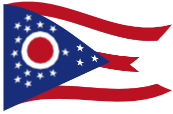

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Ohio Retirement Systems: 1998-2022

ORSC Staff Report on the Historical Experience of the Five Ohio Retirement Systems Since 1998

April 11, 2024

Ohio's Retirement Systems: 1998-2022

At its November 9th, 2023, Ohio Retirement Study Council (ORSC) meeting, the ORSC directed its staff to create a comprehensive historical report on the state retirement systems. The ORSC directed its staff to provide a review of incoming contribution rates (employee and employer contributions and investment gains on those contributions), outgoing benefits (both vested and unvested), exercise of board authority, and resulting funding levels. ORSC staff were further asked to provide an executive summary and guidance on future legislation. Therefore, this summary includes overall staff recommendations on the implications of this history on Ohio's retirement systems.

The approach taken is a non-technical review of the "what" during this period, specifically what happened during this period to explain the current funding levels among the systems. Under this approach, ORSC staff focused on what it found to be the most dominant contributors to the recent history of the state retirement systems, and this report is reflective of those findings. ORSC staff focused on the parts of that history that are under the control of the General Assembly or state retirement systems, particularly as we understood the report to be intended as a starting point for further policy discussions. The report is not meant to preclude discussion of other considerations or perspectives. Comments from each of the state retirement systems, if they were submitted, are provided in the appendices that may provide these other perspectives. The report is divided as follows:

1) Executive Summary (page 4);
2) Composition of State Retirement Systems (page 9);
3) Funding of Defined Benefit Plans and Liability Growth (page 11);
4) Pension Reform (page 20);
5) Cost-of-Living Adjustments (COLA) (page 26);
6) Provision of Health Care in Retirement Systems (page 33);
7) Ohio's Investment Returns and Assumed Rates of Return (page 38);
8) Other Considerations (page 42);
9) Conclusion (page 44);
10) Retirement System Comments (page 45 (PERS) and 49 (OP&F));
11) Appendices (page 51).

The underlying data in this report was compiled primarily by ORSC staff but has been confirmed and updated or corrected by representatives of the state retirement systems. The scope of the report necessarily loses nuances of each particular system, but the intent of the report is to provide a holistic view of the history of contributions, benefits, and funding of the five state retirement systems from 1998-2022.

1998 as Starting Point

The following report begins in 1998. ORSC staff believe 1998 is a functional beginning point for analysis and history for three reasons. First, the investment environment for the systems radically changed in 1998, with the legislature granting full investment authority to the boards

and the ORSC conducting investment performance reports beginning in 1999. Second, this is when the 30-year amortization requirement began and marked a different statutory approach to the funding of pension benefits than in the past. Finally, and crucially, all the systems' ratios of assets to liabilities exceeded 90% in the 1998-2001 period, marking a relatively consistent, and healthy, funded ratio among the systems.

ORSC staff believe starting earlier would not provide significant analytical advantages and would functionally lump together two very different types of systems, causing distortion. ORSC staff acknowledge that this analysis results in certain history being excluded, including the "13th check" at the State Teachers Retirement System (STRS), any remaining legacy debt in all the systems, state subsidies provided to the systems prior to 1998, and the remittance of liability payments to the Ohio Police and Fire Pension Fund (OP&F) occurring prior to 1998. Including such information would cloud the clearly dominant role that the post-1998 period has had on the current collective status of the systems. It is ORSC staff's contention that a combination of the investment environment and decisions by the General Assembly and the systems after 1998 have determined the present condition of the systems rather than anything prior to that point.

ORSC staff note that at *no point* in this 25-year period have any of the five retirement systems failed to provide a statutory monthly benefit due to insufficient funds. The basic mission of the systems to provide pension benefits to members and beneficiaries of the state retirement systems after retirement has been successfully achieved. It is an explicit assumption of this report that the sole statutory purpose of the systems is to provide these statutory pension benefits.

Executive Summary

The experience of the Ohio retirement systems since 1998 provides an instructive period of review for those with interest in state retirement systems. Ohio's retirement systems are not unique in experiencing funding challenges over the past 25 years. As with so many other systems, Ohio's retirement systems faced a daunting rise of unfunded liabilities (debt) in the 2000s. The responses of the systems and the General Assembly to this rapid rise of unfunded liabilities provide concrete examples of what exacerbated the challenges and what has improved the situation.

By 2001, *all* of the retirement systems were close to being 100% funded. The Public Employees Retirement System (PERS) was the highest at 103% and the lowest was Highway Patrol Retirement System (HPRS) at a still healthy 87%. 100% is a funded status in which each generation has properly funded its own benefit; this is known as intergenerational equity. This should be the goal of any retirement system.

In the early to mid-2000s, all the retirement systems were presented with the challenge of liabilities (the cost of providing benefits) that had roughly doubled since 1998. This report is not attempting to specify *what* increased the liabilities during this period (i.e., life expectancy, benefit increases), as for purposes of this report, it is sufficient to understand that the provision of statutory benefits was becoming more costly to the systems in the late 1990s to late 2000s. Due to contributions from employees and employers and investment gains on those contributions, the rising cost of providing statutory benefits was surprisingly not a structural crisis and could have been resolved over time. This is largely due to the long-term investment performance of the retirement systems.

The cost of providing benefits for members of the retirement systems is largely funded by investment gains on employee and employer contributions. The General Assembly provided full investment authority to the retirement boards in 1998, and the long-term positive investment performance of the funds has greatly benefited system members, employers, and taxpayers by lowering the cost of providing statutory retirement benefits to retirement system beneficiaries. As stated above, the rising cost of providing benefits in the early 2000s was not a structural problem in the long-term due to incoming funds from employee and employer contributions and investment earnings on those contributions. From 1998-2022, employee and employer contributions and actual investments on those contributions *would have been sufficient* to cover 66%-137% of current unfunded liabilities (2022 unfunded liability). Why, then, did the liability challenge turn into a true crisis in the late 2000s?

Ten years after approaching, or surpassing, 100% funding, the systems all had significant deterioration in their funded status. PERS maintained the highest funding at 76% in 2010 and STRS had the lowest at 56% in 2012. In twelve short years, STRS had gone from approaching 100% funding to being at risk for insolvency and being unable to pay basic statutory benefits. The investment environment was generally poor in the early to mid-2000s, with a tech influenced market correction in the early 2000s followed by the Great Financial Crisis (GFC) in 2007-08. This resulted in a rise of unfunded liabilities in the short-term. However, continued health care allocations by the STRS, OP&F, and HPRS Boards, even as those systems

experienced an infinite amortization period (i.e., the fund is never able to pay down its debt), exacerbated the decline in the system's funded status.

Even as liabilities increased and the unfunded portion of those liabilities skyrocketed, STRS, OP&F, and HPRS continued to divert employer contributions to provide discretionary health care that were needed to fund statutory benefits. While the STRS Board quickly reduced this diversion from over half of employer contributions to less than a tenth of employer contributions from 2000 to 2003, they continued to divert this reduced amount for 11 years, including a three-year period in which the fund had an infinite amortization period. The OP&F Board diverted roughly a third of employer contributions for a *full decade* of infinite amortization. While this diversion has provided a great discretionary post-employment benefit to retirees, it resulted in insufficient funds being directed to statutory retirement benefits, which is the direct mission of Ohio's retirement systems. While PERS and the School Employees Retirement System (SERS) did divert employer contributions to health care, this was done under conditions in which that diversion did not result in the system ever exceeding a 30-year amortization period and neither of these systems had infinite amortization periods at any point between 1998-2022. Still, any decision to divert employer contributions to fund discretionary health care does have long-term financial costs.

In 1997, the General Assembly established an annual statutory requirement that the systems would be required to submit a plan to the ORSC and General Assembly if unfunded liabilities could not be paid off over a 30-year period. That plan was to detail how the system was going to reduce that amortization period to lower than 30 years. In a review of contribution allocations in the 2000s, it would appear that both the retirement boards and the General Assembly interpreted this 30-year period as the *target level* of funding rather than the *absolute maximum* when making health care allocation and benefit enhancement decisions, respectively. At the board level, the diversion of employer contributions to retiree health care appears, in part, related to the ability of the fund to remain below that 30-year amortization period. This is particularly apparent in SERS, but also in PERS and HPRS. For its part, the General Assembly made a number of benefit increases during the late 1990s and early 2000s. These benefit increases were justified by the benefit enhancements not immediately causing the retirement systems to exceed a 30-year amortization period.

Investment losses during the 2007-2008 Great Financial Crisis (GFC) further exacerbated already existing imbalances in the funding of benefits versus the actual benefits being provided by the state retirement systems. To address these imbalances, future benefits were cut in accordance with plans adopted and supported by the retirement system boards, retirement system interest groups, and the General Assembly under pension reforms that became effective in 2013. This is the first time in Ohio history, as far as ORSC staff is aware, in which future benefits were reduced.

2013 is a pivot in the actual structure of plan benefits, but also brought a more concerted effort to reduce the amortization period well-below 30-years. Discussions with staff at PERS, STRS, SERS, and HPRS strongly suggest that the staff of those systems appreciate the costs and risks associated with targeting a continuing 30-year amortization period rather than a declining amortization period. STRS, SERS, and HPRS have explicit board policies to reduce their amortization periods. Post pension reform in 2013, PERS has sought board authority to modify

its benefit structure and increase its funding status. This reflects a cultural shift toward a more aggressive approach to fully funding statutory benefits. All of the retirement systems have significantly reduced, if not eliminated, the diversion of funds to discretionary health care. This has helped, but the rise in unfunded liability was extraordinary in the early 2000s, and these liabilities are tied to statutory benefits.

The retirement boards can only provide benefits in accordance with the statutory requirements established by the General Assembly. The experience of the retirement systems since 2013 strongly suggests a path forward to providing long-term financial stability.

The board authority provided by the General Assembly to STRS, SERS, and HPRS to modify employee contribution rates (HPRS) and curtail future liability growth by adjusting future COLA grants (STRS, SERS, and HPRS) has allowed these funds to balance the systems' incoming contributions and asset bases with outgoing benefits in accordance with board level objectives and responsiveness. These board actions are substantial; STRS Board authority eliminated approximately $13 billion in unfunded liabilities[1] and SERS Board level actions reduced six times the amount of liability as did SERS' pension reform ($222 million through pension reform versus $1.356 billion through SERS Board actions).

After reviewing this period, and in response to the ORSC request to include an executive summary and guidance on future legislation, ORSC staff have the following suggestions for a path forward:

1) While extraordinarily valuable, discretionary benefits, specifically health care benefits, *must* be subservient to statutory benefits. The diversion of assets to provide discretionary benefits has had a long and consequential tail effect on the systems.
2) Board authority has been extremely successful in allowing the retirement boards to maintain the financial health of the systems. This authority should be made uniform among the systems and more clearly defined in statute to improve transparency to system members on why board action must be taken.
3) In the long term, it would be valuable for the General Assembly to consider reducing the maximum amortization funding period to something at or below 20-years. It would also be valuable for the boards to consider adopting a closed or declining amortization period.

These three suggestions are interrelated. It would be of limited utility for the General Assembly to reduce the required amortization period to below 20 years but not provide tools to the systems to effectuate that change. These three changes would go a long way to reducing the likelihood of again altering future benefits and make those benefits more affordable and stable for members, employers, and taxpayers. Providing board authority to the systems uniformly would also allow decisions to be made as close as possible to those who will be impacted by those decisions.

While the above summary is applicable to all systems, ORSC staff do note brief comments on particularities and nuances of each system.

[1] The STRS Board curtailed some of these benefit reductions in 2022, 2023, and 2024.

Executive Summary: PERS

PERS never required more than 30 years to amortize their liabilities, which is why PERS did not have to make some of the future benefit cuts made by other systems. PERS' funded status is likely more stable than any other system as PERS has the lowest assumed rate of return and a tiered benefit structure that has been fully implemented. PERS has no board authority to make additional changes to its benefit structure. Without this authority, PERS itself has no ability to make adjustments to comply with the 30-year amortization requirement. While PERS does not have explicit board policies regarding statutory benefit funding levels, again, PERS lacks the board authority that would be necessary to effectuate those policies should funding deteriorate.

Executive Summary: STRS

STRS' funded ratio reached a low of 56% in 2012, with *$47 billion* in unfunded liabilities. STRS' liability growth in the 2000s was unsustainable and the debt this has placed on STRS has been costly. It is only with increased contributions by active members, decreased future benefits, and suspension of future COLA increases combined with remarkable long-term investment returns that STRS has avoided the possibility of having insufficient funds for existing benefits. STRS is an example of how authorizing benefits that are not sustainable can have consequences that are painful from which to recover. Even if STRS had not diverted any funds to health care, it still would have required adjustments to its benefit structure under pension reform. STRS has altered its benefit structure considerably.

At the board level, STRS has adopted a closed 30-year amortization period with a goal of 100% funding by 2045. With a current 11-year amortization period, STRS is on track to meeting that goal, but only if future COLAs continue to be suspended.

Executive Summary: SERS

To maintain sustainability and adaptability of the system, the SERS Board began regular discussions on plan design in 2019. The purpose was to ensure that SERS was in position to withstand changes in member demographics, investment experience, and other financial pressures. At the core of those discussions, the Board scrutinized SERS' plan design to make sure the benefits SERS provides—pensions, health care, disability, survivor benefits, death benefits, etc.—were still working as they should in relation to the current demographics of the membership. They also were looking for operational efficiencies that could benefit the system financially and monitoring membership and retirement trends that could impact the future financial stability of the system. Regular discussions were held in 2022, and discussions now take place annually.

SERS was able to maintain a 30-year status during this period, but the funded ratio fell to a low of 63% in 2012. The SERS Board has used an annual approach to adjust future COLAs and improve its funding status. Except in 2016, when the amortization period increased by one year, SERS has been able to reduce its amortization period by one year, each year, since 2012. This disciplined approach is yielding positive and gradual results. The SERS Board has an explicit funding policy to reduce their amortization period.

Executive Summary: OP&F

OP&F was created by the General Assembly in 1965, replacing 454 separate local police and firefighter relief and pension funds. OP&F began operating as a statewide retirement fund on January 1, 1967. On that date, the local pension funds transferred their assets and liabilities to OP&F. Assets transferred to OP&F totaled approximately $75 million, while OP&F's actuary computed the liabilities accrued up to 1966 at approximately $490 million. Employers are paying the remaining unfunded accrued liability, which began in 1969, over a 67-year period. As of December 31, 2022, the balance totaled nearly $16.1 million.

OP&F began this period in a funded position virtually identical to STRS, SERS, and HPRS, but has had a considerable difference in the post-2011 period. OP&F's funded status fell from 93% in 2001 to 63% in 2011. Despite the fund having an infinite amortization period in the 2000s, the OP&F Board diverted roughly one third of employer contributions to fund discretionary healthcare benefits. This diversion largely ceased in 2014. OP&F now diverts 0.5% of employer contributions to health care; a portion of this is used to fund statutory Medicare B reimbursement with the remainder used to fund retiree health care.

Unlike the other systems, however, OP&F's unfunded liabilities have increased 26% since 2011; PERS unfunded liabilities have grown 3% and the other systems unfunded liabilities have all decreased. This is likely due to the fact that OP&F, unlike STRS, SERS, and HPRS, lacks the authority to modify future COLA increases. The OP&F Board has the authority to adjust employee contribution rates and age and service requirements but they have not done so. The OP&F Board does not have explicit board policies regarding statutory benefit funding levels.

