively.

Given the low rate of return, underperformance relative to benchmarks, and high management fee structures, DLS requests SRA to comment on the returns of the absolute return asset class, including the market conditions leading to the low level of returns and benchmark underperformance, and what market conditions would result in markedly improved returns for investments in the asset class.

Investment Division Staffing – Chapters 727 and 728 of 2018

Over the past few interims, the Board of Trustees and SRA have proposed legislation granting authority to the board to set the compensation of personnel in the SRA Investment Division and to establish positions within the division. Chapters 727 and 728 of 2018 granted the board this authority, subject to certain limitations. Investment division staff will now be "off-budget" and funded as system expenses. The legislation included the creation of the Objective Criteria Committee (OCC) that is charged with making recommendations to the board on the objective criteria to be used for setting compensation and governing the payment of financial incentives to eligible investment division staff. OCC has met twice as of the publication of this document.

The stated purpose of the legislation by SRA and the board was twofold. First, SRA's Chief Investment Officer noted that the ability to create positions and set compensation would reduce compensation-related turnover in the division and help in recruitment to adequately staff the division to perform its existing functions. Testimony submitted in support of the legislation noted that the authority is expected to enhance system investment performance by maintaining and adding staff. The testimony noted that additional staffing resources will "enable the division to expand the universe of potential managers or investments to pursue, enhance the methodology of evaluating those opportunities, or design tactical strategies to adjust the mix of investments for intermediate-term performance." Additional staffing is also intended to free senior investment staff of administrative duties, resulting in increased focus on enhancing investments. The testimony noted that providing the board with authority over positions and compensation "will not result in paying the existing staff more money for doing the same job, but instead, will allow these positions to be more focused on the investment process rather than the administrative and reporting functions." The request for staffing authority contemplated SRA's need to expand its staff resources, as both the complexity of the fund assets and the size of the assets under management is expected to grow.

The second purpose was that the authority over positions and compensation would be necessary to expand and begin moving externally managed assets to internal management by division staff. The timeline indicated for internal management contemplated beginning with passively managed assets beginning toward the end of an initial 2-year phase in which the necessary infrastructure for internal management is implemented. Internal management would be broadened in years 3 through 5 to types of assets directly managed, including co-investment in private assets. By year 10, as much as 50% of assets could be managed internally. One of the arguments for internal management is that it can reduce fees paid for asset management. SRA estimates significant savings opportunity through internal management of assets. SRA noted that fee savings of just 1 basis point would net the system approximately $5 million. Utilization of internal management would have the potential to significantly reduce management fees, resulting in net gains to the system. However, DLS would note that 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.

Previously, DLS noted that a shift to internal management would 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. Personnel will need to be evaluated more stringently under higher compensation structures and given the higher expectations for internal asset management. At the board's annual education training seminar this interim, the board received two presentations on internal asset management. The presentations highlighted numerous considerations and best practices that should be included in implementation of internal management. At the November Investment Committee meeting of the board, the committee held a proposal to amend the system's *Investment Policy Manual* with additional provisions regarding internal asset management. The committee held the addition of the provision and requested that it be brought back for consideration after it has been revised to include particular standards and procedures that will govern internal asset management.

DLS requests SRA to provide a status update on the utilization by the Board of Trustees of the authority granted to it under Chapters 727 and 728 to establish the qualification and compensation of Investment Division staff and an update on the work of OCC.

Additionally, DLS requests SRA to provide an updated timeline on Investment Division plans to implement the internal management of system assets and the development of necessary compliance and controls on the use of internal asset management.

Terra Maria Program

The Terra Maria program is the system's emerging manager program. 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. Though the program as a whole performed slightly under benchmark in fiscal 2018, three of the five managers had net returns above their benchmarks, and one manager that was well under benchmark had a return well exceeding the assumed rate of return.

Over the past few years, SRPS underwent reorganizing of the program asset management to better utilize the asset diversification that the program can bring to SRPS. The program transition included eliminating mandates for allocations to large-cap domestic equity and increasing mandates for international small-cap and emerging markets. The program consolidated under five managers. Program investments in domestic equity in recent years were tracking close to markets, making it more difficult to achieve excess returns in an asset class where it is already difficult to outperform the market, in addition to incurring active management fees. The program has maintained a diverse roster of managers through the transition.

The program continued to add value to the portfolio, but its performance has weakened compared with its early years. The program return of 7.0% underperformed its benchmark by 3 basis points in fiscal 2018, though since inception, the program has performed 58 basis points above its benchmark. Domestic public equity under Terra Maria managers had a cumulative return of 17.25%, which was below its benchmark of 19.4%. However, the Terra Maria domestic equity returns did exceed other system returns in domestic equity. By comparison, the system returned 14.22% in actively managed domestic public equity that was 22 basis points above the benchmark. In the program's largest asset allocation, international developed equity, the program outperformed SRPS' actively managed international developed equity portfolio. In this asset class, Terra Maria returned 9.23%, which was 78 basis points above benchmark compared to actively managed non-Terra Maria returns of 7.74% in the asset class, which was 43 basis points above its benchmark. The rate sensitive asset class also experienced losses with a return of -0.12% but outperformed the benchmark of -0.46%, mitigating further losses. Emerging market equity experienced a significant increase in investments over fiscal 2017. For the fourth quarter of the fiscal year, the asset class had significant poor performance of -8.71%, which was below the benchmark of -7.96%. However, for the same period, non-Terra Maria emerging market equity returned -8.73% against the same benchmark.

Total assets devoted to the program increased from $2.3 billion in fiscal 2017 to $2.6 billion in fiscal 2018. As a proportion of total assets, Terra Maria dropped from 4.7% of total assets in fiscal 2017 to 5.1% in fiscal 2018. **Exhibit 7** provides an overview of the Terra Maria program by program manager and asset class.

Exhibit 7
Terra Maria Program Performance
Investment Performance for Periods Ending June 30, 2018
($ in Millions)

		Performance			
	Total Assets	**Fiscal 2018 Actual**	**Fiscal 2018 Benchmark**	**Inception Actual**	**Inception Benchmark**
Program Manager					
Acuitas	$110	12.98%	20.21%	7.40%	18.60%
Attucks	442	10.14%	7.04%	13.07%	8.49%
Capital Prospects	994	6.46%	6.43%	14.13%	13.95%
FIS Group	678	6.16%	9.35%	11.57%	11.39%
Leading Edge	425	8.11%	7.04%	11.73%	8.49%
Asset Class					
U.S. Equity	509	17.25%	19.40%	8.82%	9.08%
International Developed Equity	1,184	9.23%	8.45%	3.31%	1.70%
Emerging Market Equity	360	-8.71%	-7.96%	-8.71%	-7.96%
Rate Sensitive	595	-0.12%	-0.46%	1.68%	1.20%
Total	**$2,648**	**7.00%**	**7.03%**	**5.80%**	**5.22%**

Note: Actual returns are net of fees; returns beyond one year are annualized. Total assets may not sum to total due to rounding and outstanding payables from closed accounts. Emerging market returns are for the fourth quarter of fiscal 2018.

