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STATE RETIREMENT
and PENSION SYSTEM

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Maryland State Retirement Agency

Testimony of R. Dean Kenderdine, Executive Director

Before the

Senate Budget & Taxation Committee
January 31, 2017

&

House Appropriations Committee
February 3, 2017

Good afternoon, Chairman and members of the committee. As the Executive Director of the State Retirement Agency (SRA), it is my pleasure to present and discuss, on behalf of the System's Board of Trustees, the Agency's proposed budget for fiscal year 2018.

The SRA carries out two equally important business functions: the administration of member and retiree benefits, and the management of invested assets. The continued success of these two core processes is of critical importance to the more than 398,000 active, vested and retired state and local participating employees, teachers, police, judges, law enforcement officers, correctional officers and legislators whom we serve.

Before addressing the analyst's comments, I would like to briefly update the committee on some of the Agency's activities over the past year and the progress we have made.

Investment Management

The Maryland State Retirement and Pension System earned a net investment return of 1.16 percent in fiscal year 2016. While the fund did not meet the actuarial return target of 7.55 percent, the achieved return is within the range expected in any given year. After the payment of benefits, the market value of assets decreased by approximately $36 million, from $45.83 billion on June 30, 2015 to $45.47 billion on June 30, 2016, resulting in a funded ratio of 70.5 percent as of June 30, 2016 compared to 69.7 percent at the end of fiscal year 2015. The top-performing asset classes for the year were private real estate, private equity and fixed income.

Net Returns as of June 30, 2016

	1 year	3 year	5 year	10 year
Total Plan	1.16%	5.91%	5.68%	4.85%
Policy Benchmark	1.69%	5.40%	4.96%	4.46%

According to preliminary performance reports as of December 31, 2016, the System's total portfolio returned 2.33 percent on investments for fiscal year-to-date, trailing the policy benchmark by roughly 47 basis points, or 0.47%. The market value of assets as of December 31, 2016 was approximately $45.9 billion.

The System's investment performance during fiscal year 2016 is summarized in the following exhibit:

	FY2016 SRPS Performance	FY 2016 Benchmark Performance	SRPS Allocation June 30, 2016
Public Equity	-4.3%		37.4%
Custom Benchmark		-3.9%	
U.S. Equity	0.6%		7.7%
Russell 3000		2.1%	
International Equity	-11.1%		8.7%
MSCI ACWI ex. U.S.		-10.2%	
MSCI EAFE		-10.2%	
MSCI Emerging Markets		-12.1%	
MSCI World ex U.S.		-9.8%	
Global Equity	-4.0%		12.9%
MSCI AC World		-3.7%	
Emerging Markets Equity	NA		8.1%
MSCI Emerging Markets		-12.1%	
Private Equity	9.9%		9.2%
Custom State Street PE		4.6%	
Rate Sensitive	9.3%		22.7%
Custom Benchmark		10.7%	
BC U.S. Gov't Long Index		19.0%	
BC U.S. TIPS Index		4.6%	
Credit/Debt Strategies	2.2%		9.4%
Custom Benchmark		2.7%	
BC High Yield		1.6%	
S&P LSTA Leveraged Loan		0.9%	
JP Morgan GBI EM GD		2.0%	
JP Morgan EMBI GD		9.8%	
JP Morgan CEMBI Broad		5.6%	
Real Assets	-1.7%		12.7%
Custom Benchmark		0.9%	
NCREIF ODCE		13.7%	
FTSE EPRA NAREIT		11.6%	
Bloomberg Commodities Index		-13.3%	
Absolute Return	-3.0%		8.6%
Custom Benchmark		-2.7%	
TOTAL FUND	**1.2%**	**1.7%**	**100%**

The **public equity portfolio** returned -4.31 percent, compared with a return of -3.85 percent for its blended benchmark. The program has three components: U.S Equity, International Developed Equity and Emerging Markets Equity.

