Subcommittee on Public Pensions
8/18/21
Opening Statement

Good afternoon Subcommittee Chairmen Miller and Sanchez and members of the Subcommittee on Public Pensions, Benefits and Risk Management.

Thank you for the opportunity to appear before you today.

With my service as Secretary of Banking and Securities for Pennsylvania, I have the great privilege of serving on the board of directors for the Commonwealth's two largest pension funds, known as PSERS and SERS.

To me, these two funds are sacred promises and trusts to school teachers, police and other employees of the Commonwealth, the very people that I consider to be among the most cherished in our communities.

My hope is that my background has prepared me to be worthy of the responsibility that I have been entrusted with.

I served for over thirty years as a founder, executive and CEO of two large banks whose reach extended to the four corners of our nation. After my departure in 2008 from the banking industry, I had the privilege of founding and serving as CEO of a large energy company, and also as managing partner of a venture capital firm investing in Pennsylvania's entrepreneurs.

I have also dedicated almost 15 years to the systematic analysis of private and public sector debt, both in the United States and globally, and have published a book on the subject of predicting and preventing financial crises, a second book on the 200-year history of global financial crises, and more recently a general business history of the United States.

And I have served on a number of corporate, institutional, and non-profit boards, including the board of the University of Pennsylvania, and have extensive experience in the fiduciary responsibilities and issues that face boards.

On the matter of public pensions, the management of our Commonwealth's pension funds has consequence for all its citizens. Should the performance of these funds fall short, it can then fall to all citizens of the Commonwealth to make up the difference, and thus can divert funds that could otherwise be spent on schools, roads, and our Commonwealth's other key needs.

Because of this, in my public pension board service, I have paid particular attention to issues of transparency and cost, along with the all-important issues of performance, an appropriately balanced investment asset allocation, an appropriate balance of complexity versus risk, and a concern regarding the overall risk inherent in the national and global investment environment.

Again, let me thank you for the opportunity to appear here today, and for the privilege of serving the Commonwealth.

Pennsylvania State Employees' Retirement System (SERS)

Governance

The SERS Board is an independent administrative board and consists of 11 members:

- Five gubernatorial appointees - One must be an annuitant
- Four legislators:
  - ✓ Two representatives appointed by the Speaker of the House (1 majority, 1 minority)
  - ✓ Two senators appointed by the President Pro Tempore (1 majority, 1 minority)
- State Treasurer (ex-officio)
- Secretary of Banking and Securities (ex-officio)
- Five board members must also be active members of SERS or active participants in the DC Plan, and two of them must have 10+ years of credited service in SERS or the DC Plan
- The Chair of the Board is appointed by the Governor

The Board has five standing committees:

- Audit, Risk & Compliance
- Board Governance & Personnel
- Finance and Member Services
- Investment
- Securities Litigation

Pennsylvania State Employees' Retirement System (SERS)

Governance *(cont.)*

- According to the State Employees' Retirement Code, board members have a fiduciary responsibility solely to SERS' members and are not to profit either directly or indirectly.

- The Board's fiduciary responsibility extends to the plan participants in the Deferred Compensation Plan and Defined Contribution Plan.

- The professional investment staff, external investment managers, and consultants also have a fiduciary responsibility to members and plan participants.

Pennsylvania State Employees' Retirement System (SERS)

Governance *(cont.)*

- The State Employees' Retirement Board hired Funston Advisory Services LLC in late 2015 to review its policies and governance structure to identify strengths, weaknesses, and areas for improvement.
- The review led to the issuance by Funston of a report dated March 4, 2016 (*For the Benefit of Pennsylvania: Strengthening SERS Oversight SERS Board and Organizational Structure Review: Final Report*), which resulted in the SERS Board Governance Policy Manual.
- The Governance Policy Manual:
  - Contains the Bylaws, and 18 principal policies and procedures used by the Board and its committees in carrying out their fiduciary duties and responsibilities to the members of the SERS Defined Benefit Plan and plan participants of the Defined Contribution Plan and Deferred Compensation Plan;
  - Includes charters for each Board Committee and "position descriptions" for Board and Committee Chairpersons, Board and Committee Assistant Chair Positions, and Board Member Positions; and
  - Is available on the public website.

Pennsylvania State Employees' Retirement System (SERS)

Governance *(cont.) – Recent Initiatives*

- **SERS Strategic Planning Process**
  - The Board 's Strategic Planning Process requires the Board and SERS staff to engage in a robust and forward-looking strategic periodic planning process. In furtherance of the Strategic Planning Process, the Board approved at its September 30, 2020, meeting the FY 2021-2023 SERS Strategic Business Plan.
  - The Strategic Business Plan includes SERS Vision, Mission, Guiding Principles, and Strategic Priorities and Goals.
  - The Board receives regular updates on the progress of the implementation of the plan's strategic goals and at the July 28, 2021, Board meeting approved an amendment to the plan.

Pennsylvania State Employees' Retirement System (SERS)

Governance *(cont.)*

- **Fiduciary Review and Self-Assessment**
  - In support of the Board's Fiduciary Review Policy and Self-Assessment Policy, which both require periodic reviews of the Board's governance policies and practices, in January 2021, the Board again engaged Funston Advisory Services LLC to review the Board's fiduciary and governance practices in order to improve the effectiveness of the Board to better serve the needs of SERS' members and the Defined Contribution Plan and Deferred Compensation Plan participants, with corresponding benefits for the taxpayers of Pennsylvania.
  - At the April 28, 2021, Board meeting, the Board accepted Funston's SERS Fiduciary Review and Board Self-Assessment – Final Report.
  - The Board further directed SERS staff to engage with the appropriate standing committees of the Board to: (a) review the Final Report's recommendations, and (b) make recommendations to the Board for action, as appropriate.
  - According to Funston's report, the Board made "significant improvements in its governance, structure, policies, and practices over the past five years since its last governance review."
  - SERS staff is working with the Board's committees in reviewing the report's recommendations.

Pennsylvania State Employees' Retirement System (SERS)

Investments

The objectives of the Defined Benefit Plan Fund are to provide benefit payments to participants and beneficiaries at the lowest cost to the commonwealth and to fund the program through a carefully planned and executed investment program.

SERS seeks to provide investment earnings that meet, or preferably exceed, the assumed rate of return over complete economic cycles. SERS strives to meet this objective by applying acceptable risk parameters and allocations to investments that are diversified by type, industry, quality, and geography. SERS' current target investment return is 7.0%.

The fund seeks to produce the highest return on investment that is consistent with acceptable investment risks while providing sufficient liquidity that will permit the fund to meet the system's benefit obligations. Work toward achieving investment objectives is guided by *SERS' Defined Benefit Plan Investment Policy Statement.*

Returns as of June 30, 2021, net of fees, annualized

	1-YR	3-YRS	5-YRS	7-YRS	10-YRS	15-YRS	20-YRS	25-YRS
SERS' Total Fund	27.8%	11.0%	10.7%	7.9%	8.3%	6.7%	7.1%	8.0%
60/40 Index	22.9%	10.9%	10.0%	7.2%	7.4%	6.6%	6.6%	6.7%

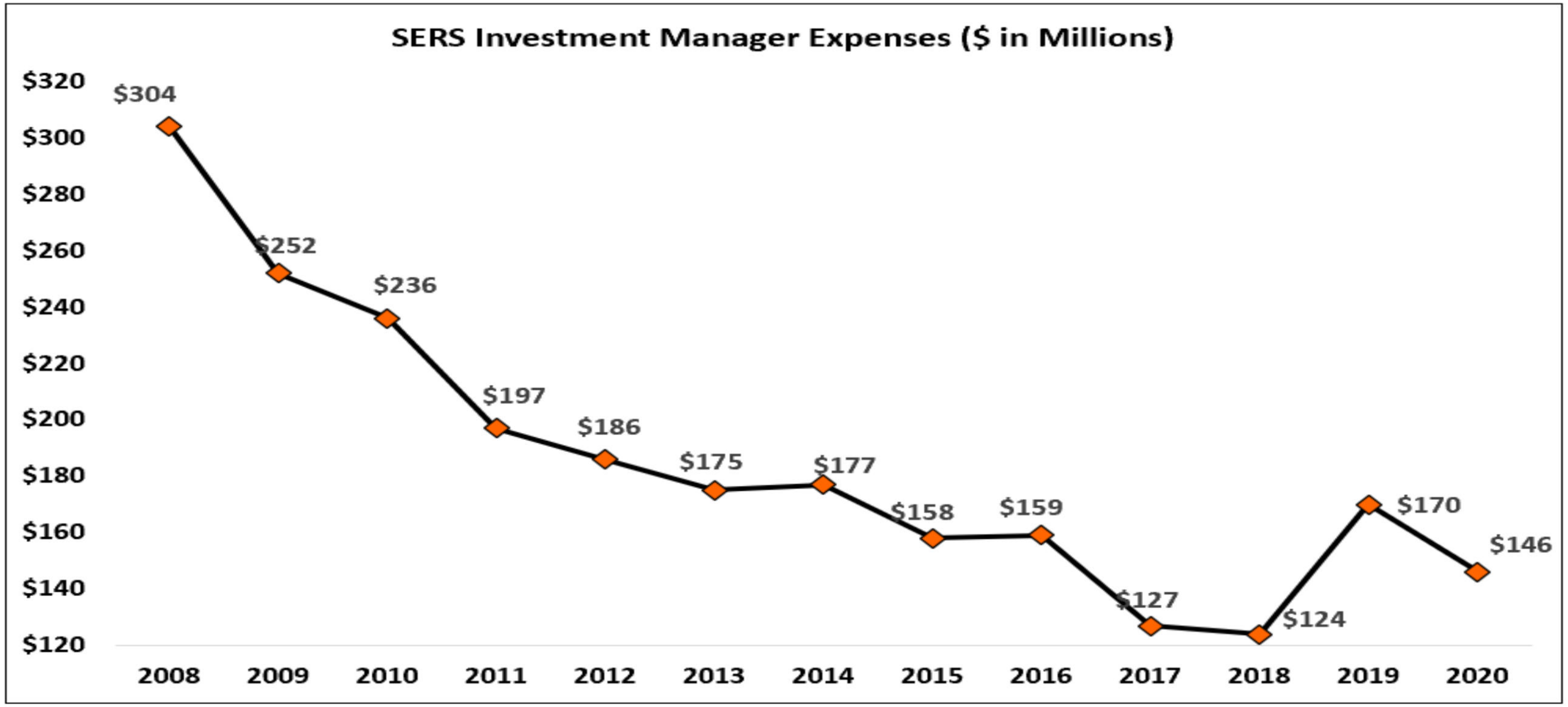
Pennsylvania State Employees' Retirement System (SERS)

Manager Fees and Expenses

- SERS strives to engage the highest quality investment managers for the most cost-effective price.
- SERS reports its performance net of manager fees for public market managers and net of fees and expenses for its private market managers.
- Since 2008, SERS has worked to reduce investment manager fees and expenses year over year by approximately half from $304 million in 2008 to $146 million in 2020.
- SERS continues to negotiate aggressively for more favorable fee structures with new as well as existing investment managers.
- SERS is including commitments to side-car investments as well as co-investments in both private equity and real estate.
- SERS has increased use of index funds in lieu of active management.

Pennsylvania State Employees' Retirement System (SERS)

Manager Fees and Expenses *(cont.)*



2019 fees include $19 million in incentive fees that were earned over a multi-year period but recorded in the current year (~0.06% of the total fund assets).

Sources: 2014-2020 from SERS' Annual Comprehensive Financial Reports. 2008-2013 from SERS' Budget Books. In 2014, SERS included and started to report other investment-related expenses reported in the 2008-2013 ACFRs into the investment manager expense.

Pennsylvania State Employees' Retirement System (SERS)

Transparency

SERS has an ongoing commitment to demonstrate transparency, while working within its legal and fiduciary framework.

- All new investment managers are required to provide SERS with the information found within the Institutional Limited Partners Association's (ILPA) Reporting Template. All current managers have been asked to provide SERS with the information found in the ILPA template.
- Beginning with the quarterly performance report of Q1 2020, SERS reports investment performance on a gross and net of fee basis.
- Since December 2019, SERS has posted to its website, public versions of prospective managers' pitch book materials and staff/consultant memos recommending the investment opportunity, for investments considered by SERS.
- Beginning with the period ending June 30, 2019, SERS began posting public versions of the semi-annual performance reports of its specialty consultants (private equity and real estate).

Pennsylvania State Employees' Retirement System (SERS)

Transparency *(cont.)*

- SERS' Office of Financial Management and the Investment Office provided an annual report of all 2019 investment fees and expenses (including carried interest) to the IC at the September 2020 meeting and subsequently posted this report on SERS' website.
- SERS' Chief Counsel Office (CCO) and the Investment Office compiled an annual report on public manager contracts, which identifies changing terms. The first report covered the CY 2020.
- SERS will compile an annual report (beginning with FY 20/21) disclosing all travel and other expenses incurred by investment professional staff and paid for by external investment managers, funds, and/or consultants as well as the expenses incurred by SERS.

Pennsylvania State Employees' Retirement System (SERS)

Financial Overview

- SERS was established in 1923 and is one of the nation's oldest and largest statewide retirement plans for public employees.
- SERS operates three plans. The **Defined Benefit Plan** and the **Defined Contribution Plan** are mandatory for most employees. A third plan – the **Deferred Compensation Plan**, is a voluntary supplemental plan.
- The plans had $35.0 billion, $40.5 million and $4.4 billion of net assets, respectively, as of SERS' most recent fiscal year-end date of December 31, 2020.

***Defined Benefit Funding*:**

- SERS Defined Benefit Plan is funded through three sources:
  - Member Contributions
  - Investment Earnings
  - Employer Contributions
- Over the past 25 years, 65% of the fund's revenue came from investment earnings, 24% came from employer contributions, and 11% from member contributions.

Pennsylvania State Employees' Retirement System (SERS)

Financial Overview *(cont.)*

- SERS current Unfunded Actuarial Liability is $22.4 billion, and the funded ratio is 59.4%

Funded Status ($ in thousands)				
Valuation Year Ended December 31	Actuarial Value of Assets	Actuarial Accrued Liabilities	Unfunded Actuarial Accrued Liability	Funded Ratio
2020	$ 32,703,275	$ 55,098,758	$ 22,395,483	59.40%
2019	$ 29,934,024	$ 52,972,575	$ 23,038,551	56.50%
2018	$ 28,989,607	$ 51,782,205	$ 22,792,598	56.00%
2017	$ 28,776,939	$ 48,439,403	$ 19,662,464	59.40%
2016	$ 27,596,048	$ 47,518,964	$ 19,922,916	58.10%
2015	$ 26,877,127	$ 46,328,929	$ 19,451,802	58.00%
2014	$ 26,584,948	$ 44,750,670	$ 18,165,722	59.40%
2013	$ 25,975,185	$ 43,874,580	$ 17,899,395	59.20%
2012	$ 25,302,688	$ 43,055,564	$ 17,752,876	58.80%
2011	$ 27,618,461	$ 42,281,862	$ 14,663,401	65.30%

NOTE - 2020 includes one-time lump sum payment towards UAL from PSU

Pennsylvania State Employees' Retirement System (SERS)

Financial Overview *(cont.)*

- **Factors Influencing the Unfunded Actuarial Liability**
  - Sustained periods of employer contributions below normal costs: 1992 through 2009, and the associated loss of compound returns
  - Losses that neutralized investment gains: -10.9% in 2002 and -28.7% in 2008
  - Benefit increases that were not pre-funded – including increased accrual rates and cost of living adjustments: Act 2001-9 and Act 2002-38
  - Legislatively mandated actuarial changes that extended the time over which liabilities be paid or artificially suppressed employer contribution rates: Act 2003-40 and Act 2010-120
  - Gradual reductions in assumed rates of return over the past several years, from 8.5% in 2008 to 7.0% effective with the December 31, 2020, actuarial valuation to reflect changing market conditions

Pennsylvania State Employees' Retirement System (SERS)

Financial Overview *(cont.)*

- **Looking Forward**
  - In recent years employers made considerable progress restoring funding to their employees' pensions. These steadily increased contributions supplemented by strong investment returns, despite turbulent market conditions over the past several years, are working to steadily strengthen the health of the fund.
  - Additionally, the annual cost of the plan continues to drop, in response to legislative reforms, as the number of members in Act 120-2010 classes of service, and the newer Act 5 classes of service that opened Jan. 1, 2019, increases. At the end of 2020, approximately 45% of the active membership were in these new classes of service.

Projections of Key Actuarial Data

			For FY Beginning July 1 Following Valuation Year ($ in billions)			
Valuation Year Ended Dec 31	**Funded Ratio**	**UAL**	**Employer Normal Cost Rate**	**Unfunded Liability Rate**	**Employer Contribution Rate**	**Employer Contributions**
2021	67.2%	$ 17.22	8.29%	26.22%	34.51%	$ 2.20
2022	69.1%	$ 16.44	8.12%	25.10%	33.22%	$ 2.18
2023	72.3%	$ 14.93	7.96%	23.24%	31.20%	$ 2.10
2024	74.3%	$ 14.02	7.81%	22.13%	29.94%	$ 2.07
2025	75.6%	$ 13.44	7.66%	21.44%	29.10%	$ 2.06
2026	76.9%	$ 12.85	7.53%	20.79%	28.32%	$ 2.06
2027	78.2%	$ 12.25	7.40%	20.19%	27.59%	$ 2.07
2028	79.4%	$ 11.63	7.27%	19.63%	26.90%	$ 2.07
2029	80.7%	$ 10.98	7.15%	19.09%	26.24%	$ 2.08
2030	82.0%	$ 10.29	7.04%	18.56%	25.60%	$ 2.10

NOTE - Projections include impacts of PSU and PASSHE one-time lump sum payments.

Pennsylvania State Employees' Retirement System (SERS)

Financial Overview *(cont.)*

Stress Testing and Risk Assessment

- Beginning in 2019, SERS worked with its actuary to produce *a Stress Testing and Risk Assessment* report, which identifies and assesses major factors that contribute to the risk that the actual future value of benefits paid from the SERS Defined Benefit Plan will differ from the estimated value provided by the annual actuarial valuation and the actuarially determined contributions. It includes an analysis of various "What if?" scenarios to determine the effect on future employer contributions and the availability of assets to pay benefits when due to members.
- According to The PEW Charitable Trust, overall, the SERS report was a leading example of pension stress test analysis that provides policymakers and budget officials with accessible information about the impact of investment risk on government budgets and contribution risk on pension balance sheets.