Source: State Street – State Retirement Agency of Maryland – Rates of Return – Net Mgr – Periods Ending June 30, 2018

Maryland Private Equity/Venture Capital Program

Legislation in 2017 authorized SRPS to engage in investments in Maryland private equity and venture capital. The legislation required the system to select a program investment manager and authorized the Maryland Technology Development Corporation to fill this role. The enacting legislation specified that employer contributions in excess of the statutory required amount could be utilized in this program. Chapter 727 and 728 authorized an additional $300 million to be included in the program by authorizing the annual $75 million supplemental contributions to the system to be utilized in the program. The program is subject to the fiduciary obligations and responsibilities of the system.

DLS requests SRA to comment on the status of the program.

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. As of June 30, 2018, the currency program added value of $217 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 has limited application and 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.

State Retirement Agency

Response to Questions Received from DLS

December 12, 2018

DLS requests SRA to comment on the 2018 return performance in relation to the policy benchmarks, and for any asset classes and asset sub-classes that underperformed the benchmark: to comment on the factors that led to the underperformance, whether those factors are expected to negatively affect performance in fiscal 2019; and to comment what actions are being taken to mitigate those factors impacting the fiscal 2019 returns.

Additionally, SRA should comment on the utilization of any strategic adjustments to asset allocation during fiscal 2018 and the impact on investment performance.

For fiscal year 2018, the System returned 8.06%, outperforming the policy benchmark of 7.60%. The excess return of 46 basis points was a product of continued strong private equity performance, outperformance by the real estate and rate sensitive portfolios, and an estimated 23 basis points of return attributable to tactical asset allocation. The small natural resources/infrastructure portfolio continued to be a drag on performance relative to the benchmark. In addition, the absolute return portfolio and commodities portfolios lagged their benchmarks. The Board of Trustees does not expect each asset class to outperform every year, but instead across economic cycles. Investment Division staff reviews the performance of underperforming asset classes to assess whether the performance is consistent with expectations, or a sign of a longer-term problem.

Contribution to Total Excess Return

	12 months CUM 6-30-18		Total
	ALPHA	ALLOCATION	
PUBLIC EQ	0.00	0.17	0.17
PRIVATE EQ	0.37	0.00	0.37
NOMINAL FI	0.04	0.05	0.09
TIPS	0.00	0.02	0.02
CREDIT	0.03	-0.01	0.02
REAL ESTATE	0.10	0.00	0.10
COMMOD	-0.08	0.02	-0.06
NR/INFR	-0.20	-0.01	-0.20
ABS RET	-0.12	0.05	-0.07
CASH	0.06	-0.07	-0.01
Total Plan	**0.21**	**0.23**	**0.43**

Note: Totals do not match the official totals due to differences in compounding methods.

The largest detractor from performance was the natural resources and infrastructure portfolio. For 2018, the allocation of less than 3% subtracted 20 bps from total portfolio relative performance. To be sure, the return of the assets in the portfolio was below expectations for the year, but challenges in benchmarking were the biggest contributors to the shortfall.

The System employs two benchmarks: The Strategic Policy Benchmark, which represents the long-term expectations for asset class return and risk; and the Policy Benchmark, which focuses on public market and manager universe indices to gauge relative performance for shorter periods of time. The expectation is that the two benchmarks will converge over time, with the Policy Benchmark exhibiting more volatility.

For the natural resources and infrastructure (NR/INFR) portfolio, the Strategic Policy Benchmark for the class, CPI + 5%, is less volatile than the private market assets in the portfolio and the public market benchmark in the Policy Benchmark is more volatile than the private assets held by the System. Over longer time frames, these fluctuations should average out.

MSRA Natural Resources/Infrastructure Benchmarks

	MSRA	CPI +5	NR/INFR	LINKED
2016	-12.61%	6.05%	-4.03%	6.05%
2017	12.87%	6.70%	13.35%	13.35%
2018	5.50%	8.00%	16.26%	16.26%
3 Year Annualized	1.34%	6.91%	8.14%	11.80%

In 2017, the System established the current Policy Benchmark using public markets (natural resource and infrastructure equity indices) to better capture the volatility of the assets in the portfolio. The table above shows that the new NR/INFR benchmark is more responsive to the ups and downs of returns and has similar cumulative returns over the three-year period to the CPI +5% benchmark. However, the timing of the benchmark change added about 5% to the Policy Benchmark relative to the prior benchmark of CPI + 5%. For 2018, if the System had retained the benchmark of CPI +5%, the total System relative return would have been 12 basis points (0.12%) better. If the System had the CPI +5% or NR/INFR benchmark for the entire three year period, the excess return would have been 20 to 30 basis points better, cumulatively, at the plan level.

Within the natural resources and infrastructure portfolio, the mix of strategies drove lagging performance. The NR/INFR portfolio is a mix of passive portfolios that mimic the Policy Benchmark, public Master Limited Partnerships, and a mix of private Energy, Infrastructure and Timber assets. As an example of the experienced range of returns among the components of the portfolio, consider Master Limited Partnerships. The Master Limited Partnership portion of the portfolio (-1%) performed better than the Master Limited Partnership index (-2%), but significantly lagged the S&P Global Natural Resources index (+24%) and the DJ Brookfield Global Infrastructure index (+4%), the two components of the Policy Benchmark.

For 2019, with energy prices declining year to date, it is unlikely that the Master Limited Partnerships will underperform the Natural Resources index by a similar amount. For example, fiscal year to date through 11/30/18, the MLP index has outperformed by 7.5%.

In summary, the 4% allocation to natural resources and infrastructure is small, but some of the components are volatile and difficult to benchmark. Evaluating performance over periods as short as a year may not be meaningful. Staff believes that through a full market cycle, the mix of managers and assets will meet or exceed both of the System's benchmarks for this asset class.

The absolute return portfolio has been challenged in recent years. The first challenge has been the low volatility and low return environment. This environment has presented difficulties for the industry, with the HFRI Fund of Funds Conservative index only producing 2.8% net returns over the three-year period. The System's benchmark adds 1% to this industry measure, demonstrating the Board's expectation of above average performance.

The portfolio has struggled to achieve this excess performance due to a combination of portfolio construction objectives and manager selection. In addition, this portfolio has been impacted by staff turnover, with three departures from a two-person team since 2015.

Beginning in 2016, staff undertook a thorough review of the portfolio's structure and manager lineup, with the goal of improving absolute and relative performance while improving how the portfolio interacts with the rest of the System in different market environments. Many hedge fund strategies suffer poor performance in periods of market weakness. The absolute return portfolio is meant to provide diversification from broad market risks, provide stability in periods of market stress, and produce predictable returns in normal environments. The strategies employed to offset this pro-cyclical behavior in many hedge funds provided poor performance in 2018 and individual managers did not meet expectations.

Because of the time lags in exiting managers and identifying and engaging new managers, change only began to ramp up in calendar year 2018. During the fiscal year, the System terminated 8 managers, representing 50% of the absolute return assets, and redeployed those funds in 13 new managers. While additional work needs to be done to fully restructure the portfolio, the performance has already begun to improve. Through 10/31/2018, the portfolio had exceeded the return of the benchmark for the three and twelve month periods by 1.17% and 0.55%, respectively.