The U.S. public equity portfolio returned 0.56 percent, trailing the return of the Russell 3000 Index by 158 basis points. The international equity portfolio returned -11.11 percent compared to -11.52 percent for its benchmark, the Morgan Stanley Capital International (MSCI) World ex-U.S. Index. The emerging markets equity portfolio did not have sufficient history to report one-year returns. However, since inception on November 1, 2015 through fiscal year-end, the emerging markets equity program returned 0.48 percent, outperforming the -0.02 percent for its benchmark, the MSCI Emerging Markets Index, a broad measure of stock performance in emerging markets.

The **rate sensitive portfolio** returned 9.34 percent, compared to 10.65 percent for its blended benchmark: 50% Barclays US Government Long Bond Index, 15% Barclays US Investment Grade Corporate Index, 15% Barclays US Securitized Index, and 20% Barclays US TIPS Index.

The **credit/debt strategies portfolio** returned 2.23 percent compared to 2.69 percent for its blended benchmark. The portfolio has a blended benchmark of 67 percent U.S. (80% BC U.S. Corporate High Yield Index, 20% S&P LSTA Leveraged Loan Index), and 33% Non-U.S. (50% JP Morgan GBI EM Global Diversified Index, 25% JP Morgan EMBI Global Diversified Index, 25% JP Morgan CEMBI Broad Index). Prior to November 1, 2016, the benchmark was 50% Barclays U.S. High Yield Index, 20% Barclays U.S. Credit Index, 20% JP Morgan GBI EM Global Diversified Index and 10% S&P LSTA Leveraged Loan Index.

The **real assets portfolio** returned -1.66 percent, compared to 0.87 percent for its blended benchmark, which is dynamically calculated using the beginning market values of the real estate, commodities and natural resources/infrastructure sub-asset classes and their corresponding benchmarks.

The **absolute return portfolio** returned -3.01 percent, trailing the -2.56 percent return of its customized benchmark, which is the Hedge Funds Research, Inc. (HFRI) Fund of Funds Conservative Index plus 1%.

The **private equity portfolio** returned 9.94 percent, compared to the 4.59 percent return of its customized benchmark, the State Street Private Equity Index (one quarter lag). The program is still maturing and over time is expected to produce returns in excess of the public equity markets.

The System's **Terra Maria** program is comprised of smaller investment management firms—including many that are minority and/or women owned—focusing primarily on equity and fixed income investments. For fiscal year 2016, the program returned -4.03 percent, compared to -1.68 percent for its customized benchmark. While annualized performance for the five years ending June 30, 2016 has been negative relative to it customized benchmark, the return since inception has added value. Since inception, the Terra Maria program has achieved an annualized return of 4.76 percent, compared to 3.99 percent for the benchmark.

The Investment Division regularly solicits input on investment opportunities and best practices from a number of sources. The System's investment consultants are broadly utilized across the total portfolio in assisting staff in sourcing new investment ideas that improve the risk/return efficiency of the fund. Consultants are also helpful in providing insight into new trends and ideas among other public pension funds. The System also belongs to a number of trade associations, and participates in selective investment conferences, that are useful in establishing peer contacts and gaining market insight. By attending conferences that focus on emerging managers, the System is able to meet, and provide access to, promising smaller managers that might not be identified in the normal search process. Existing and

prospective investment managers are also a valuable source of information in terms of market trends and investment opportunities.

Benefits Administration

Active membership declined slightly from 193,600 in fiscal year 2015 to 192,494 in fiscal year 2016; however we continue to see steady and consistent increases in the number of annuitants. At the end of fiscal year 2016, the number of retirees and beneficiaries receiving benefits increased 3.2 percent to 152,566 compared to 147,850 in the previous year. Over a ten year period the total number of annuitants has grown 41 percent from 108,355 in fiscal year 2007 to 152,566 in fiscal year 2016. Our current number of retirees and beneficiaries receiving monthly allowances is more than 155,000, as a result of new retirements since July 1, 2016.