Pennsylvania State Employees' Retirement System (SERS)

Pension Forfeiture

Public pension forfeiture in Pennsylvania is governed by state law. There are two types of public pension forfeitures and sources of forfeiture law:

- Act 140 of 1978, as amended ("Act 140"), governs forfeitures of pensions for state employees specifically and all public employees in Pennsylvania generally. Act 140 forfeitures are triggered by criminal conduct.
- The Pennsylvania Constitution and the Pennsylvania Judicial Code contain specific provisions for the forfeiture of pensions for members of the Judiciary. These forfeitures are triggered by removal from judicial office. A judge can be subject to forfeitures under both Act 140 and the judicial forfeiture provisions.

Note: *The list of crimes that trigger Act 140 pension forfeitures is statutorily defined. The Courts have ruled that SERS and the other pension administrators have no discretion to waive the application of Act 140.*

Pennsylvania State Employees' Retirement System (SERS)

Pension Forfeiture *(Cont.)*

- Act 140 has *three elements* that must be satisfied to trigger a pension forfeiture:

  1) a public official or public employee;
  2) is convicted of (or after Act 2019-1 is found guilty of) or pleads guilty or no defense to a crime listed in Act 140; and
  3) the crime was committed *through the public office or position or when the public office or position put the public official or employee in a position to commit the crime.*

- Act 2019-01 amended Act 140 to expand the list of forfeiture crimes that require pension forfeiture to include most job-related Pennsylvania felonies and made other administrative changes. The amendments apply only to crimes committed on or after March 28, 2019.

2021 SERS Budget Highlights

The Pennsylvania State Employees' Retirement System currently serves approximately 240,000 active, inactive, vested and retired members. Last year, the system paid nearly $3.6 billion in pension benefits of which approximately $3.2 billion was issued to SERS members who live in Pennsylvania. For 2020, the average pension paid to retirees who work to full retirement age was about $30,050.

For FY 2021-22, SERS proposes a $33.6 million spending authority, which is drawn from SERS funds, not general government operating accounts, for administration of the Defined Benefit Plan and $4.4 million for the Defined Contribution Plan.

COVID-19 Upheaval

The past year, 2020, brought an array of challenges, most of them a direct result of the COVID-19 pandemic. Early on in the year, financial markets experienced extreme volatility, but eventually recovered. Thanks in part to our investment strategy and the asset allocation adopted in December 2019, SERS finished 2020 on a positive note.

During 2020, SERS experienced investment gains of approximately 11.1% for our Defined Benefit Plan, which is several points higher than the fund's annual assumed rate of return. Thanks to these positive returns, five years of full funding from the General Assembly, the receipt of $1.06 billion from Penn State University's prepayment of its unfunded liabilities (made possible by Act 2019-105), and our ongoing efforts to implement efficiencies across SERS, we continue to progress toward our long-term goal of eliminating our unfunded liability.

New Strategic Business Plan: FY 2020-21 Through FY 2022-23

Beginning in 2019 and throughout 2020, the board and senior staff worked together to assess the agency's current services, procedures, and processes, and considered what our mission is and how we can achieve it. That work resulted in a demanding strategic business plan that spells out our mission, vision, strategic priorities, and guiding principles. It also lists specific goals for what we intend to achieve through FY 2022-23 and how we intend to do it. The plan, developed specifically to help prepare our members and participants to achieve financial success and security in retirement, is available on our public website.

Rebalanced Portfolio to Align with New Asset Allocation

In early 2020, SERS' investment staff rebalanced assets to align with the new target asset allocation approved by the board in December 2019. The initial work involved withdrawing approximately $2.85 billion from public equity and $750 million from cash and allocating those proceeds to fixed income. SERS' investment staff also executed several rebalancing transactions in 2020 to ensure that asset classes are near their target weights.

Penn State's $1.06 Billion Payment Toward its Unfunded Liabilities

In April 2020, Penn State University submitted a payment of $1.06 billion toward its unfunded liability. In return, the university will receive an annual credit against their contributions for 30 years. The credit totals nearly $93.3 million for twenty years and then decreases over the final 10 years beginning at nearly $72.6 million and ending at approximately $2.3 million in 2049. The payment was made under the auspices

2021 SERS Budget Highlights

of Act 2019-105, which allows eligible employers to enter into an agreement with the SERS Board to make a one-time, lump-sum payment of between 75% to 100% of their unfunded liability.

Investment Return and Inflation Assumptions Reduced

On July 29, 2020, the board reduced the investment return assumption from 7.125% to 7.0% and the assumed rate of inflation from 2.6% to 2.5%. The assumptions are used when valuing the pension plan and will become effective with the December 31, 2020 actuarial valuation. The changes, along with a number of demographic assumptions, were approved after the board's actuary completed a five-year study of actuarial experience.

Key Assumptions

Assumption	2019 Valuation	2020 Valuation
Investment Return	7.125%	7%
Average total salary/ career growth	5.6%	4.8%
Inflation rate	2.6%	2.5%

Enhanced Funding Stability for DC Plan

The past year also saw several important legislative changes, made to improve the funding stability of our Defined Contribution Plan. These include establishing the ability for SERS to assess a per-participant charge to all employers to cover the fees, costs, and expenses associated with the plan, as well as allowing for SERS to utilize unvested employer contributions towards paying the administrative costs of the plan.

Hybrid Plan Snapshot

as of Dec 31, 2020

Participants	9,927 total 9,520 A-5 Class of Service 407 A-6 Class of Service
Assets	see the Defined Contribution Plan and Defined Benefit Plan Snapshots for the assets in each plan.
Eligible Employers	102

Defined Contribution Plan Snapshot

as of Dec 31, 2020

Participants	13,162 total accounts 10,237 participants contributing to the plan 9,927 Hybrid Plan participants 310 Defined Contribution Plan participants 2,925 inactive accounts
Assets	$35.7 million
Eligible Employers	102
Total Participant Mandatory Contributions	$11.7 million
Total Employer Contributions	$7.8 million
Total Rollovers into the Plan	95 totaling $2.4 million
Total Rollovers Out of the Plan	57 totaling $120,000
Total Distributions/Withdrawals	364 totaling $321,000
Total Voluntary After-Tax Contributions	$366,000

Defined Benefit Plan Snapshot

Members as of Dec 31, 2020	239,370 total 100,965 active members paying into the system Hybrid Plan members 9,927 Defined Benefit Plan 91,038 133,334 retirees and beneficiaries receiving benefits 5,071 vested members not receiving benefits
Average 2020 Annuity	\$23,939 per year \$30,050 per year for those who work to full retirement age
Total Pension Benefits Paid paid in 2020, unaudited	\$3.6 billion
Member Contribution Rate PA FY 2020/21	6.25% of salary, by payroll deduction (for most members) Varies between 5% and 9.3%
Number of Employers as of Dec 31, 2020	102
Employer Contribution Rate PA FY 2020/21	33.48% of payroll, composite rate 1.67% of payroll for benefits earned this year 31.81% of payroll primarily for the unfunded liability
Projected Employer Contribution Rate PA FY 2021/22	33.10% of payroll 1.42% of payroll for benefits earned this year 31.68% of payroll primarily for the unfunded liability
Employer Contribution Sources % provided by the Governor's Budget Office (FY 2018/19)	approx. 40% general funds approx. 52% special and federal funds approx. 8% independent employer funds
Funding Sources as of year-end Dec 31, 2020, unaudited	\$410 million member contributions \$3.2 billion employer contributions \$3.4 billion investment earnings
Investment Returns as of Dec 31, 2020 unaudited, annualized, net-of-fees	11.1% 1-year; 8.0% 10-year; 7.9% 25-year; 9.6% inception to date return
Total Fund Assets as of Dec 31, 2020, unaudited	\$34.5 billion
Cash Flow 2021 projected	\$2.46 billion annual contributions (member/employer) \$3.80 billion annual payments (benefits/administrative expenses) difference in sum necessary to cover payments must come from investment income
Funded Status 2019 actuarial report adjusted with preliminary 2020 year-end performance data	59.4% with an unfunded liability of \$22.2 billion
Key Assumptions 2019 Actuarial Report	7.125% long-term investment return (7% in 2020 valuation) 5.6% average total salary/career growth (4.8% in 2020 valuation) 2.6% inflation rate (2.5% in 2020 valuation)

Deferred Compensation Plan Snapshot

as of Dec 31, 2020

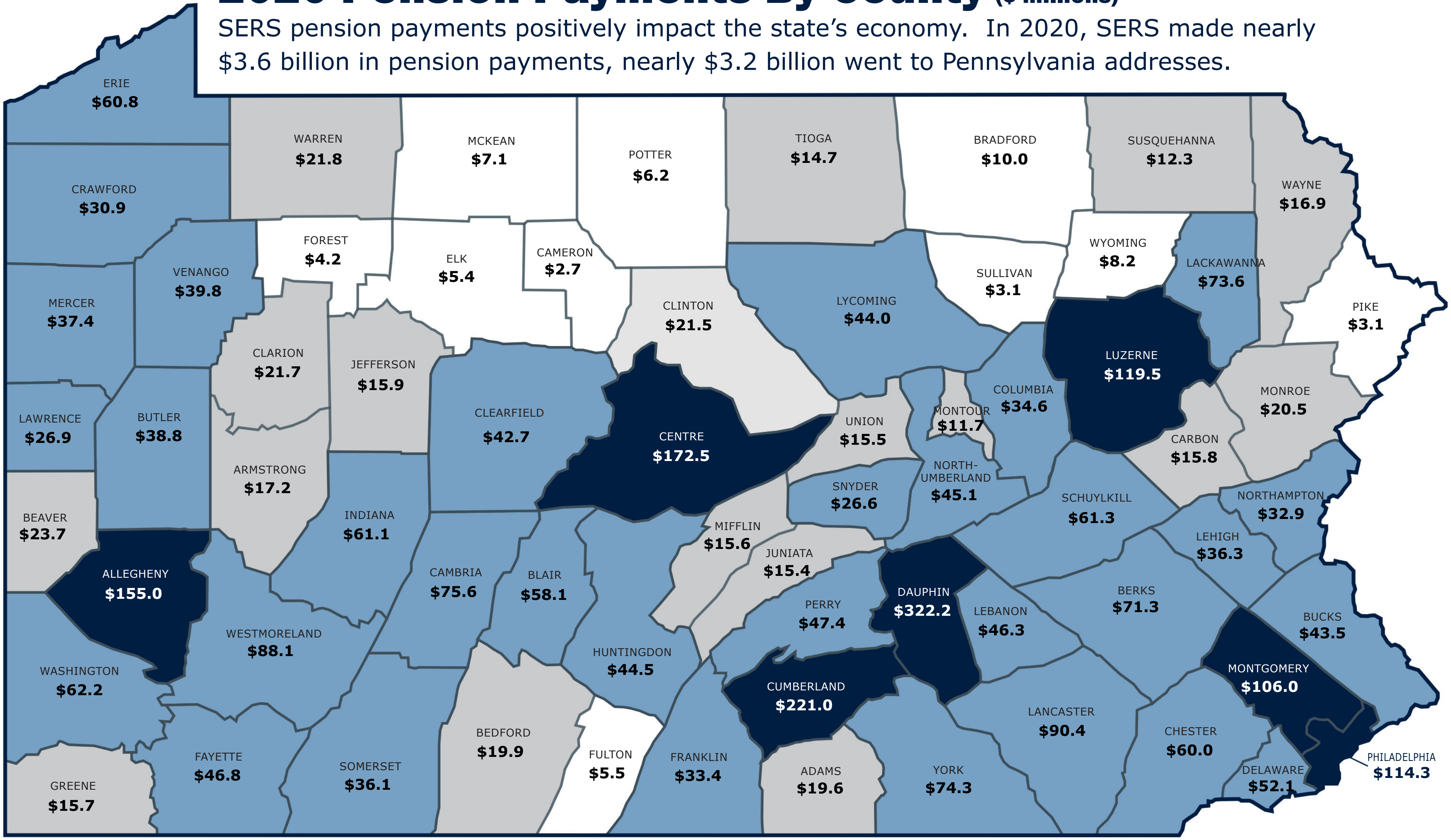
Participants	57,682 total accounts 34,316 actively contributing participants
Assets	$4.3 billion
Eligible Employers	76
Total Participant Contributions	$166 million
Total Rollovers Into the Plan	766 totaling $61 million
Total Rollovers Out of the Plan	1,633 totaling $126 million
Total Distributions/Withdrawals	27,787 totaling $252 million

1.800.633.5461 | www.SERS.pa.gov

Pennsylvania State Employees' Retirement System | 30 North 3rd Street, Suite 150 | Harrisburg PA 17101

2020 Pension Payments By County ($ millions)

SERS pension payments positively impact the state's economy. In 2020, SERS made nearly $3.6 billion in pension payments, nearly $3.2 billion went to Pennsylvania addresses.



$0 - $9.9 million | $10 - $24.9 million | $25 - $99.9 million | $100 million +

Out of State $335.8 million | Out of Country $1.5 million

pennsylvania
STATE EMPLOYEES' RETIREMENT SYSTEM

SERS.pa.gov | 1.800.633.5461

03.02.2021

DEFINED BENEFIT PLAN

Traditional Pension

Defined Benefit Plan

Total FY 2021-22 Spending Request

$33.6 million

$1.5 million directed commissions

$19.4 million personnel

$15.3 million operations

$0.4 million fixed assets

Excerpts from operations =

IT consulting-system upgrade **$5.7 million**

real estate **$2.0 million**

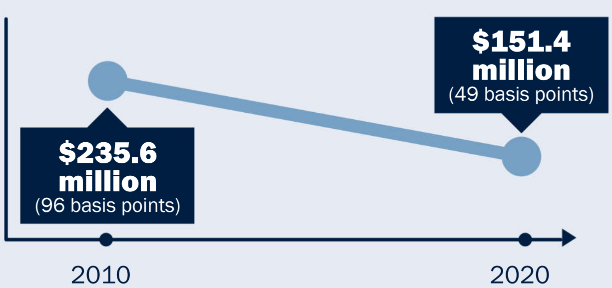
hardware/software maintenance **$1.8 million**

postage **$0.7 million**

legal services **$0.3 million**

office equipment **$0.2 million**

SERS decreased manager fees and expenses



2020 Contributions to the SERS Fund

$410 million members contributed

$3.2 billion employers contributed

$3.4 billion investment earnings

In 2020 the SERS fund returned **11.1%** (unaudited)

Emerging Markets Equity **24.5%**

Inflation Protection (TIPS) **11.0%**

US Equity **21.3%**

Private Equity **18.4%**

Cash **0.6%**

Private Credit **9.1%**

Real Estate **2.1%**

International Developed Markets Equity **9.6%**

Fixed Income **5.8%**

DEFINED BENEFIT PLAN

Plan Description

Employees initially hired before January 1, 2019, or into certain law enforcement and security positions after that date, are enrolled in the Defined Benefit Plan, which is a traditional pension plan.

This plan features guaranteed monthly payments for life based on a calculation that considers the employee's years of service and salary:

Annual Accrual Rate x **Years of Credited Service** x **Final Average Salary** = **Maximum Annual Retirement Allowance**

The economic engine of the Defined Benefit Plan is the SERS Fund, which is professionally managed by SERS and detailed in this section.

Both the employee and their employer contribute toward the Defined Benefit Plan.

The employee contributes a certain percentage of their pay, determined by their class of service in the pension system. The percentages are set by law in the State Employees' Retirement Code and are generally fixed except for a shared-risk/shared-gain provision. For employees hired after December 31, 2010, if SERS investments fail to achieve the assumed rate of return over a number of years; or conversely, if SERS investments outperform the assumed rate of return over a number of years, the employee's contribution rate could change by no more than 3% over/under the base rate for their class of service in the pension system. While contribution rates vary with the vast majority contributing between 5% and 9.3%, most employees contribute 6.25% of their pay toward their pension.

Employers contribute a percentage of their payroll as calculated each year based on the assets and liabilities of the SERS Fund.

For FY 2020-21, employers on average are contributing 33.48% of payroll toward their employees' pensions.

SERS invests the contributions to achieve returns to help ensure sufficient funds are available to make required payments to current and future retirees.

Most employees hired after December 31, 2010, are eligible for monthly pension payments, or "vested" in the pension system, after working 10 years.

If employees retire before they reach their full SERS retirement age – either age 50, 55, 60, 65, or 67 depending on their class of service in the system – their pension is reduced for early retirement.

The Defined Benefit Plan also features a disability benefit for employees who become unable to perform their job because of injury or illness and qualify, based on years of service and a review by an independent medical examiner.

Recent Changes

In 2020, the plan experienced the following changes:

- **Investment Return and Inflation Assumptions Reduced** – On July 29, 2020, the board reduced the investment return assumption from 7.125% to 7.0% and the assumed rate of inflation from 2.6% to 2.5%. The assumptions are used when valuing the pension plan and will become effective with the December 31, 2020 actuarial valuation. The changes, along with a number of demographic assumptions, were approved after the board's actuary completed a five-year study of actuarial experience.

DEFINED BENEFIT PLAN

Plan Description

- **Rebalanced Portfolio to Align with New Asset Allocation** – In early 2020, SERS' investment staff rebalanced assets to align with the new target asset allocation approved by the board in December 2019. The initial work involved withdrawing approximately $2.85 billion from public equity and $750 million from cash and allocating those proceeds to fixed income. SERS' investment staff also executed several rebalancing transactions in 2020 to ensure that asset classes are near their target weights.

- **PSU Made $1.06 Billion Payment Toward its Unfunded Liabilities** – In April 2020, Penn State University submitted a payment of $1.06 billion toward its unfunded liability. In return, the university will receive an annual credit against their contributions for 30 years. The credit totals nearly $93.3 million for twenty years and then decreases over the final 10 years beginning at nearly $72.6 million and ending at approximately $2.3 million in 2049.

The payment was made possible by Act 2019-105, that allows eligible employers to enter into an agreement with the SERS Board to make a one-time, lump-sum payment of between 75% to 100% of their unfunded liability.

Defined Benefit Plan Statistics

As of December 31, 2020

Members	239,370 total 100,965 active contributing members Hybrid Plan members 9,927 Defined Benefit Plan only members 91,038 5,071 vested members not receiving benefits 133,334 retired members and beneficiaries
Assets	$34.5 billion
Number of Employers	102
Total Employee Contributions	$410 million
Total Employer Contributions	$3.2 billion
Total 2020 Benefit Payments	$3.6 billion

DEFINED BENEFIT PLAN

Members

Total Active & Annuitant Members

Year Ending December 31	Total Members[1/]	Active Members	Annuitants & Beneficiaries
2020	234,299	100,965	133,334
2019	235,581	102,850	132,731
2018	234,014	103,007	131,007
2017	232,451	102,978	129,473
2016	231,970	104,632	127,338
2015	229,714	105,025	124,689
2014	226,680	104,431	122,249
2013	225,238	105,186	120,052
2012	223,109	106,048	117,061
2011	222,363	107,021	115,342

[1/]Totals do not include inactive members.