Executive Summary: HPRS

HPRS was briefly at an infinite status between 2008-2011. HPRS diverted roughly one sixth of employer contributions to fund healthcare benefits. This smaller amount has been diverted for a longer period of time, including a four-year period in which the fund had an infinite amortization period. As with the SERS Board, the HPRS Board has used an annual approach to adjust future COLAs and improve its funding status. HPRS has been able to reduce their amortization period regularly since 2012. This disciplined approach is yielding positive and gradual results. The HPRS Board has an explicit funding policy tied to a 20-year amortization period that guides annual COLA, employee rate, and health care funding decisions.

Composition of State Retirement Systems

Ohio's Five Systems

With very few exceptions, Ohio's public employees are covered by one of the five state retirement systems. The Public Employees Retirement System (PERS) covers local and state public employees who are not otherwise explicitly covered by the other systems. The State Teachers Retirement System (STRS) covers teaching staff of Ohio's public school districts and public higher education. The School Employees Retirement System (SERS) generally covers non-teaching staff of Ohio's public school districts and public higher education. The Ohio Police & Fire Pension Fund (OP&F) covers full-time municipal police officers and full-time fire fighters. The State Highway Patrol Retirement System (HPRS) covers troopers of the Ohio State Highway Patrol.

Ohio public employees do not contribute to Social Security and, therefore, do not receive Social Security credit or benefits for this government service. As a result, these employees will largely rely on retirement benefits provided by a state retirement system and any personal savings they have made.

Approximately 2,322,655 people have some sort of direct association with at least one of the state's retirement systems. In the chart below, "active" includes all members currently contributing to the system. "Retired/beneficiaries" includes those members actively receiving a retirement benefit from the system and any survivors or beneficiaries receiving a benefit by reason of a retired member's service. "Inactive" members are those that have service credit in an Ohio retirement system but are not currently contributing to that Ohio retirement system.

2022 Ohio Retirement System Membership		
PERS	Active	298,798
	Retired/Beneficiaries	228,490
	Inactive	708,705
STRS	Active	184,865
	Retired/Beneficiaries	156,225
	Inactive	164,708
SERS	Active	155,063
	Retired/Beneficiaries	81,151
	Inactive	276,880
OP&F	Active	29,931
	Retired/Beneficiaries	30,963
	Inactive	4,590
HPRS	Active	1,380
	Retired/Beneficiaries	1,852
	Inactive	49

In 2022, the systems collectively provided pension benefits of approximately $17.1 billion.

2022 Pension Benefits (in millions)	
PERS	$7,038.0
STRS[2]	$7,123.0
SERS	$1,328.0
OP&F	$1,559.5
HPRS	$78.7

On an individual level, the benefits provided to retirees and beneficiaries vary. This is a result of a variety of reasons, including the typical amount of service in a system and the typical compensation under a system. These benefits are generally higher than those provided by Social Security. This is expected as Social Security is designed as an anti-poverty program rather than a defined benefit retirement program. SERS has a lower average benefit than Social Security primarily due to a majority of lower paid positions within its membership. However, this does not mean that a SERS member would get a higher benefit if they had participated in Social Security for their SERS service.

Average Annual Benefit, 2022			
	Age and Service	Disability	Survivor, Beneficiary
PERS	$31,195	$34,401	$15,434
STRS	$48,166	$39,685	$31,337
SERS	$16,164	$18,360	$9,732
OP&F	$54,052	$44,943	$12,114
HPRS	$48,148	$38,050	$19,519
Social Security[3]	$21, 902 (retired worker)		

[2] Excludes STRS defined contribution plan benefits. Including these benefits would increase the STRS figure to $7,147.1.

[3] Retired workers for December 2022, available online at: https://www.ssa.gov/policy/docs/quickfacts/stat_snapshot/2022-12.pdf.

Funding of Defined Benefit Plans and Liability Growth

Summary

All of the state retirement systems experienced significant liability increases between 1998-2011. The costs of providing statutory benefits increased significantly during this period. For *all* systems, this rate of liability growth slowed considerably in the 2010s and into the 2020s.

As with liability growth, the unfunded actuarial accrued liability (UAAL) portion (discussed below) also increased over this period, but this UAAL growth was substantially concentrated in the 1998-2011 period, partly reflecting the well-funded status of the systems in 1998. UAAL growth is more important than general liability growth; a high UAAL jeopardizes the ability of the systems to pay benefits whereas an increasing general liability does not *necessarily* have the same effect.

UAAL experience has been radically different in the 2011-2022 period. In the 2011-2022 period, STRS and HPRS have decreased UAAL. PERS and SERS have remained largely flat. OP&F has continued to see increased UAAL growth in the 2011-2022 period but at a much slower rate than in the 1998-2011 period.

Funding of Defined Benefit Plans

The majority of pension benefits provided under the state's five retirement systems are through a defined benefit plan.[4] Once age and service eligibility requirements are met, a defined benefit plan provides a life-time benefit that is determined by a formula of years of service, final average salary, and a multiplier. For instance, a member with 30 years of service, a final average salary of $40,000, and a benefit multiplier of 2.1% would receive an annual benefit of $25,200:

(30 years of service x $40,000 final average salary x 2.1%)

The basic benefit formula for the state retirement systems is available in "**Appendix A: Pension Profiles.**"

The defined benefit is pre-funded through member and employer contributions and investment earnings on those contributions. Actuaries and the retirement systems will often refer to the following fundamental formula when discussing defined benefit plans: C+I=B+E

C (Contributions) + I (Investments) = B (Benefits) + E (Expenses)

At a basic level, a retirement system must balance incoming funds and assets with outgoing benefits and costs. A defined benefit plan must balance this equation throughout time to maintain solvency. If benefits are not commensurate to contributions and investments, the plan will need some action on either side to rebalance the equation.

[4] PERS and STRS include a defined contribution plan, in which benefits are determined by the sum total of contributions, and any earnings on those contributions, when the member reaches retirement. Certain PERS, STRS, and SERS members may elect to participate in an alternative retirement plan (ARP) rather than the defined benefit or defined contribution plans.

Ohio has adopted "fixed" contribution levels, meaning that contributions by employers and employees are set to a narrow range and must remain within those statutory limits. This means that if the formula above gets outbalanced in the negative, the fund will either have to experience unusually sustained investment returns or a reduction of benefits, not increased contribution amounts, to rebalance. The only flex to this fixed contribution model over the study period was with employee rate increases and, until 2009, HPRS employer contribution rates.

The following table provides 2024 contribution levels for the five state retirement systems.

System	Employee Rate	Employer Rate
PERS State and Local	10.00%	14.00%
PERS-Law Enforcement	13.00%	18.10%
PERS-Public Safety	12.00%	18.10%
STRS	14.00%	14.00%
SERS	10.00%	14.00%
OP&F Police	12.25%	19.50%
OP&F Fire	12.25%	24.00%
HPRS	14.00%	26.50%

Ohio's defined benefit funding model relies heavily on investment earnings to make up the majority of funds used to pay for benefits. These investment earnings compose up to 80% of total assets held by the systems. Due to the assumption of these future investment earnings, the systems do not need the full dollar of future benefits. Instead, using actuarial assumptions on their membership, the systems determine how much assets they need today assuming future investment earnings in order to pay for benefits as they come due. The higher the assumed rate of return, the less assets needed today to fund future benefits.[5] To give a sense of the scale of these effects, the chart below demonstrates the various liabilities today for a payment in 15 years under different assumed rates of return.

Liability Today	Assumed Rate of Return	Liability in 15 Years
$555	4%	$1000
$481	5%	
$417	6%	
$362	7%	
$315	8%	

Because of the rate of return's heavy influence on liability, it is essential that it be a realistic assumption of future returns. If the assumption is too high, there will be a mis-assessment of the financial health of a system. For instance, a system could provide an enhanced benefit assuming

[5] These calculations are detailed in ORSC's Issue Brief "Measuring Pension Liabilities" (Available online at: https://www.orsc.org/Assets/Reports/1188.pdf).

future high returns are available to pay for that benefit. But, if those returns do not actually materialize, the system has committed to a benefit that it cannot provide.

Funded Ratio, Unfunded Actuarial Accrued Liability (UAAL), and Amortization

Ohio's retirement systems annually[6] evaluate the system's funded status under an actuarial valuation, which provide an overall measurement of the funded ratio, unfunded actuarial accrued liability, and amortization of those unfunded liabilities. This can be used to evaluate the funded position of the retirement system and the likelihood of the system to provide benefits into the future without changes.

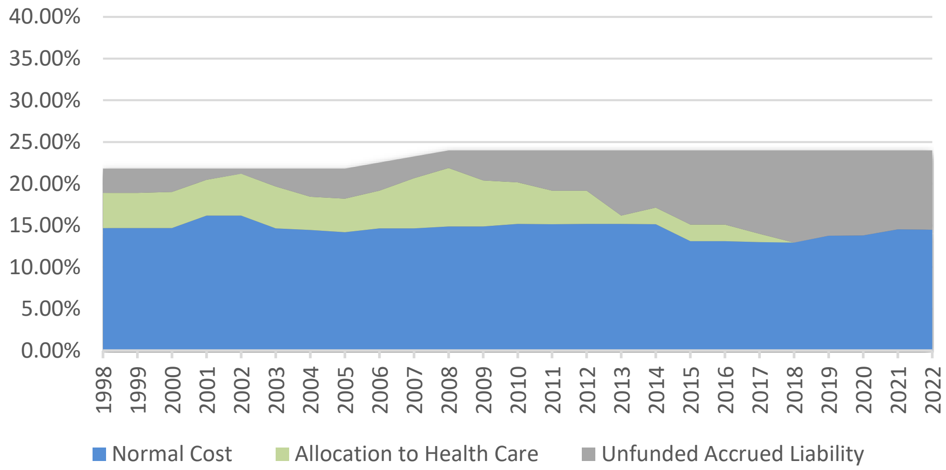
The funded ratio is simply the difference between today's measured liabilities and the current asset base collected for those liabilities. When a system reports that it is "80% funded," it is *behind* the asset base needed today to pay for benefits in the future. The 20% gap between assets and liabilities will require extra funding or benefit cuts to rebalance the C+I=B+E equation. The time period needed to bridge this 20% gap is the "amortization period." Therefore, a "30-year amortization period" means it takes 30 years to bridge that 20% difference between liabilities and assets set aside for those liabilities. The actual dollar figure of this amount is referred to as the Unfunded Actuarial Accrued Liability (UAAL).[7]

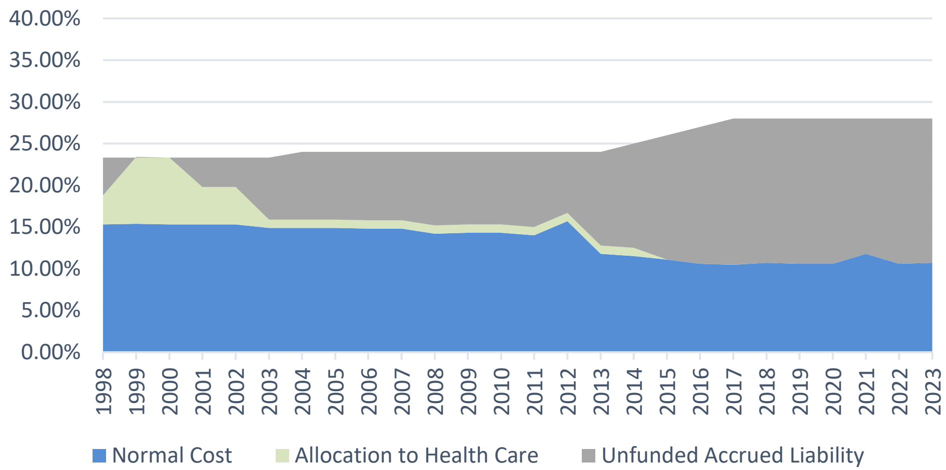
Alternatively, a "100% funded" system will need only the normal cost. This normal cost is the percent portion of salary needed to fund benefits being accrued in the current year. A 100% funded system does not have UAAL and does not have liability debt. 100% is a funded status in which each generation has properly funded its own benefit; this is generally known as intergenerational equity. This should be the goal of any retirement system.

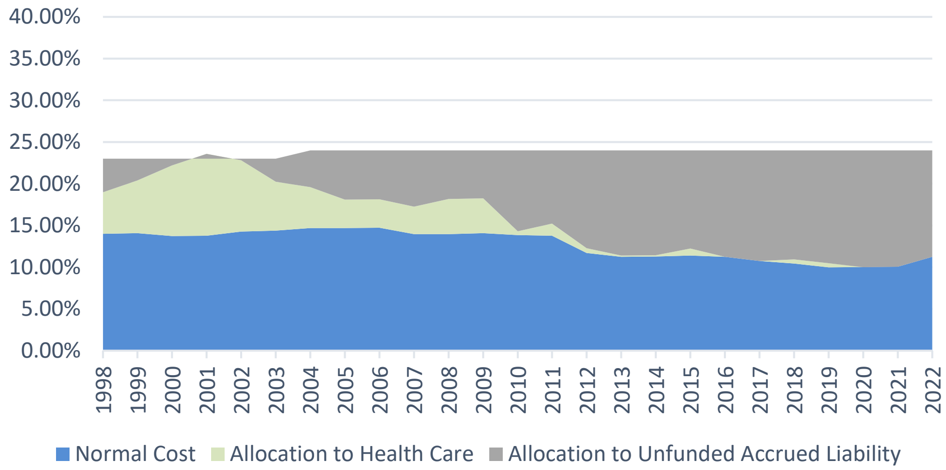
The following charts provide a sum total of employer and employee contributions made to the retirement system from 1998-2022. The blue portion of the graph is the allocation made to the normal cost, or for funding the current year's benefit. The light green is the amount of contributions diverted to health care (discussed in more detail under "**Provision of Health Care in Retirement System**"). The light grey is the amount used to pay down the unfunded actuarial accrued liability. Generally speaking, over time, normal cost has stayed relatively constant while health care allocations have decreased and UAAL payments have significantly increased.

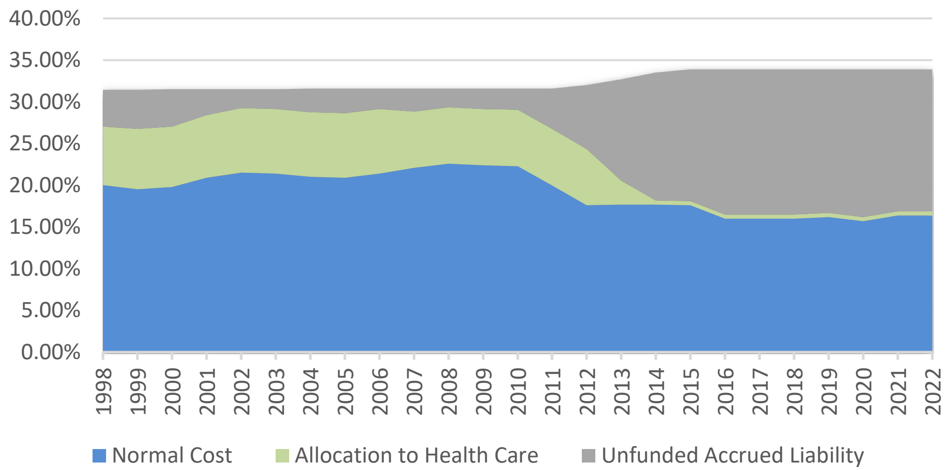
[6] The OP&F Valuation is required triennially (R.C. 742.14).