For much of the past fiscal year, the Benefits Administration Division continued to struggle with a high number of vacancies. It has been a challenge to hire and retain highly qualified staff for this function of the agency. When vacancies occur, the time it takes to hire, train and have new staff become proficient in their duties further exacerbates the situation. Staff resource challenges in the Member Services, Benefits Processing, and Data Control units require managers to constantly re-allocate staff to address the most critical and imminent needs.

For fiscal year 2016 the Member Services Call Center performance measures did not meet our goals:

Performance Measure	Performance Goal	FY2016 Performance Average
Calls Abandonment	Not to exceed 6.0%	9.54%
Average Wait Time	Not to Exceed 105 seconds	159 seconds

However, the Call Center is now fully staffed and anticipates improved performance in meeting our performance goals. This will be addressed in greater detail in our response to the analyst's performance analysis.

Through on-going collaborative efforts, the Agency's Benefits Administration, Business Operations Office, and the Information Systems Division continue to work toward successful implementation of various activities in improving our automated systems. The Maryland Pension Administration System (MPAS) is our primary automated system used in administering retirement plan provisions. The successful development of MPAS was a deliberate strategy planned as a multi-year phased approach. The first phase MPAS-1, which went live August 2010, successfully achieved two goals: implemented an agile technology architecture that can adapt more easily to changes in business requirements; and recreated the existing legacy pension system function in a new modern architecture.

The next phase of the MPAS-2 initiative, which is focused on improving the data integrity of service values, will be completed at the close of fiscal year 2017. The Agency has been successful in identifying where anomalies have existed in historical MPAS data, and we have nearly completed the process of flagging or correcting them. These data were submitted to the Agency from over 150 separate employers for over 40 years.

Starting in fiscal year 2018, the Agency is scheduled to begin work on the final phase of the MPAS initiative in which members will be provided access to their data. Additionally, each of the business processes will be evaluated and re-engineered seeking optimal automated solutions and improved data

controls and efficiencies including an automated work flow, a fully integrated automated system and more advanced customer relationship management tools.

Information Systems

The Agency's data and voice technology platforms continue to operate reliably with little production downtime.

The Maryland Pension Administration System, or MPAS, runs consistently and reliably, and its platforms are being maintained routinely on an ongoing basis. There are approximately 150 programming changes implemented each year, and these are handled using rigorous testing and change management controls.

Also, the Agency just completed a significant multi-year initiative to replace the MPAS business rules engine, with the final programs being scheduled for elevation to production status.

Last year, the Agency reported that a replacement to its legacy employer payroll reporting software, used by many employers throughout the state to upload data to the Agency, was in pilot testing. We can report that the replacement program was successfully implemented with strong positive feedback from employers across the state. The reporting software is now being further enhanced to automate additional employer functions.

Prior years' budget reductions contributed to a significant backlog of systems development maintenance work, including regulatory and operational changes to MPAS. To address this backlog, the Agency initiated a multi-year effort to bring applications current on critical changes; this effort will extend into fiscal year 2018. Eliminating the accumulated backlog has required additional contractor resources, and the Agency is currently retaining the maximum number of systems development contractors permitted by our existing contracts in order to address the backlog rapidly. Backlog elimination is a prerequisite to being able to modify MPAS programs to permit online real-time update by staff and (ultimately) by members and employers. While the Agency may begin programming work on this conversion to real-time processing in FY18, extending secure online service to members is projected to occur in fiscal year 2019.

The Agency's other internal applications continue to function well, including our fund accounting application, our Intranet, the service credit buy-back calculator, the deferred retirement option program for police and law enforcement, deceased benefits tracking, document imaging, voice technology and call center functions, the interactive voice response system, and utilities such as electronic mail and calendaring.

On the information security front, the Agency maintains a regime to protect member data and inhibit data breaches, and the Agency maintains a secure and appropriate data center and a back-up disaster recovery site. In fiscal year 2017, our Information Systems team set up laptops that Call Center staff would use to remotely access voice and data services from their homes or other locations, should weather or other factors disrupt normal Baltimore-based operations.