Active Members: Age & Service

Average Age	46.5
Average Years of Service	11.8

Total Annuitants & Beneficiaries: By Category

	2017	2018	2019	2020
Normal	64,796	65,968	67,307	68,103
Early	44,284	44,383	44,423	44,129
Disability	8,593	8,626	8,637	8,529
Beneficiary/Survivor	11,800	12,030	12,364	12,573

Annuitants & Beneficiaries: Average Age

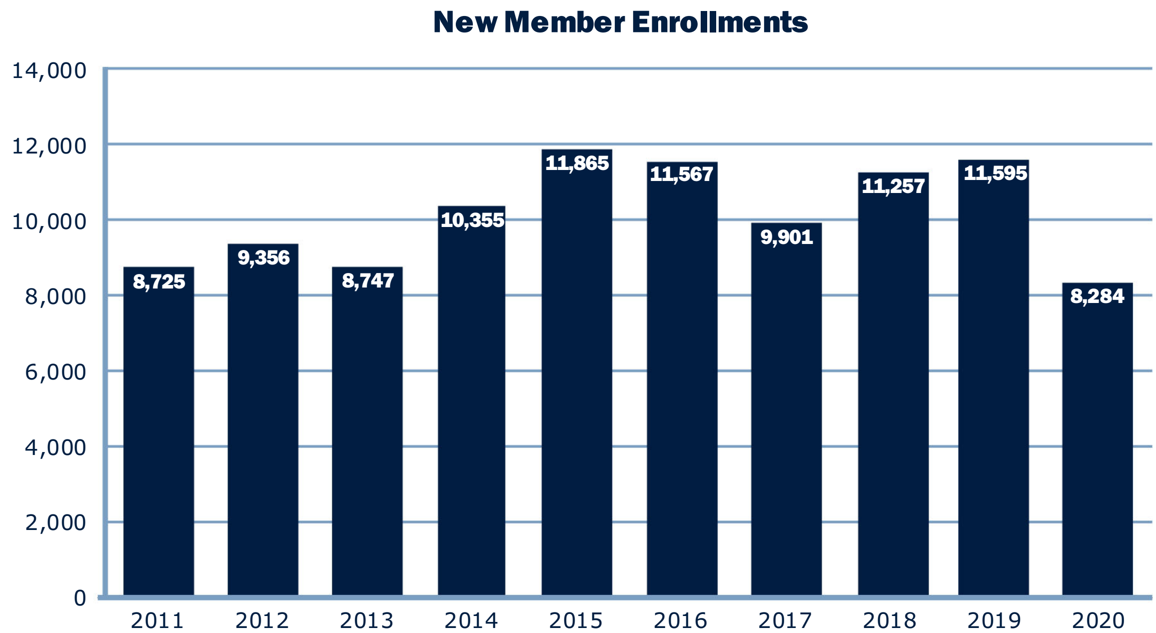
	2017	2018	2019	2020
Normal	72.3	72.4	72.5	72.6
Early	64.7	65.1	65.5	66.0
Disability	63.7	64.1	64.5	64.9
Beneficiary/Survivor	74.6	74.6	74.7	74.7

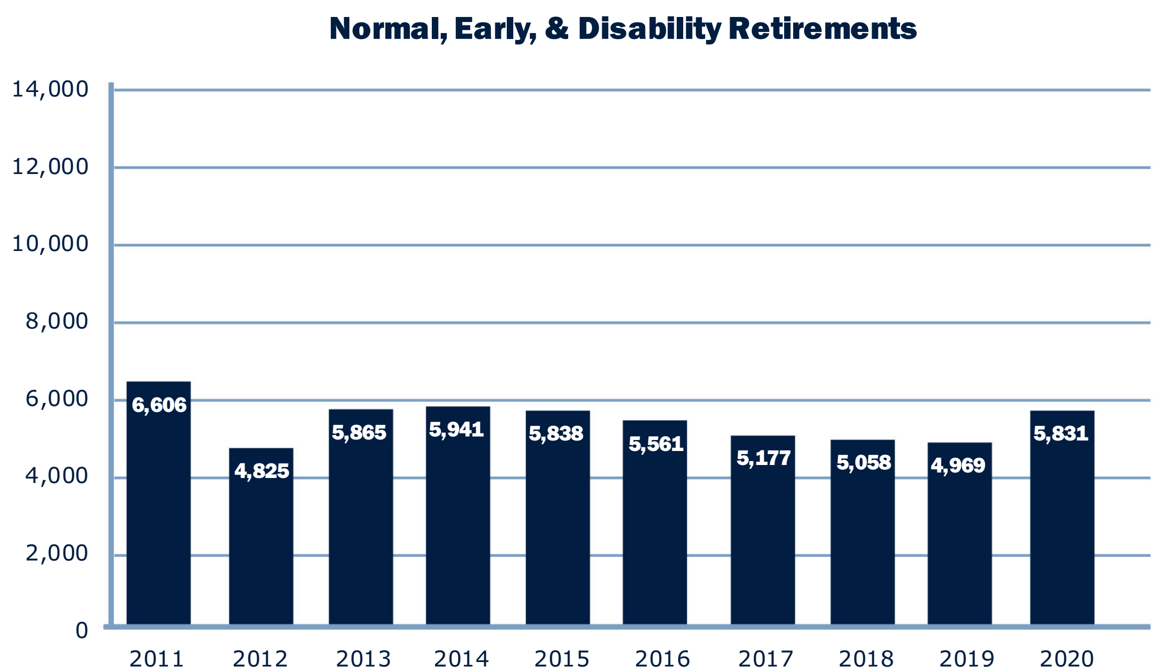
Annuitants & Beneficiaries: Average Annual Pension

	2017	2018	2019	2020
Normal	$28,352	$28,880	$29,440	$30,050
Early	17,751	18,098	18,428	18,727
Disability	15,521	15,753	15,980	16,234
Beneficiary/Survivor	12,947	13,350	13,816	14,253

DEFINED BENEFIT PLAN

Members





DEFERRED COMPENSATION PLAN
Supplemental Benefit

Deferred Compensation Plan

$252 million
distributions/withdrawals in 2020

$4.3
billion in assets

As of Dec 31, 2020

57,682
accounts

76
employers

Participant Contributions
$166 million

DEFERRED COMPENSATION PLAN

Plan Description

Most state employees are eligible to participate in the voluntary Deferred Compensation Plan, commonly referred to as "deferred comp." The plan allows participants to have some of their pay automatically deducted on a before- and/or after-tax basis and invested for retirement.

Participants can contribute as little as $5 or 0.5% of pay each pay period and as much as the annual IRS contribution limits.

Participants are eligible for withdrawals or distribution of their deferred comp account when they retire, leave state employment, die, suffer an unforeseeable emergency as defined by the Internal Revenue Code, or to purchase service credit in the SERS Defined Benefit Plan.

Established by Act 1987-81, this voluntary supplemental investment plan was established as a trust and is administered in accordance with Internal Revenue Code 457(b). The plan allows participants the flexibility to make traditional before-tax and Roth after-tax contributions.

The SERS Board selects the investment options offered through this plan, contracts with investment managers, and contracts through a competitive bid with the third-party administrator of the plan, currently Empower Retirement. Empower maintains participant records, carries out investment transactions on behalf of the participants, counsels participants, and markets the plan.

Investment options comprise a series of target date funds that include a post-retirement date fund (effective January 3, 2020), equity funds, fixed income funds, a money market fund, and a self-directed brokerage option.

The cost of administering the deferred comp plan is borne solely by participants, using no commonwealth funds. During 2020, staff examined internal and third-party administrator processes to find efficiencies and see where costs could be reduced and/or services improved. The work on this important initiative will continue through 2021.

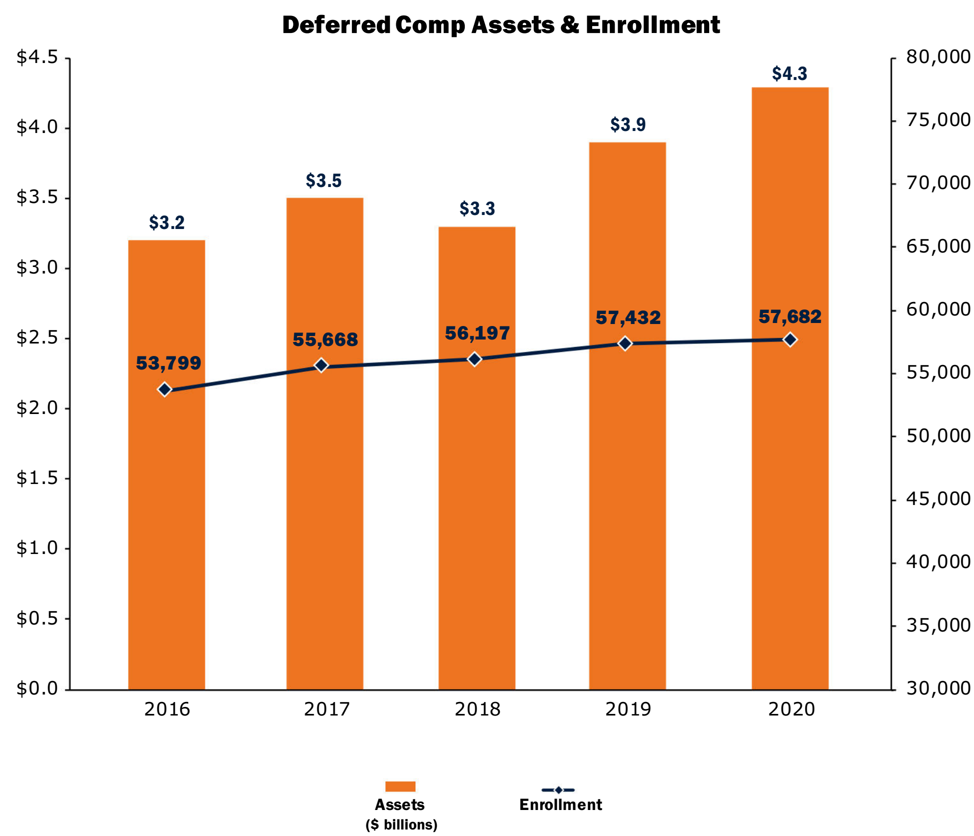
DEFERRED COMPENSATION PLAN

Plan Description

Growth of Deferred Comp

In 2020, more than 57,000 participants had a total of approximately $4.3 billion invested in deferred comp.

As of December 31, 2020, there were 34,316 active and 23,366 inactive participants in deferred comp. From 2016 to 2020, annual deferrals have ranged from $136 million to $166 million per year and the total fund value grew from approximately $3.2 billion to approximately $4.3 billion.



DEFERRED COMPENSATION PLAN

Plan Description

Recent Changes

In April 2020, the SERS Board moved to allow COVID-19-related distributions from the plan, consistent with the federal Coronavirus Aid, Relief, and Economic Security (CARES) Act. As a result, deferred comp participants could take an early distribution withdrawal on a tax-penalty-free basis from their accounts to help meet their immediate needs with the option to repay the money within three years.

While the federal CARES Act was extended in late December 2020, the extension did not include emergency distributions from retirement plans governed by IRS Code Section 457(b) and the provision expired at the end of 2020. As of December 31, 2020, 1,976 participants made withdrawals under this provision totaling nearly $31 million.

Deferred Compensation Plan Statistics

as of December 31, 2020

Participants	57,682 total accounts 34,316 actively contributing participants
Assets	$4.3 billion
Eligible Employers	76
Total Participant Contributions	$166 million
Total Rollovers Into the Plan	766 totaling $61 million
Total Rollovers Out of the Plan	1,633 totaling $126 million
Total Distributions/Withdrawals	27,787 totaling $252 million

Data in this publication is unaudited.

Deferred Compensation Plan Investment Options

Participation, Assets, Performance, and Fund Expense
as of December 31, 2020

Fund Name	Participants	Fund Balance	Inception Date	Estimated Calendar Year, Net-of-Fees Returns				Max Total Investment Fund Expense
				1 Year	3 Year	5 Year	10 Year	
Stable Value Fund	35,719	$1,188,276,562	06-1995	2.31%	2.41%	2.21%	2.45%	0.2560%[2/]
Post Retirement Date Fund	4,282	262,654,165	08-2005	11.97	7.72	7.88	6.25	0.0775[1/]
2025 Retirement Date Fund	2,946	156,521,882	07-2006	12.19	8.17	9.12	7.37	0.0775[1/]
2030 Retirement Date Fund	3,371	143,506,315	08-2005	12.88	8.74	9.95	7.94	0.0775[1/]
2035 Retirement Date Fund	3,437	123,454,143	07-2006	13.57	9.27	10.73	8.47	0.0775[1/]
2040 Retirement Date Fund	2,709	74,827,975	08-2005	14.14	9.71	11.41	8.92	0.0775[1/]
2045 Retirement Date Fund	2,364	56,817,423	07-2006	14.83	10.08	11.90	9.28	0.0775[1/]
2050 Retirement Date Fund	1,860	33,948,215	09-2007	15.20	10.25	12.09	9.49	0.0775[1/]
2055 Retirement Date Fund	1,044	9,757,868	05-2010	15.32	10.30	12.11	9.62	0.0775[1/]
2060 Retirement Date Fund	565	3,547,120	11-2014	15.31	10.29	12.10	NA	0.0775[1/]
2065 Retirement Date Fund	110	1,634,042	09-2019	15.14	NA	NA	NA	0.0775[1/]
U.S. Large Company Stock Index Fund	35,291	1,158,019,863	12-1994	18.43	14.19	15.23	13.90	0.0150[1/]
U.S. Small/Mid Company Stock Index Fund	28,550	501,313,992	08-1998	32.03	15.35	16.06	13.23	0.0250[1/]
Global Non-U.S. Stock Index Fund	17,835	139,701,498	03-2009	11.15	5.25	9.35	5.15	0.0550[1/]
U.S. Bond Index Fund	21,554	225,237,129	02-1995	7.56	5.35	4.43	3.80	0.0250[1/]
Short-Term Investment Fund	15,629	81,102,676	10-2003	0.65	1.67	1.34	0.77	0.0000

[1/] Maximum possible expense that can be charged.

[2/] The Stable Value Fund expense will fluctuate very little based on the balance of the fund.

The Plan's annual recordkeeping fee is $59.50 per participant.

For those in the Self-Directed Brokerage Option (SDB), the asset fee is assessed against the balance in the SDB but the actual deduction is prorated against the core investment options separately.

DEFINED CONTRIBUTION PLAN
Investment Option

Defined Contribution Plan

$321,000
distributions/withdrawals in 2020

$35.7
million in assets

As of Dec 31, 2020

13,162
accounts

102
employers

Contributions
participant **$11.7** million
employer **$7.8** million

Total FY 2021-22 Planned Budget

$4.4 million

$2.3 million
personnel

$2.1 million
operations

Excerpts from operations =

specialized services	**$1,290,000**
IT consulting-system upgrade	**$358,000**
legal services	**$100,000**
real estate	**$78,000**
postage	**$30,000**

DEFINED CONTRIBUTION PLAN

Plan Description

While the Hybrid Plan A-5 class of service is the default plan for most new state employees, they have the option to forgo the traditional pension component of those plan options and participate exclusively in the Defined Contribution Plan.

Employees in the Defined Contribution Plan contribute 7.5% of their pay and their employer contributes an amount equal to 3.5% of the employee's pay toward the employee's investment account.

The employee is eligible for distribution of the employer contributions, or is "vested" in this plan, after working three years. Employee contributions are immediately vested and eligible for distribution upon retirement.

In this plan, the amount of money an employee has for retirement is based on the balance in the employee's personal investment account.

The SERS Board selects the investment options offered through this plan, contracts with investment managers, and contracts through a competitive bid with the third-party administrator of the plan, currently Empower Retirement. Empower maintains participant records, carries out investment transactions on behalf of the participants, and counsels participants.

Investment options comprise a series of target date funds that include a post-retirement date fund, equity funds, fixed income funds, a money market fund, and a self-directed brokerage option.

On December 31, 2020, participant accounts totaled $35.7 million.

Plan administrative costs during 2020 were funded through a FY 2019-20 commonwealth budget appropriation and a per-participant assessment charged to employers in the second half of 2020, as described below. As of December 31, 2020, the plan had approximately $3.4 million available for plan administration.

As the plan becomes more established, cost-saving initiatives are taking place. During 2020, staff examined internal and third-party administrator processes to find efficiencies and see where costs could be reduced and/or services improved. The work on this important initiative will continue through 2021.

Recent Changes

In 2020, the plan experienced the following changes:

- **Administered Per-Participant Charge to Employers** - While the General Assembly provided direct funding through commonwealth budget appropriations for the startup and first year of the plan, Act 2020-23 authorized the SERS Board to assess employers a per-participant charge for the administrative fees, costs, and expenses of the plan.

  The per-participant charge was based on the anticipated cost to run the plan for FY 2020-21 and the employee participation count certified by SERS' Board to its actuary as of December 31, 2019. The resulting per-participant fee was $668.77. As enrollment in the new plan increases over time and our cost-reducing efforts take shape, the per-participant charge is expected to decrease.

- **Established Process to Retain Unvested Employer Contributions** – Act 2020-94 authorized the SERS Board to retain all unvested employer contributions from employees who left state service after June 30, 2020, and

DEFINED CONTRIBUTION PLAN

Plan Description

deposit them into a plan level account to help pay administrative expenses of operating the plan.

The retention of unvested contributions will help lower the future per-participant charge assessed to employers.