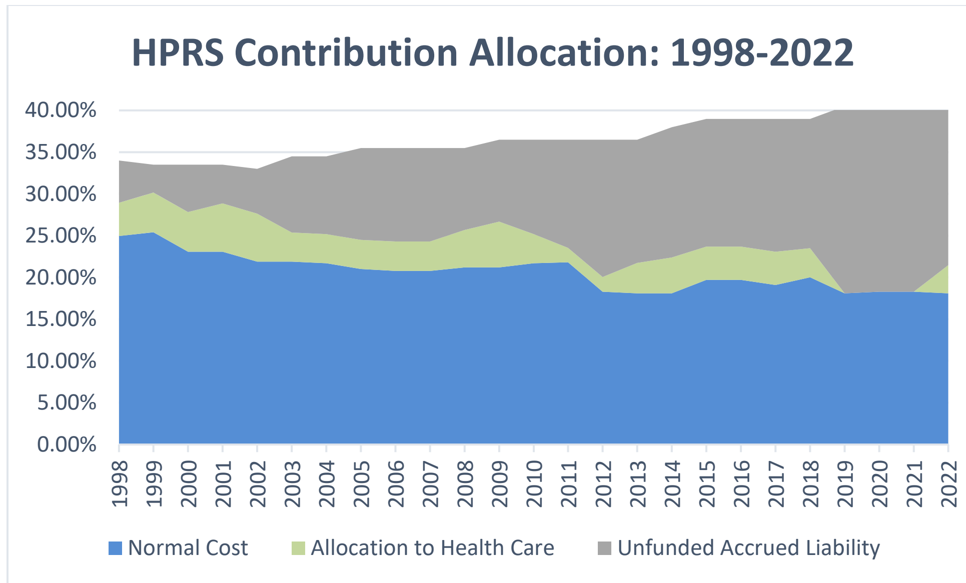
[7] A detailed description of UAAL and its amortization is available in ORSC's Issue Brief "Unfunded Actuarial Accrued Liability and its Amortization" (available online at: https://www.orsc.org/Assets/Reports/1368.pdf).


PERS Contribution Allocation: 1998-2022
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022
Normal Cost
Allocation to Health Care
Unfunded Accrued Liability


STRS Contribution Allocation: 1998-2023
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023
Normal Cost
Allocation to Health Care
Unfunded Accrued Liability


SERS Contribution Allocation: 1998-2022
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022
Normal Cost
Allocation to Health Care
Allocation to Unfunded Accrued Liability


OP&F Contribution Allocation: 1998-2022
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022
Normal Cost
Allocation to Health Care
Unfunded Accrued Liability



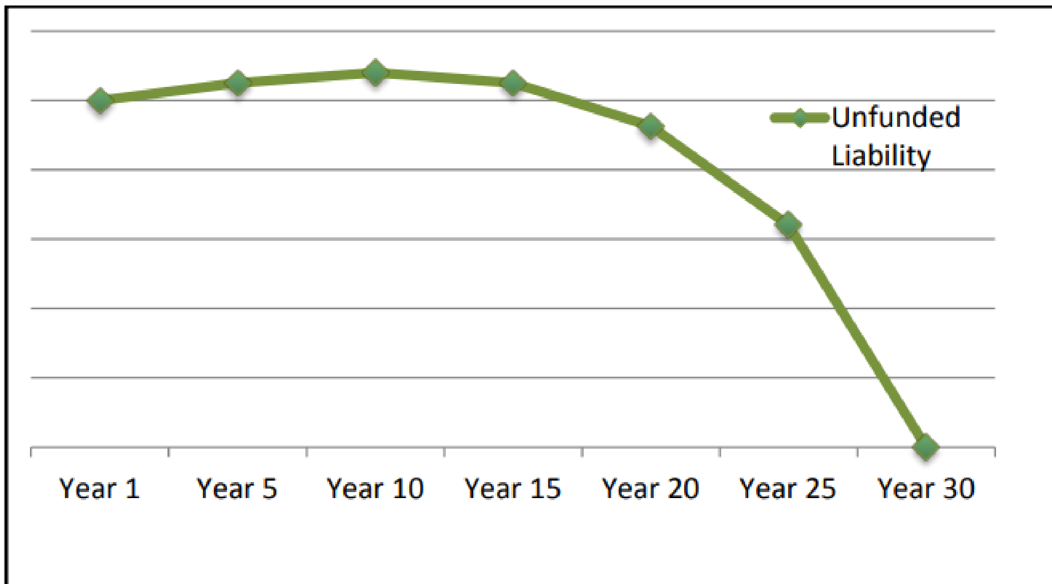
Ohio's 30-Year Amortization Requirement and Current Status of State Retirement Systems

In 1998, Ohio statutorily required that any unfunded liabilities be paid over no longer than 30 years ("30-year amortization"). A system that is over 30 years is required to submit a plan to the General Assembly and the ORSC that would reduce that time period to below 30 years.

This statutory requirement has been interpreted as an "open" 30-year amortization, meaning that the systems may reset each year to 30 years. This has often been compared to a 30-year mortgage for a house. Under a 30-year mortgage for a house, a payment schedule is set and the borrower eventually pays off the mortgage. Having an annual resetting of the 30-year period (or an "open" 30-year amortization) is akin to a borrower refinancing their home mortgage every single year. Under this scenario, the mortgage debt would never be paid off. As a result, amortization payments are less than the interest on the debt, causing the unfunded liability to perpetually grow. Even a *closed* 30-year amortization (where payments continue with the goal of paying down all debt) results in unfunded liabilities growing, rather than decreasing, over the first 15 years of payments.[8]

[8] William B. Fornia, Linda L. Bournival, and R. Paul Schrader, "Analyzing Retirement Systems' 30-Year Plans and Alternative Pension Solutions," (July 2012), page 34.

Unfunded Actuarial Liability Over 30-Year Period



In the past 12 years, there have been an increasing number of recommendations to reduce Ohio's 30-year amortization period. A 2014 Blue Ribbon Panel from the Society of Actuaries recommended no more than a 15–20-year amortization period.[9] In Ohio, moving away from the 30-year rolling amortization requirement and seeking 100% status has been suggested by the ORSC's actuary[10] and the ORSC's investment performance consultant.[11] In 2022, the Auditor of State[12] suggested that the General Assembly consider reviewing this amortization period. ORSC staff would note that any reduction to the statutory amortization period would have direct consequences on the funding or benefit levels of the systems. The following table summarizes the funding statuses of the state retirement systems as of the most recent reporting period, 2022. The systems' funded ratios have not yet returned to the levels seen in 2001.

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[9] "Report on the Blue Ribbon Panel on Public Pension Plan Funding: An Independent Panel Commissioned by the Society of Actuaries," (2014) available online at: https://www.soa.org/globalassets/assets/Files/Newsroom/brp-report.pdf.

[10] Fornia, Bournival, and Schrader, "Analyzing Retirement Systems' 30-Year Plans and Alternative Pension Solutions."

[11] October 14, 2021, ORSC Minutes, page 6 (available online at: https://www.orsc.org/Assets/EventFiles/950.pdf).

[12] Auditor of State Keith Faber, "State Teachers Retirement System of Ohio: Special Audit" (2022), pgs. 9 and 52.

2022 Retirement System Funding Status (millions)				
System (Assumed Return)	Total Liability	UAAL	Funded Ratio	Amortization Period
PERS (6.90%)	$122,463	$19,611	84%	16
STRS (7.00%)	$105,264	$20,122	81%	12
SERS (7.00%)	$22,371	$5,484	75%	22
OP&F (7.50%)	$25,363	$7,605	70%	27
HPRS (7.25%)	$1,264	$329	74%	21

State Retirement Systems: Historic Liability Growth, 1998-2022

Liability growth is expected in any retirement system, as population growth and inflation naturally increases liabilities. Over 1998-2022, total liability and more specifically UAAL growth was not distributed evenly. Liability growth was concentrated in the first half of this period. For all systems, liability growth slowed considerably in the 2011-2022 period and in that same period, STRS had virtually flat liability growth.

Liability Growth: 1998-2011 and 2011-2022		
	1998-2011	2011-2022
PERS	124%	45%
STRS	102%	7%
SERS	132%	37%
OP&F	93%	55%
HPRS	96%	21%

Liability growth is not an intrinsic problem. As the C+I=B+E equation demonstrates, as long as there is balance in the equation, the fund should be able to provide benefits.

The following table provides the UAAL growth in the 1998-2011 and 2011-2022 periods. UAAL growth increased aggressively between 1998-2011, reflecting the relatively well-funded starting point of 1998.

While 1998-2011 was generally a period of UAAL growth for all systems, 2011-2022 shows different trajectories of growth. While PERS and SERS had relatively flat UAAL growth, STRS and HPRS achieved appreciable reductions. While OP&F UAAL continued to increase at a high rate, it is markedly slower than in the past. The remainder of this review details contributing factors to this liability growth and different trajectories of UAAL from 2011-2022.

UAAL Growth: 1998-2011 and 2011-2022		
	1998-2011	2011-2022
PERS	--[13]	3%
STRS	460%	(50%)
SERS	830%	(6%)
OP&F	426%	26%
HPRS	1,743%[14]	(22%)

A full account of annual contribution and allocation history is available in **"Appendix B: Contributions and Funding."**

[13] Because PERS was fully funded, any increase in the 1998-2010 would appear as an infinite percentage increase. UAAL growth in the 2011-2022 period is more reflective of their condition.

[14] Note that HPRS was close to fully funded in 1998 ($23 million in UAAL) and SERS had a funded ratio of over 90%. Like PERS, any UAAL growth appears as a large percentage increase.

Pension Reform

Summary

Effective in 2013, pension reform reduced future benefits to members of the state retirement systems. Pension reform also provided board authority to STRS, SERS, HPRS, and more limited authority to OP&F, to further modify future benefits in response to changing conditions. STRS, SERS, and HPRS have used this authority to make further changes, which has been guided by board funding policies. These policies all move to a more conservative approach than the 30-year amortization maximum allowed under current Ohio law.

Pension Reform

In 2012-2013, due to the liability and UAAL growth previously discussed, the General Assembly adopted five pension reform bills that were put forward and supported by the retirement boards and their respective retirement system interest groups. Not taking any action would have jeopardized the ability of the retirement systems to provide statutorily required benefits.

After previous years of benefit expansions, these reforms reduced future benefits for both active and retired retirement system members. Pension reform did not reduce any statutorily protected benefits but did reduce future benefits. Pension reform also increased the maximum employee contribution rates for active members in STRS, OP&F, and HPRS. This effectively makes the retirement benefit more expensive for existing active members. No employer contribution increases were included in pension reform.

The following is a summary list of the net effect of pension reform changes on existing liability. STRS had the most significant reduction in liability.

Note that this chart is only reflective of future benefit changes and does not include changes in contribution increases or discretionary heath care allocations, as those would be used to pay down existing liabilities rather than as cuts to future benefits.

Amount and Percent of Liability Reduction from Pension Reform in 2012		
	Liability Reductions	**As Percent of Total Liability**
PERS	$3.228 billion	**3.80%**
STRS	$15.662 billion	**14.70%**
SERS	$0.222 billion	**1.30%**
OP&F	$0.781 billion	**4.80%**
HPRS	$0.117 billion	**11.20%**

Board Authority

The state retirement systems' benefit structure is largely controlled by state law. Retirees of the state retirement systems are eligible for a benefit determined by years of service, final average salary, and a percentage multiplier. Once provided, this benefit is generally protected by vesting statutes. Added to this base benefit may be any Cost-of-Living Adjustments (COLA) increases authorized by law in the future. Prior to pension reform, the retirement boards were not authorized to adjust any component of the benefit formula. With limitation, contributions rates paid by employers and employees could fluctuate in a narrow range.

After pension reform, with the exception of PERS, the retirement boards were provided variable authority to increase employee contribution rate ranges, adjust eligibility requirements, and modify future COLA grants. The following table provides a comparison summary of this *post-pension* reform authority:

Retirement System	Cost-of-Living Adjustments (COLA)	Employee Contribution Range[15]	Increase Employer Contribution Rate	Adjust Eligibility Requirements (YOS or age)[16]	Time Limits on Authority[17]	Standard to Adjust[18]
PERS[19]	No, 3% (Group A) CPI-W not greater than 3% (Groups B and C)	8-10%	No	No	N/A	N/A
STRS	Yes, may provide new COLAs without a cap	Maximum contribution of 14%	No	Yes	No	Adjustment must "preserve" or "not materially impair" the "fiscal integrity of the fund"
SERS	Yes, may provide a 0%-CPI-W (not to exceed 2.5%)	8-10%	No	Yes	No	Various[20]
OP&F	No, 3% or CPI-W not greater than 3%, based on years of service as of 2013	May adjust up or down	No	Yes	Yes, "following each quinquennial actuarial valuation" (2017, 2022, etc.)	Adjustment must "preserve" or "not materially impair" the "fiscal integrity of the fund"
HPRS	Yes, may provide new COLAs from 0-3%[21]	10-14%	No	No	No	Based on compliance with 30-Year amortization

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[15] R.C. 145.47 (for purposes of this chart, only state and local employee rates are included). R.C. 3307.26, 3309.47, 742.31, and 5505.15(A).

[16] Limited to years of service or minimum age (R.C. 742.161, 3307.58, and 3309.34).

[17] R.C. 742.161 and 742.31(B).

[18] R.C. 3307.67, 742.161, 742.31, 5505.15, and 5505.174.

[19] PERS sought, but was not granted, board authority to modify COLA in both 2017 and 2019.

[20] The SERS Board's authority to modify eligibility requirements must be to ensure compliance with 30-year funding period (R.C. 3309.34). For the COLA, the authority is the same as STRS and OP&F in that the adjustment must "preserve" or "not materially impair" the "fiscal integrity of the fund" (R.C. 3309.374).

[21] A 3% COLA is to be provided to a benefit recipients age 65 or older whose benefit is less than 185% of the federal poverty level for two (2023 = $19,720).

STRS, SERS, and HPRS have utilized their authority since pension reform, as demonstrated in the following table. OP&F has not utilized their more limited authority. PERS was not granted board authority under pension reform.

Post-2012 Board Actions		
PERS	No plan design changes subsequent to pension reform and no authority to do so	
STRS	FY2018-22	0% COLA
	FY2023	3% COLA and elimination of age 60 requirement
	FY2024	1% COLA, delay of 35-year service requirement
OP&F	No plan design changes subsequent to pension reform; note that OP&F does not have the authority to modify future COLAs	
SERS	FY2018	Eligible for COLA on 4th Anniversary of Retirement
	FY2018-20	0% COLA
	FY2021	0.5% COLA
	FY2022-24	2.5% COLA
HPRS[22]	2014	Employee rate 11.5%; COLA reduced to 1.5%
	2015-2018	Employee rate to 12.50%; COLA reduced to 1.25%
	2019-2021	Employee rate to 14%; COLA reduced to 0%
	2022	3% COLA
	2023	Employee rate to 13%; 3% COLA
	2024	Employee rate to 14%; 0% COLA

[22] HPRS is required to grant a 3% COLA for a recipient age 65 or older whose benefit is less than 185% of federal poverty limit for a family of two (2023 = $36,482).

The willingness to use board authority provided under state law has directly contributed to the decline of UAAL in STRS, SERS, and HPRS since 2011.

Effectively, there have been two pension reforms in Ohio since 2013: one through legislative changes, and an additional one for STRS, SERS, and HPRS with the implementation of board directed reform. Board authority resulted in liability reductions of similar, or greater, quantity in STRS, SERS, and HPRS. The following chart provides the liability reductions from pension reform and includes the post-pension reform board level reductions. SERS changes were six times *larger* than statutory changes in pension reform and the STRS changes had almost the same reductions as in pension reform.