The Agency selectively uses Internet "cloud-based" applications where there is specific business advantage. For example, we migrated the application used by our Board of Trustees to manage their agenda to an Internet-based service, which has functioned well as the Agency's secure Board Portal. Our Member Services operation uses an Internet-based application for members to schedule appointments to see counselors. In addition, the Agency utilizes services provided by the state, such as networkMaryland and the state's Workday human resources application, along with general budgeting and accounting applications.

In short, the Agency's information technology continues to operate reliably, securely, and efficiently to serve our membership, employers, and staff, and the Agency continues to incrementally improve existing applications. With this current budget request for fiscal year 2018, the foundation largely should be in place, to subsequently begin constructing secure members and employer Internet portals to transact business with the Agency online in the years that follow.

Responses to Analyst's Comments:

The agency is asked to discuss how it expects to meet the new performance targets that take effect in fiscal 2018.

Although the Call Center's performance did not meet the Agency's performance targets, active members and retirees continue to be effectively served by the center, with monthly customer satisfaction surveys consistently reflecting better than 93% approval ratings. The Call Center's performance has been affected by numerous factors, most notably staff turnover and certain Agency initiatives which generate high member call volume. An example of this would be the recent changes to the System's option and annuity factors which determine a retiring member's benefit allowance depending on the retirement option they chose.

However, the Agency is of the view that the following recent developments will allow us to meet our new call center performance targets *(Abandonment Rate – 7.5%; Wait Time – 135 seconds):*

- Full staffing; efforts by the Agency and the DBM Office of Personnel Services and Benefits have resulted in much improved recruitment and retention results for the Call Center.
- Most new Call Center staff members are now fully trained.
- Continuation of eliminating field counseling replaced by greater counseling at the Agency office, and utilization of interactive one-on-one counseling sessions using "Go-to-Meeting" software.
- Establishment of a separate telephone line to handle anticipated high call volume Agency initiatives.
    - For example, the Agency MPAS-2 Improving Data Integrity data cleansing activity scheduled for completion at the close of fiscal year 2017 will result in the adjustment of service to a large number of member records (estimated potential range of 25,000 – 50,000). The Agency will stagger release of these member communications and establish a separate direct telephone line that will be manned by multiple staff to handle the anticipated calls from members.
- MPAS-3 initiatives that will provide member access to their data.
- Improvements to the Agency's Interactive Voice Response (IVR) system included in the FY2018 budget.

DLS disagrees with the agency's position and recommends that funding provided for MPAS-3 be contingent on its designation as an MITDP. DLS further recommends that the Governor's allowance for MPAS-3 be reduced by $550,000, from $1.3 million to $750,000, which would cover the cost of retaining 1 business engineering consultant and 1 project manager to assist the agency in conceptualizing how the project can streamline and enhance agency functions. Additional funding for systems development support and associated hardware and software is premature until the agency has a better sense of how its business operations will be transformed and the system requirements necessary to support that transformation.

The agency concurs with the proposed DLS contingency and will submit a Major IT Development Project request to DoIT with its Agency IT Master Plan, to be written and submitted in the coming months. For the record, the agency has long considered anticipated modifications to existing Maryland Pension Administration Systems (MPAS) application code as *maintenance* of an existing system and not as new systems development. Business functions supported by MPAS are mature and most likely will not require substantive application changes beyond adapting the code for online real-time updates. Calculation logic will remain intact, and much of the expected modification will be integration of the MPAS code with commercial off-the-shelf software in order to have the application accessible over the Internet.

In reducing the budget by $550,000 and providing only $750,000 for a business-process consultant and a project manager, DLS states: "Additional funding for systems development support and associated hardware and software is premature until the agency has a better sense of how its business operations will be transformed and the system requirements to support that transformation." The agency respectfully disagrees.

Starting in 2006, the MPAS was developed with the stated intent of converting most existing paper driven transactions, processed through batch-oriented programs, to online real-time transaction processing, an essential component of business process reengineering (MPAS-3). Design concepts were established at MPAS-1 inception and incorporated into the application code. The conversion was planned following completion of the cleansing of member data (MPAS-2), the second phase of the full MPAS project that is on track for completion by the close of FY2017.