Defined Contribution Plan Statistics

as of December 31, 2020

Participants	13,162 total accounts 10,237 participants contributing to the plan Hybrid Plan participants 9,927 Defined Contribution Plan participants 310 2,925 inactive accounts
Assets	$35.7 million
Eligible Employers	102
Total Participant Mandatory Contributions	$11.7 million
Total Employer Contributions	$7.8 million
Total Rollovers into the Plan	95 totaling $2.4 million
Total Rollovers Out of the Plan	57 totaling $120,000
Total Distributions/Withdrawals	364 totaling $321,000
Total Voluntary After-Tax Contributions	$366,000

Defined Contribution Plan Investment Options

Participation, Assets, Performance, and Fund Expense
as of December 31, 2020

Fund Name	Participants	Fund Balance	Inception Date	Estimated Calendar Year, Net-of-Fees Returns: 1 Year	3 Year	5 Year	10 Year	Max Total Investment Fund Expense[2/]
Post Retirement Date Fund	322	$563,163	08-2005	11.97%	7.72%	7.88%	6.25%	0.0775%
2025 Retirement Date Fund	648	1,458,663	07-2006	12.19	8.17	9.12	7.37	0.0775
2030 Retirement Date Fund	1,041	3,399,905	08-2005	12.88	8.74	9.95	7.94	0.0775
2035 Retirement Date Fund	1,267	3,259,859	07-2006	13.57	9.27	10.73	8.47	0.0775
2040 Retirement Date Fund	1,224	3,183,599	08-2005	14.14	9.71	11.41	8.92	0.0775
2045 Retirement Date Fund	1,245	4,345,437	07-2006	14.83	10.08	11.90	9.28	0.0775
2050 Retirement Date Fund	1,472	4,439,865	09-2007	15.20	10.25	12.09	9.49	0.0775
2055 Retirement Date Fund	1,703	4,184,167	05-2010	15.32	10.30	12.11	9.62	0.0775
2060 Retirement Date Fund	2,064	4,250,866	11-2014	15.31	10.29	12.10	NA	0.0775
2065 Retirement Date Fund	1,823	2,359,357	09-2019	15.14	NA	NA	NA	0.0775
U.S. Large Company Stock Index Fund	436	1,371,187	12-1994	18.43	14.19	15.23	13.90	0.0150
U.S. Small/Mid Company Stock Index Fund	115	298,840	08-1998	32.03	15.35	16.06	13.23	0.0250
U.S. All Company Stock Index Fund	313	456,557	01-2011	21.20	14.43	15.38	13.51	0.0250
Global Non-U.S. Stock Index Fund	311	717,483	03-2009	11.15	5.25	9.35	5.15	0.0550
U.S. Bond Index Fund	281	317,580	02-1995	7.56	5.35	4.43	3.80	0.0250
U.S. Short-Term Bond Index Fund	152	52,576	12-2017	3.36	2.98	NA	NA	0.0250
U.S. Treasury Inflation Protected Security Index Fund[1/]	190	79,488	07-2007	11.00	5.91	NA	NA	0.0250
Short-Term Investment Fund	24	939,153	10-2018	0.65	1.67	1.34	0.77	0.0000

[1/]There was a break in the return history of the TIPS fund between 2010 and 2017, since there were no participants during that time.

[2/]Maximum possible expense that can be charged.

The Plan's annual recordkeeping fee is $59.50 per participant. The Plan's employers are currently covering this fee.

For those in the Self-Directed Brokerage Option (SDB), the asset fee is assessed against the balance in the SDB but the actual deduction is prorated against the core investment options separately.

SERS White Paper - Spring 2020

THE FUNDAMENTALS OF SOUND PUBLIC PENSION FUNDING

In some ways, calculating a viable path to ensuring the health and integrity of a public pension fund is like piecing together bits of a puzzle. While you may not need every piece to appreciate the full picture, there are certain key elements that will make arriving at a pension funding solution immeasurably simpler.

Two Key Questions

There are two basic questions that need to be considered: How much will it cost, and how will it be paid?

Determining actual costs requires a series of calculations involving a myriad of factors that are based on actuarially sound principles. These factors include actual and/or projected age, salary, years of service, various risk measurements, contributions, benefit accrual rate, investment returns, and more.

On the basis of these calculations, independent actuaries engaged by SERS produce what is called the Actuarially Required Contribution (ARC), or Actuarially Determined Contribution (ADC), which is another term for the same concept.

The National Association of State Retirement Administrators (NASRA), describes the ARC as the amount needed to be contributed by employers to adequately fund a public pension plan. The ARC is the sum of two factors: 1) the cost of pension benefits being accrued in the current year (known as the normal cost), and, 2) the cost to amortize, or pay off, the plan's unfunded liability. Essentially, the ARC is the required employer contribution after accounting for other revenue, primarily expected investment earnings and contributions from employee participants.

Penny-Wise, Pound-Foolish

The second question, how the ARC gets paid, is an equally important consideration. In a perfect world, employers and state legislatures pay the full amount of the calculated ARC according to an actuarially sound schedule. If, for whatever reason, the required contributions are not paid in full, then the fund will be short that foregone principal, as well as the interest that principal would have earned. This is significant, as investment earnings have funded more than 62% of SERS' liabilities over the past 20 years.

Countless studies have documented the importance of making consistent and adequate contributions to fund pension benefits. Generally speaking, these studies find that adequate contributions play a vital role in the long-term funding condition of public pension plans.

The mathematics are straightforward. Just as the failure to consistently and fully pay one's credit card bill will increase its long-term cost through escalating interest payments, a failure to pay the ARC in full inevitably increases the long-term cost of funding a pension plan and forfeits investment earnings. ***Instead, funds that might otherwise have been deployed for critical services must be allocated to "make up" the shortfall.***

For many pension funds across the U.S., full payment of the ARC has been a variable rather than a constant, thereby contributing to the "unfunded liability" that continues to challenge them.

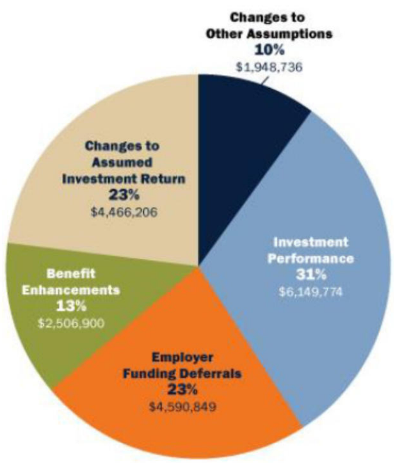
A quick review of recent history underscores just how important full funding of the ARC can be. At the beginning of the millennium, SERS had a funded ratio that was over 100%.

While investment losses during two significant economic recessions (2002 and 2008) contributed to the deterioration in SERS' funded position, far greater impacts stemmed from continued underfunding of the ARC (for 11 years, beginning in 2005), several legislatively-prescribed benefit increases without requisite prefunding (Act 2001-9 and Act 2002-38), and, in particular, artificially suppressed employer contribution rates as a result of Act 2003-40 and Act 2010-120.

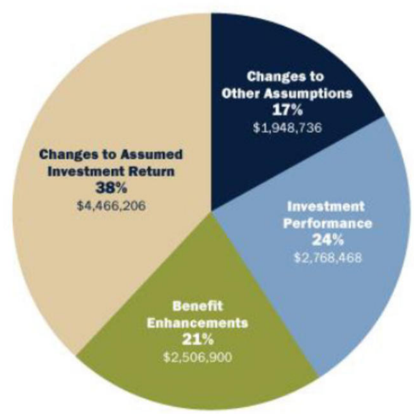
Act 2003-40 also imposed a split amortization that recognized COLAs and certain large gains over 10 years, while recognizing other gains and losses over 30 years. The effect was to suppress the unfunded liability rate for 10 years ending in 2011.

The charts below offer a comparative perspective of the direct impact that artificially suppressed employer contribution rates had on SERS' funded status – a difference of approximately $8 billion over the long term.

SERS Sources of Unfunded Liability
Total Liability as of 12/31/17
$19.7 Billion
(Amounts in chart below in thousands)



SERS Hypothetical:
"What If There Had Been No Funding Deferrals Under Acts 2003-40 and 2010-120"?
Estimated Unfunded Liability as of 12/31/17
$11.7 Billion
(Amounts in chart below in thousands)



Another much-debated issue that comes into play – particularly in the context of ongoing unfunded liabilities – is the concept of "intergenerational equity." Theoretically, employees' wages are paid currently. But pension benefits are different. They are future obligations that rely on current funding that is contributed to a trust. When current funding falls short, it shifts the responsibility of funding those future obligations, almost always at a higher cost, to a future generation of workers and taxpayers. Many states and other public entities (Pennsylvania included) have, at times, made decisions that undermine those current funding responsibilities – often during times of economic and budgetary distress. Nevertheless, the fallout is virtually inevitable – eventually one needs to pay the piper.

Best Practices for Public Pension Funds

Pension benefits for employees of state and local governments are paid from trust funds to which public employees and their employers contribute during the employees' working years. These timely contributions are crucial to adequate funding and to maintaining the stability of these plans. As noted, when required contributions are not paid, or underfunded, the result is higher future costs – the consequence of foregone principal and significant investment earnings that the contributions would have generated. Again, these future higher costs eat further into future budgets, requiring funds that might otherwise have been available to be deployed for critical services.

From the national perspective, full funding is generally recognized as a key element of public pension fund best practices.

In 2013, the Government Finance Officers Association (GFOA) a 20,000-member organization of public finance officials throughout the United States and Canada, issued "Best Practice: Core Elements of a Funding Policy" calling for the establishment of an actuarially determined contribution that provides reasonable assurance that the cost of retirement benefits will be funded in an equitable and sustainable manner. Such a retirement benefits funding policy would incorporate the following principles and objectives:

1. Every government employer that offers defined benefit pensions or other post-employment benefits (OPEB) should obtain no less than, biennially, an actuarially determined contribution (ADC) to serve as the basis for its contributions to those respective plans.

2. The ADC should be calculated in a manner that fully funds the long-term costs of promised benefits, while balancing the goals of 1) keeping contributions relatively stable and 2) equitably allocating the costs over the employees' period of active service.

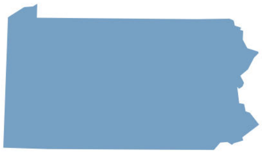
3. Every government employer that offers defined benefit pensions or OPEB should make a commitment to fund the full amount of the ADC each period.

4. Every government employer that offers defined benefit pensions or OPEB should demonstrate accountability and transparency by communicating all of the information necessary for assessing the government's progress toward meeting its pension funding objectives.

"...pension policy should promote fiscal discipline and intergenerational equity, and clearly report when and how pension plans will be fully funded."
-- Pension Funding Task Force

In addition, a report issued by the Pension Funding Task Force (a joint study undertaken by seven national associations representing local and state government entities) came to the following conclusion: The most important step for local and state governments to take is to base their pension funding policy on an actuarially required contribution that is set on an annual or biennial basis and that the pension policy should promote fiscal discipline and intergenerational equity (so that the cost of employee benefits is paid by the generation of taxpayers who receives services), and clearly report when and how pension plans will be fully funded.

The Pennsylvania Perspective



For the Pennsylvania State Employees' Retirement System (SERS), the assurance of dedicated funding is a vital and ongoing objective. In testimony during the October 2018 hearing of the Public Pension Management and Asset Investment Review Commission (PPMAIRC - established as part of Act 2017-5), SERS executives urged the General Assembly and the Governor's office to incorporate into the State Employees' Retirement Code a dedicated funding source and a contribution payment amount that is based on sound actuarial methods and assumptions consistent with generally accepted actuarial standards of practice.

Such action would help "(ensure) funding at an amount that cannot be impaired by the changing priorities of elected officials, insulating it from the unpredictability of the appropriations process, and preventing the manipulation of amortization methods and other funding deferral mechanisms that have cost the system approximately $8 billion through 2017 (as illustrated in the charts on page 2). Those assets could have offset the unfunded liability and provided more investment flexibility to the Retirement Board – flexibility that may well have included an asset allocation with more lower cost investments," SERS Executive Director Terrill (Terri) J. Sanchez told the commission.

Pension Review Commission Recognition

In December 2018, the PPMAIRC issued its final report, which included the following specific recommendations:

Full Funding of the Retirement Funds

- We recommend that the Commonwealth annually maintain full payment of the actuarially determined contribution amount necessary to fund each public pension plan as a fundamental and necessary requirement to ensure the future viability of both retirement systems.

- We recommend that the General Assembly consider additional legislation mandating full funding of each retirement fund, pursuant to Act 120 of 2010, as an annual budgetary priority.

- We recommend that the General Assembly consider legislation requiring the pre-funding of any benefit structure enhancement or cost-of-living increase.

- We recommend that the General Assembly consider the creation of a rate stabilization fund as a precaution against annual underfunding for the two retirement systems during periods of state budgetary stress.

At its March 2019, board meeting, the SERS Board approved a resolution directing the SERS Executive Director and staff to work with the General Assembly to pursue legislative strategies to ensure full funding in a manner that meets the objectives of the PPMAIRC recommendations including exploring the use of a dedicated funding source to fund future obligations.

Dedicated Funding Policies in Other States

Across the country, a number of states and municipalities have instituted dedicated funding practices. The National Association of State Retirement Administrators (NASRA) notes that, across the country, it is increasingly common for public pension plans to receive some funding from dedicated funding sources – either an ongoing or a one-time revenue source that must, by law, be contributed to the pension fund. For example:

Colorado: In 2018, Colorado allocated annual funding of up to $225 million to the Colorado Public Employees' Retirement Association. The amount can be increased or decreased by $20 million if the combined PERA contribution rate is less than 98%, or greater than or equal to 120%, respectively, of the actuarially determined contribution.

Hawaii: Voters in 2016 approved a constitutional amendment adding unfunded pension liabilities and state bonded debt to the list of permissible uses of surplus general fund monies.

Kansas: In 2012, the Kansas legislature approved legislation that requires a share of state gaming revenues from state-owned casinos to be directed to the KPERS unfunded liability beginning in FY 2014 when the amount was estimated to be $30 million. Also, 80% of the proceeds from any sale of state surplus real estate was directed to the KPERS unfunded liability until the retirement system reaches an 80%-funded ratio.

Louisiana: Voters in 2016 approved the creation of a Revenue Stabilization Trust Fund for the deposit of recurring mineral and corporate tax revenues. Within set limits, monies from the fund may be used to pay down state employee retirement debt, among other purposes.

Minnesota: In 2018, the legislature adopted an annual state aid payment to the Minnesota Public Employees Retirement Association of $4.5 million in FY 2019 and FY 2020, and $9.0 million annually thereafter until FY 2048.

Montana: In 2013, the legislature approved a bill dedicating a portion of the coal severance tax to amortizing the state's unfunded pension liabilities.

North Carolina: In 2018, the legislature established a solvency reserve fund to help pay down the state's unfunded pension and health care liabilities. The reserve is to be funded through several sources including General Assembly appropriations, overflows or statutory excesses from the state's "rainy day" fund, or savings from the refinancing of general obligation bonds.

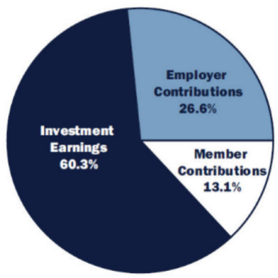
Oklahoma: Oklahoma Teachers' Retirement System receives 5% of the State's sales, use, and corporate and individual income taxes, collected as dedicated revenue. The system receives 1% of the cigarette taxes collected by the State and 5% of net lottery proceeds collected by the state. Also, in 2013, the Oklahoma Legislature created the Oklahoma Pension Stabilization Fund, into which surplus state revenues are deposited and from which the legislature may appropriate to the state pension fund.

Oregon: In 2018, the legislature approved legislation directing a variety of revenue sources, including tax receipts on alcohol and marijuana, lottery revenues above estimates, and others, to fund public pensions.

Positive Steps

During the past decade, the General Assembly and Administration took several positive steps to effectively manage employer costs and address the unfunded liability. While Act 120 of 2010 did "collar" employer contribution rates below actuarially determined payment levels that would have otherwise been necessary, it also obligated a politically affordable annual payment schedule that steadily increased employer payments over the course of several years until full payments again would be made, beginning in 2016.

SERS Funding Sources
(20-Year Cumulative History)



Act 120 also provided a more consistent means for calculating investment gains and losses – allowing SERS to amortize unfunded liabilities over a 30-year period, and providing that additional liabilities to the system (Cost of Living Adjustments, etc.), be amortized over 10 years.

Both Act 120 of 2010 and Act 5 of 2017 reduced employee benefits for future hires to reduce future employer normal costs from more than 9% to 1.25% for new hires. Furthermore, a risk-sharing provision will increase employee contributions (within reasonable limitations) if future investment earnings do not meet future assumptions. Act 5 of 2017 also included a "plowback" provision to make additional contributions to further reduce the unfunded liability due to assumed savings from the legislation.

In addition, since 2015, the General Assembly and the Wolf Administration have made all actuarially required payments annually – a point we want to emphasize and for which we are grateful. Annual funding increases were particularly significant for both SERS and PSERS during recent years, totaling $1.4 billion for the first three years of the Wolf Administration.

Ensuring Future Financial Health

Even so, there is no guarantee that future lawmakers and administrators will continue to follow that model of financial and fiscal responsibility.

Enacting dedicated funding provisions would help prevent future governors and legislative leaders from repeating the mistakes of the past. While the U.S. economy at the start of 2020 continued the longest expansion in history, recent turmoil related to the Coronavirus pandemic may be the catalyst for an economic downturn. Any recession will bring new budget challenges for Pennsylvania and prompt a renewed search for ways to reduce budget expenditures.

"Underfunding of pension obligations can have serious and long-term financial ripple effects on other budget priorities."

That's why it is important to take the long view. **Underfunding of pension obligations can have serious and long-term financial ripple effects on other budget priorities.** As unfunded pension obligations build up over time, the eventual reconciliation of those debts inevitably require higher payments to make up the shortfall. (Not unlike paying minimum balances, or less, on a credit card.) **One result is that budget and policymakers may be constrained from providing financial support for other purposes – for example, education funding, economic or community development programs, or tax cuts, depending on the legislative purview.**

… budget and policymakers may be constrained from providing financial support for other purposes – for example, education funding, economic or community development programs, or tax cuts, depending on the legislative

Taking proactive steps now, to make sure the commonwealth can pay its mandated bills first, would help ensure we can fund essential costs, including debt service, and pension obligations, before considering discretionary spending programs. Bond rating agencies also would be likely to look favorably on such a budgetary strategy, as they have previously, following past actions to automatically fund certain debt service payments. Indeed, the ability of the commonwealth to meet its current and future obligations is one of the major rating criteria used by agencies in their analyses of the commonwealth's financial health. This is significant, as the commonwealth's ability to meet its financial obligations is impacted by the relatively high contribution rates to SERS and PSERS over the next two decades. (Note: The last change to the bond rating occurred in September 2017, when Standard & Poor's downgraded the commonwealth's bond rating from AA- to A+, citing historical structural imbalance, late budget adoption, and the opinion that the pattern was likely to continue into the future.)

Sound budget practice is especially important for pension payments. As noted, costs grow exponentially if not fully funded annually, since any shortfall is not available to be invested. Investment earnings have funded more than 62% of SERS liabilities over the past 20 years.