Summary of Fiscal Effect of Pension Benefit Changes to State Retirement Systems (in billions)			
	Liability Reductions from 2012 Reform	**As Percent of total Liability in 2012**	**Reductions from direct Board actions post-2012-2023**
PERS	$3.228	**3.80%** Total liability: $84.325	$0—No board authority provisions
STRS	$15.662	**14.70%** Total liability: $106.302	$12.770[23]
SERS	$0.222	**1.30%** Total liability: $16.755	$1.356
OP&F	$0.781	**4.80%** Total liability $16.347	$0, limited board authority
HPRS	$0.117	**11.20%** Total liability $1.048	$0.032

Board Authority and Board Funding Objectives

The use of board authority has also resulted in the development of specific funding objectives at STRS, SERS, and HPRS. The specific policies are provided in "**Appendix C: Board Funding Policies**." Included in this appendix is a discussion of OP&F health care funding. Consistent among STRS, SERS, and HPRS policies is an objective to reduce the amortization

[23] Board action in FY2022-2023 have resulted in $3.234 billion of increased liability.

period. STRS and SERS have adopted an internal closed 30-year amortization period. HPRS has an internal policy goal of a 20-year amortization. The STRS Board voted in both 2023 and 2024 to suspend these board policies to provide plan changes (enhanced benefits).

Cost-of-Living Adjustments (COLA)

Summary

There is perhaps no other state retirement system issue that has been so misunderstood, divisive, and misconstrued as COLA benefits. From 1998-2022, COLA has gone from more of an intermittent and variable benefit, to an annual and stable benefit, back to a more intermittent and variable benefit. This change in future COLA increases was explicitly stated as the intent of the General Assembly in Sub. S.B. 342 of the 129th General Assembly.[24] This variability has clearly created general unrest, particularly at STRS. COLAs are beneficial to retired members but have significant costs. A COLA that is clearly and explicitly tied to funding levels may provide a greater sense of stability and rationality to COLA grants, but it is unlikely that any change to future COLA grants will be met positively by the retiree population.

COLAs in Ohio are granted annually and subject to statutory changes. However, once a particular year's annual COLA is granted, it is protected by Ohio law. This is different than other states, such as Wisconsin, in which previously granted COLAs can be revoked.

The COLA in Ohio is a non-compounding COLA. While it is non-compounding, because the base benefits provided by the majority of the systems are considerably higher than Social Security, a non-compounding 3% COLA in the systems would actually be higher than the 3.2% COLA provided by Social Security in 2024. The exception to this is SERS, where the average benefit is lower than the average Social Security benefit and a 3% COLA is less than the Social Security benefit and PERS, where the average was equal to the Social Security average.

Cost-of-Living Adjustments

COLA Purpose: Retirement, Inflation, and Declining Purchasing Power

When a member of a state retirement system retires under a defined benefit plan, the member receives a benefit based on years of service, final average salary, and a benefit multiplier. Because that benefit is fixed at the time of retirement, inflation erodes the amount of goods and services that can be purchased during retirement, effectively depreciating the value of the benefit over time.

This is measured by the changing (i.e., lowering) purchasing power of that benefit. The amount of this loss depends on the rate of inflation and the amount of time that the benefit has been fixed. The higher the inflation, the greater loss of purchasing power. Similarly, the longer the benefit has been fixed, the greater loss of purchasing power. The table below demonstrates varying losses of purchasing power (in dollars and percent loss) of $100 across 30 years:

Inflation rate	**Purchasing power at 5 years**	**Purchasing power at 10 years**	**Purchasing power at 20 years**	**Purchasing power at 30 years**
2%	$91 (-9%)	$82 (-18%)	$67 (-33%)	$55 (-45%)
3%	$86 (-14%)	$74 (-26%)	$55 (-45%)	$41 (-59%)
4%	$82 (-18%)	$68 (-32%)	$46 (-54%)	$31 (-69%)

[24] Substitute Senate Bill 342 of the 129th General Assembly, pg 112 (available online at: http://archives.legislature.state.oh.us/BillText129/129_SB_342_EN_N.pdf).

Even modest inflation can undercut the purchasing power of a fixed benefit over time.

Recognizing this, most defined benefit plans across the country provide some type of COLA to mitigate this loss.[25] ORSC staff could not find any example of a COLA from any state retirement plan in the United States whose purpose or intent is to completely offset this decline in purchasing power. While the designs of COLAs vary, the most significant variable is whether the COLA is a compounding or non-compounding.

A non-compounding COLA is a set dollar increase based on the original base benefit amount. A compounding COLA uses each new amount as the base for future increases. Non-compounding and compounding benefits do have differences, but only over longer periods of time. The following table applies, in five year increments, an annual 3% non-compounding versus an annual 3% compounding benefit to a $100 benefit:

Year	Percent increase	Non-compounding (% increase)	Compounding (% increase)
1	3%	$103 (3%)	$103 (3%)
5	3%	$115 (15%)	$116 (16%)
10	3%	$130 (30%)	$134 (34%)
15	3%	$145 (45%)	$156 (56%)
20	3%	$160 (60%)	$181 (81%)
Total increase		**$60 (60% increase)**	**$81 (81% increase)**

Ohio's five retirement systems did not ever provide a compounding COLA benefit from 1998-2022.

COLAs in Ohio:

Prior to 2002, COLAs provided through the state retirement systems were of varying percent, intermittent, and rather confusing. It would be difficult to provide a general explanation to a retired member on why COLAs were granted to whom and when. In 2002, this method was eliminated in favor of an annual, non-compounding, 3% COLA that began 12 months after beginning retirement. This annual COLA continued until 2013. The following table details how this COLA was actually experienced for each $100 in benefits for an individual who retired in 2004. The intent of a COLA is to mitigate the decline in purchasing power that occurs during retirement. However, the purchasing power of a retiree who retired in 2004 actually *increased* by 2.4% over this nine-year period.[26]

[25] NASRA Issue Brief: Cost-of-Living Adjustments (June 2023). Available online at: https://www.nasra.org/files/Issue%20Briefs/NASRACOLA%20Brief.pdf.

[26] Purchasing power calculated using actual CPI-W inflation (https://www.ssa.gov/oact/STATS/cpiw.html).

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Base Benefit	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
3% COLA		$3	$3	$3	$3	$3	$3	$3	$3	$3
3% COLA			$3	$3	$3	$3	$3	$3	$3	$3
3% COLA				$3	$3	$3	$3	$3	$3	$3
3% COLA					$3	$3	$3	$3	$3	$3
3% COLA						$3	$3	$3	$3	$3
3% COLA							$3	$3	$3	$3
3% COLA								$3	$3	$3
3% COLA									$3	$3
3% COLA										$3
Total Benefit	**$100**	**$103**	**$106**	**$109**	**$112**	**$115**	**$118**	**$121**	**$124**	**$127**
2004 Purchasing Power	**-**	**$100**	**$99**	**$100**	**$98**	**$101**	**$101**	**$102**	**$101**	**$102**

2002-2012 marked an extremely stable, and unusual, period of COLA grants in Ohio. Today, the retirement systems, by and large, no longer offer a 3% COLA. Oftentimes, ORSC staff are asked what a 3% means, in dollar terms, for the average retiree. Based on each systems' average base benefit, the following chart provides the average dollar benefit increase that would be provided to eligible retirees[27] if the systems' provided a 3% COLA in 2024.

Theoretical Average 3% COLA, 2024 (OP&F figure is for 2023)						
	PERS	STRS[28]	OP&F	SERS	HPRS	Social Security (2024 3.2% COLA)[29]
Average Annual Increase	$708	$1,179	$1,213	$418	$1,092	$708

COLAs are a significant and meaningful additional benefit to retirees, particularly when seen as an addition to the average benefit of retirees, as seen below for 2022.

[27] Retirees must meet certain age and anniversary requirements to be eligible for a COLA.
[28] For retirees retired before July 1, 2019. All other retirees after that date, $0.
[29] https://www.ssa.gov/oact/cola/colaeffect.html.

Average Annual Benefit, 2022			
	Age and Service	Disability	Survivor, Beneficiary
PERS	$31,195	$34,401	$15,434
STRS	$48,166	$39,685	$31,337
SERS	$16,164	$18,360	$9,732
OP&F	$54,052	$44,943	$12,114
HPRS	$48,148	$38,050	$19,519
Social Security[30]	$21,902 (retired worker)		

With pension reform, COLAs returned to a more variable occurrence. This variability in future COLA increases was explicitly stated as the intent of the General Assembly in Sub. S.B. 342 of the 129th General Assembly.[31] They vary by the anniversary date when they are initiated, the age they may begin, the percentage rate granted, and decisions related to board authority. COLAs in Ohio's retirement systems continue to be non-compounding, meaning any COLA is based on the *original pension benefit* received by the member. The following is a summary table of these variations:

Summary of Statutory COLA Provisions			
	Percentage Rate	Age Requirement	Waiting Period
PERS	3% or CPI-W[32]	No	1 Year
STRS	Board determined	No	5 Years
SERS	Board determined, not greater than 2.5%	No	4 Years
OP&F	3% or CPI-W	Age 55	1 Year
HPRS	Board determined, not greater than 3%	Age 60	1 Year

As a result of these changes, COLAs are experienced differently by members of the state retirement systems. Consider STRS retirees. While the 2004 retirees' benefit increased purchasing power by 2.4% over nine years, the 2014 retirees' purchasing power *decreased* by 21% over a similar ten year time frame. In the table below, years in which a member is not granted a new COLA affect all future year's benefit. Because of the longer anniversary date to initiate COLAs and the fact that there were a number of years of a 0% COLA increase, these STRS members have a long history of $0 COLAs.

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[30] Retired workers for December 2022, available online at: https://www.ssa.gov/policy/docs/quickfacts/stat_snapshot/2022-12.pdf.

[31] Substitute Senate Bill 342 of the 129th General Assembly, pg 112 (available online at: http://archives.legislature.state.oh.us/BillText129/129_SB_342_EN_N.pdf)

[32] CPI-W (Consumer Price Index for Urban Wage Earners and Clerical Workers) is a commonly used measure of inflation.

STRS	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Base Benefit	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
COLA wait period		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
COLA wait period			$0	$0	$0	$0	$0	$0	$0	$0	$0
COLA wait period				$0	$0	$0	$0	$0	$0	$0	$0
COLA wait period					$0	$0	$0	$0	$0	$0	$0
No new COLA						$0	$0	$0	$0	$0	$0
No new COLA							$0	$0	$0	$0	$0
No new COLA								$0	$0	$0	$0
No new COLA									$0	$0	$0
3% COLA										$3	$3
1% COLA											$1
Total Benefit	**$100**	**$100**	**$100**	**$100**	**$100**	**$100**	**$100**	**$100**	**$100**	**$103**	**$104**
2014 Purchasing Power	**-**	**$100**	**$99**	**$96**	**$94**	**$93**	**$91**	**$89**	**$83**	**$81**	**$81**

According to the Bureau of Labor Statistics, $100 in 2014 dollars would have the same purchasing power as $132 in 2024. For a 2014 STRS retiree, this is a purchasing power decrease of approximately 21%, which is significant. In comparison, a 2004 STRS retiree, over a much longer 20-year period, has seen a purchasing power decrease of approximately 16%.

While *new* STRS retirees have experienced the most restrictive COLA provisions in the post-pension reform period, board actions at SERS and HPRS have also resulted in less consistent COLA grants (authorization to adjust COLAs began for SERS in 2018).

The purchasing power of a SERS retiree who retired in 2014 has fallen by 11% and an HPRS retiree by 14%. While this is certainly less than the 21% experienced by certain STRS retirees, it is still an appreciable amount of lost purchasing power.

SERS	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Base Benefit	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
3% COLA		$3	$3	$3	$3	$3	$3	$3	$3	$3	$3
3% COLA			$3	$3	$3	$3	$3	$3	$3	$3	$3
3% COLA				$3	$3	$3	$3	$3	$3	$3	$3
No new COLA					$0	$0	$0	$0	$0	$0	$0
No new COLA						$0	$0	$0	$0	$0	$0
No new COLA							$0	$0	$0	$0	$0
0.5% COLA								$0.5	$0.5	$0.5	$0.5
2.5% COLA									$2.5	$2.5	$2.5
2.5% COLA										$2.5	$2.5
2.5% COLA											$2.5
Total Benefit	**$100**	**$103**	**$106**	**$109**	**$109**	**$109**	**$109**	**$109.5**	**$112**	**$114.5**	**$117**
2014 Purchasing Power	**-**	**$103**	**$105**	**$105**	**$103**	**$101**	**$99**	**$98**	**$93**	**$90**	**$89**

HPRS[33]	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Base Benefit	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
1.25% COLA		$1.25	$1.25	$1.25	$1.25	$1.25	$1.25	$1.25	$1.25	$1.25	$1.25
1.25% COLA			$1.25	$1.25	$1.25	$1.25	$1.25	$1.25	$1.25	$1.25	$1.25
1.25% COLA				$1.25	$1.25	$1.25	$1.25	$1.25	$1.25	$1.25	$1.25
1.25% COLA					$1.25	$1.25	$1.25	$1.25	$1.25	$1.25	$1.25
No new COLA						$0	$0	$0	$0	$0	$0
No new COLA							$0	$0	$0	$0	$0
No new COLA								$0	$0	$0	$0
3% COLA									$3	$3	$3
3% COLA										$3	$3
No new COLA											$0
Total Benefit	**$100**	**$101.25**	**$102.5**	**$103.75**	**$104**	**$104**	**$104**	**$104**	**$107**	**$110**	**$113**
2014 Purchasing Power	**-**	**$101**	**$101**	**$100**	**$98**	**$97**	**$94**	**$93**	**$89**	**$86**	**$86**

PERS and OP&F are moving toward a COLA determined by the change in CPI-W, not to exceed 3%, depending on when the member retired. Neither PERS nor OP&F have authority to modify future COLA grants outside of changes to CPI-W. The following chart details the COLA grants from 2014 to PERS Group A retirees who retired prior to January 7, 2013, and OP&F, who retired in 2014 and continue to receive a 3% annual COLA. Staff do not include charts for PERS Group B and C or OP&F's delayed COLA implementation, as there is an insufficient period to provide a rigorous analysis.

PERS Group A and OP&F	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Base Benefit	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
3% COLA		$3	$3	$3	$3	$3	$3	$3	$3	$3	$3
3% COLA			$3	$3	$3	$3	$3	$3	$3	$3	$3
3% COLA				$3	$3	$3	$3	$3	$3	$3	$3
3% COLA					$3	$3	$3	$3	$3	$3	$3
3% COLA						$3	$3	$3	$3	$3	$3
3% COLA							$3	$3	$3	$3	$3
3% COLA								$3	$3	$3	$3
3% COLA									$3	$3	$3
3% COLA										$3	$3
3% COLA											$3
Total Benefit	**$100**	**$103**	**$106**	**$109**	**$112**	**$115**	**$118**	**$121**	**$124**	**$127**	**$130**
2004 Purchasing Power	**-**	**$103**	**$105**	**$105**	**$106**	**$107**	**$107**	**$108**	**$103**	**$99**	**$99**

[33] Assumes retirement at age 60.