The Commodity allocation was eliminated in October 2018 as part of changes to the approved asset allocation. The underperformance reflects the impact of exiting the asset class and the timing of related cash flows rather than significant manager performance issues. With the target for the asset class now set to zero to three percent, the asset class is not likely to underperform in 2019.

Additionally, SRA should comment on the utilization of any strategic adjustments to asset allocation during fiscal 2018 and the impact on investment performance.

As noted in the DLS investment overview, Staff attempts to add additional return or mitigate risk by tactically adjusting exposures, within limits set by the Board. These decisions follow a monthly cycle

consisting of a review of macro-economic factors and formulation of six-month forecasts of return and risk for asset classes and currencies.

The table showing the impacts of these changes, repeated below, captures the broad impact of these decisions, but masks some of the detail. Broadly, the tactical allocation choices added approximately 23 basis points to performance for the year. This is measured by evaluating over-and underweights at the beginning of each month and the performance of the underlying market for the ensuing month.

Contribution to Total Excess Return

	12 months CUM 6-30-18		Total
	ALPHA	ALLOCATION	
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ABS RET	-0.12	0.05	-0.07
CASH	0.06	-0.07	-0.01
Total Plan	**0.21**	**0.23**	**0.43**

The table shows that the largest contributor to performance was an overweight to public equities. As reported in previous responses, the System employs long/short equity managers to provide some degree of downside protection during periods of equity declines, as well as to allow skilled managers to profit from both stocks that are expected to increase in price, as well as stocks that are expected to fall. Because of the lower sensitivity to the stock market, equity long/short strategies are typically expected to underperform broad equity indices during periods of strong equity performance, such as fiscal year 2018. Much of the overweight to public equities was intended to neutralize the dampening effect of these managers in the portfolio, while retaining their ability to generate excess returns. In 2018, these long/short managers provided a return of 4.7%, lagging the public market benchmark of 10.7%. Other public market active managers were able to add excess return so that together with the extra dollars deployed in the sector, the equity portfolio added to the excess return for the total plan.

Because the Federal Reserve has been on a tightening path for the last year, the nominal fixed income portfolio was underweight relative to the target for most of the year. The Treasury Inflation Protected Securities portfolio (TIPS) moved from underweight to overweight, and then back to underweight during the fiscal year as prospects for inflation waxed and waned. With low yield spreads and a tightening Fed,

the System maintained a small underweight to the credit portfolio for much of the year, which proved to be premature as yield spreads remained tight for U.S. High Yield. Some exposure weightings were the result of timing mismatches in the hiring and firing of managers. As mentioned, during the year a number of absolute return managers were removed and others added. This process left the System underweight for a period, which turned out to be beneficial to the System. Staff has worked with an external manager to create a liquid proxy for the Absolute return portfolio to reduce the number of periods of underinvestment.

This report focuses on tactical asset allocation at the broad portfolio asset class level. Staff also looks for opportunities for tactical positioning within the asset classes. For example, staff created four passive accounts for different components of the nominal fixed income portfolio. By adjusting the relative sizes of those components, passive accounts collectively outperformed the nominal fixed income benchmark by 0.20% for the fiscal year.

Overall, these activities added marginally to the risk of the System. For example, the portion of the total portfolio that is managed actively creates some variance in the returns around the benchmark. Staff estimates that the implementation risk is roughly one percent, and the contribution from the tactical asset allocation portion is one tenth of that total.

DLS requests that SRA comment on the relative TUCS performance rankings by asset class, and how overall asset allocation impacts the total system's TUCS rankings.

As noted in the DLS Investment Overview, the System's total fund performance compared against a peer group of other large public pension plans is near the bottom. Based on this metric alone, it may appear that something is broken and needs to be fixed. However, returns are only one component of the investment process. To get a more complete picture of the System's investment program, risk should also be factored into the evaluation. The System's risk profile, as measured by the dispersion of returns around the mean, falls in the bottom quartile of the peer group. This lower risk posture has been achieved by a lower relative weighting to public stocks versus the peer group, specifically stocks of U.S. companies, which have outperformed non-U.S. equities by a wide margin over the last ten years.

Peer group rankings are mainly driven by two factors – asset allocation and implementation of the asset allocation. Asset allocation refers to the way the fund assets are distributed to the various asset classes, and implementation refers to staff's ability to select skillful managers and tactically position the portfolio to take advantage of market opportunities. The best way to determine which of these factors is driving the total fund peer rankings is to analyze the peer ranking of each individual asset class. As noted in the DLS report, most of the System's asset classes have achieved above median returns, with none falling in the bottom quartile. In fact, private equity, the System's best-performing asset class, representing roughly 12 percent of total fund assets, ranked in the top one percentile of the peer group for the fiscal year and in the top decile over the last ten years. This supports the notion that the System's ranking in the peer group is primarily the result of differences in asset allocation, and not staff implementation.

The focus on investment performance tends to be on returns. However, the Board and staff recognize that risk is equally important. While the System's asset allocation is generally more conservative than the peer group, it enables to System to achieve its actuarial return target, based on modeled long-term risk and return assumptions, with lower risk and a smoother return stream than the overall peer group. The System anticipates that during periods of strong public equity performance, particularly U.S. equity, as has been experienced since the financial crises, it will lag the peer group. However, the System should perform better during periods of market stress and public equity drawdowns.

DLS requests SRA to comment on the amount of carried interest attributed to private equity returns for fiscal 2018, as well as any management fees attributable to unrealized gains on private equity investments. SRA should also brief the committees on any risks associated with private equity, and how other large pension funds' policies are evolving.

It is important to distinguish the difference between management fees and incentive fees, or carried interest, as many private market investors do not consider carried interest to be management fees. Management fees are contractual obligations that must be paid regardless of performance. Carried interest, which primarily applies only to private market investments and not traditional asset classes, represent a portion of investment profits that is earned by a manager, and are only paid if performance thresholds are achieved. They are used to motivate the manager to make profitable investments, and to ensure alignment of interests. The percentage of profits that is allocated to the manager is substantially lower than the amount received by the System. Simply put, large amounts of carried interest should be considered a positive result, as this would imply much greater gains to the System at a level of roughly fourfold.

Due to the typical schedule of private equity audited reporting, the System tracks and records carried interest amounts on a calendar year basis. The carried interest paid for calendar year 2017 was $91.2 million. While this amount is large, it is significantly less than the System's portion of the profits, which was in excess of $360 million. Private equity management fees are typically based on committed amounts during the investment period of the fund, which typically is a period of five years. After the investment period, management fees change to a percentage of net invested cost. Because of this methodology, there are no management fees paid on unrealized gains. The Manager is compensated for profitable investments only after the investments are sold.

The risks associated with private equity are similar to the risks associated with any equity-related investment. Global growth is the primary risk facing private equity. Like public stocks, a slowdown in economic activity will make it more challenging for companies to meet sales and earnings expectations. A robust fund raising environment and its associated effects on pricing is another potential headwind facing private equity. Private equity firms have raised near-record amounts of capital over the last several years, which has resulted in elevated pricing and increased risk that managers overpay for investments. Leverage is another area to monitor closely in private equity. Most buyout transactions are funded with a significant amount of borrowed money. An excessive amount of debt can put stress on portfolio companies, particularly during an economic slowdown. Due to their impact on leverage,

rising interest rates and dislocations in the credit market can make debt service payments more expensive, and lower the prices when a manager seeks to sell investments. Staff monitors and attempts to mitigate these risks by focusing on managers that have the skills to add value through improving the operational efficiency of their portfolio companies, and not through financial engineering using excessive leverage.