"Sound budget practice is especially important for pension payments. …costs grow exponentially if not fully funded annually, since any shortfall is not available to be invested."

Drafting Dedicated Funding Legislation – Key Points

Below is a summary of legislative language that could be crafted to provide for dedicated funding for annual required SERS contributions.

The legislation would establish the State Employees' Retirement Contribution Fund to receive annual payments to fund SERS' State General Fund retirement obligations. Periodic transfers would be made by the Department of Revenue from tax receipts to fund these obligations.

This restricted account in the General Fund would be established for the Department of Revenue to deposit these transfers. The transfers would begin each July 15th, and on the 5th of each month thereafter, in equal monthly payments, following an annual determination by the Secretary of the Budget specifying the total amount required for transfer.

The total amounts funded through these dedicated revenue payments would include the employer normal contributions, accrued liability payments on behalf of active members, participants and annuitants, and the required additional accrued liability contributions as determined by Act 5 of 2017 for General Fund agencies.

On an annual basis, following SERS certification of annual employer contribution rates, the SERS Board would be required to provide that certification, as a percentage of employer contributions, to the Secretary of the Budget. The Secretary of the Budget would use the certified percentage contribution rate to determine a required annual contribution amount earmarked from an existing revenue source (such as Personal Income Tax receipts, or some other sufficient and reliable revenue source) that would then be transferred to the State Employees' Retirement Contribution Fund based upon payroll assumptions for the following fiscal year.

Beginning in 2021, and each year thereafter on June 15th, the Secretary of the Budget would certify the amount to be transferred into the Contribution Fund, including any reconciliation for amounts transferred for the current fiscal year. Money in the Contribution Fund would be transferred to General Fund agencies as needed for agencies to make their required contributions to SERS.

This process would not impact how bi-weekly commonwealth employer contributions are paid to SERS. General Fund agencies would still be liable to SERS for the full amount of their employer contributions, regardless of how much money is in the Contribution Fund. *(Note: the Budget Office and legislative staff have expressed a desire for assurance that this funding mechanism would not impact the receipt of federally funded payments for required employer contributions.)*

The legislation could provide for a one-time certification from the appropriate federal officials to the Secretary of the Budget that the dedicated funding mechanism would have no impact on the continued receipt of federal payroll contributions before any revenues are paid into the Contribution Fund.

From a transparency perspective, while a concern legitimately has been raised if SERS' costs are no longer appropriated through the General Fund budget, this concern could be addressed by requiring these costs to be clearly delineated within the dedicated tax receipts itemized in the commonwealth's financial statement that accompanies the annual General Fund budget.

Please Note: We offer this white paper to provide you with background to assist you in better understanding what can be very complex and even arcane issues – but ones that are vitally important, not only to the members and participants in Pennsylvania's retirement systems, but also to taxpayers.

Our purpose is to offer our specialized expertise and share our knowledge of sound actuarial practices and effective funding policies with those who make laws and set public policy.

We look forward to your comments and questions, and to the opportunity to discuss these issues in greater detail. In addition, we continue to be open to exploring alternative approaches and suggestions, and to providing any technical and other assistance, as needed.

Thank you in advance for your review and consideration of this important issue.

1.800.633.5461 | www.SERS.pa.gov

Pennsylvania State Employees' Retirement System | 30 North 3rd Street, Suite 150 | Harrisburg PA 17101

pennsylvania
STATE EMPLOYEES' RETIREMENT SYSTEM

SERS White Paper - Act 2019-105 (Formerly H.B. 1982)

ALLOWING ADVANCE PAYMENT OF UNFUNDED ACCRUED LIABILITIES BY SERS EMPLOYERS

Overview

In a previous SERS white paper, we explored several fundamental practices for public pension funding, such as full payment of the Actuarially Required Contribution (ARC), the institution of a dedicated funding policy, and more. From a practical standpoint, such elements can be viewed as pieces of a puzzle, that, when fit together appropriately, can provide a clear, full picture of a financially sound, well-run public pension fund.

In this white paper our ongoing conversation focuses on another potential piece to the pension funding puzzle, one that could have benefits not only to SERS, but also to the Commonwealth and participating employers that fit within the legislative guidelines established under Act 2019-105. The following overview is intended to both educate readers and encourage additional exploration and discussion about solutions to the public pension funding puzzle.

On November 27, 2019, Governor Wolf signed House Bill 1982 into law as Act 2019-105. The law creates a mechanism that allows eligible employers to enter into an agreement with the State Employees' Retirement Board to make a one-time lump sum payment of 75% to 100% of their respective unfunded accrued liability (UAL).

Such a prefunding agreement offers significant potential benefits to SERS, the eligible employer, and the Commonwealth.

For SERS:

- **The Significant Infusion of Additional Cash.** This cash can be invested, providing additional returns to the fund. It can be used to increase liquidity in the fund, providing SERS with greater flexibility in meeting the system's benefit obligations, particularly in uncertain economic environments. Along with more assets under management, SERS investment costs can be spread over a larger base, thereby creating increased efficiencies. Additionally, the infusion of cash would immediately help pay down a portion of the fund's UAL and increase SERS' funded ratio. This reduces stress on the fund and could result in more flexibility in regard to investment decisions.

For the Commonwealth:

- **Better Credit Ratings.** Typically, an improved financial status for the fund can mean better credit ratings. Industry studies have shown that for both Standard & Poor's and Moody's, state government credit ratings correlate closely to state pension funding ratios. In other words, the more reliable the funding and the better the funded ratio, the greater likelihood for a higher credit rating.

For the Eligible Employer:

- **Flexibility in Operating Budgets.** Employers who have the wherewithal to prepay their UAL potentially can realize annual budget savings for operations and other investments.

It is important to note that the prefunding agreement plan **creates no new liability for Pennsylvania taxpayers**. Essentially, the proposal offers a Win-Win-Win scenario for everyone.

How it Works

In order to initiate a prefunding agreement, an eligible employer would approach SERS with an expression of interest in entering into a mutual contract. It is not an undertaking that SERS would be able to initiate unilaterally. Act 105 permits SERS to charge an eligible employer for the payment of fees and costs incurred by the Board in connection with the prefunding agreement.

SERS' actuaries will calculate the portion of the unfunded accrued liability that an eligible employer is liable for based on SERS' most recent Valuation Report. The employer can enter into an agreement with the State Employees' Retirement Board ("Board") to make a lump sum payment of 75% to 100% of that amount.

Eligible employers will receive credits against their future contributions that will be recognized by an annual setoff. With limited exceptions, this schedule of credits is fixed once it is set. The lump sum payment covers only liabilities accrued as of the date of the calculation. Future changes in liability, whether gains or losses, will attach to the employer as if the advance payment was not made.

Window of Limitation: Agreements must be entered into by December 31, 2024, and the lump sum payments must be made by May 1, 2025.

Other Key Points:

Eligibility: Act 105 defines "Eligible Employer" as all SERS-covered employers except:

- Pennsylvania Turnpike Commission
- Delaware River Port Authority
- Port Authority Transit Corporation
- Philadelphia Regional Port Authority
- Delaware River Joint Toll Bridge Commission
- State Public School Building Authority
- Department of General Services
- State Highway and Bridge Authority
- Delaware Valley Regional Planning Commission
- Delaware River Basin Commission
- Susquehanna River Basin Commission
- Any separate independent public corporation created by statute, not including any municipal or quasi-municipal corporation.

Lump-Sum Payment Calculations: Lump sum payments will be based on an employer's share of SERS' UAL in the most recent actuarial valuation. If all SERS-covered employers could, and did, simultaneously make a lump sum payment of 100% of their calculated share of UAL, then SERS would be fully-funded. A lump sum advance payment will result in a credit for the employer against future employer contributions that will be recognized by an annual setoff.

A lump sum advance payment of accrued liability contributions will become part of the general assets of the State Employees' Retirement Fund. It will not be segregated or separately managed for the employer who made the payment. An employer will receive only a ledger entry of future setoffs of actual contributions. Once money is paid to SERS, it cannot be refunded to the employer except through recognition as a setoff against actual contributions.

Prohibition on Pension Obligation Bonds: Section 13 of Act 2010-120 prohibits SERS employers that are executive agencies or independent agencies under the Procurement Code from issuing pension obligation bonds. While most SERS employers are executive agencies or independent agencies under the Procurement Code, Penn State (the first employer to express interest under Act 105) is not.

The reality is that most employers are unlikely to have sufficient excess funds available to make the required lump sum payment. Thus, the pension bond prohibition will, in practice, prevent many eligible employers from taking advantage of Act 105.

Continuing Responsibility for Future UAL: Any SERS employer prepaying its UAL will continue to be liable for future changes in its portion of the UAL, regardless of why the UAL increases or decreases. Future changes in the UAL resulting from recognition of investment gains or losses under the 5-year smoothing process, changes in actuarial assumptions, actual experience differing from expected experience, legislative changes, changes resulting from litigation, or any other reasons, will be applied to an employer's future contribution rate and actual contributions.

The Penn State Experience

On March 19, 2020, the Penn State Board of Trustees approved a proposal for the university to increase its borrowing authorization by approximately $1.1 billion.

University officials noted that the administration had been exploring opportunities to control costs, and Act 2019-105 provided a novel way to achieve significant savings as they sought to develop a solution to Penn State's own pension funding puzzle. The additional authority allowed Penn State to incur debt so that it could tender a lump sum prepayment of the university's UAL, thereby reducing its future annual employer contribution obligations to SERS.

Following a successful bond issuance, Penn State submitted to SERS a payment of $1.06 billion that was received on Thursday, April 30, 2020. In return for this payment, the university is scheduled to receive an annual credit of nearly $93.3 million for payments to SERS beginning in the 2020-21 fiscal year.

Overall, the university estimates net savings of more than $37 million annually over the next 20 years, net of debt service, to fully fund its continuing pension obligations to SERS in future years.

Meanwhile, the SERS fund will benefit immediately from the infusion of an additional $1.06 billion that will be deployed on behalf of SERS members in accordance with the SERS Defined Benefit Plan Investment Policy Statement.

Looking to the Future

According to a university official, annual budget savings will help Penn State in its ongoing efforts to promote access and affordability, while the prepayment should help boost SERS' funded status by an estimated 2.0%.

Act 2019-105 was a creative initiative enabled by legislators and the Wolf Administration to help solve part of the pension funding puzzle in a way that could benefit SERS, the Commonwealth, and employers that meet a certain standard.

We at SERS welcome the opportunity to discuss our experience with Act 2019-105 with our colleagues in the legislature and the administration. Our goal is to continue to build a secure future for our members and participants who rely on us to help them work through their own retirement puzzles.

1.800.633.5461 | www.SERS.pa.gov

Pennsylvania State Employees' Retirement System | 30 North 3rd Street, Suite 150 | Harrisburg PA 17101

pennsylvania
STATE EMPLOYEES' RETIREMENT SYSTEM

SERS White Paper - June 2020

UNDERSTANDING SERS EMPLOYER CONTRIBUTION RATE

Insights into the Methods Used to Determine the Rate and Enhance Stability

To understand how the Pennsylvania State Employees' Retirement System (SERS) employer contribution rate is calculated, it's important, first, to understand what exactly it is we are talking about.

The annual employer contribution (total annual employer cost) is expressed as a percentage of the total projected covered compensation for active members. It is an average percentage of compensation that needs to be received, in aggregate, from the employer groups participating in the pension system. The actual employer contribution rate for an employee, however, varies based on the employee's membership class of service.

SERS uses a variety of actuarial assumptions and methods, some set by statute in the State Employees' Retirement Code, and others adopted by the SERS Board, to calculate the cost of benefits, the actuarial value of assets, and the long-term liabilities of our pension system. ***Collectively, these elements are the primary inputs used to determine the annual contributions required from employers.*** They are all pieces of the employer contribution rate puzzle.

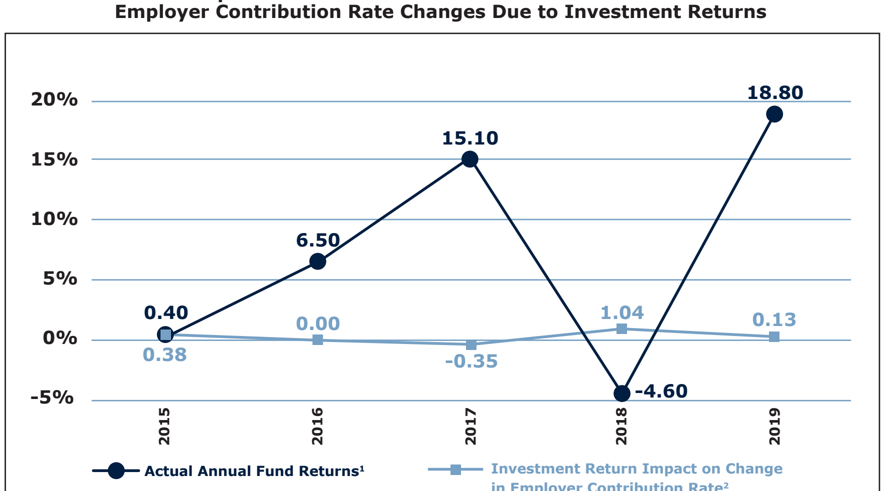
The annual employer contribution (total annual employer cost) is ... an average percentage of compensation that needs to be received, in aggregate, from the employer groups participating in the pension system.

What About Investment Returns?

You may have thought that investment returns are what it's all about when it comes to determining annual employer contribution rates. And they do, of course, play a key role in determining the actuarial value of our assets and our long-term liabilities, both of which are primary inputs to the rate. However, as illustrated in Chart 1, the annual investment return for a particular year does not always impact changes to the annual employer contribution rate as much as you might think.

Why not? At its most basic level, the employer contribution rate is based on assets and liabilities, and there are several elements that impact the determination of those values. Let's start by looking at the asset piece of the puzzle.

Chart 1:
Comparison of Actual Annual SERS Fund Returns and Employer Contribution Rate Changes Due to Investment Returns



[1]SERS' 2020 Supplemental Budget Book, p. 41
[2]SERS' 2015-2019 Actuarial Reports, Schedules E: Analysis of Change in Employer Contribution Rate

Asset Smoothing

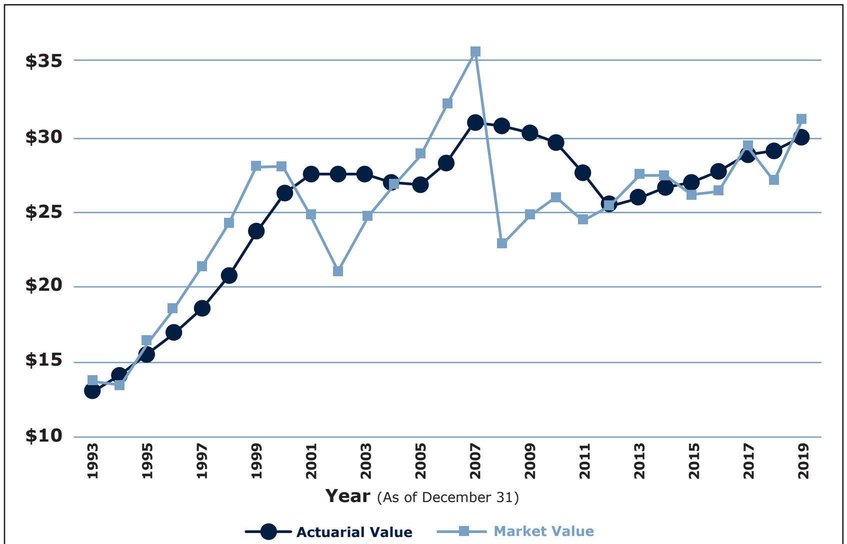
As we know all too well, markets can be extremely volatile. Because wide swings in budgetary requirements are not easily accommodated, SERS has an actuarial method built into our funding methodology that helps dampen the impact of year-to-year market volatility on the required employer contributions. This is known as "asset smoothing." Once market assets are smoothed, the result is the actuarial value of assets. It is the **actuarial value of assets** that is used to calculate the employer contribution rate.

SERS uses a five-year asset smoothing method to determine the actuarial value of assets.

SERS uses a five-year asset smoothing method to determine the actuarial value of assets. This method requires the difference between the long-term expected return on investments and the actual market return to be recognized, at a rate of 20% per year, over five years. Applying this to our current situation, this means that the positive impact of SERS' strong 18.8% market return for calendar year 2019 is not all recognized in the 2019 valuation. Rather, this 2019 gain will be recognized, at 20% per year, over the 2019 through 2023 valuation years.

Similarly, the negative impact of less than expected returns SERS might experience in calendar year 2020, would also be recognized over five years, 20% per year, in this case, over the 2020 through 2024 valuation years. This smoothing method not only means that market gains and losses are not all recognized in one year, it also means that each year contains 20% of the market gains and losses of the previous four years. The result provides a smoothing effect on the actuarial value of the assets, as shown in Chart 2. And remember, it is the actuarial value of assets that is directly used to determine the employer contribution rate.

Chart 2:
SERS Actuarial (5-Year Smoothed) & Market Values of Assets



Source: Korn Ferry presentation to the SERS Board, April 21, 2020. p. 8

That said, the actuarial value of assets is only one piece of the annual employer contribution rate puzzle. Other pieces include (i) the normal cost of benefits, which is the level percentage of compensation needed to fund the benefits earned by new active members over the period of their expected service if all assumptions are met, and (ii) the amortization of the unfunded liability. The normal cost of benefits, in fact, has decreased significantly for new members starting with Act 2010-120 and most recently with Act 2017-5. The normal cost of benefits now represents only a small portion (less than 5%), of the 2020-2021 total employer contribution rate. The largest portion, (95%) is the payment towards the unfunded liability. Let's look at the unfunded liability piece of the puzzle and see what it involves.