Once granted, COLAs are part of a retiree's benefit and are protected under state vesting law and cannot be adjusted. This is in contrast to some retirement plans, such as the Wisconsin Retirement System (WRS), which may increase or decrease pension payments based on investment returns, subject to a core "floor" amount.[34] For example, the WRS COLA was adjusted downward by approximately 1.5% per year in 2008, 2009, and 2010, and then reduced a further 7% in 2011 and 10% in 2012, before increasing 5% in 2013.[35] This means WRS participants can see a claw-back of benefits in which an annual benefit could change, for example, from $11,000 one year to $10,000 the next. Ohio's pension reform applied only to future COLA grants and the base benefit and granted COLAs did not actually decrease.

COLA Costs:

COLAs are a valuable addition to a member's pension benefit. The following table details the average portion of a retiree's monthly pension that is attributed to COLA. The decreases in the portion in STRS, SERS, and HPRS from 2010 to 2022 can be attributed to the ending of the fixed 3% COLA in pension reform. PERS and OP&F, with delayed implementation of a fixed CPI-W COLA, show increased COLA percentage amounts during the study period. Many of the COLA adjustments made by STRS, SERS, and HPRS were achieved through board authority provisions authorized by pension reform in 2013, rather than legislative action.

Portion of Benefit Attributed to COLA Benefit Increases (Average)

	PERS	STRS	OP&F	SERS	HPRS
2000	20.9%	16.4%	*[36]	*	*
2005	19.7%	18.8%	16.60%	*	*
2010	19.9%	20.0%	21.60%	20.90%	19.50%
2015	21.6%	20.2%	25.20%	21.00%	21.90%
2020	24.0%	19.3%	27.50%	17.60%	20.30%
2022	24.3%	18.5%	26.60%	16.50%	19.00%

[34] https://etf.wi.gov/retirement/applying-retirement/annuity-payments-and-adjustments.
[35] https://etf.wi.gov/wrs-performance/annual-returns-rates-and-adjustments#Core.
[36] *Data for these years is unavailable.

Provision of Health Care in Retirement Systems

Summary

Health care is a valuable benefit to retirement system members; however, health care is a discretionary benefit. The diversion of employer contributions to provide health care has resulted in significant funds being unavailable to provide statutory benefits. While PERS and SERS contributions to health care were made under conditions in which the diversion did not result in the system exceeding a 30-year amortization period, it is still true that any decision to divert employer contributions to fund discretionary health care has long-term financial costs. Since pension reform, all the retirement systems have reduced or eliminated this diversion of assets.

Health Care

The five state retirement systems' boards were given broad discretionary authority to provide health care coverage to retirees and their dependents in 1974. By law, every system's primary obligation is to provide statutory pension benefits, but the provision of health care is generally and widely acknowledged to be a valuable additional benefit to service retirees and their beneficiaries. With state retirement eligibility occurring prior to Medicare coverage (age 65), health care is an important benefit, particularly to those law enforcement personnel who are eligible, or are required, to retire prior to age 60. Health care can be provided only with employer contributions, and earnings on those contributions.

Health Care: Average Cost Per Member Paid by System (2022 Annual)					
	PERS	STRS	SERS[37]	OP&F	HPRS
Non-Medicare Recipients	$9,866	$7,896	$15,432	$9,895	$7,706
Medicare Recipients	$3,141	$2,520	$1,841	$2,243	$1,902

Annual health care expenditures by the systems are substantial. The solvency of each of the health care funds varies across the systems (ORSC staff note that the solvency of the funds has consistently increased over the past decade as the retirement boards adjust benefits to align them with available health care assets):

[37] Ohio law permits SERS to impose a surcharge on employers of up to a statewide average of 1.5% of employee payroll for health care coverage of retirees (R.C. 3309.491 and O.A.C 3309-1-18).

Annual Health Care Expenditures (millions)						
	2000	2005	2010	2015	2022	
	Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Solvency
PERS	$560	$1,153	$1,568	$1,823	$603	29 years
STRS[38]	$344	$444	$592	$673	$194	>100 years
SERS	$141	$219	$237	$200	$132	38 Years
OP&F	$112	$163	$160	$213	$89	24 Years
HPRS	$5	$9	$12	$14	$10	11 years

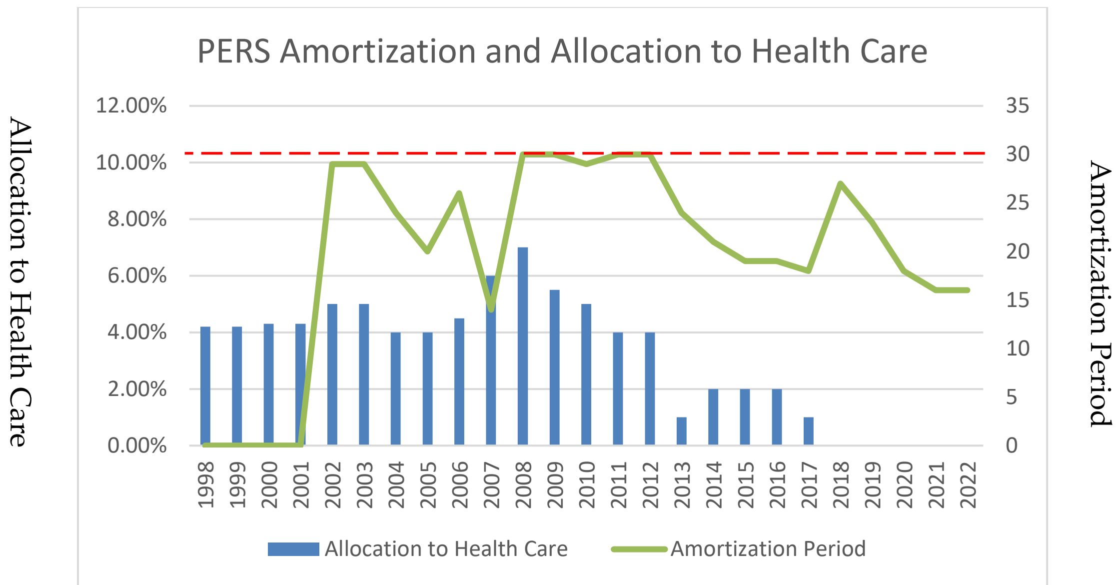
Over time, the systems all provided a large portion of employer contributions to their discretionary health care funds. The amounts diverted to health care, had they instead been invested, would cover a large portion of the existing UAAL in STRS, SERS, OP&F, and HPRS and exceed the UAAL in PERS.

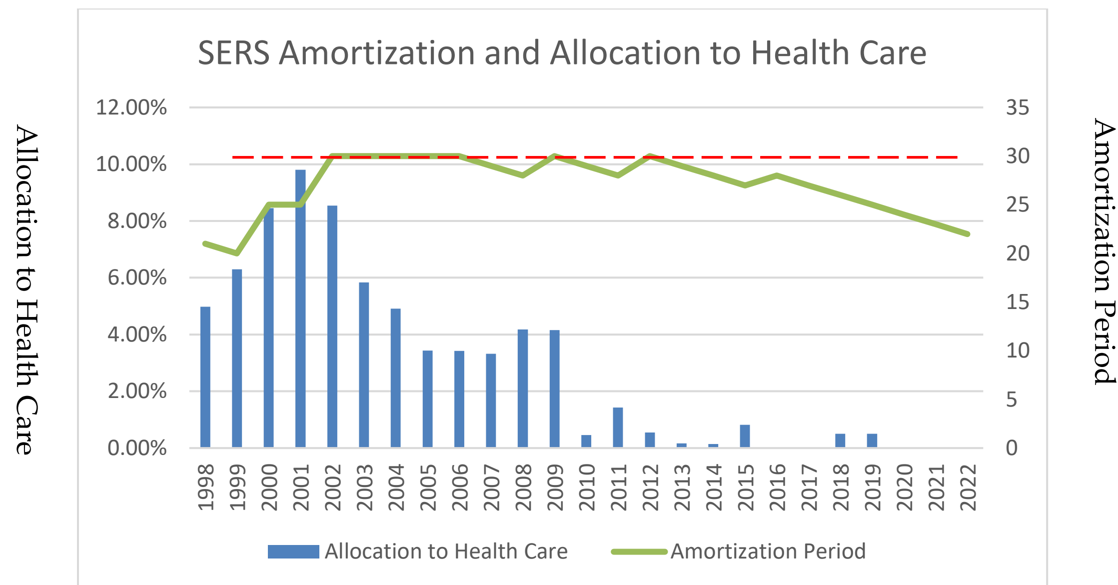
Dollar Value ($ millions) including investment earnings) of diverted Employer HC Contributions Since 1998					
	PERS	STRS	SERS	OP&F	HPRS
1998-2023	$27,024	$13,987	$5,417	$6,434	$218
UAAL (2022)	$19,611	$20,203	$5,484	$7,605	$329

In the charts below, the allocation to health care (blue bars) is compared to each system's amortization period of the time (green line). The dotted red line shows the statutory 30-year amortization limit. Anytime that the green line is higher than the red line, the system is outside of the 30-year amortization period. These graphs demonstrate the responsiveness of the retirement system boards to changing the allocation to health care as the amortization period fluctuates. These graphs are *not implying a causation* between health care allocation and amortization period, but are instead showing board level changes in health care allocations as the amortization period changes. Note that PERS and SERS have different vertical axes compared to STRS, OP&F, and HPRS, as PERS and SERS did not exceed a 30-year amortization at any time between 1998-2022. For STRS, OP&F, and HPRS graphs, the right vertical access uses "60 years" to mark an infinite amortization period. STRS, OP&F, and HPRS have common axes.

While PERS and SERS did divert employer contributions to health care, this was under conditions in which that diversion did not result in the system ever exceeding a 30-year amortization period and neither of these systems had infinite amortization periods at any point between 1998-2022. Still, any decision to divert employer contributions to fund discretionary health care does have long-term financial costs.

[38] Beginning in 2021, health care benefit payments are reported net of health care premiums. Previous years were reported on a gross basis.

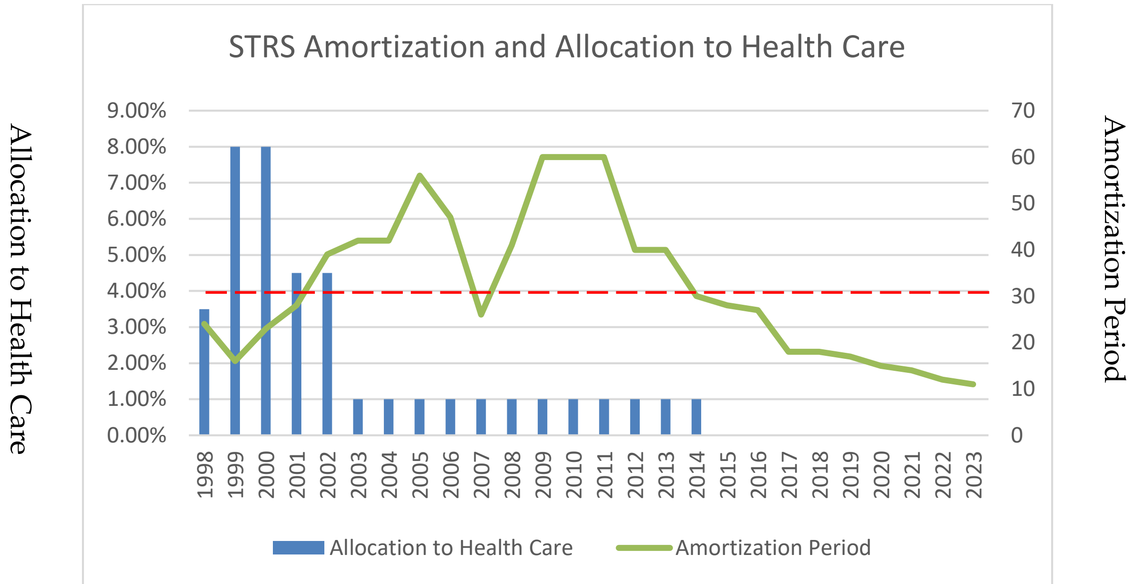


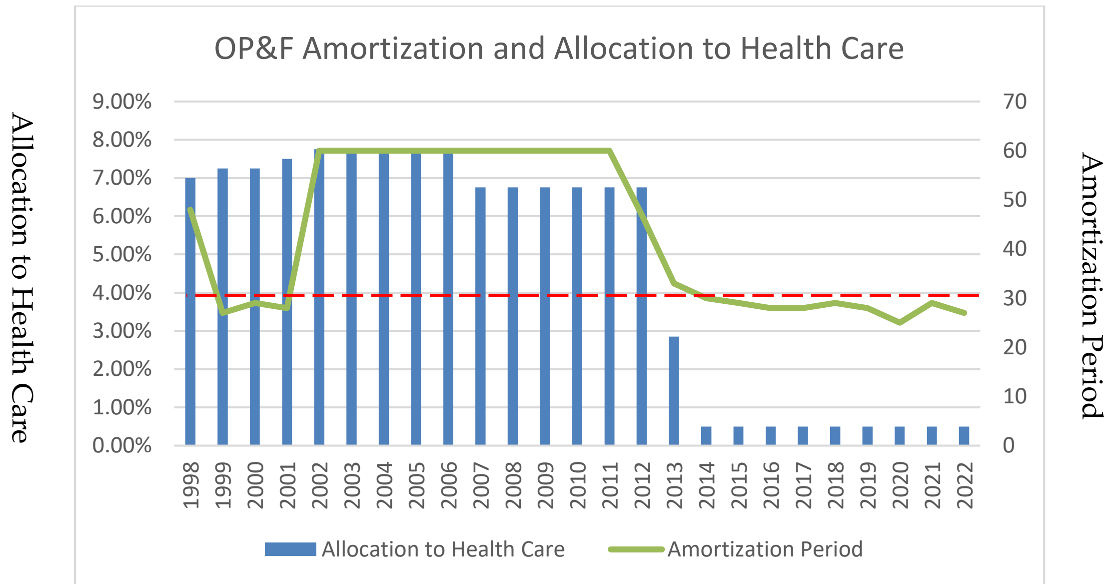


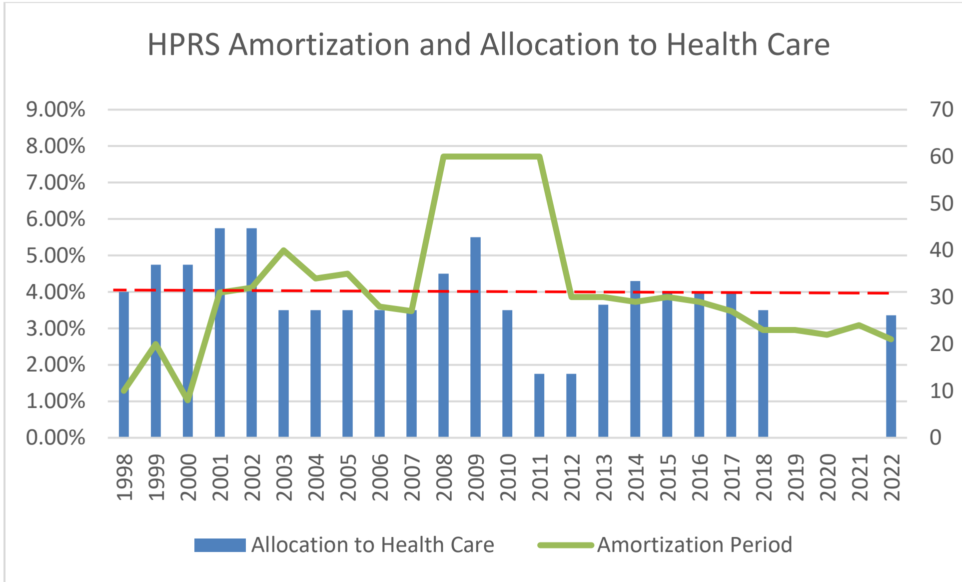
PERS and SERS allocations to health care were responsive to the needs of the system to maintain a 30-year amortization period. Those contributions decreased in both systems as they approached their 30-year amortization periods. Post pension reform, an apparent culture shift is evident in a more concerted effort to reduce the amortization period well-below 30-years, regardless of the fact that this means no, or very little, funding is being directed to health care.