The private equity industry has evolved into a mainstream and mature asset class that is much more efficient than it was twenty years ago. As part of this evolution, large pension plans have become more sophisticated. To improve returns through the lower costs associated with disintermediation, more pension plans have developed the capability to invest directly in private equity transactions, or to co-invest alongside the manager. While implementing this ability requires greater staffing resources and skillsets, the expected fee savings from this more direct approach is typically far greater over time. The secondary market for private equity interests has also become more developed and efficient. This has allowed pension plans to include private equity allocations in the portfolio management process, as the ability to adjust allocations through secondary transactions has become much easier and efficient. In fact, the System is in the process of completing a significant sale of private equity interests in the secondary market to take advantage of the current attractive pricing environment.

Given the low rate of return, underperformance relative to benchmarks, and high management fee structures, DLS requests SRA to comment on the returns of the absolute return asset class, including the market conditions leading to the low level of returns and benchmark underperformance, and what market conditions would result in markedly improved returns for investments in the asset class.

The objective of the System's Absolute Return asset class is to provide diversification and risk reduction to the total fund by having very little exposure to the common risk factors found in the rest of the portfolio. The return objective is to outperform a cash return by 4% - 5% over a full market cycle. Over the last several years, this return objective has not been met. There are several potential reasons for this underperformance that relate to the market environment that has persisted for the last several years.

Hedge funds comprise most of the mandates in this asset class, and are characterized by active trading strategies that attempt to take advantage of relative value opportunities between different securities and asset classes. The most favorable environment for this type of trading is one where volatility is high, correlations are low and dispersion is high. Volatility is the degree to which asset prices fluctuate, correlation is the degree to which assets move in the same direction, and dispersion refers to the difference in asset price movements regardless of whether they are moving in the same direction. Essentially, hedge funds have historically performed best in more chaotic markets.

Over the last several years, markets have been very calm and volatility has hovered at all-time lows. Moreover, correlations have been high and dispersion has been low. A reason this condition has persisted may relate to the unconventional monetary policies adopted by global central banks to lower interest rates and stimulate economic growth. As central banks unwind these policies and raise interest rates, it may reverse the trend and create a more favorable environment for hedge funds. It is unlikely that the high

public equity returns and low volatility that have been experienced since the financial crises will persist indefinitely. When conditions revert to normal levels or a drawdown in equities occurs, the Absolute Return asset class should provide competitive returns with downside protection.

The Absolute Return asset class has also underperformed its benchmark, which is the HFRI Fund of Funds Conservative Index plus 100 basis points. Most of this underperformance can be attributed to portfolio construction. The benchmark has more exposure to public equity than the System's portfolio, which has hurt relative performance as equity markets have risen over the last five years. In addition, the portfolio was overly concentrated in low volatility, low correlation Multi-Strategy Relative Value managers that were mostly focused on investing in the U.S. Essentially, the portfolio was too conservative and did not include an appropriate number of return drivers.

The Absolute Return portfolio has undergone a significant amount of change over the last two years. The portfolio has experienced fifty percent turnover, with thirteen new managers hired and eight terminations. The restructuring has resulted in more diversified and balanced strategy allocations that should increase the volatility closer to target and provide more consistent returns. Staff is also working with the consultant to add more international strategies, which should better position the portfolio to earn higher returns and achieve its objectives.

DLS requests SRA to provide a status update on the utilization by the Board of Trustees of the authority granted to it under Chapters 727/728 of 2018 to establish the qualification and compensation of Investment Division staff, and an update on the work of the Objective Criteria Committee.

Additionally, DLS requests SRA to provide an updated timeline on Investment Division plans to implement the internal management of system assets, and the development of necessary compliance and controls on the use of internal asset management.

Chapters 727 and 728 of the Acts of 2018 were enacted to improve the governance of the Investment Division through the mechanism of vesting the budgeting authority for the Division with the Board of Trustees. The changes provided the Board with that authority, and created additional procedural and reporting duties to create appropriate oversight and control policies.

Through November, the Board has acted to implement this authority. As required by the statute, the Board engaged a compensation consultant to work with the Board, the newly created Objective Criteria Committee (OCC) and the Investment Division to revise the schedule of position titles and qualifications, and adopt objective criteria to:

- define salary ranges,
- enable salary increases, and
- trigger incentive compensation (if the Board approves an incentive compensation plan)

The OCC was established in Chapters 727 and 728 and consists of four members of the Board of Trustees, including the State Treasurer and Budget Director (or designees), a delegate and senator selected by the Senate President and the Speaker of the House of Delegates, and an investment professional selected jointly by the President and the Speaker. The OCC has met twice, October 22, 2018 and November 29, 2018, and is scheduled to have a third meeting on December 17, 2018. During the first two meetings, the OCC:

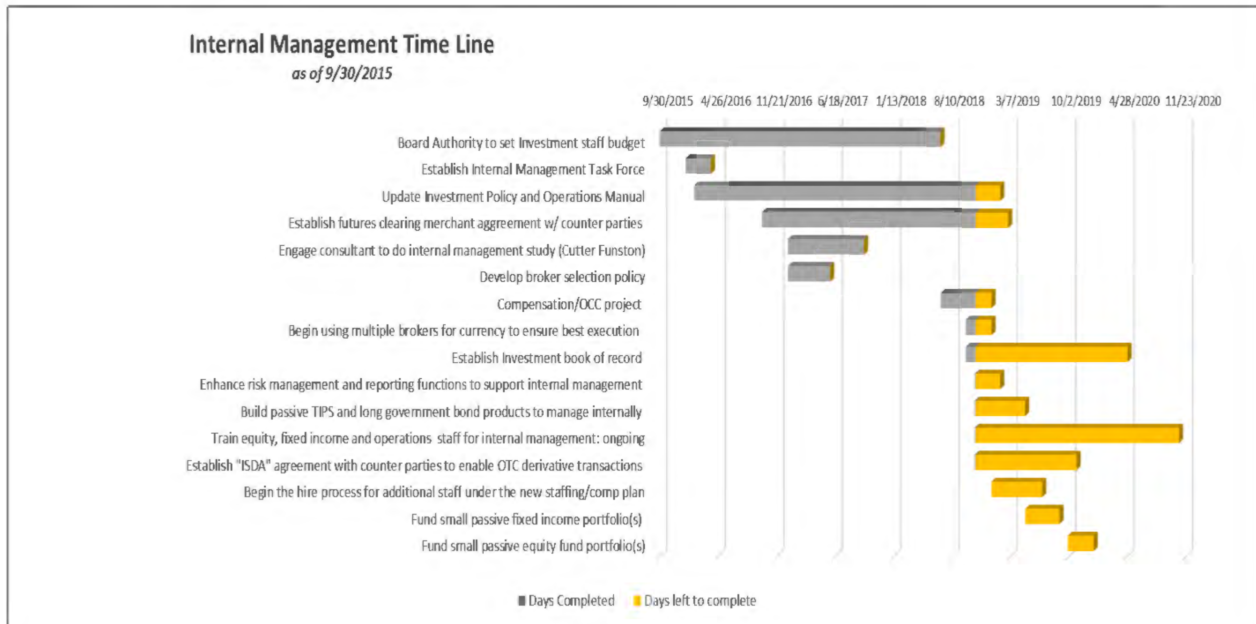
- reviewed and approved charter provisions governing the OCC,
- recommended the Board consider using existing DBM approved compensation structures as an objective criteria for setting salaries for existing and new positions requested by the Chief Investment Officer for the System,
- received preliminary information from the compensation consultant, and
- provided the compensation consultant guidance on the form and substance of the final recommendations to be reviewed and approved at the December 17 meeting.