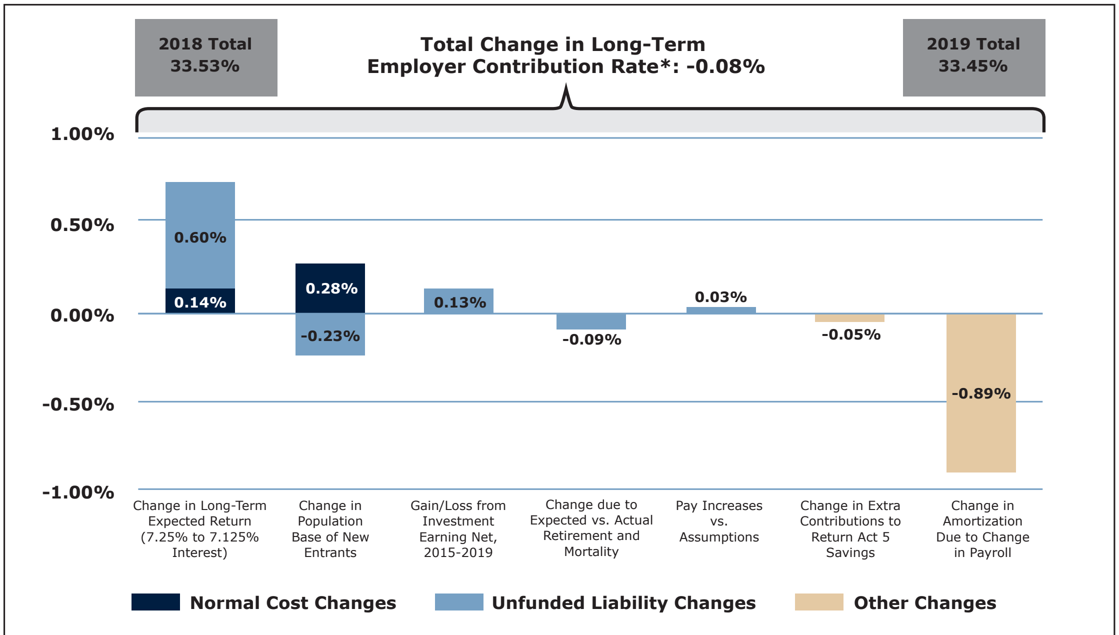
Amortization of Unfunded Liabilities

Liabilities are based upon actuarial assumptions adopted by the State Employees' Retirement Board. These assumptions include demographic assumptions, such as employee turnover, timing of commencement of retirement benefits, death, etc., and the more important assumptions known as economic assumptions. Economic assumptions include the investment rate of return assumption and the salary growth assumptions. Liabilities are impacted when actual experience differs from these assumptions. Each year, the change in the value of unfunded liabilities can be significant, reaching billions of dollars. SERS' amortization method, however, requires that most changes to the unfunded liability be amortized over 30 years, resulting in stabilization of the impact of these changes. Otherwise, these changes could have massive impacts, either good or bad, on the employer contribution rate each year.

The Puzzle, Solved

Putting the pieces of the employer contribution rate puzzle together, Chart 3, illustrates each piece of the 2020-2021 employer contribution rate and its impact on the overall rate. Note that the items in light blue directly impact the amortization of the unfunded liability, which directly impacts the employer contribution rate.

Chart 3:
Components of the 2018 to 2019 Employer Contribution Rate Change
Each component either adds to or subtracts from the 2018 rate, resulting in a 0.08% decrease in the 2019 employer contribution rate.



*Employer Contribution Rate excludes Benefits Completion Plan
Source: SERS' 2019 Actuarial Report, Schedule E: Analysis of Change in Employer Contribution Rate

In Chart 3, you will find two pieces (in tan) classified as *Other Changes*: the *Change in Extra Contributions to Return Act 5 Savings*, and *Change in Amortization Due to Change in Payroll*.

The *Change in Extra Contributions to Return Act 5 Savings* relates to the funding "plow-back" feature of Act 2017-5. To accelerate the funding of SERS, Act 5 included a provision whereby, in any future fiscal year in which there was projected to be savings as a result of Act 5, additional employer contributions equal to the amount of that annual savings would be assessed as a percentage of all SERS' covered compensation. For the 2020-2021 year, that value is 0.66% of payroll, 0.05% of payroll less than the "plow-back" assessed for the 2019-2020 year.

The *Change in Amortization Due to Change in Payroll* relates to the fact that the amortization payments are level dollar amounts over the remaining applicable amortization periods and the employer cost is determined as a percent of payroll. So, the numerator in the amortization calculation is the fixed (level) dollar amount to be paid and the denominator is the employer payroll. When the employer payroll (denominator) changes, the resulting percentage changes. In the case of 2020-2021, the growth in SERS payroll results in the percentage required being less. You will see that this element has the largest impact on the 2020-2021 employer contribution rate.

The element with the next largest impact on the 2020-2021 employer contribution rate is the change in the long-term expected return from 7.25% to 7.125%. This investment rate of return assumption change, made by the SERS Board in June 2019 effective with the 2019 valuation, was based upon a detailed analysis of capital market projections, SERS asset classes, and the probability of achieving a number of specific return rates.

The *Gain/Loss from Investment Earnings, Net, 2015-2019* has the third largest net impact on the 2020-2021 employer contribution rate. The remaining impacts are a result of differences in other assumptions from actual experience.

Putting It All Together

So here you have it, all the elements that comprise the annual employer contribution rate for 2020-2021.

Hopefully, this discussion provides you with a better understanding of what comprises the annual employer contribution rate and how and why one year's investment return doesn't necessarily dictate what happens to the following fiscal year's contribution rate. Why is that so? Because when determining investment gains and losses, one year's market return is smoothed into the assets over five years and the current year's actuarial gains and losses include 20% of each of the previous four years' gains and losses, and because there are other significant pieces to the employer contribution rate puzzle.

The Timing of it All

SERS operates, for the most part, on a calendar year basis. The employer contribution rates are set, however, for the subsequent July 1 to June 30 fiscal year. Therefore, as an example, the results of the calendar year 2019 valuation were used to set the FY 2020-21 employer contribution rates. Continuing on, the results of the calendar year 2020 valuation will be used to set the FY 2021-22 employer contribution rates.

The Bottom Line

As you can see, there are many pieces to the employer contribution rate puzzle. And there are actuarial methods in place to temper the impacts of changes or differences in any one of those pieces.

Another vitally important piece of the puzzle is the impact of not paying actuarially required contributions. One of the most important actions the Administration and the General Assembly can take to keep the unfunded liability in check, is to continue to pay the required contributions.

Since 2016, the General Assembly and the Wolf Administration have made all actuarially required payments. Previously, that was not the case, and, over the years, it has cost the fund and the Commonwealth dearly.

As with our previous white papers, we offer this discussion to provide insights that will assist our colleagues in the General Assembly and the Administration in better understanding what can be very complex and even arcane issues – but ones that are vitally important, not only to the members and participants in Pennsylvania's retirement systems, but also to taxpayers.

One of the most important actions the Administration and the General Assembly can take to keep the unfunded liability in check, is to continue to pay the required contributions.

Our purpose is to offer our specialized expertise and share our knowledge of sound actuarial practices and effective funding policies with those who make laws and set public policy.

We look forward to your comments and questions, and to the opportunity to discuss these issues in greater detail. In addition, we continue to be open to exploring alternative approaches and suggestions, and to providing any technical and other assistance, as needed.

Thank you in advance for your review and consideration of these important issues.

1.800.633.5461 | www.SERS.pa.gov

Pennsylvania State Employees' Retirement System | 30 North 3rd Street, Suite 150 | Harrisburg PA 17101

pennsylvania STATE EMPLOYEES' RETIREMENT SYSTEM

SERS' Financial Overview

SERS was established in 1923 and is one of the nation's oldest and largest statewide retirement plans for public employees. SERS operates three plans. The Defined Benefit Plan and the Defined Contribution Plan are mandatory for most employees. A third plan – the Deferred Compensation Plan, is a voluntary supplemental plan. The plans had $35.0 billion, $40.5 million and $4.4 billion of net assets, respectfully, as of SERS' most recent fiscal year-end date of December 31, 2020.

State Employees Retirement System – Defined Benefit Plan

Plan Design

Defined benefit plans are long-term propositions designed to pay a pension benefit to each member for their lifetime – in other words, until the last member dies.

When the underlying principles of defined benefit plan design remain intact, defined benefit plans offer efficient, stable and sustainable models for growing assets and delivering benefits through complete economic cycles, indefinitely.

That includes "mature" pension systems like SERS which was established in 1923. As predicted and planned for, in 2010 the number of retirees and beneficiaries receiving benefit payments from the system overtook the number of active members contributing to the system. As a plan continues to mature, the amount it pays out in benefits will continue to rise, as expected for SERS over the next 30 years.

While this has implications for all aspects of SERS' operations, it isn't unexpected and is, in fact, common and part of the underlying principles built into the defined benefit plan structure.

Annual Actuarial Valuations

Every year, an independent actuary conducts a valuation of the pension system to determine the amount of money the fund will need to pay pension benefits to our members for their expected lifetimes.

The valuation is based on financial and member data prepared by our staff and makes use of many economic and demographic assumptions – including life expectancy, salary increases, inflation rates, and assumed investment rate of return – to calculate the employer contributions necessary to adequately fund the plan. Those calculations are made according to the specific actuarial methods outlined in the Retirement Code.

For example, the financial and member data provided as of December 31, 2020 is used for the December 31, 2021 measurement date for the valuation – meaning that the most up-to date information is being used in the valuation.

Because actual economic and demographic factors change over time, the actuary also conducts in-depth experience studies every five years. These studies scrutinize and document SERS' actual experience across a wide range of actuarial factors, such as those listed earlier, so that future assumptions can be adjusted to take recent experience into account. The most recent five-year experience study was delivered to the board in July 2020, with assumption changes effective with the 2020 actuarial valuation. Some notable assumption changes were:

- Reducing the assumed investment rate of return and inflation to 7.00% and 2.5%
- Reducing rates of career salary growth
- More favorable annuitant mortality assumptions

The assumed investment rate of return assumption is reviewed annually, in addition to being analyzed as part of the normal five-year experience study, to ensure it remains appropriate. Each year, SERS investment office staff, investment consultants, and our actuary conduct the evaluation and present a range of acceptable options to the SERS Board. The goal is to determine a rate that is reasonable to achieve over 20-30 years given current market conditions, assets and liabilities, and future market and demographic expectations. The SERS Board makes any changes, if necessary, when conditions warrant.

There has been a steady decline in capital market expectations over the last 10+ years. This trend has been reflected in the SERS Board's adjustments to the assumption as follows:

- 2008 valuation – Reduced from 8.50% to 8.00%
- 2011 valuation – Reduced to 7.50%
- 2016 valuation – Reduced to 7.25%
- 2019 valuation – Reduced to 7.125%
- 2020 valuation – Reduced to 7.00%

Likewise, this trend is reflected in the investment return assumptions used by our peer systems.

It is important to note that a decrease in the assumption leads to increases in liabilities and employer costs while an increase in the assumption leads to decreases in liabilities and employer costs. According to SERS' actuary, a .25% reduction in SERS' assumed investment rate of return increases employer contributions by approximately $150 million annually based on projections over a 30-year amortization period.

There are several key components to the robust actuarial valuation. However, the most critical when evaluating the health of a plan are the actuarial accrued liability (AAL), Actuarial Assets (AA), Unfunded Actuarial Accrued Liability (UAL = AAL-AA), funded ratio (AA/AAL). Key information from over the past ten years' is as follows:

Funded Status ($ in thousands)				
Valuation Year Ended December 31	**Actuarial Value of Assets**	**Actuarial Accrued Liabilities**	**Unfunded Actuarial Accrued Liability**	**Funded Ratio**
2020	$ 32,703,275	$ 55,098,758	$ 22,395,483	59.40%
2019	$ 29,934,024	$ 52,972,575	$ 23,038,551	56.50%
2018	$ 28,989,607	$ 51,782,205	$ 22,792,598	56.00%
2017	$ 28,776,939	$ 48,439,403	$ 19,662,464	59.40%
2016	$ 27,596,048	$ 47,518,964	$ 19,922,916	58.10%
2015	$ 26,877,127	$ 46,328,929	$ 19,451,802	58.00%
2014	$ 26,584,948	$ 44,750,670	$ 18,165,722	59.40%
2013	$ 25,975,185	$ 43,874,580	$ 17,899,395	59.20%
2012	$ 25,302,688	$ 43,055,564	$ 17,752,876	58.80%
2011	$ 27,618,461	$ 42,281,862	$ 14,663,401	65.30%

NOTE - 2020 includes one-time lump sum payment towards UAL from PSU

Another important component of the actuarial valuation is the determination of the employer contribution rates for the fiscal year beginning July 1 following the valuation date. *(Additional information regarding key data points and employer contributions will be covered in the following pages.)*

The most recent actuarial reports and experience study are posted on the SERS website:

- *2020 Actuarial Valuation -* http://www.sers.pa.gov/pdf/Actuarial_Valuations/ActuarialValuation2020.pdf

- *19th Investigation of Actuarial Experience - January 1, 2015 to December 31, 2019 -* http://www.sers.pa.gov/pdf/2015-2019-InvestigationOfActuarialExp.pdf

Funding into the Pension System

Defined benefit pension systems are designed to be funded through three sources

- Member Contributions
- Investment Earnings
- Employer Contributions

Over the past 10 years, investment earnings added 54% to the fund, employer contributions added 37%, and member contributions added 9%.

Member Contributions

Each member contributes a percentage of their pay, as set by the Retirement Code, based on their class of service in the system. While contribution rates vary, with the vast majority contributing between 5% to 9.3% based on the member's class of service in the system, most members contribute 6.25% of their pay toward their SERS pension. Member contributions are withheld automatically by their employers and, in most cases, sent to SERS each pay day.

Investment Earnings

The basic objectives of the Defined Benefit Plan Fund are to provide benefit payments to members and beneficiaries at the lowest cost to the commonwealth and to fund the program through a carefully planned and executed investment program.

The fund seeks to produce the highest return on investment that is consistent with acceptable investment risks while at the same time providing sufficient liquidity that will permit the fund to meet the system's benefit obligations.

The fund is invested in a diverse portfolio with work toward achieving investment objectives being guided by SERS' Defined Benefit Plan Investment Policy Statement.

It is important to note that according to PA law, the difference between SERS' actual investment performance and our assumed investment rate of return is recognized over a five-year period at 20% per year. This is known as "smoothing" and is an actuarial concept that minimizes the impact of year-to-year investment return volatility when valuing long-term obligations, such as the lifetime obligations of a pension plan.

SERS Investment Office has compiled an in-depth power point presentation covering the Investment Program, which is being submitted to the subcommittee under separate cover.

Employer Contributions

SERS is a multi-employer plan and employers contribute a percentage of their payroll toward their employees' pensions. The amount they contribute each year is determined by the annual actuarial valuation of the system (discussed above) and is most often discussed as a composite rate reflecting separate rates for about 20 different classes of service in the system.

If the actuary finds that earnings rise and expenses fall (for instance, investment returns exceed the return assumption and employees experience lower-than expected salary growth) then fewer employer contributions are needed to fund the pension plan. Conversely, if earnings fall or expenses rise, more employer contributions are needed to fund the pension plan.

Each April, the SERS Board typically certifies the composite employer contribution rate that employers will begin paying in July, in conjunction with the commonwealth's fiscal year

The employer contribution rate has two parts:

- *The Normal Cost* – an amount to pay for the retirement benefits earned by the new members who entered the system that year. Starting with the 2021 actuarial valuation, it will change to the amount to pay for the retirement benefits earned by a blend of all active members in the system that year.

- *The Unfunded Liability* – an amount to pay toward any existing debt. The unfunded liability is a debt for benefits that have already been earned. It must be paid. Even if the commonwealth decided that, beginning tomorrow, there would be no retirement benefit offered to new employees, employers would face a period of high contribution rates due to the already existing liability.

Actual employer contributions compared to the actuarially determined contribution rates over the past ten years are as follows:

Valuation Year Ended December 31	Employer Contribution Rate	Actuarially Determined Contribution	Actual Contribution	Percentage Contributed
2011	11.5%	$ 913,778	$ 391,189	42.80%
2012	16.0%	$ 1,044,632	$ 562,883	53.90%
2013	20.5%	$ 1,314,925	$ 790,996	60.20%
2014	25.0%	$ 1,407,361	$ 1,081,826	76.90%
2015	29.5%	$ 1,469,116	$ 1,359,246	92.50%
2016	33.2%	$ 1,613,626	$ 1,613,626	100.00%
2017	32.9%	$ 1,883,541	$ 1,883,541	100.00%
2018	33.5%	$ 2,040,434	$ 2,040,434	100.00%
2019	33.5%	$ 2,106,138	$ 2,106,138	100.00%
2020	33.8%	$ 2,164,144	$ 3,174,854	146.70%

NOTE - Underfunding due to Act 120 collars, overfunding due to advance payment from PSU (see below)

<u>Factors Influencing the Unfunded Actuarial Liability</u>

SERS current Unfunded Actuarial Liability is $22.4 billion, and the funded ratio is 59.4%. Factors influencing the UAL have been building over time, including but not limited to:

- Sustained periods of employer contributions below normal costs: 1992 through 2009, and the associated loss of compound returns
- Losses that neutralized investment gains: -10.9% in 2002 and -28.7% in 2008
- Benefit increases that were not pre-funded – including increased accrual rates and cost of living adjustments: Act 2001-9 and Act 2002-38

- Legislatively mandated actuarial changes that extended the time over which liabilities be paid or artificially suppressed employer contribution rates: Act 2003-40 and Act 2010-120
- Gradual reductions in assumed rates of return over the past several years, from 8.5% in 2008 to 7.0% effective with the December 31, 2020, actuarial valuation to reflect changing market conditions

In recent years employers made considerable progress restoring funding to their employees' pensions. The steadily increased contributions supplemented by strong investment returns, despite turbulent market conditions over the past several years, are working to steadily strengthen the health of the fund.

Also, it is important to keep in mind that the annual cost of the plan continues to drop as the number of members in the newer classes of service, including the A-3 and A-4 classes, and the new A-5 and A-6 classes that opened Jan. 1, 2019, increases. At the end of 2020, approximately 45% of the active membership was in the A-3, A-4, A-5, and A-6 classes of service.

Benefit Payments

SERS mission is to "Prepare our members and participants to achieve financial success and security in retirement".

SERS was established in 1923 but did not pay more than $1 billion in annual pension benefits until 1997. Benefit payments reached $2 billion in 2007 and $3 billion in 2015. Based on recent actuarial projections, the SERS Defined Benefit Plan annual benefit payments will reach $4 billion by 2024.

Out of the $3.6 billion in benefit payments paid in 2020, approximately $3.2 billion or 89% went to Pennsylvania addresses. According to the National Institute on Retirement Security, these benefit payments serve as a significant source of economic stimulus as spending by recipients on a wide range of goods and services ripples through the economy. It is estimated that SERS' pension benefit payments generated an overall economic impact for Pennsylvania of approximately $5.3 billion in 2020.