While STRS and HPRS both exceeded the 30-year amortization period in the 1998-2022 period, allocations to health care were reduced as the systems exceeded those thresholds. STRS continued to divert a small amount to health care but at a markedly lower rate than in 1999-2000. HPRS had a consistent allocation to health care, but one that was responsive to overall funding levels. OP&F was unique in continuing to divert a large amount to health care irrespective of its funding period from 2002-2012. Post 2013-2014, as with PERS and SERS, there

is a focus on *reducing* the amortization period in the health care allocations made at STRS, OP&F, and HPRS.






HPRS Amortization and Allocation to Health Care
Allocation to Health Care
Amortization Period
9.00%
8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
70
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Allocation to Health Care
Amortization Period

Ohio's Investment Returns and Assumed Rates of Return

Summary

A review of the systems' investment experiences demonstrates that it has been positive, overall, compared to the generally available risk adjusted returns in the market. The retirement systems have earned more than what would be expected from a classic, moderate-risk portfolio comprised of 60% equities and 40% bonds. Any analysis that attributes funding challenges solely to perceived investment failures by retirement systems from 1998-2022 is faulty. Similarly, an analysis that attributes funding challenges solely to market conditions is, over the long-term, incomplete. Additionally, while the investment environment in the 2000s was very poor and had a significant negative impact on the funding of the systems, it is not the sole reason that the systems' funding statuses deteriorated in the 2000s. More importantly, an over-reliance on market conditions can shift the focus away from actionable responses by the General Assembly or the retirement systems in response to ever-changing market conditions.

While the systems achieved positive overall returns, none of the systems have met current assumed rates of return in the 1998-2022 period. Due to the importance of these assumed rates of return in measuring current liabilities, the ORSC should be wary of any assumed rate of return that is above national averages, as liabilities may be concealed and the funding health of the system overestimated. Currently, PERS, STRS, and SERS are at or below national averages, while OP&F and HPRS are above those averages. While this entire report covers the 1998-2022 period, the investment section begins in 1999 as this is the first year of ORSC investment performance reporting and, therefore, the first year available of an apples-to-apples comparison among the systems.

Investments and Contributions: 1999-2022

Investments are a vital component of Ohio's retirement systems' capacity to provide retirement benefits. Investment earnings on contributions by employees and employers constitute the majority of a Ohio's retirement system's funds, accounting for up to 80% of the system's assets.

General Investment Environment, 1999-2022

In evaluating each system's investment performance, ORSC staff used a traditional portfolio comprised of 60% equities and 40% bonds as a benchmark. The 60/40 portfolio has long been revered as guidepost for a moderate-risk investor. There has been considerable criticism directed at the systems for their investment performance; however, these criticisms consistently rely on "hindsight bias" or the perception of past events being more predictable than they actually were. Commonly, these hindsight bias reviews theorize the return of the systems had they invested, for example, 100% of their assets into an index 500 fund (or a fund with only the largest US capitalization stocks).[39] However, these analyses never provide a specific investment strategy *going forward*. Since these hindsight bias reviews have not provided a specific portfolio

[39] Another fatal problem with these analyses, one that is outside the scope of this review, is they only evaluate annualized returns and discount the effects of even temporary investment losses on the retirement systems.

construction that they propose for today, ORSC staff have used a traditional 60/40 portfolio to avoid the appearance of being either too risky or too risk adverse in analyzing system returns.

Very broadly speaking, the investment period could be broken into two time frames. The first, 1999-2008, was a period of markedly flat returns and included the tail end of the tech boom, the tech market correction, gradual investment recovery, and the severe bear market in the Great Financial Crisis (GFC). This was such a poor investment period that a traditional 60/40 portfolio yielded a measly 1% annualized return from 1999-2008. While all of Ohio's retirement systems yielded returns of 2-3 times this rate, it nevertheless remained a very poor period of investment returns, as demonstrated below. This clearly contributed to the rise of unfunded liabilities between 1998-2011.

The second, post-2008 period, was a sustained bull market. Even including the dramatic losses of 2022, the majority of systems yielded annualized returns of over 9% from 2009-2022, well above any system's assumed rate of return ("**Appendix D: System Discount Rates**"). This clearly contributed the reduction of unfunded liabilities between 2011-2022.

Between 1999-2022, the systems achieved annualized returns ranging from 5.88%-6.85%. While these returns are considerably higher than what would have been achieved if the systems had invested in traditional 60/40 portfolios from 1999-2022, it is also below the assumed rates of return that the systems used in measuring their liabilities. It is true to say that the funds performed well in this period *relative to returns available in the market* despite their assumed rates of return not being achieved. While returns were overall positive, the assumptions have proven to be optimistic. This is not to denigrate those assumptions, but merely to advise caution on viewing future assumptions that are above national averages. Currently, PERS, STRS, and SERS are at or below national averages, while OP&F and HPRS are above those averages.

The following details the returns during the study period.[40]

Year	PERS	STRS	SERS	OP&F	HPRS	60/40 Portfolio
Current Assumed Rate of Return	6.90%	7.00%	7.00%	7.50%	7.25%	7% (NASRA)[41]
Average Annual Return: 1999-2022	6.14%	6.85%	6.52%	6.76%	5.88%	4.88%
Average Annual Return: 1999-2008	2.91%	3.30%	3.00%	3.33%	2.34%	1.09%
Average Annual Return: 2009-2022	8.50%	9.46%	9.11%	9.28%	8.47%	7.68%

[40] "Average annual return" is the geometric mean of returns to account for the compounding that occurs from period to period and is widely understood as the most appropriate way to measure investment return over time.

[41] National Association of State Retirement Administrators (NASRA) provide the mean assumed rate of return for 131 state retirement systems across the country. Available online at: https://www.nasra.org/files/Issue%20Briefs/NASRAInvReturnAssumptBrief.pdf.

The following provides individual year information. This list begins in 1999 as this is the first year of ORSC investment performance reporting and therefore the first year available of an apples-to-apples comparison among the systems.

Retirement System Annual Returns: 1999-2022[42]						
Year	PERS	STRS	SERS	OP&F	HPRS	60/40 Portfolio[43]
1999	12.10%	18.87%	16.40%	13.82%	6.96%	11.40%
2000	-0.71%	-2.45%	-0.59%	-1.10%	-0.29%	-1.40%
2001	-4.58%	-5.66%	-5.52%	-3.88%	-3.24%	-4.40%
2002	-10.73%	-11.58%	-11.58%	-9.89%	-8.42%	-9.90%
2003	25.39%	24.16%	22.93%	24.97%	25.30%	17.50%
2004	12.50%	13.23%	11.69%	13.13%	12.11%	7.10%
2005	9.25%	12.08%	10.76%	9.07%	7.42%	2.80%
2006	15.05%	16.88%	15.37%	16.15%	14.32%	9.90%
2007	8.89%	9.87%	9.61%	10.47%	7.85%	4.90%
2008	-27.15%	-29.32%	-27.74%	-28.05%	-28.31%	-21%
2009	19.09%	19.53%	16.36%	20.73%	23.22%	16.40%
2010	13.98%	13.32%	12.35%	15.83%	13.60%	10.30%
2011	0.36%	1.49%	-0.07%	2.57%	-2.90%	3.10%
2012	14.54%	13.60%	14.42%	15.41%	11.90%	9.70%
2013	14.38%	17.39%	16.86%	17%	19.10%	17%
2014	6.96%	7.82%	6.25%	6.29%	6.30%	9.20%
2015	0.33%	2.34%	2.31%	0.03%	-0.44%	-0.20%
2016	8.31%	8.03%	7.37%	10.54%	6.92%	6.80%
2017	16.82%	15.74%	16.65%	13.39%	14.35%	13.10%
2018	-2.99%	-1.89%	-1.94%	-2.14%	-5.13%	-3.70%
2019	17.23%	18.23%	16.96%	16.71%	18.19%	20.80%
2020	12.02%	12.12%	12.40%	8.51%	14.40%	12.80%
2021	15.34%	19.24%	17.13%	19.63%	15.37%	15.50%
2022	-12.03%	-9.64%	-5.60%	-9.38%	-9.96%	-16.90%

[42] Returns are taken from the Annual ORSC Investment Performance Reports as of December 31, with corrections and verification from the retirement systems' Annual Financial Reports. Returns are gross of fees, 1999-2013, net of fees 2014-2022.
[43] 60% S&P 500 Index, 40% Bloomberg U.S. Aggregate Bond Index.

Other Considerations

Summary

The following provides brief comments on additional experiences from 1998-2022. ORSC staff include this information for the ORSC's review as this information is frequently referenced as factors in the systems' funding experiences. The decision to initiate defined contribution plans and alternative retirement plans are simply impossible to fairly evaluate.

Maturity of System and Increased Life Expectancy

Ohio's retirement systems are often referred to as "mature" retirement systems. There is no specific definition of "maturity," but actuaries often refer to the mixture of cash flow, available assets, and the ratio of active members to retirees to determine if a system is "mature."

One way to view this is from the age distribution of retirees over time. Most notable in the chart below is a baby boomer "bubble" in the different percentages of retirees in the 50-59 age range in 2000 versus 2022. Compared to 2000, PERS, OP&F, and particularly STRS had large increases in the number of retirees in the 50-59 age range. This large percentage has fallen in the 2022 numbers. While "maturity" of the systems has often been referenced as a challenge, actuaries have noted that it is not an issue if the retirement plan is 100% funded.[44]

Change in Retiree Age Distribution: Percent of Total Service Retiree Population 2000 and 2022 in Select Age Ranges

	PERS		STRS[45]		SERS		OP&F		HPRS	
	2000	2022	2000	2022	2000	2022	2000	2022	2000	2022
40-49	3.90%	0.60%	19%	3%	0.08%	0.12%	6.8%	0.6%	1.7%	1.6%
50-59	10.90%	6.70%			2.54%	1.83%	36.4%	20.4%	24.9%	27.2%
60-69	28.70%	34.40%	36%	27%	30.61%	28.96%	29.0%	37.9%	30.7%	28.8%
70-79	34.60%	38.60%	28%	48%	42.56%	40.61%	22.2%	29.1%	32.8%	30.5%
80-89	18.90%	15.90%	18%	22%	21.39%	22.52%	5.2%	10.5%	8.4%	10.4%
90+	3.10%	3.80%			2.82%	5.96%	0.5%	1.6%	1.5%	1.5%

Establishment of Defined Contribution and Alternative Retirement Plans

In the late 1990s and early 2000s, alternative retirement plans (ARP) were established in PERS, STRS, and SERS. Concurrently, PERS and STRS established their own defined contribution (DC) plans. It is impossible to accurately gauge the impact of these plans on the systems.

The following chart provides the total of the loss of those employer contributions including investment earnings on the systems. This should be treated with extreme caution as it does not include the additional liability that would have existed if those members had not left the

[44] Cheiron, Presentation to the State Teachers Retirement System, February 15, 2024.

[45] STRS data files could not separate the 40-59 or 80+ age ranges into separate groups.

system, and it also does not include any likely diversion of employer contributions to health care had those members stayed in the system. ORSC staff include this figure mostly to demonstrate that removal of members from a retirement system does have a financial impact on the remainder of the system.

Dollar Value (including investment earnings) of Employer Contributions Diverted to ARP and DC Plans (in millions)		
PERS	STRS	SERS
$5,466	$4,178	$31

Conclusion

The cost of providing retirement benefits to Ohio's current and future public employees rose dramatically at the end of the 1990s and into the early and mid 2000s. That time period saw a significant rise of liability and unfunded liability (debt) for all the systems. Pension reform in 2013 reduced the accrual of future benefits and provided board authority to most systems to make further adjustments to reduce this debt. The experience of the retirement systems suggests the following as a path forward in future legislation:

1) While extraordinarily valuable, discretionary benefits, specifically health care benefits, *must* be subservient to statutory benefits. The diversion of assets to provide discretionary benefits has had a long and consequential tail effect on the systems.
2) Board authority has been extremely successful in allowing the retirement boards to maintain the financial health of the systems. This authority should be made uniform among the systems and more clearly defined in statute to improve transparency to system members on why board action must be taken.
3) In the long term, it would be valuable for the General Assembly to consider reducing the maximum amortization funding period to something at or below 20-years. It would also be valuable for the boards to consider adopting a closed or declining amortization period.

These three suggestions are interrelated. It would be of limited utility for the General Assembly to reduce the amortization period to below 20 years but not provide tools to the systems to effectuate that change. The intent of this report is to provide a broad and holistic view of the five retirement systems over the past 25 years. ORSC staff focused on what it found to be the most dominant contributors to the recent history of the state retirement systems, and this report is reflective of those findings. ORSC staff focused on the parts of that history that are under the control of the General Assembly or state retirement systems, particularly as we understood the report to be intended as a starting point for further policy discussions. The report is not meant to preclude discussion of other considerations or perspectives. Comments from each of the state retirement systems, if they were submitted, are provided in the following pages.

Retirement System Comments: PERS

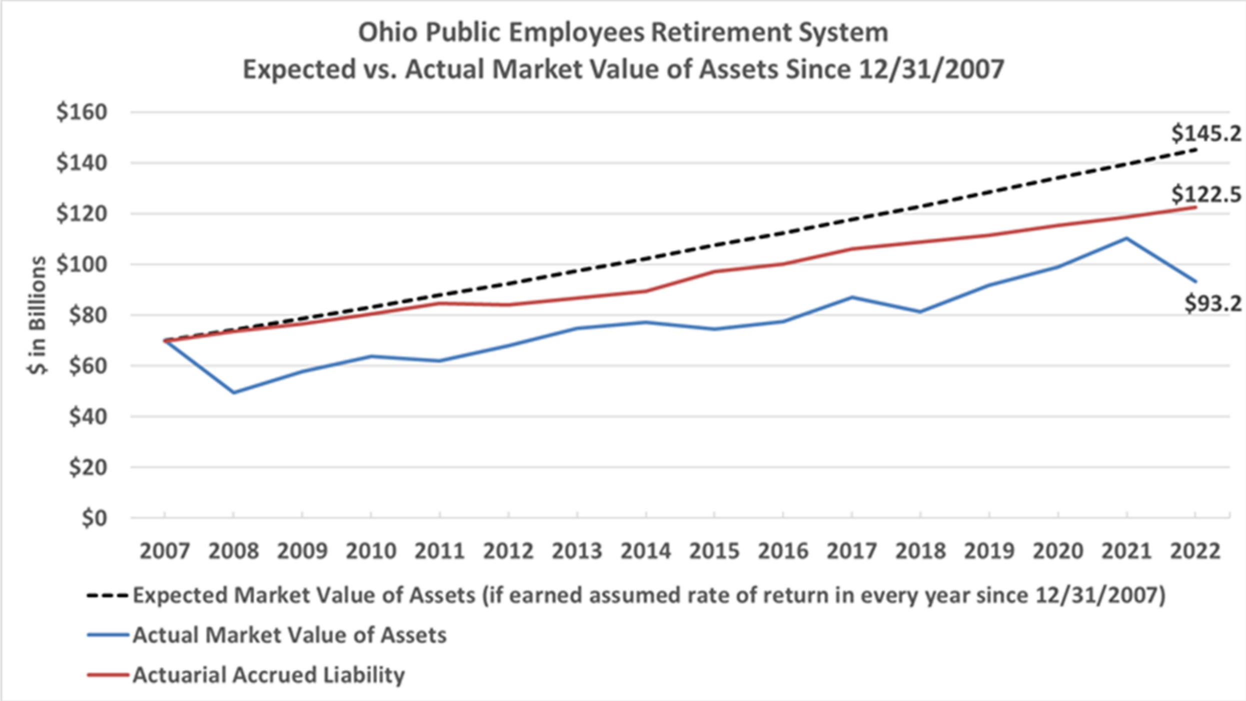
The Ohio Public Employees Retirement System (PERS) is the largest public retirement system in Ohio, with more than 1.2 million active, inactive, and retired members, and approximately $110 billion in assets under management. In its almost 90-year existence, PERS has provided millions of Ohioans with true retirement security in good economic times and bad. In 2023, PERS paid out more than $7 billion in pension benefits and health care coverage, with the vast majority of that money remaining in Ohio, helping to sustain local economies and support small businesses across the state.