All of this was done under the guidance of the IT project development consultant for the first phase of the MPAS project (MPAS-1). In the time since the completion of MPAS-1, nothing has changed that would alter the need for the work anticipated in the FY2018 request for $550,000. All of this work is, and has always been fundamental to the completion of the full (phases I, 2, and 3) MPAS project. They include:

1. An online "portal" for internal agency staff to update MPAS in real-time (even for staff, current processing is almost entirely paper-driven) within the agency's secure network environment.
2. A secure Internet-based web site, through which *members* will transact a subset of the transactions in item 1.
3. A secure Internet-based web site, through which *employers* will transact a subset of the transactions in item 1.

The $550,000 included in the allowance would be used for building the framework necessary for the eventual secure login processes for participants (members/retirees) and employers (e.g., collection and maintenance of email addresses and cell phone numbers). In addition, the balance of the $550,000 will be used to start building the "Internal Staff Portal" (item 1 above) to enable staff to perform certain real-time updates to the MPAS database (e.g., change of beneficiary information, change of address information). Additional funding will be required in future fiscal years to complete item 1 and begin items 2 and 3.

This important adaptation of existing system routines represents a foundational assumption in the MPAS strategy, that the existing system will be adapted to re-engineered business operations as necessary, but that the majority of system changes would address making the application real-time and integrating it with other tools to increase operational efficiency, including document management, workflow, voice applications, and customer relationship management packages.

The agency will use the resources for consultant services to structure benefit administration workflows and identify packaged software products (e.g., customer relationship management and document management applications) and approaches, leveraging the best practices of other public pension funds

nationwide. In turn, organization of the converted programs into Internet-based "portals" for members and employers (and internally for agency staff) – a primary goal the Board of Trustees and all System stakeholders – can move forward according to these long-established plans.

For this initial segment of MPAS-3, the agency is fully confident in its understanding of the project requirements, based on its own expertise and that of the consulting services provided under MPAS-1.

Therefore, the agency does not concur that this is premature. The agency and the Board of Trustees are anxious to proceed. The impact of deferring $550,000 is to delay realization of the goal of Internet access for another year.

We ask that this $550,000 reduction be reconsidered.

The agency should summarize the potential benefits and risks of raising compensation levels for Investment Division staff, particularly whether doing so would lead to improved performance. The agency is asked to discuss its specific concerns related to compensation for investment staff and its plans for addressing compensation levels. The agency is asked to discuss the potential risks and benefits of granting the board expanded authority with respect to Investment Division staff and expenditures. In particular, the agency should address whether it anticipates that expanded budgetary authority would lead to improved investment returns relative to benchmarks and peers.

As part of the budget analysis report, DLS has requested that the agency summarize its concerns relating to compensation levels of the investment staff, and discuss its plans to help alleviate the associated risks.

After a comprehensive review of Investment Division staffing levels and compensation structure by the Chief Investment Officer, the agency has identified a number of areas where the system does not adhere to best practices, exposing it to a number of risks. This analysis has been presented to the Board of Trustees and has the Board's support.

These risks stem from the CIO's assessment that:

1. The current level of staffing puts the system's ability to achieve its return objective at risk,
2. The compensation structure for staff contributes to turnover and poor alignment of interests between staff and the plan, which exacerbates the risk to the plan from low levels of staffing,
3. The level and compensation of staffing are an impediment to internal management initiatives that are contemplated to improve the system's return through lower costs and more efficient implementation of rebalancing and tactical transactions, and
4. The level and compensation of staffing are limiting the ability of the system to identify and engage the best array of managers for the system. Limited staffing reduces the number of managers that can be reviewed and limits the types of investments that can be made. For example, with the current level of staffing, the system is able to support only large investments in private equity style infrastructure partnerships. These can be expensive to implement and offer moderate returns. With additional staff, the system may be in the position to use different infrastructure structures at lower cost and with more attractive return potential. In other words, one of the advantages that the system has is its size. It is large enough to create custom partnerships with managers at attractive terms but the existing level of staffing does not permit the time to implement these partnerships. In addition, the skill set required to implement these investments may not be available with the current compensation system.