An ongoing challenge is that SERS has more people drawing from the plan than paying into it. In 2021, SERS is projected to pay out approximately $107 million more each month than it is taking in through member and employer contributions. The $107 million projected shortfall in 2021 is more than the approximately $90 million a month shortfall forecasted in 2020. Since SERS is a mature plan, liquidity remains a concern. Assets continue to be rebalanced to meet the liquidity needs of the fund.

Recent Law Changes Impacting the Funded Status of the Plan

On November 27, 2019, Governor Wolf signed Act 2019-105 into law, allowing eligible employers to enter into an agreement with the SERS Board to make a one-time, lump-sum payment of between 75% to 100% of their unfunded liability.

The first employer to take advantage of this opportunity was Penn State University. In April 2020, Penn State University submitted a payment of $1.06 billion toward its unfunded liabilities. In April 2021, the State System of Higher Education made a payment of $825 million. In return for the respective lump sum payments, the employers will receive annual setoff credits against their contributions for 30 years.

Projection Estimates of Key Actuarial Data

The following table shows projections over the next 10 years for key actuarial components based on the most recent actuarial valuation and assumptions in place as of December 31, 2021.

			For FY Beginning July 1 Following Valuation Year ($ billions)			
Valuation Year Ended Dec 31	Funded Ratio	UAL	Employer Normal Cost Rate	Unfunded Liability Rate	Employer Contribution Rate	Employer Contributions
2021	67.2%	$ 17.22	8.29%	26.22%	34.51%	$ 2.20
2022	69.1%	$ 16.44	8.12%	25.10%	33.22%	$ 2.18
2023	72.3%	$ 14.93	7.96%	23.24%	31.20%	$ 2.10
2024	74.3%	$ 14.02	7.81%	22.13%	29.94%	$ 2.07
2025	75.6%	$ 13.44	7.66%	21.44%	29.10%	$ 2.06
2026	76.9%	$ 12.85	7.53%	20.79%	28.32%	$ 2.06
2027	78.2%	$ 12.25	7.40%	20.19%	27.59%	$ 2.07
2028	79.4%	$ 11.63	7.27%	19.63%	26.90%	$ 2.07
2029	80.7%	$ 10.98	7.15%	19.09%	26.24%	$ 2.08
2030	82.0%	$ 10.29	7.04%	18.56%	25.60%	$ 2.10

NOTE - Projections include impacts of PSU and PASSHE one-time lump sum payments.

A funded ratio of 80% or better is generally considered “healthy” for a pension system. As employers continue to make their actuarially determined contributions and assumptions are met, the system is projected to surpass that threshold in 2029.

Stress Testing and Risk Assessment of the Plan

Starting in 2019, SERS' finance and investment staff worked with SERS’ actuary to produce *a Stress Testing and Risk Assessment* report. The report was in response to Actuarial Standards of Practice (ASOP) No. 51 and Public Pension Management and Asset Investment Review Commission (PPMAIRC) recommendations. The report identifies and assesses major factors that contribute to the risk that the actual future value of benefits paid from the SERS Defined Benefit Plan will differ from the estimated value provided by the annual actuarial valuation and the actuarially determined contributions. This report includes an analysis of “What if?” scenarios to determine the effect on future employer contributions and the availability of assets to pay benefits when due to members. These “What if?” scenarios are referred to as stress tests or scenario tests. The “What if?” scenarios are illustrative and do not represent current expectations of future experience or recommendations for changes in current policies. In each scenario, the effect on the actuarially determined contribution (ADC) and funded ratio are projected over a period of 20 years and compared to the baseline expectations. The report covers a wide range of investment-related, demographic-related and contribution-related risks that could affect the long-term health and stability of the SERS fund.

In the report, SERS’ actuary notes that SERS is well-positioned to adjust to the risks analyzed if SERS employers consistently contribute the full actuarially determined contributions to the plan. They believe the current policies and practices utilized by SERS contain mechanisms to help control the volatility of the employer contribution rates and can help ensure assets will be available to pay all benefits when due to members. They also assessed the potential effect if employers were unable to contribute the full contribution due to unexpected circumstances, such as those that may be caused by a global pandemic.

SERS believes this is a very robust report. It is also important to note that it received positive recognition from the PEW Charitable Trusts. The report is issued annually and is now required by law, under Act 2020-128, which was signed November 25, 2020.

You can see the most recent Stress Testing and Risk Assessment report on SERS website:

http://www.sers.pa.gov/pdf/2020-SERS-StressTestingandRiskAssessmentReport.pdf

State Employees Retirement System – Defined Contribution Plan

On June 12, 2017, Governor Wolf signed Act 2017- 5 into law. The law established two new side-by-side hybrid defined benefit/defined contribution benefit options and a new defined contribution only option for all state employees, excluding most hazardous duty employees, who first enter SERS membership on or after January 1, 2019. Additionally, all legacy SERS members had a one-time, irrevocable option to select one of the three new retirement benefit options.

Unlike the Defined Benefit Plan, where contributions are defined and a member's benefit is guaranteed based on a formula, the contributions into the Defined Contribution Plan are defined for both the participant and the employer – but any amount of ultimate benefit is not. Thus, investment risk lies with the participant (who is selecting the investment option from an available menu).

The SERS Board selects the investment options offered through the Defined Contribution Plan, and contracts with investment managers and with a third-party administrator (TPA) for the plan. The employee defined contribution accounts are maintained by the TPA. Employee and employer contributions for the Defined Contribution Plan are deposited into participants' individual investment accounts. Employees may invest their money in several investment options including a range of target date funds, equity funds, fixed income funds, a short-term investment fund, and the self- directed brokerage option. If no active selection is made, contributions are defaulted into one of the target date funds. Most participants are invested in the target date funds. The benefit to which a participant is entitled is their vested account balance at termination. The Defined Contribution Plan has a three-year vesting period for employer contributions and immediate vesting for employee contributions.

The Defined Contribution Plan continued to grow in its second year of existence. There were approximately 13,200 and 8,000 defined contribution accounts as of December 31, 2020 and 2019, respectively. The net position of the Defined Contribution Plan was approximately $40.5 million as of December 31, 2020, and $12.4 million as of December 31, 2019.

The fees, costs, and expenses of administering this plan were paid by the commonwealth and other participating employers. There is no administrative charge to participants.

Act 2020-94, which was passed in the fall of 2020, retroactively allows the plan to use unvested employer contributions occurring after June 30, 2020, to offset administrative costs to the plan. These monies are kept in a plan-level forfeiture account with the TPA and will offset future administrative charges to employers. Prior to this act, the monies were set aside for employers to use to offset future contributions to the plan.

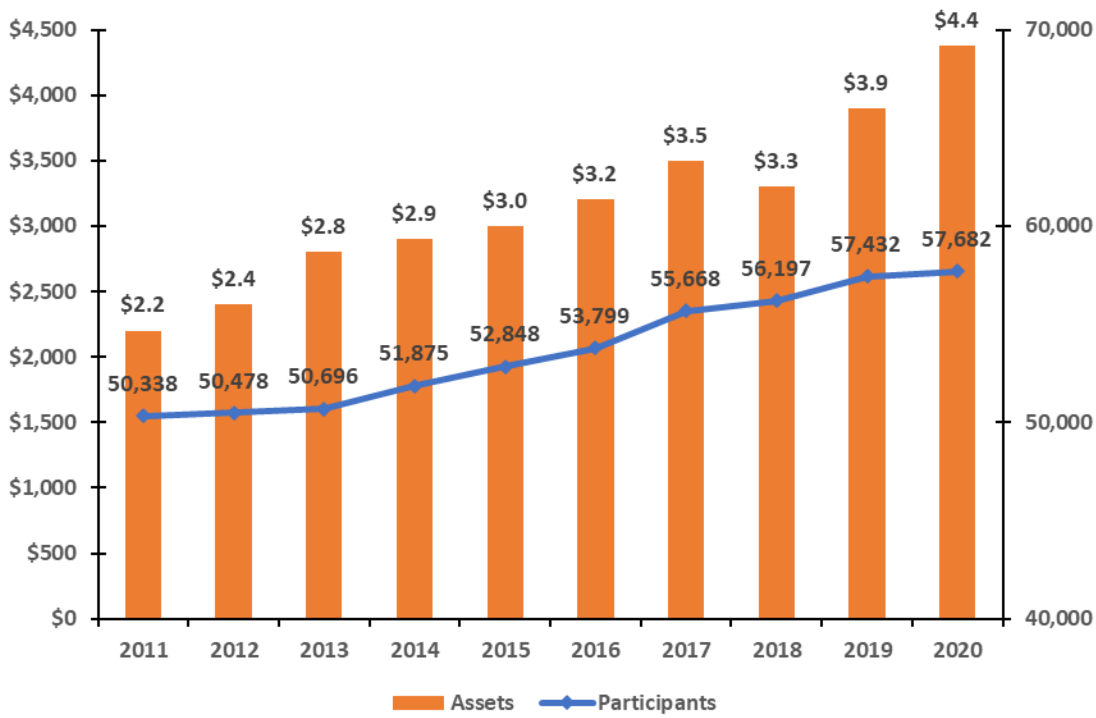
State Employees Retirement System – Deferred Compensation Plan

Most state employees are eligible to participate in the voluntary Deferred Compensation Plan, commonly referred to as "deferred comp." The plan allows participants to have some of their pay automatically deducted on a before- and/or after-tax basis and invested for retirement.

The SERS Board selects the investment options offered through this plan, contracts with investment managers, and contracts a third-party administrator for the plan through a competitive bid process (RFP).

Investment options comprise a series of target date funds, equity funds, fixed income funds, a money market fund, and a self-directed brokerage option.

In 2020, more than 57,000 participants had a total of approximately $4.4 billion invested in deferred comp. The ten-year growth of the plan ($ billions) is as follows:



Annual Financial Reporting

SERS completes and submits annual budgets through the Governor's Budget Office. The latest Budget Book can be found at:

http://www.sers.pa.gov/pdf/Supplemental_Budget_Book/budgetbinder2021.pdf

Annually, SERS Office of Financial Management produces financial statements as of and for the year ended December 31, XXXX for each of the three plans – Defined Benefit Plan, Defined Contribution Plan, and Deferred Compensation Plan. The financial statements are audited by an independent auditor each year and the Annual Comprehensive Financial Report receives award recognition from the PPCC and GFOA. The most recent annual reports for the December 31, 2020 year-end can be found at:

Annual Comprehensive Financial Report
http://www.sers.pa.gov/pdf/CAFR/2020-Annual-Report.pdf

Deferred Compensation Plan Financial Statements
http://www.sers.pa.gov/pdf/Deferred_Compensation/Financial%20Statement-2020.pdf

Investment Performance

SERS seeks to provide investment earnings that meet, or preferably exceed, the assumed rate of return over complete economic cycles. SERS strives to meet this objective by applying acceptable risk parameters and allocations to investments that are diversified by type, industry, quality, and geography. SERS' current target investment return is 7.0%.

SERS' Investment Performance as of December 31, 2020
(Net of Fees)

1 Year	3 Years	5 Years	10 Years	20 Years	25 Years
11.1%	8.0%	9.1%	8.0%	6.4%	7.9%

SERS' Investment Performance as of June 30, 2021
(Net of Fees)

1 Year	3 Years	5 Years	10 Years	20 Years	25 Years
27.8%	11.0%	10.7%	8.3%	7.1%	8.0%

Calendar Year, Net-of-Fees Returns[1/]

For the period ending December 31, 2020

Asset Class	1-Year Total Return	3-Year Total Return	5-Year Total Return	10-Year Total Return
Private Equity[2/,5/]	18.4%	13.2%	11.8%	11.5%
Burgiss All Private Equity Custom Index[3/,5/]	*13.1*	*12.3*	*12.2*	*12.7*
Global Equity +3%[4/,5/]	*15.6*	*14.2*	*16.5*	*16.5*
Private Credit[5/,8/]	9.1	9.7	NA	NA
S&P Lvrd Loan Index +1%[5/]	*2.3*	*4.2*	*5.1*	*5.3*
Real Estate[5/]	2.1	3.4	3.1	7.0
Real Estate Custom Benchmark[5/,6/]	*0.3*	*4.0*	*5.5*	*9.0*
Consumer Price Index +3%[5/]	*4.4*	*4.8*	*4.8*	*4.8*
U.S. Equity	21.3	13.5	14.4	13.3
Russell 3000 Index	*20.9*	*14.5*	*15.4*	*13.8*
International Developed Markets Equity	9.6	5.0	8.8	6.5
MSCI World ex U.S. IMI	*8.3*	*4.3*	*7.9*	*5.4*
Emerging Markets Equity	24.5	8.3	14.7	4.0
MSCI Emerging Markets IMI	*18.4*	*5.8*	*12.2*	*3.5*
Fixed Income	5.8	4.7	4.9	4.2
Bloomberg Barclays U.S. Aggregate Bond Index	*7.5*	*5.3*	*4.4*	*3.8*
Inflation Protection (TIPS)	11.0	5.7	5.2	3.1
U.S. TIPS Index	*11.0*	*5.9*	*5.1*	*3.8*
Cash	0.6	1.7	1.4	0.9
ICE BofAML U.S. 3-Month Treasury Bill Index	*0.7*	*1.6*	*1.2*	*0.6*
Total Fund[7/]	**11.1%**	**8.0%**	**9.1%**	**8.0%**
Total Fund Custom Benchmark	***13.5%***	***9.1%***	***9.7%***	***8.8%***
Total Fund Custom Public Market Equivalent Benchmark	***13.2%***	***9.2%***	***10.4%***	***9.1%***
Total Fund 60/40 Index	***13.6%***	***8.4%***	***9.3%***	***7.2%***

[1/] Returns for periods greater than one year are annualized. Performance was calculated using the Modified Dietz day-weighted return methodology.

[2/] Historical Private Equity performance includes Buyouts, Special Situations, and Growth Equity.

[3/] Intended to compare the program's performance to its peers.

[4/] Long-term benchmark by which SERS measures its private market performance. Shorter term variances (1-year and 3-year) can be pronounced due to the nature of private assets and are not as relevant for benchmark purposes.

[5/] Private Equity, Private Credit, Real Estate and the corresponding benchmarks are reported on a quarter-lagged basis.

[6/] Calculated monthly using beginning of the month asset class weights applied to each corresponding primary benchmark return. The real estate custom benchmark consists of the NCREIF ODCE Index (1 Qtr lag) and FTSE NAREIT Index (unlagged).

[7/] Legacy Hedge Funds are in liquidation, values and performance are no longer reported. However, all performance activity continues to be reflected in SERS' Total Fund return.

[8/] Private Credit has an inception date of December 1, 2017. As of December 31, 2020, extended period returns beyond three years are unavailable.

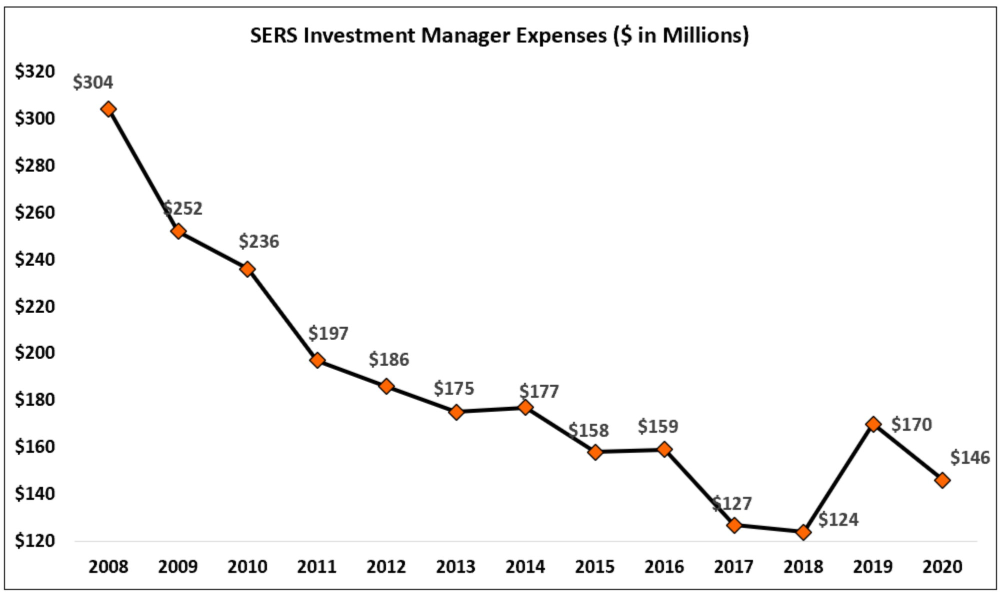
Manager Fees and Expenses (including carried interest)

SERS strives to engage the highest quality investment managers for the most cost-effective price.

Managing a portfolio as diverse and complex as SERS requires careful and active management. Moreover, SERS has significant investments in global public equity and private equity, which historically have been very important contributors to achieving SERS' overall rate of return. SERS continues to focus on negotiating lower fees for top performing managers; however, private equity fees continue to be a large portion of SERS' overall fees paid to managers due to the complex and time-consuming nature of these investments.

A few facts to keep in mind:

- SERS reports its performance net of manager fees for public market managers and net of fees and expenses for its private market managers.
- Since 2008, SERS has worked to reduce investment manager fees and expenses year over year by approximately half from $304 million in 2008 to $146 million in 2020.



2019 fees include $19 million in incentive fees that were earned over a multi-year period but recorded in the current year (~0.06% of the total fund assets).

Sources: 2014-2020 from SERS' Annual Comprehensive Financial Reports. 2008-2013 from SERS' Budget Books. In 2014, SERS included and started to report other investment-related expenses reported in the 2008-2013 ACFRs into the investment manager expense.

- SERS continues to negotiate aggressively for more favorable fee structures with new as well as existing investment managers.
- SERS is including commitments to side-car investments as well as co-investments in both private equity and real estate.
- SERS has increased use of index funds in lieu of active management.

The amount of carried interest paid to the GPs in 2020 by the funds in which SERS is invested is not yet available. SERS publicly reported carried interest working within our legal and fiduciary framework for 2019, and that report is posted on the SERS website. SERS paid approximately $72 million in carried interest for 2019 (which is not reflected in the fees & expenses reported in the budget book or in this summary). Carried interest should be considered profit sharing, and not a performance fee, with the intention of motivating investment managers for high performance. Private equity managers, and some real estate managers, only earn carried interest, a portion of the profits, after investors receive all their investment dollars back. In some cases, there is a hurdle rate, which is typically an annual compounded rate of return, which must be achieved before profits would be shared.

Transparency

The State Employees' Retirement Board has an ongoing commitment to demonstrate transparency, while working within its legal and fiduciary framework.