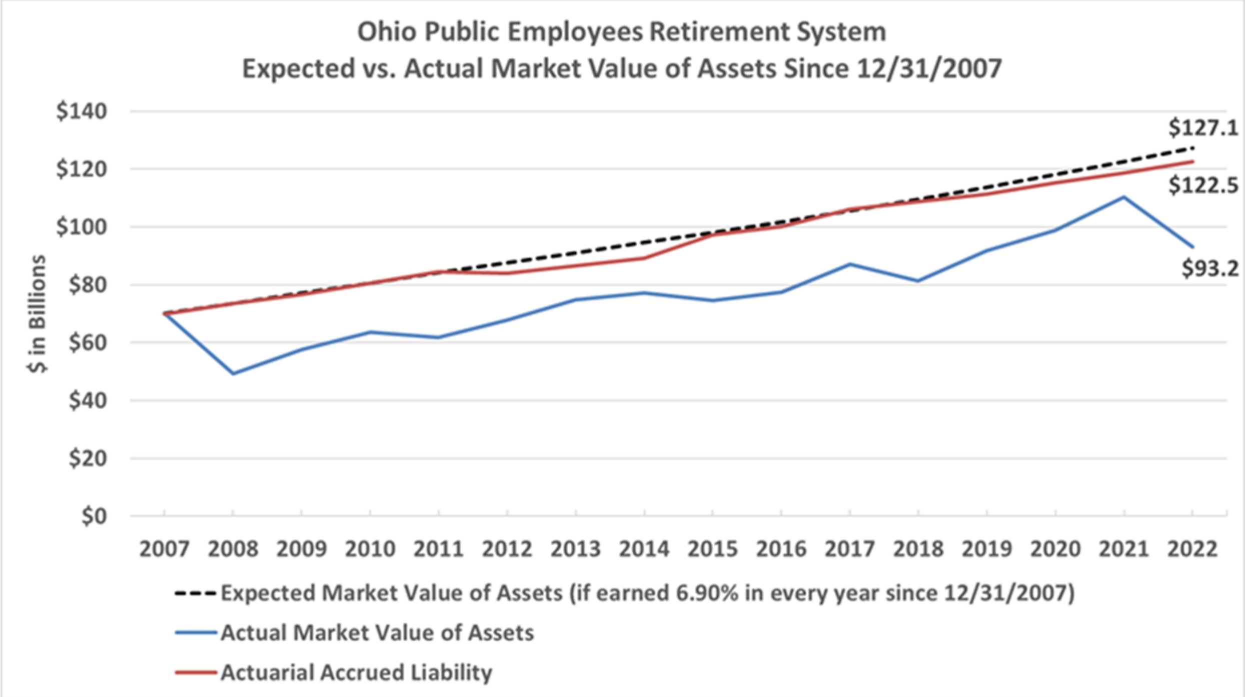
PERS appreciates the opportunity to respond to the Ohio Retirement Study Council's (ORSC) report on the Historical Experience of the Five Ohio Retirement Systems Since 1998. After a thorough review of the report, PERS is providing the following comments and information intended to supplement the report with a more comprehensive understanding of the funding and benefit structures of the five Ohio retirement systems during the relevant 1998-2022 period.
First, it is important to remember that prudent investment risk is integral to effective asset management. Like other large and sophisticated asset managers, PERS has adopted investment strategies that prioritize maintaining asset value and maximizing the value of its members' accumulated retirement contributions with the appropriate level of risk. As a result, large asset managers, like PERS, are subject to market fluctuations that can improve or detract from their funded status.

As the report indicates, a combination of events and decisions have contributed to the Ohio retirement systems' unfunded actuarial accrued liabilities (UAAL).

PERS believes it is important to put into perspective the impact of the two major economic downturns (i.e., the 2001 "tech bubble" and the 2008 Global Financial Crisis or GFC) that occurred during the period analyzed in the report. While we appreciate that the ORSC has recognized the GFC, in particular, exacerbated the funding issues in the Ohio retirement systems' funding of benefits, it is important that we note that prior these economic downturns, PERS was 100% funded on either a funded value basis or market value basis. PERS' loss in the GFC was 27% or approximately $19B. This illustrates why PERS' actuaries target a funding level that exceeds 100%. The GFC loss significantly affected our board's asset allocation, as subsequent to 2008 they had emphasized preservation of capital over investment gains. It was also the GFC that spurred the pension reform changes that began in 2008 and were approved by the legislature in 2012 and effective in 2013.

PERS' actuaries have concluded that it was the GFC that overwhelmingly contributed to PERS' existing UAAL. They estimated that had PERS met its assumed rate of return each year since 2007, it would have earned an additional $52 billion in market value of assets. More conservatively, the actuaries estimated that had PERS simply met its current assumed rate of return of 6.9%, PERS would have earned an additional $34 billion in market value of assets. In other words, if not for the GFC, PERS' funded status would be about 102%, assuming all other assumptions were met.





Second, regarding health care, we are pleased that the report recognizes that PERS never inappropriately funded its health care program and only did so in years where such funding would not negatively impact its financial position. However, we believe it is important to clarify that PERS *always* acted in accordance with the duties, rules, and expectations in place during the relevant period, and continues to do so. PERS has proven that, given the independence to manage retiree health care coverage, it will utilize employer contributions when appropriate (i.e., when pensions are well-funded) and has introduced substantial changes to the program in order to

continue to provide affordable health care coverage. PERS is unique among virtually all other public retirement systems in that it established a separate health care trust fund (separate from the pension trust fund) in 2005 and invested those funds with a more conservative asset allocation. PERS continued to introduce changes to address the ever-increasing inflationary demands of health care coverage and decreasing active-to-retiree ratio (i.e., fewer members paying into PERS with an increasing number of members collecting retirement benefits).

It is important to remember that the Ohio General Assembly, the ORSC, and PERS' own members and stakeholders understood that one expected result of the 2012-2013 pension reform process was that the Ohio retirement systems would preserve funding for their health care programs for as long as possible. As a result, PERS initiated a number of health care program changes in tandem with the pension changes. The pension changes mandated longer working careers, while the accompanying health care changes provided incentives to continue to work longer. Even though PERS has since stopped using employer contributions to fund its health care coverage – in due consideration of its pension funding status and in consultation with its actuary – it again acted as a leader and innovator within the public plan community by restructuring its health care program into a Health Reimbursement Arrangement-based model that takes full advantage of the Affordable Care Act and Medicare supplemental health care markets. Additionally, this new plan is more affordable for both the System and its members. As a result, PERS has decreased its health care spending from a peak of $1.8 billion in 2015 to about $600 million in 2023.

Third, we would like to expand on the report's discussion regarding the establishment of a reduced or "closed" amortization period requirement. While we appreciate the ORSC's recommendations, these changes would not be effective without providing PERS with sufficient tools to manage them. Since its inclusion in Ohio law, the 30-year amortization requirement has acted as a reasonable and effective limit on PERS' funding and benefit structures. Importantly, PERS has not viewed the 30-year amortization period as a target but has consistently sought to achieve full-funding. The PERS Board has managed this goal with the understanding that periods of strong funding have historically been catalysts for benefit enhancements. Because PERS' benefit and funding structures have been designed and developed to comply with the current statutory 30-year amortization requirement and given that employer and employee contribution rates are at the statutory maximums, simply shortening or closing that period would appear to inflate the costs associated with existing benefits without providing any effective tool to address those costs. As a result, PERS would be materially and uniquely disadvantaged relative to the other Ohio retirement systems in that it has no authority to address these costs unilaterally by modifying aspects of its pension benefit plan without legislative approval.

It is worth remembering that, in the last seven years, PERS has twice attempted to seek legislative approval to *pause* its annual cost-of-living adjustment in order to reduce its UAAL, without success. Now that the General Assembly has indicated a willingness to consider changes to employer contribution rates, PERS has asked that they consider any increase in funding on a more holistic basis. Given this record, PERS agrees with the ORSC's assessment that all systems should be placed on an equal footing regarding board authority over their pension benefit plan.

The report comes at an important time for the Ohio retirement systems. It appropriately highlights some of the benefit and funding issues facing the systems, but we felt it was important to provide additional information in context relative to PERS to facilitate complete conversations on these

complex issues.

PERS has a strong history of carefully evaluating the impact of decisions on pension funding. At no point has PERS acted inconsistently with its fiduciary duty. PERS has *always* followed the rules, best practices, and expert advice in place at the time it made decisions regarding its funding and benefit structures.

Again, we appreciate the work of the ORSC staff and the opportunity to offer our feedback, we sincerely hope that the report is reviewed in an appropriate light and ultimately produces the desired constructive dialogue on the preservation of Ohio's public retirement systems. If you have questions regarding our comments or relevant sections of the report, please do not hesitate to contact us.

Ohio Police and Fire Pension Fund: Successful despite Structural Underfunding

OP&F is a cost-sharing, multiple-employer public employee retirement system and was created by the Ohio General Assembly in 1965, replacing 454 separate local police and firefighter relief and pension funds, who had accrued $**490** million in liabilities to that point. OP&F began operating as a statewide retirement fund on Jan. 1, 1967. On that date, the local pension funds transferred their assets and liabilities to OP&F. Assets transferred to OP&F only totaled **$75** million, creating an unfunded deficit of **$415** million. Some employers are still paying the remaining unfunded accrued liability. As of its last annual valuation, OP&F is still owed $14 million from multiple employers.

This means that OP&F began with a 15% funded ratio, the general assembly did not require Ohio's cities to fund 85% of the liabilities Ohio's municipalities had already accrued. The impact of the original underfunding cannot be overstated in terms of not having the assets to invest from inception. OP&F would have been able to grow that $415 million into additional assets of approximately $35 billion. Placed in an overall context, OP&F's total assets at December 31, 2022, would have been over $50 billion, resulting in a funded ratio of over 200%.[46]

Furthermore, if there had been separate funding for healthcare, instead of a diversion of employer contributions to fund health care, additional assets of $7 billion would have been accumulated, resulting in total assets as of December 31, 2022 of $23 billion. Finally, if the employer contribution rate for police had been 24% since 1986, an additional $6 billion of assets would have been accumulated, resulting in total assets as of December 31, 2022 of $22 billion. When combined, these three policy decisions resulted in OP&F not having additional assets of $48 billion as of December 31, 2022. OP&F would have an approximate funded ratio of 250% if not for the impact of these three policy decisions. For illustration, please see the attached chart.

Though we understand the ORSC staff may not have records back to these periods, beginning the history in 1998 will not answer the question Council asked on the state of OP&F funding. Despite only having 15% of the funds required, OP&F has managed to pay pension, disability and survivor benefits for 56 years based on the amazing success of its investment program and the strength of the US capital markets.

In addition to the initial underfunding, the different employer contribution rates for police and fire set in 1986 have compounded the issue. ORSC actuaries first recommended to council that police rates be equalized in 1994.

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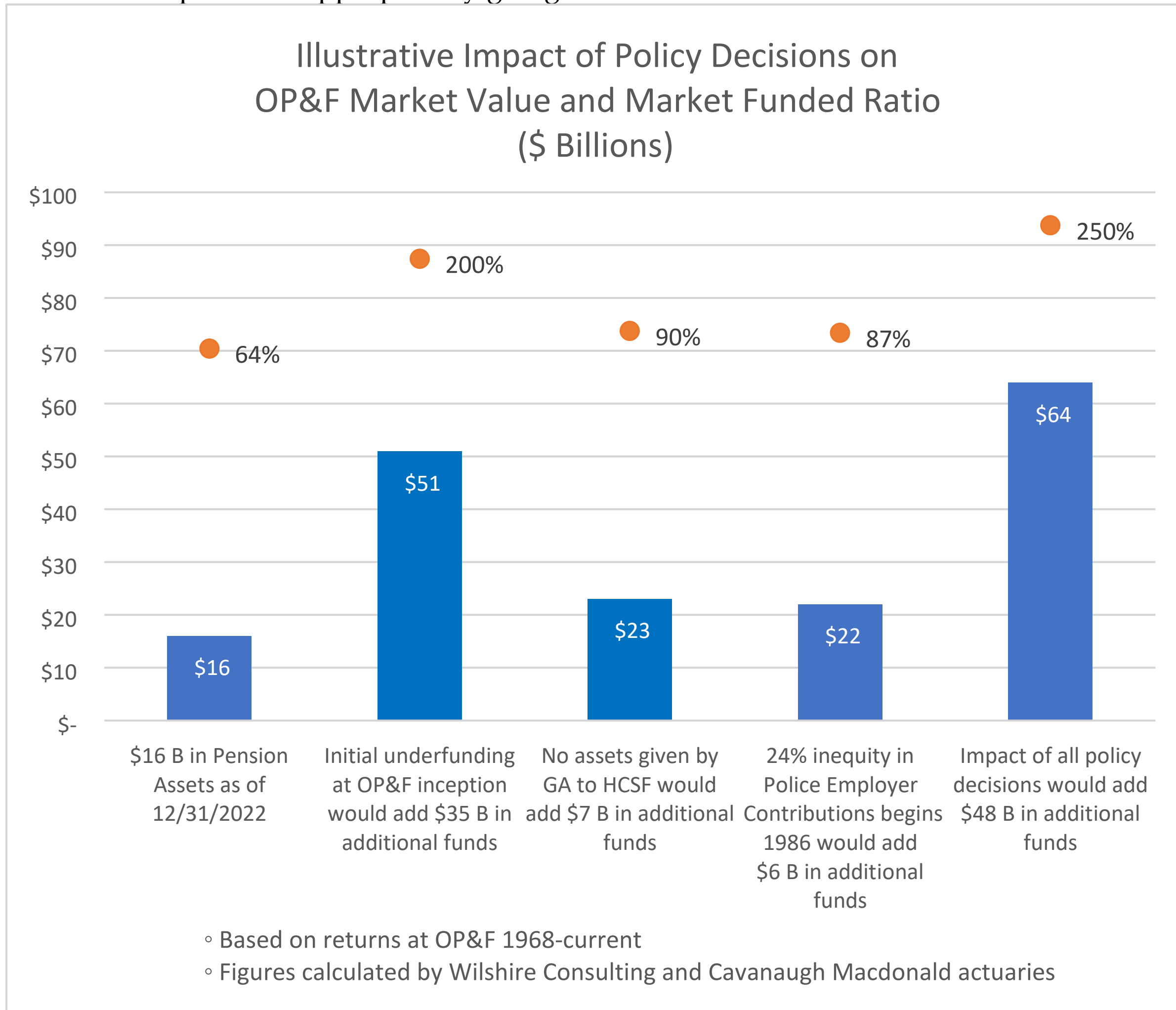
[46] These numbers were calculated by Wilshire consulting using OP&F actual returns, based on actual asset mix and actual market data for 1975-to present. Calculations for 1967-74 utilize index returns, for the most conservative estimate.