The Board accepted the OCC's recommendation with respect to using existing salary structures for the eight specific positions requested by the Chief Investment Officer and future positions approved by the Board, and submitted required reporting for the period ending September 30, 2018. The Board anticipates approving objective criteria for establishing positions and qualifications, and approving a final set of objective criteria based on the recommendations of the OCC at its January board meeting.

To date, no new positions have been created or new employees hired under the authority. The Board has approved additional expenditures for non-personnel expenses.

Internal Management Update

The Investment Division has been researching and preparing for an expanded internal management function since 2015. The chart below demonstrates the timeline of work completed to date and the expected timeline for the next two years.



A key step in the process was retaining an outside internal management consultant in 2017 to provide a roadmap for staff and the Board to follow in developing an internal management capability. Based on this roadmap, the Investment Division could be managing fixed income assets, starting with a portfolio of Treasury Inflation Protection Securities, by the second quarter of 2019, and equity assets by the fourth quarter of 2019, consistent with the projections of the consultant's timeline. The actual timing will depend on the implementation of an appropriate compensation model and organizational structure, as well as the adoption of policies and procedures to address the governance of an internal program. The Board and staff have received guidance on the appropriate policies and procedures for an internal management program from both the internal management consultant and an external attorney during the annual Board education session. In addition, an internal management task force, which was established in 2016 by the CIO, has been building best practices in establishing relationships with trading counterparties and developing trading procedures in anticipation of internal management. Staff anticipates presenting a complete set of policies and procedures to the Board in February.

DLS requests SRA to comment on the status of the Maryland private equity/venture capital program.

Chapter 8 of the Acts of 2016 authorizes the Board of Trustees of the System to enter into an agreement with the Maryland Technology Development Corporation (TEDCo) or another entity to make and manage investments in private equity and venture capital in the State. The authorization extends to any State contribution to the System that is in excess of mandated State contributions; in fiscal 2017, that amount was $25 million. Chapter 8 establishes a goal of targeting 50% of the available funds for review of opportunities to commercialize technology sponsored or created by a university in the State. Any investment made under this Act must be consistent with, and not compromise or conflict with, the board's fiduciary duties.

In November of 2017, the System committed $25 million to the Maryland Innovation Opportunity Fund I, LLC, a Maryland limited liability company managed by the Maryland Technology Development Corporation (TEDCO). This fund has an initial mandate to invest in venture capital opportunities in Maryland-based companies. As of June 30, 2018, the fund has invested $6.7 million in seven existing portfolio companies that are based in Maryland across various stages of maturity. TEDCO also has relationships with universities in the state and reviews many potential commercialization opportunities coming from those programs. Staff will evaluate additional commitments to TEDCO above the initial $25 million once the current fund is fully invested. In private equity and venture capital investing, the investment period is typically four to five years, as attractive opportunities are sourced and evaluated through a comprehensive due diligence process.

In addition, as of June 30, 2018, the System's private equity portfolio included an additional 22 Maryland-based portfolio companies totaling $58.3 million in investments. Staff is currently evaluating additional commitments to managers that will invest in Maryland. Staff is also examining other opportunities, such as co-investments with existing managers, to find ways to increase investments in Maryland that conform to the fiduciary obligations and responsibilities of the System. TEDCO has separately provided a report on the economic impact of these investments in Maryland.

2018 Board Requested Legislation

The following legislative proposals are offered by the Board of Trustees for the State Retirement and Pension System for the consideration by the Joint Committee on Pensions for the 2019 legislation session. These legislative proposals are intended to clarify or correct perceived inconsistencies within existing law and remove obsolete provisions within the State Personnel and Pensions Article. In addition, some of these proposals will result in more freedom for staff to complete the tasks required to help the State Retirement Agency (Agency) and System run efficiently.

MPAS Legislation

As the Agency's technology and operational re-engineering strategy, known as the "Maryland Pension Administration System" (MPAS) project, enters its last phase, Business Process Re-Engineering and Supporting Technology ("MPAS-3"), it includes the long-anticipated integration of existing applications and modifications to MPAS that will allow members and retirees to access their own account information and transact business with the Agency over the Internet, in real time. In providing these improvements to member service and self-service, the Agency will be moving from its current paper-driven operations to more timely, efficient automated processes. To assist in reaching this goal, the Board is recommending two changes to the State Personnel and Pensions Article.

Notarization

One of the goals of MPAS-3 is to allow members to complete necessary retirement forms on-line, including a form that allows a participant to designate a beneficiary. Currently, the law requires that designation of beneficiary forms be notarized prior to submission to the Agency. With the evolution of MPAS-3, notarization of designation of beneficiary forms that are completed on-line will not be possible. Accordingly, the Board is recommending amending this provision of the law to eliminate the requirement that designation of beneficiary forms be notarized. For those forms completed on-line, other electronic identifying features will be put in place to authenticate the identity of the member completing the form. For designation of beneficiary forms that continue to be submitted in writing to the Agency, the Board's regulations will still require notarization.

Certification and Payment of Member Contributions

Current law states that as each payroll is paid, participating employers are required to submit both member contributions and payroll data supporting these contributions to the Agency. However, the contributions and data are not required to be submitted simultaneously; the law provides for a five-day window between when a participating employer submits the member contributions and when the supporting data follows. What results is that often the member contributions do not match the payroll data. This difference can be attributable to members withdrawing or dying in the intervening period between when the member contributions and payroll data are submitted. When this occurs, staff reports that the Agency will not accept the

member contributions until they are reconciled to the payroll data. This creates an administrative burden on the staff to work with the participating employer to resolve the discrepancies.

To address this issue, one of the features of MPAS-3 will be to accept member contributions and payroll data simultaneously. The Board is recommending that in anticipation of this development, the current law be amended to remove the lag time of five days between submitting member contributions and payroll data, and instead, require participating employers to submit both components, simultaneously.

Alternate Contributory Pension Selection - Vesting

An individual who vested as a member of the Alternate Contributory Pension Selection (ACPS) of the Employees' or Teachers Pension System (EPS and TPS) before July 1, 2011 and then leaves membership for any length of time, may resume membership in the ACPS if the member returns to a position that is eligible for participation in the ACPS. However, a deferred vested member who vested in the ACPS after July 1, 2011, is required to join the Reformed Contributory Pension Benefit (RCPB) tier of the EPS or TPS if the member has a break in service of more than four years. To allow for consistency in dealing with all deferred vested members in the ACPS, the Board is recommending that the provisions of law that allow ACPS deferred vested members to re-enter the ACPS, regardless of the length of the break in service, be expanded to include members who vest in the ACPS on or after July 1, 2011.