Below are a few examples of the actions SERS' Investment Office has taken to increase transparency:

- All new investment managers are required to provide SERS with the information found within the Institutional Limited Partners Association's (ILPA) Reporting Template. All current managers have been asked to provide SERS with the information found in the ILPA template.

- Beginning with the quarterly performance report of Q1 2020 SERS, SERS now reports investment performance on a gross and net of fee basis.

- The Investment Office now posts on SERS' website, since the December 2019 Investment Committee meeting, for all investments considered by SERS, public versions of the prospective manager's pitch book materials and staff/consultant memos recommending the investment opportunity.

- Beginning with the period ending June 30, 2019, SERS began posting public versions of the semi-annual performance reports of its specialty consultants (private equity and real estate).

- SERS' Office of Financial Management and the Investment Office provided an annual report of all 2019 investment fees and expenses (including carried interest) to the IC at the September 2020 meeting and subsequently posted this report on SERS' website.

- SERS' Chief Counsel Office (CCO) and the Investment Office compiled an annual report on public manager contracts, which identifies changing terms. The first report covered the CY 2020.

- SERS will compile an annual report (beginning with FY 20/21) disclosing all travel and other expenses incurred by investment professional staff and paid for by external investment managers, funds, and/or consultants as well as the expenses incurred by SERS.

PPMAIRC Recommendations – Investment Office

The Public Pension Management and Asset Investment Review Commission (PPMAIRC) was created as part of Act 2017-5. The PPMAIRC issued a report in December 2018, which outlined over 100 recommendations designed to achieve cost savings, streamline operations, and increase transparency at SERS. A final summation of SERS' work was submitted to the full Board for its review and approval on December 2, 2020, and subsequently posted to the SERS website for public consumption.

The following are some of the key recommendations that were implemented by SERS' Investment Office:

- Beginning with the quarterly performance report of Q1 2020 SERS is now publishing on SERS' website the Gross-of-Fee returns for the total fund, as well as each asset class and each public market manager, in addition to the traditionally reported Net-of-Fee returns.
- Enhanced the Callan quarterly performance reports with additional benchmarks, charts and liquidity metrics.
- Enhanced the hiring process which will now be publicly announced through several social media platforms when SERS is looking to hire consultants and investment managers.
- Increased transparency by publishing on SERS' website the public versions of the semi-annual performance reports from its specialty consultants NEPC and StepStone, as well as prospective manager's pitch book materials, staff and consultant memos recommending the investment opportunity.
- Produced an annual report (with the assistance of the SERS' Chief Counsel Office) of all public market managers that have had updates to their contracts.
- On a prospective basis, the Investment Office will be publishing an annual report of all travel conducted by investment office personnel regardless of the entity bearing the cost of such travel.

SERS Governance – Recent Developments

The State Employees' Retirement Board hired Funston Advisory Services LLC in late 2015 to review its policies and governance structure to identify strengths, weaknesses, and areas for improvement. The review led to the issuance by Funston of a report dated March 4, 2016 (*For the Benefit of Pennsylvania: Strengthening SERS Oversight SERS Board and Organizational Structure Review: Final Report*), which resulted in the SERS Board Governance Policy Manual. The Governance Policy Manual contains the principal policies and procedures developed and used by the Board and its committees in carrying out their fiduciary duties and responsibilities to the members of the SERS Defined Benefit Plan and plan participants of the Defined Contribution Plan and Deferred Compensation Plan.

The Governance Policy Manual includes the governing laws, mission, and guiding principles for the Board, along with the following:

- Actuarial Services Policy
- Amended Bylaws
- Charters for the following committees[1]:
  - Audit, Risk and Compliance Committee
  - Board Governance and Personnel Committee
  - Finance and Member Services Committee[2]
  - Investment Committee
  - Securities Litigation Committee
- Board Education Policy
- Board Self-Assessment Policy
- Communications Policy
- Fiduciary Review Policy
- Insider and Personal Trading Policy
- Performance Review Process for CIO, as amended
- Performance Review Process for SERS Executive Director
- Policy for Indemnification of Board Members, Designees, Officers and Employees
- Policy on Placement Agent Disclosures
- Position Descriptions
  - Board Chairperson and Assistant Chair Positions
  - Board Member Position
  - Committee Chair and Assistant Chair Positions
- Recusal Policy
- Referral of Investment Opportunities and Service Provider Candidates; Related Communications; Undue Influence

[1] Note that the Board has pending before it as an action item to amend the Board bylaws to eliminate a Defined Contribution Committee, the duties and responsibilities of which are being assigned to the Finance and Member and Participant Services Committee and Investment Committee upon approval of the bylaws amendment.
[2] The Finance and Members Services Committee will be renamed to the Finance and Member and Participant Services Committee, when the Board acts to amend the bylaws.

- SEC "Pay-to-Play" Rule Compliance and Reporting Policy
- Securities Litigation Policy (Existing policy, which will be revised upon establishment of new Securities Litigation Pool)
- SERS Ethical Conduct Policy
- State Employees' Retirement Board – Compliance Program Charter
- Strategic Planning Process
- Travel Policy

Within the last 12 months, the Board undertook two major initiatives, in furtherance of Governance Policy Manual policies and procedures.

SERS Strategic Business Plan

The Board Governance Policy Manual's *Strategic Planning Process* provides that the Board, as fiduciaries, has obligations to systematically plan for SERS' challenges and needs. It provides that the Board and SERS staff must engage in a robust and forward-looking strategic periodic planning process. In furtherance of the *Strategic Planning Process,* the Board approved at its September 30, 2020, meeting the FY 2021-2023 SERS Strategic Business Plan, which includes the following vision and mission statements:

Vision - To become fully funded and the recognized leader among pension organizations providing innovative, best-in-class services and products to our customers and stakeholders.

Mission - Prepare our members and participants to achieve financial success and security in retirement.

The plan also established the following Strategic Priorities:

- Modernize Systems
- Leverage External Engagement
- Invest Efficiently and Accountably
- Improve Member and Participant Experiences
- Cultivate Workforce Transformation

The plan provides for the following Guiding Principles, to be followed in the implementation of goals established in furtherance of the plan's strategic priorities:

- Demonstrate Integrity
- Develop and Empower Employees
- Focus on the Customer Experience
- Fulfill Fiduciary Obligations
- Lead Innovation and Improvements
- Learn from Mistakes
- Safeguard Information, Facilities, and Staff
- Share Knowledge
- Think Strategically

The Board receives regular updates on the progress of the implementation of the plan's strategic goals and at the July 28, 2021, Board meeting approved an amendment to the plan.

Fiduciary Review and Self-Assessment

In furtherance of the Board Governance Policy Manual's *Fiduciary Review Policy* and *Self-Assessment Policy*, which both provide for periodic reviews of the Board's governance policies and practices, in January 2021, the Board again engaged Funston Advisory Services LLC to review the Board's fiduciary and governance practices in order to improve the effectiveness of the Board to better serve the needs of SERS' members and the Defined Contribution Plan and Deferred Compensation Plan participants, with corresponding benefits for the taxpayers of Pennsylvania.

At the April 28, 2021, Board meeting, the Board took action to accept Funston's *SERS Fiduciary Review and Board Self-Assessment – Final Report*, which included reports and recommendations in the following areas:

1. A fiduciary and governance review of the Board's performance of its duties in the following four task areas:

    - Non-Economic Investment Requirements
    - The Asset Liability Matching Process
    - Legislative Positioning: Reactive and Proactive
    - Investment Manager Selection / Due Diligence / Monitoring / Termination

2. A self-assessment of the Board in ten areas of governance, which included:

    - Governance Structure
    - By-laws, Charters, and Policies
    - Board Meeting and Operations
    - Board Oversight and Independent Reassurance
    - Board Committees
    - Board Education and Development
    - Board Interactions with Staff
    - Evaluation of Board Direct Reports
    - External Advisors

The Board further directed SERS staff to engage with the appropriate standing committees of the Board to: (a) review the Final Report's recommendations, and (b) make recommendations to the Board for action, as appropriate.

According to Funston's report, the Board made "significant improvements in its governance, structure, policies, and practices over the past five years since its last governance review."

SERS staff is working with the Board's committees in reviewing the report's recommendations.

SERS Board Education

Annual Education Overview

In 2021 Board members are required to successfully complete at least nine total hours of training:

- Under Act 2017-5, eight hours of mandatory training in investment strategies, actuarial cost analysis, and retirement portfolio management
- One hour of ethics training

Starting in 2022, Board members will be required to successfully complete at least 11 hours of total training annually:

- Under Act 2020-128, 10 hours of mandatory training in investment strategies, actuarial cost analysis, asset allocation, risk assessment, and retirement portfolio management
- One hour of ethics training

Extra Training Requirements for Audit, Risk and Compliance Committee Members

- Additionally, Act 2020-128 provides that Board members newly appointed as voting members to the Audit, Risk, and Compliance Committee on or after February 24, 2021, must commit to complete 16 hours of training in risk assessments, internal controls, and auditing standards within 90 days of their appointment.
- To continue serving as a voting member, there is a requirement to complete at least eight hours of training on those topics each calendar year thereafter. At least six times per year, you will receive an education statement highlighting all approved credits. See sample statement in Appendix
- Board member also are encouraged to individually and collectively aspire to develop an understanding of peer practices and the issues involved in managing large pools of assets.

Pension Forfeiture

Overview

Public pension forfeiture in Pennsylvania is governed by state law. There are two types of public pension forfeitures and sources of forfeiture law:

1. Act 140 of 1978, as amended ("Act 140"), governs forfeitures of pensions for state employees specifically and all public employees in Pennsylvania generally. Act 140 forfeitures are triggered by criminal conduct.

2. The Pennsylvania Constitution and the Pennsylvania Judicial Code contain specific provisions for the forfeiture of pensions for members of the Judiciary. These forfeitures are triggered by removal from judicial office. A judge can be subject to forfeitures under both Act 140 and the judicial forfeiture provisions.

ACT 140

The list of crimes that trigger Act 140 pension forfeitures is statutorily defined. The Courts have ruled that SERS and the other pension administrators[1] have no discretion to waive the application of Act 140.

In addition to the actual substantive crimes identified in Act 140, Commonwealth Court expanded the list of Act 140 crimes to include the inchoate crimes of attempt; conspiracy; or solicitation to commit one of the listed crimes. *Luzerne County Retirement Board v. Seacrist*, 988 A.2d 785 (Pa. Cmwlth. 2010). The Pennsylvania Supreme Court has not ruled on this issue and the application of Act 140 to crimes of attempt, conspiracy, or solicitation has been challenged since the *Seacrist* decision.

Act 140 has three elements that must be satisfied to trigger a pension forfeiture. Those elements are:

1. a public official or public employee;

2. is convicted of (or after Act 2019-1 is found guilty of) or pleads guilty or no defense to a crime listed in Act 140; and

3. the crime was committed *through the public office or position or when the public office or position put the public official or employee in a position to commit the crime.*

Act 2019-01 amended Act 140 to expand the list of forfeiture crimes and make other administrative changes. Act 2019-01 expanded the list of crimes that require pension forfeiture to include most job-related Pennsylvania felonies. It applies only to crimes committed on or after March 28, 2019. A more detailed summary of Act 2019-1 is at the end of this material.

---

[1] The remainder of these notes will speak to just the State Employees' Retirement Board as administering Act 140 through SERS as its administrative arm, with the understanding that all other state and municipal public pension administrators in Pennsylvania are making these decisions for their own plans.

Three Primary Considerations:

1. The General Assembly determines what crimes and events trigger pension forfeitures. Act 140 requires a *conviction* (a verdict and sentencing) for pre-Act 2019-1 crimes, or a guilty verdict for post-Act 2019-1 crimes, or entry of a guilty or "no defense" (technically *nolo contendere* under Act 2019-01) plea to trigger a forfeiture. SERS must apply the law as it is written. Expanding the scope of Act 140 requires a legislative amendment.

2. No matter where the General Assembly draws the line on what criminal conduct results in Act 140 pension forfeitures, some cases will always be on the other side of the line. It is reasonable to think that the scope of Act 140 cannot be expanded indefinitely without at some point crossing constitutional boundaries.

3. In 2020, four SERS members forfeited their pensions under Act 140. One of those forfeitures was under the Act 2019-1 amendments. Also, one member forfeited under the judicial pension forfeiture rules. Three members have forfeited their pensions thus far in 2021. Two of those three forfeitures were under the Act 2019-1 amendments.

   Since 2010, 110 SERS members have forfeited their pensions; two of those pensions (payable to Robert Mellow and Gerald Sandusky) were restored after litigation about the application of Act 140, and two others (Anthony Eggleston and Stephen Stetler) were restored after the courts vacated and dismissed the members' convictions for forfeiture crimes under the Post-Conviction Relief Act. SERS currently is monitoring approximately 25 cases that could result in forfeitures.

Other Important Facts

- Act 140 pension forfeitures are civil penalty consequences of criminal conduct. SERS is not involved in the criminal prosecution decisions and has no control over what crimes are charged, prosecuted or plea bargained away. Similarly, the criminal courts cannot order SERS to institute a pension forfeiture as part of the criminal case. Application of Act 140 is charged to SERS.

- As a practical matter, the existence of a public pension and the possibility of a pension forfeiture often is used as bargaining chip in the underlying criminal prosecutions and plea negotiations.

- After a conviction, verdict of guilt, or entry of a guilty, "no defense," or *nolo contendere* plea, SERS reviews court documents to determine if the member has met the three elements to forfeit listed above. If so, SERS takes immediate steps to forfeit the pension.

- Act 140 is applied prospectively after the triggering criminal court plea, verdict or conviction has occurred. Benefits paid to members before the triggering event is not subject to forfeiture.

- Act 140 provides for the return of a member's contributions, without interest; however, if the member does not apply for the return of member contributions before the date of the triggering conviction or plea, those contributions, and interest that otherwise would be forfeited are available to pay fines and restitution due because of the forfeiture triggering crimes.

- Act 140 applies to all public pensions earned up to the triggering event. For example, a crime committed as a borough employee or school employee can result in SERS benefits being forfeited. Act 140 is not, however, a permanent ban on the accrual of future benefits. If an employee whose pension was forfeiture begins a new period of public employment, the employee can earn a new pension benefit as if a new employee with no prior service. The courts have allowed military service credit that was part of a forfeited benefit to be repurchased a second time if the employee requalifies to purchase the service credit.
- SERS members may appeal forfeiture decisions to the State Employees' Retirement Board and then to the courts.
- Most litigation contesting Act 140 forfeitures involves either constitutional challenges, whether the federal crime charged is substantially the same as a listed Pennsylvania crime (there have not yet been any forfeitures regarding crimes under the laws of other states) or whether the triggering crimes have the necessary nexus to public employment.
- As a forfeiture statute, Act 140 is construed narrowly.
- Act 140 also will result in the forfeiture of any equitable distribution of marital property pension payments being made to an alternate payee if a State employee commits a triggering crime. The alternate payee's rights to the pension payments are derivative of the State employees'.

Judicial Forfeitures

Article V, §16(b) of the PA Constitution defines additional forfeitures for the judiciary if a member "… under section 18 or under Article VI, is suspended, removed or barred from holding judicial office for conviction of a felony or misconduct in office or conduct which prejudices the proper administration of justice or brings the judicial office into disrepute."

The Judicial Code also requires forfeiture if a member "is suspended or removed from office under section 18 of Article V or under Article VI of the Constitution of Pennsylvania."

Unlike Act 140, judicial forfeitures do not require a connection between the member's conduct and public office or public employment. They also do not require criminal conduct. If the Court of Judicial Discipline removes or bars a member from judicial office, SERS then determines if the member's pension is forfeited under the conditions established in the Pennsylvania Constitution and Judicial Code. A judge could do something "off the bench" that triggers a judicial pension forfeiture.

The Court of Judicial Discipline can impose lesser sanctions on members of the judiciary that do not result in pension forfeitures.

Unlike Act 140 pension forfeitures, there are no restitution provisions against member contributions and interest, and members of the judiciary receive not only their contributions, but also the interest credited on those contributions.

As with Act 140, SERS staff reviews the official court documents for judicial pension forfeiture triggers. Judges subject to judicial forfeiture may appeal forfeiture decisions to the State Employees' Retirement Board and then to the courts.

Act 140 Pension Forfeiture Amendments by Act 2019-1

(Effective March 28, 2019)

Overview

On March 28, 2019, Governor Wolf signed the Act of Mar. 28, 2019, P.L. 1, No. 1, effective immediately. Act 1 of 2019, formerly SB 113, amended the Public Employee Pension Forfeiture Act. Among other things, Act 2019-1 expanded the list of crimes that produce a pension forfeiture to include all work-related felonies punishable by more than five years' imprisonment. A key goal in passing this act was to prevent convicted employees from avoiding pension forfeiture by pleading guilty or no contest to felonies that were not previously listed in Act 140. Act 2019-1 applies only to crimes committed on or after March 28, 2019, the effective date of the act.

Key Points of Act 2019-1

- Added a definition of the term "benefits administrator" to the provisions of Act 140. A "benefits administrator" is defined as a retirement board, pension fund administrator or employer that manages, controls, or maintains a pension system for public officials or public employees, and SERS fits within this definition.
- Added any Pennsylvania criminal offense classified as a felony or punishable by a term of imprisonment exceeding five years as an Act 140 forfeiture crime, which encompasses the state crimes related to bribery, perjury, and acceptance of bribes by witnesses or informants that are removed from the list of expressly enumerated forfeiture crimes.
- Added a provision that Act 140 offenses also include those set out in the laws of another state that are substantially the same as the enumerated Pennsylvania crimes, as well as felony offenses under 18 U.S.C. §371 (relating to conspiracy to commit an offense or defraud the United States) and 18 U.S.C. §1341 (relating to frauds and swindles).
- Added a provision that forfeiture becomes effective immediately when a member is found guilty by a jury or judge or pleads guilty or no contest to a forfeiture crime and is retroactive to the date that finding is entered, rather than the prior provision. The prior provision stated that, if the member went to trial and was found guilty, the forfeiture does not occur until the individual is sentenced.
- Added the requirement that the Administrative Office of Pennsylvania Courts provide SERS and PSERS the information necessary to fulfill the boards' duties regarding forfeiture. The courts are required to notify the benefits administrator if restitution is or is not ordered, and the amount of any restitution.
- Added a provision that, upon receipt of information regarding a finding of guilt or entry of a verdict triggering forfeiture, the benefits administrator must retain the member's contributions and interest until receiving a court order requiring the payment of restitution. However, if restitution is not ordered, the benefits administrator must release the member's contributions upon the member's request.