Based on this evaluation, the agency has concluded that the sophistication, size and complexity of the investment portfolio have outpaced the staffing levels. From the end of 2005 to the present, the plan has grown from seven investment strategies and 50 accounts to 18 strategies and 380 investment accounts by 2016. During that same time, fund assets have grown from $33.7 billion to $46.2 billion, while investments staff has grown from 15 to 23.

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

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

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

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

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

At present, MSRA does not possess all of these elements. Working with the human resources professionals within DBM, the agency is able to recruit qualified individuals to work in the Investment Division. However, the compensation structure and career advancement opportunities available in the agency have limited the System to individuals who self-select into the agency. For some, geographic reasons dominate their decision. For others, the intellectual challenge of working for the system and the ability to engage with the best investors in the world lead them to the agency. Others see the system as a fast track training ground for an investment career. The paucity of positions leads to each position shouldering a significant amount of responsibility. This level of responsibility is slower to come in larger investment organizations. This high level of responsibility and the training we provide allow employees to rapidly gain experience that will be valuable to a subsequent employer.

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

as the primary reason for leaving. Those that are not at the top of the pay scale are recent internal promotions who are moving toward the cap based on maximum annual salary increases. Had those positions been filled externally, all of the Managing Directors would be near the top of the range. The cap inhibits the ability to hire externally because most new hires hope to see some path to improvement and require the top of the pay scale to consider the agency.

The current staffing structure also inhibits a robust and effective training and onboarding process. Because there is lack of depth to the number of staff working in many asset classes, when openings occur, there is no one with experience to provide training to new employees.

In the New York City study, Funston noted that the poor compensation structure added to the risk of the System stemming from personnel issues. However, New York City was able to bypass this issue, highlighted in the study, because the Comptroller had already implemented a plan to improve compensation. For the New York Common Fund study, Funston found that, "While the fund is currently well-managed, compared to most peers, it remains severely understaffed for its scale and complexity, with underdeveloped risk analysis and management capabilities and an over–reliance on outsourced investment management and support functions. In addition, independent compensation benchmarking indicates that PICM staff compensation levels are in the bottom quartile for similar public pension funds. There is justifiable concern that current staff will leave if compensation is not increased, and it is likely that PICM will struggle to recruit needed new staff and stem turnover at current compensation levels."

While Funston describes the risk of departures as a potential risk, for MSRA, this is a reality.

Interim Solution:

The staffing levels of the Investment Division present two areas of concern: systemic risk of understaffing and insufficient resources to develop an internal management function. As an interim solution, the CIO has created a Strategic Organizational Structure to address the operational risks addressed by Funston. The new structure ensures that each asset class has a minimum of two staff members, creates career progression through multiple functional layers and creates a training environment through the initiation of an associates program. The changes anticipate the creation of a new Managing Director position to oversee the Fixed Income, Credit and Commodities asset classes. This asset class group will require sufficient staff to provide oversight for these asset classes and sufficient depth and experience to initiate internal management of some fixed income assets. To meet these needs in the Fixed Income asset class the agency anticipates the eventual need for three senior staff positions to work in the areas of fixed income, absolute return and real assets.

One area of concern that we have identified is the excessive amount of time spent by Senior Analysts and Managing Directors on administrative, clerical and data entry tasks. To address the high administrative burden on senior staff, the agency looked to private sector business models for guidance. We see many successful investment management firms employ an associates program that hires junior-level employees, usually newly-minted undergraduates. Initially, the associate is offered a two year position. At the end of two years, the associate may be offered a job, go to graduate school or seek employment elsewhere with a solid work experience. We anticipate that this associates program will alleviate some of the administrative burden on senior staff, provide a pipeline of strong candidates for future open positions and offer a career path in the investment industry to new college graduates.