The Board has asked the System's actuary to determine what the cost to the System will be if this proposed legislation is adopted.

Workers' Compensation Offset

Current law generally prevents a member of the System who is receiving both a workers' compensation award and a disability retirement allowance from recovering twice for the same injury. Section 29-118 of the State Personnel and Pensions Article requires the 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 the State Personnel and Pensions Article. 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, the disability retirement is offset.

Because of the complicated offset arrangement governing offsets and reductions for workers' compensation and disability retirements, what has resulted is a process that is disjointed and sometimes inconsistent in its application. Specifically, staff has found that implementing an offset to a line-of-duty disability can be especially complicated when the Agency retroactively awards a line-of-duty disability after the retiree has begun receiving an ordinary disability and

has been subject to an offset on the workers' compensation award by the amount of the ordinary disability. In that instance the Agency is required to reduce the member's line-of-duty disability by the amount of the workers' compensation award, resulting in the member having the same offset taken twice.

To avoid this inequity to the retiree, the Board is proposing the following two options for the Joint Committee's consideration:

1. Amend provisions of current law to require the Workers' Compensation Commission to modify its award and unwind any employer offset for a retiree who has been subject to an employer offset to the retiree's workers' compensation benefit as a result of also receiving an ordinary disability benefit that is later converted to a line-of-duty disability benefit; or

2. Amend provisions of current law to require the Agency to reduce its offset to a line-of-duty disability benefit to reflect any offset awarded to an employer by the Workers' Compensation Commission for the ordinary disability benefit.

Pension Simplification and Clarification

Purchase of Eligibility Service by EPS Members

Chapter 618 of the Acts of 2006 (House Bill 1430) clarified that under federal law a member of the EPS may only purchase up to five years of eligibility service as a post-secondary school teacher. During the 2006 session, House Bill 1430 was amended and provisions in the original bill, as introduced, regarding this limitation of purchasing eligibility service mistakenly remained. The original language that remained in Chapter 618, as enacted (and amended during the 2006 session), inadvertently, negates the purchase limitations added through Chapter 618 and other purchase limitations that were already in the law prior to 2006. Accordingly, the Board is recommending correcting this section of law addressing purchases of eligibility service credit.

Optional Retirement Program – Regulations

Title 30 of the State Personnel and Pensions Article establishes the Optional Retirement Program (ORP) and provides that the Board shall adopt regulations that are necessary to carry out this title. This specific provision was included in Chapter 423 of the Acts of 1993 (Senate Bill 316). Chapter 423 expanded the number of companies that could provide annuity contracts to participants of the ORP from one to five. Since the passage of Chapter 423, and to comply with federal regulations that state that a 403(b) plan must be maintained pursuant to a written plan document that must comply in form and operation with the requirements of the Internal Revenue Code and regulations, the Board instead has adopted a plan document to carry out the provisions of Title 30 of the State Personnel and Pensions Article. Consequently, the Board is recommending legislation to require that it adopt and maintain a written plan document and permit, but not require, it to adopt regulations to implement this title.

State Police Retirement System – Reemployment

Staff for the Agency and the Department of Legislative Services have long agreed that certain provisions governing the reemployment of retirees of the State Police Retirement System (SPRS) are not a model of clarity. The Board is recommending working with DLS to clarify these provisions. Any changes made to these provisions would be non-substantive.

Unused Sick Leave

Local Employer Cash Outs

Under current law, a member of the Employees' or Teachers' Retirement System (ERS or TRS), EPS, or TPS may receive additional service credit at the time of retirement for any unused sick leave the individual has accrued over the course of the individual's career with the State. This credit may not be used to qualify for retirement. Moreover, because pension law allows an individual to convert unused sick leave to service credit, the State does not offer cash payments for this time. However, a number of participating employers, including boards of education, libraries, and community colleges that participate in the TRS or TPS do provide payment for some portion of a retiring member's unused sick leave. Those employers that pay for unused sick leave at retirement also certify and include that paid leave in the total days of unused leave reported to the Agency for additional service credit.

This issue was brought before the Joint Committee during the 2007 interim as Board requested legislation to prohibit the receipt of unused sick leave credit to the extent that a member has received a cash payout for the unused sick leave. The Joint Committee agreed to sponsor the legislation and it was crossfiled during the 2008 session by the Joint Committee chairs as House Bill 480 and Senate Bill 376. However, both bills were withdrawn by the Chairs prior to any committee votes. The Board is recommending the proposal again due to the Agency's most recent legislative audit, wherein, it was included as one of the audit findings.

Preserving Unused Sick Leave for EPS Members Required to Join the Correctional Officers' Retirement System

Legislation during the 2016, 2017, and 2018 sessions requires that certain members of the EPS and ERS be moved into the Correctional Officers' Retirement System (CORS). The affected members, after being moved into the CORS have the option to transfer their EPS/ERS service into the CORS. Those who elect not to transfer will receive potentially two benefits at retirement – an EPS/ERS benefit based on their previous service and a CORS benefit, if they vest after being moved.

Current law provides that at retirement a member is entitled to receive creditable service for unused sick leave if the member retirees on or before 30 days after the member is separated from employment. Therefore, a member who has been moved to CORS would not be eligible for unused sick leave in the EPS because he or she will not be retiring from the EPS directly upon separation from service. This would suggest that an individual with 28 years of EPS

creditable service who does not elect to transfer into the CORS will have all of their unused sick leave earned as both an EPS and CORS member applied to their CORS benefit. However, current law also provides that a member may not accumulate more than 15 days of sick leave per year in the system from which the member is retiring. Therefore, if the total number of days of unused sick leave earned by the employee exceeds 15 per year of service in the current plan, the member does not receive credit for any additional unused sick leave. This typically results in the forfeiture of all or most of the leave earned while a member of the former plan.

Returning to the hypothetical EPS member with 28 years of service when the member was moved into the CORS, for purposes of this example, assume this member never took a sick day. Prior to being moved into the CORS that member would have accrued 420 days of unused sick leave (19 months) of creditable service in the EPS. If, after being moved into the CORS, this member retires after five additional years of service, still without taking any sick days, the most the member will be able to apply towards retirement will be 75 days (15 days x 5). The 420 days accrued as a member of the EPS will be lost.

The Board believes that not addressing the issue of unused sick leave was an oversight in the drafting of the 2016-2018 legislation. This belief is supported by legislation that was passed in 2013 addressing a very similar situation. In that case the individuals were members of CORS and being promoted out of the CORS into EPS positions. The 2013 legislation was drafted specifically to protect the unused sick leave of those individuals who were promoted out of the CORS into the EPS, but who elected not to transfer their CORS service into the EPS. In light of the 2013 legislation, the Board recommends proposing similar legislation for the individuals affected by the 2016, 2017, and 2018 legislation that required them to move into the CORS from the EPS.

Rescission of Designated Beneficiary Change

Section 21-404 allows retirees of the several systems (with the exception of retirees of the Judges' Retirement System), to change their designated beneficiary at any time after they have retired. Retirees who opt to change their designated beneficiary have their allowance recalculated based on the value of the balance in the retiree's annuity reserve and pension reserve when the change is made. A change to the designated beneficiary will almost always result in a lower monthly benefit to the retiree. In light of this, it has been the Agency's practice to allow for a rescission of this change up until the first monthly payment following the change. This follows numerous correspondence between the Agency and the retiree, in the Agency's attempts to ensure the retiree comprehends the reduction that will occur as a result of the change in beneficiary. Nevertheless, despite the Agency's best efforts, many retirees continue to be taken aback once they receive their first benefit check and see the new reduction resulting from the change they made for their designated beneficiary. This is evidenced by the number of instances when the retiree has notified the Agency that they did not understand what the Agency communicated to them, and cannot live on their revised monthly retirement benefit after authorizing the Agency to change their beneficiary.

To address this concern, the Board is proposing legislation that would allow for retirees to rescind their prior designated beneficiary change if they notify the Board, in writing, before

the second payment due date following the month the revised retirement benefit becomes due. The Board also proposes that this proposal only be permitted if the newly designated beneficiary is alive at the time the rescission is requested.

Employees', Teachers', and Correctional Officers' Active Death Benefit

If an active member of the EPS or TPS dies after reaching age 55 with at least 15 years of service or after accruing 25 years of eligibility service, regardless of age, the member's spouse may elect to receive a survivorship benefit equal to what the member would have received, had the member been retired at the time of death and selected Option 2 (a 100% joint and survivor allowance, subject to an actuarial reduction). Spouses of deceased active members of the ERS, TRS, and CORS are entitled to a similar benefit if the active member dies after reaching age 55 with at least 15 years of service. Additionally spouses of deceased active members of the EPS, ERS, TPS, TRS, or CORS also may elect to receive this death benefit if, at the time of death, the member was eligible to retire from the member's system.

The provisions governing death benefits for active members of the SPRS and the Law Enforcement Officers Pension System (LEOPS) provide that if an active member of either of these systems dies with at least two years of eligibility service, regardless of age, the surviving spouse of the member shall receive an allowance equal to 50% of the members average final compensation. If there is no surviving spouse, or if the surviving spouse dies, the benefit is paid to any children under the age of 26 years or disabled. A surviving child who is disabled, may receive this benefit as long as the child is disabled, regardless of age. The SPRS and LEOPS also provide that if there is no spouse or minor or disabled child, the benefit may be paid to the member's dependent parents. Similar active death benefits are paid to spouses and minor children of deceased members of the Judges' Retirement System.

It is notable that the EPS, ERS, TPS, TRS, and CORS do not extend the Option 2 active death benefit to minor children of the deceased active members. The Board believes this may have been an oversight when extensive updates were enacted recently by the legislature for all death benefit provisions and recommends that the Joint Committee consider extending the active death benefit to minor children of deceased active members. The Board has asked the System's actuary to determine the cost for such a change.

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 2020 billing and would be fully implemented by the December 2021 billing.

Reopening Disability Claims

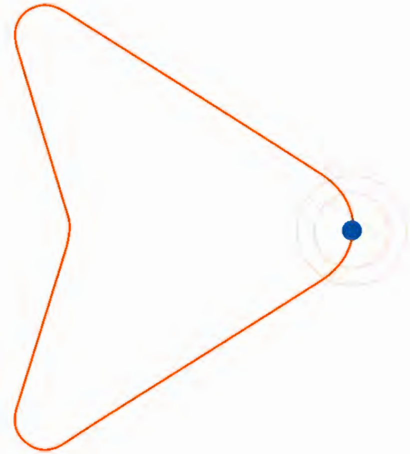
Staff has reported several instances where shortly after a member of the several systems has been awarded a disability retirement benefit, staff has learned of information indicating that the individual never was eligible for the benefit. For example, the Agency, after granting a disability benefit, learned of an administrative determination by the former employer that the applicant acted with willful negligence during the occurrence of the allegedly disabling accident. However, current provisions of the State Personnel and Pensions Article do not explicitly address the Board's authority when presented with such facts. In another example, after awarding a disability retirement benefit, it was learned the applicant had accepted a higher paying job in the same field at a federal agency while the applicant was applying for her disability retirement from the State. For this reason, the Board is recommending proposing legislation that would provide the Board with the express statutory authority to reopen and reevaluate a disability award when the Agency receives information, post-award, that the retiree may have been ineligible for the benefit at the time of the award.

Queen Anne's County Joining the CORS

Legislation enacted in 2017 requires the Board to recommend legislation to the Joint Committee for certain eligible governmental units seeking to join either the EPS, CORS, or LEOPS. If the employees of an eligible governmental unit are participating in a plan that has a different employee contribution rate than the employee contribution rate of the new plan or if the eligible governmental unit does presently not provide for the employee pickup of member contributions, it must seek legislation to enter the EPS, CORS, or LEOPS.

Queen Anne's County is seeking to move its correctional officers from the EPS to the CORS. Since the EPS employee contribution rate is 7%, while the CORS employee contribution

rate is 5%, Queen Anne's County will need special legislation to address the status of the existing employees that are currently employed and will remain employed as correctional officers after Queen Anne's County moves them into the CORS. As a result, the Board is requesting the Joint Committee to sponsor this legislation on behalf of Queen Anne's County.



Maryland Transit Administration Pension Plan

Plan Design and Funding Overview

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION Bolton

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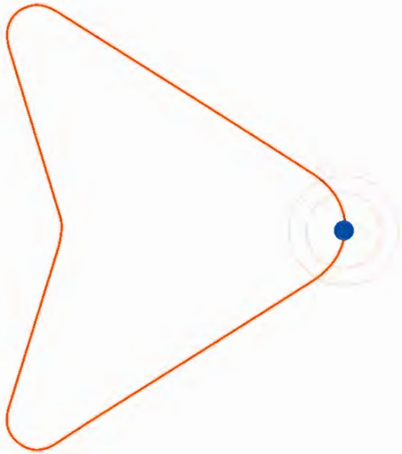


July 1, 2017 AVR Results

Summary of Plan Results

	7/1/2015 (FYE 2016)	7/1/2017* (FYE 2018)
Discount Rate/Return on Assets	7.60%	7.55%
Participant Counts		
Active	2,649	2,654
Participants Receiving a Benefit	1,730	1,844
Terminated Vested Participants	486	509
Total	4,865	5,007
Annual Pay of Active Members	$137,427,168	$145,833,561
Assets and Liabilities		
Actuarial Liability	557,256,179	706,246,613
Actuarial Value of Assets	248,469,522	290,605,477
Unfunded Actuarial Liability	308,786,657	415,641,136
Funded Ratio	44.59%	41.15%

*Eliminating the dollar per month maximum benefit for Local 1300 Union participants effective 7/1/2016 was the primary cause of the liability increase. The accrued liability increased $91.2 million due to this plan change. The retiree COLA payable to Local 1300 Union retirees and survivors from 2014 - 2017 also increased the plan's liabilities $9.3 million.