The FY2018 agency budget provides for the transfer of four agency PINS for this associate level position to round out the two-deep coverage of each asset. Additional back office support may be required to further facilitate internal management of a portion of the System's assets.

In response to these needs, DBM re-purposed four existing agency PINS to the Investment Division for one senior portfolio manager, one senior analyst and two associates for the 2018 budget.

While the process of establishing an internal management capability will be gradual and likely evolve over time, the ultimate potential for cost savings could be significant with the appropriate level of resources. As an example, assume an appropriately-resourced Investment Division would cost $3 million annually in excess of the current Investment Division budget. This might allow for internal management of the currency hedging program, all of the existing externally-managed passive mandates and a ten percent target allocation to private equity co-investment opportunities. Based on conservative assumptions, this amount of internal management would result in annual savings in excess of $13 million. This savings amount would increase to the extent private market co-investing could be applied to other asset classes; and active management strategies for traditional asset classes could be brought in-house.

Cost savings is only one of the advantages of internal management. In-house management may also improve the efficiency and implementation of existing practices. Decisions to rebalance the public market investments can take several weeks to accomplish in the existing structure. Internal trading capability may reduce that time to one day. Further, an in-house management capability would improve the entire investment process by making the Investment Division more engaged and informed on matters relating to capital markets and the economy. This enhanced insight would also improve the way the investment staff monitors and evaluates external managers, and strengthen staff's ability to assess broader investment opportunities. Internal management would also improve the way the Board monitors and evaluates staff as it shares in the related education and insight. The successful implementation of an effective internal management capability is predicated on building a stable investment team guided by a sustainable culture and supported by a competitive remuneration structure.

These initiatives will provide sufficient headcount to alleviate the most critical operational risks from a human resources perspective. The System's ability to attract and retain qualified personnel will require a change in the compensation structure within the division. Using publicly available data on compensation for state plans of similar size and structure, MSRA found that staff was in the bottom quartile of pay for most positions. This data compares MSRA salaries for 2015 against peer salaries from 2012 to 2015.

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

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

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

The proposal to create a new position of Senior Portfolio Manager is a short-term measure to help improve the human resources risk to the system through two mechanisms. The primary impact is by creating a higher-paid position to offer some salary progression that reflects the value of acquired skill and expanded responsibility. The new position also creates the opportunity for another rung on the career path that will be tied to the individual's contribution and value to the system and not on the negative event of turnover within Managing Director ranks.

These requested reclassifications are accompanied by a recommended 12% pay raise for the impacted individuals in fiscal year 2017, with an expectation of another 10% (assuming strong PEP reviews and manager recommendations) in fiscal year 2018. These increases will still leave these individuals below the top of the pay scale for the Grade 26 level, and still in the neighborhood of the bottom quartile of peers.

These comments have focused on the segment of the investment division engaged directly in researching, recommending and monitoring investments. This group is most challenged on compensation and shortcomings in staffing that present risks to the system. The other segment of the Investment Division, Operations and Accounting group, is more in line with peers in terms of compensation. Internal management initiatives will create additional demands on this group that may require new PINs and compensation adjustments to reflect new responsibilities. The Operations and Accounting group is an integral part of the Investment Division and will be an important factor in the system meeting its investment objectives.

The long term solution to the staffing challenges within the Investment Division will require legislative changes or a significant restructuring of the State's human resources and budgeting functions. The Board of Trustees has requested legislation that would provide it authorization to set the number of positions and compensation levels.

DLS recommends that SRA submit a report to JCP by November 1, 2017, (1) detailing how it calculates the spending cap; (2) explaining the justification for including retiree benefits and inactive payroll in the calculation; and (3) recommending any clarifying changes to statute that it deems necessary.

The agency understands the issue raised by DLS and will submit a report to the Joint Committee on Pensions by November 1, 2017 as recommended. This will provide a history of the methodology used to calculate the spending cap as well as possible statutory changes to align with the practice used over the last several decades.