Key Assumptions

- Discount Rate/Return on Assets: 7.55% (7.60% as of 07/01/2015)
- Salary Increases: 3.20% plus merit increases
- COLA Awards after 8/1/2017: None

Plan Design

- Collective Bargained
  - **Binding arbitration**
  - **Benefit improvements in line with industry**
- Switch From Fixed Dollar to Percent of Pay
  - **Prior to 2016, the Plan had a fixed dollar cap**
  - **Fixed dollar cap increased regularly**
  - **In 2016, eliminated cap**
- Pay Included in Formula
  - **Union wants OT and holiday pay included**
  - **Agreed to 115 percent of regular pay cap**
- Ad hoc COLA – still bargained
- Employee contribution of 2 percent of pay added

Binding Arbitration Process

- In the event a dispute under the collective bargaining agreement does not result in agreement, the Administration shall submit the dispute to an arbitration Board.
- The arbitration Board shall consist of three members appointed as follows:
    - One by the Administration;
    - One by the authorized representative of the employees; and
    - One jointly by the Administration and the authorized representative who serves as Chairman of the Board
- The process for presenting and evaluating evidence is established by the Board.
- A majority determination of the board is final and binding on all disputed matters.

How the Actuarial Determined Contribution (ADC) is Determined

- Entry age normal cost method calculated on an individual basis with level dollar normal cost. The unfunded actuarial accrued liability (UAAL) is amortized with level payments over:
- 17 years for the initial UAAL that began on 06/30/2002
- 25 years for experience gains and losses after 2002
- 25 years for assumption and method changes
- COLA awards are amortized over the life of the contract in which they are negotiated
- Benefit awards and plan changes are amortized over the expected future working lifetime of the entire active population

Historical Contributions

Schedule of Employer Contributions (Dollar amounts in thousands)	7/1/2016 (FYE 2017)	7/1/2015 (FYE 2016)	7/1/2014 (FYE 2015)	7/1/2013 (FYE 2014)
Actuarially Determined Contribution (ADC)	$ 62,217*	$ 44,736	$ 40,807	$ 39,749
Contributions in relation to the ADC	40,997	40,997	35,400	39,749
Contribution deficiency (excess)	$ 21,220	$ 3,739	$ 5,407	$ -
Covered payroll	$ 137,154	$ 137,427	$ 135,545	$137,596
Contributions as a percentage of covered payroll	29.89%	29.83%	26.12%	28.89%

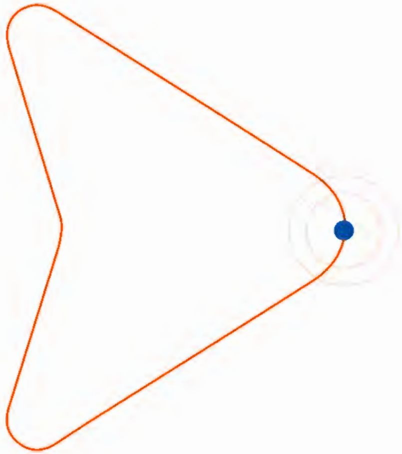
*Eliminating the dollar per month maximum benefit for Local 1300 Union participants effective 7/1/2016 was the primary cause of the liability increase. The actuarially determined contribution increased $14.7 million due to this plan change. The retiree COLA payable to Local 1300 Union retirees and survivors from 2014 - 2017 also increased the plan's liabilities. The actuarially determined contribution increased $4.9 million due to this plan change.

Historical Return on Assets

Fiscal Year Ending	Return on Market Value of Assets*
6/30/2017	10.56%
6/30/2016	4.67%
6/30/2015	5.71%
6/30/2014	7.34%
6/30/2013	8.21%

*Return on market value of assets is calculated net of all expenses

- The average annual return for the 5-year period ending 6/30/2017 is 7.28%.



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MTA’s Plan to Improve Funding

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION

Bolton

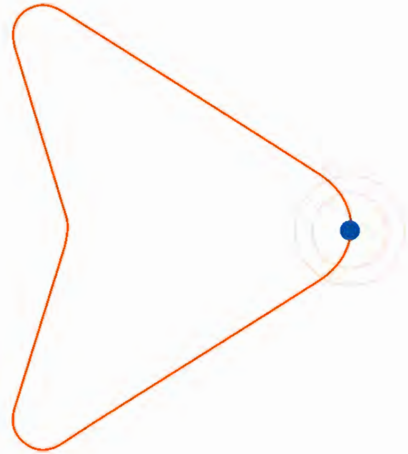
MTA's Plan to Improve Funding

Plan Provision	Description
Combine Outstanding Amortization Bases Effective July 1, 2019?	Yes
Assume Plan Bargains Retiree COLA's in Future Years?	No
Employee Contributions	Employee contributions for all employee groups are assumed to increase from 2% to 4% effective 7/1/2019, from 4% to 6% effective 7/1/2021, and from 6% to 7% effective 7/1/2023
Expected Employer Contributions for FYE 2020 (July 1, 2019 – June 30, 2020) and Beyond	For plan years when the employee contribution is increasing from 2% to 7% (FYE 2020 through FYE 2024) the MTA will match the increased employee contribution dollar for dollar. For plan years after the employee contribution has reached 7% (FYE 2025 and afterward), the MTA contribution is assumed to increase at 1.5% per year until the plan attains 100% funding, at which point, the MTA will contribute the ADC annually.

25 Year Projections

Cost Summary for the Year ($ millions):				
Plan to Improve Funding– No Future COLA's Assumed, Amortization Bases Reset at 07/01/2019 (for FYE 2020), Employee Contributions Increase from 2% to 7% from FYE 2020 to FYE 2024, and Employer will Match Contribution Increase from FYE 2020 to FYE 2024. Employer Contributions in other Years will Increase 1.5% / Year until Plan is Funded and Employer will contribute ADC Afterwards.				
	ADC	UAL	Funded Percentage	Employer Contribution
7/1/2018 (FYE 2019)	$66.0	$418.1	43%	$42.2
7/1/2019 (FYE 2020)	$42.6	$419.0	45%	$45.4
7/1/2027 (FYE 2028)	$33.7	$269.9	72%	$54.5
7/1/2034 (FYE 2035)	$16.2	($3.6)	100%	$16.2
Year 70% Funding Attained	2027			
Year 100% Funding Attained	2034			

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION Bolton



DLS Report and MTA's Response

DLS Report and MTA's Response

- Appropriations are less than ADC
- Open and Closed Amortization Periods
  - **Open amortizations are in effect refinanced yearly, closed are fixed**
  - **MTA amortizations are closed**
  - **Every new MTA gain or loss is amortized over a closed 25 year period**
  - **By contrast the State is amortizing all gains or losses to be paid by the year 2039**
  - **The State's amortization plan is a good plan for now as there are 21 years remaining to amortize gains and losses**
  - **Amortizations of gains or losses of less than 10 years are unusual**
    - Leads to a lot of appropriation volatility
    - Imagine amortizing a 2 year gain or loss in 2038
    - The State will probably switch to a 10 to 20 year amortization period as costs become more volatile well before 2039