OP&F Boards and members have accepted 7.25 % in increased employee contributions. They have accepted higher retirement ages, lower COLAs and benefits, and dramatically reduced health care benefits. These member sacrifices have allowed OP&F to continue the mission without sufficient funds. It is now time, finally, for Ohio's municipalities to pay their past debts and fund the promises appropriately going forward.



PERCENT OF COMPENSATION PAID BY PUBLIC EMPLOYEES AND EMPLOYERS

CONTRIBUTION RATES FOR 2024

FUND	EMPLOYEES	EMPLOYERS
PERS State and Local[47]	10.00%	14.00%
PERS-LE[48]	13.00%	18.10%
PERS-PS[49]	12.00%	18.10%
STRS[50]	14.00%	14.00%
SERS[51]	10.00%	14.00%
OP&F Police[52]	12.25%	19.50%
OP&F Fire[6]	12.25%	24.00%
HPRS[53]	14.00%	26.50%
Social Security	6.20%	6.20%

[47] The PERS employer contribution rate is capped by statute at 14% of the earnable salaries of all contributors; the employee contribution rate is capped by statute at 10% compensation. (R.C. 145.47(A) and 145.48)
[48] The PERS-LE employer contribution rate is capped by statute at 18.10% of the earnable salaries of those employees. (R.C. 145.49(A)(2) and 145.49(B))
[49] In 2000, PERS was authorized to calculate the employer contribution rate separately for PERS-PS but the rate cannot exceed 18.10% of the earnable salaries of those employees. R.C. 145.49(A)(2) and 145.49(B))
[50] The STRS employer contribution rate is capped by statute at 14% of compensation; the employee contribution rate is set by statute at 14%, but may be decreased by the Board on and after July 1, 2017. (R.C. 3307.26 and 3307.28)
[51] The SERS employer contribution rate is capped at 14% which does not include the employer surcharge on the salaries of members earning below a minimum compensation amount in order to fund health care benefits; the employee contribution rate is capped by statute at 10% of compensation. (R.C. 3309.47 and 3309.49)
[52] The employer and employee OP&F rates are set by statute (R.C. 742.31, 742.33, and 742.34). The Board may adjust the employee contribution rate each quinquennial study period, beginning November 1, 2017.
[53] The HPRS employer contribution rate is set by statute; the employee contribution rate must be between 10% and 14% of the member's salary, as determined by the HPRS Board. (R.C. 5505.15(A) and (B))

CHANGES IN EMPLOYEE CONTRIBUTION RATES

(As Percent of Salary)

NON-UNIFORMED EMPLOYEES

Year Change Occurred	PERS State	PERS Local	STRS	SERS	Modification
2003			10.00	10.00	
2006	9.00	9.00			
2007	9.50	9.50			
2008	10.00	10.00			
2013			11.00		
2014			12.00		
2015			13.00		
2016			14.00		

UNIFORMED EMPLOYEES

Year Change Occurred	OP&F	HPRS	PERS-LE[54]	PERS-PS[55]	Modification
2000		9.50		10.10	
2003		10.00			
2007			9.75		
2008			10.10		
2010			11.10	10.50	
2011			11.60	11.00	
2012			12.10	11.50	
2013	10.75	11.50	13.00	12.00	
2014	11.50	12.50			
2015	12.25				
2020		14.00			
2023		13.00			
2024		14.00			

[54] PERS-Law Enforcement (PERS-LE) consists of officers whose primary duties are to preserve the peace, protect life and property, and enforce the laws of this state.

[55] PERS-Public Safety (PERS-PS) consists of all Hamilton County Municipal Court Bailiffs and other officers whose primary duties are other than to preserve the peace, protect life and property, and enforce the laws of this state.

CHANGES IN EMPLOYER CONTRIBUTION RATES

NON-UNIFORMED EMPLOYEES

(As Percent of Salary)

Years Change Occurred	PERS State	PERS Local	STRS	SERS
1983				14.00[56]
1984			14.00	
1991	13.31	13.55		
2006	13.54	13.70		
2007	13.77	13.85		
2008	14.00	14.00		

UNIFORMED EMPLOYEES

Years Change Occurred	OP&F Police	OP&F Fire	HPRS	PERS-LE & PS
1986	19.50	24.00		
1989			24.39	
1991			24.53	16.00
1994				16.70
1996			24.00	
1999			23.50	
2003			24.50	
2005			25.50	
2006				16.93
2007				17.17
2008				17.40
2009			26.50	17.87
2011				18.10

[56] In addition to the 14% employer contribution rate, the SERS board was authorized by H.B. 290 effective 9/9/88 to impose an employer surcharge on the salaries of members earning below a minimum compensation amount in order to fund health care benefits. S.B. 270 (eff. 4/9/01) limited the maximum employer surcharge amount to no more than 2% of an individual employer's payroll for employees covered under SERS and limited the aggregate amount collected through the employer surcharge to no more than 1.5% of the total SERS active member payroll.

PERCENTAGE CHANGES IN THE CONSUMER PRICE INDEX

1982-84 = 100 Unadjusted CPI-W

(U.S. city avg. for urban wage earners and clerical workers)[57]

Year	Annual Average % of Change	Year	Annual Average % of Change
1970	5.7	2001	2.7
1971	4.4	2002	1.4
1972	3.4	2003	2.2
1973	6.2	2004	2.6
1974	11.0	2005	3.5
1975	9.1	2006	3.2
1976	5.7	2007	2.9
1977	6.5	2008	4.1
1978	7.7	2009	-0.7
1979	11.4	2010	2.1
1980	13.4	2011	3.6
1981	10.3	2012	2.1
1982	6.0	2013	1.4
1983	3.0	2014	1.5
1984	3.5	2015	-0.4
1985	3.5	2016	0.9
1986	1.6	2017	2.1
1987	3.6	2018	2.6
1988	4.0	2019	1.7
1989	4.8	2020	1.2
1990	5.2	2021	5.3
1991	4.1	2022	8.5
1992	2.9	2023	3.8
1993	2.8		
1994	2.5		
1995	2.9		
1996	2.9		
1997	2.3		
1998	1.3		
1999	2.2		
2000	3.5		

[57] For consistency, ORSC staff use CPI-W annual figures to calculate average changes, as presented by the Social Security Administration (available online at: https://www.ssa.gov/oact/STATS/avgcpi.html)

AGE AND SERVICE BENEFITS

NON-UNIFORMED PUBLIC EMPLOYEES

	PERS[58]	STRS	SERS
Normal Retirement Eligibility	**Group A**- 5 Years of Service (YOS) at age 65 or 30 YOS at any age. **Group B** – 5 YOS at age 66, 31 YOS at age 52, or 32 YOS at any age. **Group C**- 5 YOS at age 67 or 32 YOS at age 55. R.C 145.32 and 145.33	If eligible to retire before August 1, 2015, 30 YOS at any age. If eligible on or after August 1, 2015, an increase of one additional YOS for each 2-year period after August 1, 2015, until July 31, 2026. If eligible on or after August 1, 2028, 35 YOS. R.C. 3307.58	Members who as of August 1, 2017, will have at least 25 YOS credit (or pay an amount equal to the additional liability to SERS), 5 YOS at age 60 or 30 YOS at any age. All other members - age 62 with at least 10 YOS ; age 60 with at least 25 YOS; or age 57 with at least 30 YOS. R.C. 3309.34 and 3309.36
Normal Retirement Benefits	**Group** A - 2.2% Final Average Salary (FAS) for the first 30 yrs. Plus 2.5% for each additional year. **Group B** – same as Group A. **Group C** - 2.2% FAS for the first 35 YOS plus 2.5% for each additional year. R.C. 145.33	For those whose retirement effective date is before August 1, 2015 or those who on July 1, 2015, met eligibility requirements effective on that date, 2.2% FAS for each of first 30 years, plus 2.5% and an additional .1% for each year above 30 years. For all others, 2.2% FAS. R.C. 3307.58	2.2% FAS for each of the first 30 years of service plus 2.5% for each additional year of service. R.C. 3309.36

[58] PERS created three transition groups under 2012 pension reform: Group A (members who are eligible to retire or will be eligible not later than January 7, 2018), Group B (members who will be eligible to retire not later than January 7, 2023 or have 20 years of service credit on that date), and Group C (all other members).

Early Retirement Eligibility	**Group A** -5 YOS at age 60 or 25 YOS at age 55. **Group B** – same as Group A. **Group C** – 5 YOS at age 62 or 25 YOS at age 57. R.C. 145.32 and 145.33	5 YOS at age 60 or 25 YOS at age 55, if eligible to retire before August 1, 2015. If eligible on or after August 1, 2015, an increase of one additional YOS for each 2-year period after August 1, 2015, until July 31, 2023. If eligible on or after August 1, 2023, 30 or more YOS at any age. R.C. 3307.58	The benefit is reduced unless the member is age 67 or has at least 30 YOS credit. R.C.3309.34 and 3309.36
Early Retirement Benefits	**Group A** – Normal retirement benefit amount with a statutory reduction. **Groups B and C** – Benefit amount reduced by a percentage determined by the PERS actuary based on when they would have been eligible for unreduced retirement. R.C. 145.33	For benefits beginning before August 1, 2015, a statutory reduction. For benefits after that date, a percentage reduction determined by the STRS actuary based on when they would have been eligible for unreduced retirement. R.C. 3307.58	Benefit amount reduced by a percentage determined by the SERS actuary as the actuarial equivalent of the benefit under a normal retirement. R.C. 3309.36
Maximum Benefit	100% FAS R.C. 145.33(B)(2)	100% FAS R.C. 3307.58(G)	100% FAS R.C. 3309.371(B)
FAS	**Groups A and B** – three years. **Group C** – five years. R.C. 145.017	For benefits beginning Before August 1, 2015, three years. For benefits on or after that date, five years. R.C. 3307.501	Three years. R.C. 3309.01(K)

AGE AND SERVICE BENEFITS

UNIFORMED PUBLIC EMPLOYEES

	OP&F	HPRS	PERS-LE[59]	PERS-PS[60]
Normal Retirement Eligibility	For those who became members on or before July 1, 2013, 25 YOS and age 48. For those who become members on or after July 1, 2013, 25 YOS at age 52. All members may also retire with 15 YOS and age 62. R.C. 742.37	25 YOS at age 48 or 20 YOS at age 52. For those who become members on or after January 1, 2020, 20 YOS at age 52. R.C. 5505.16	**Group A –** 25 YOS and age 48; or 15 YOS and age 62. **Group B –** 25 YOS and age 50; or 15 YOS and 64. **Group C –** 25 YOS credit and age 52; or 15 YOS and age 64. R.C. 145.33	**Group A –** 25 YOS and age 52; or with 15 YOS and age 62. **Group B –** 25 YOS and age 54; or 15 YOS and age 64. **Group C –** 25 YOS and age 56; or 15 YOS and age 64. R.C. 145.33
Normal Retirement Benefits	2.5% average annual salary (AAS) for each of the first 20 YOS plus 2% for the 21st through 25th year, plus 1.5% for service beyond 25 years.	2.5% FAS for each of the first 20 YOS plus 2.25% FAS for next 5 YOS plus 2% for any additional YOS.	All groups. 2.5% FAS for first 25 YOS, plus 2.1% for each additional year.	

[59] PERS created three transition groups under the 2012 pension reform: Group A (members who are eligible to retire or will be eligible not later than January 7, 2018), Group B (members who will be eligible to retire not later than January 7, 2023 or have 20 years of service credit on that date), and Group C (all other members).
[60] PERS created three transition groups under the 2012 pension reform: Group A (members who are eligible to retire or will be eligible not later than January 7, 2018), Group B (members who will be eligible to retire not later than January 7, 2023 or have 20 years of service credit on that date), and Group C (all other members).

	R.C. 742.37	R.C. 5505.17	R.C. 145.33	
Early Retirement Eligibility	25 YOS and age 48. R.C. 742.37(C)(4)	20 YOS and age 48. R.C. 5505.16	**Groups B and C** – 25 YOS and age 48. R.C. 145.33	**Groups B and C** – 25 YOS and age 52. R.C. 145.33
Early Retirement Benefits	Benefit reduced to the actuarial equivalent of pension had member retired at age 52. R.C. 742.37(C)(4)	Percent reduction of benefit amount determined under statute. R.C. 5505.16	Benefit reduced to the actuarial equivalent of the unreduced benefit adjusted by age. R.C. 145.33	
Maximum Benefit	72% AAS R.C. 742.37	79.25% FAS R.C. 5505.17	90% FAS R.C. 145.33	
AAS/FAS	For members with 15 or more YOS on or before July 1, 2013, three years. For all others, five years. R.C. 742.37(C)(1)	Effective with benefits beginning January 1, 2015, five years. R.C. 5505.01(M)	**Groups A and B –** three years. **Group C –** five years. R.C. 145.017 (A) and (B)	

ANNUAL COST-OF-LIVING ALLOWANCE

System	COLA Benefit (Non-Compounded)
PERS	For recipients of benefits beginning not later than January 7, 2013, 3%. For recipients of benefits beginning after January 7, 2013, any increase in the Consumer Price Index, not to exceed 3% (2024 COLA is 2.3%). R.C. 145.323
STRS	For those receiving an allowance or benefit on or after August 1, 2013, five years must pass before the first COLA is applied to an allowance or benefit, unless retirement is immediately preceded by a disability benefit. STRS Board may adjust the COLA if the Board's actuary determines that an adjustment does not materially impair the fiscal integrity of the retirement system or is necessary to preserve the fiscal integrity of the system. (FY2024 COLA is 1%). R.C. 3307.67
SERS	COLA of any change in CPI, not to exceed 2.5%, beginning on the fourth anniversary of retirement. SERS Board may adjust the COLA if the actuary determines that an adjustment does not materially impair the fiscal integrity of the retirement system or is necessary to preserve the fiscal integrity of the retirement system (2024 COLA is 2.5%). R.C. 3309.374
OP&F	(1) Annual COLA of 3% for those who have at least 15 years of service credit on or before July 1, 2013. (2) Annual COLA of the lesser of 3% or the increase in the Consumer Price Index, if any for all others. COLA is provided only to recipients who have attained age 55 and have received the pension or benefit for one year, except that disability recipients who are permanently and totally disabled do not have to have attained age 55. R.C. 742.3716
SHPRS	Authorizes the Board to grant a COLA of no more than 3%, except that the Board is to grant a COLA of 3% to a recipient age 65 whose benefit is less than 185% of the federal poverty limit for a family of two. (2024 COLA is 0%) A recipient of a retirement, disability, or survivor pension whose pension effective date is on or after January 7, 2013, will not be eligible for a COLA until age 60. R.C. 5505.174
Social Security	Based on increases in the CPI-W (compounding COLA; 2024 COLA is 3.2%).

Disability benefits[61]

UNIFORMED PUBLIC EMPMOYEES

	OP&F	PERS-LE/PS	HPRS
Disability Definition	**On-duty partial or off-duty**: disability that prevents the member from performing the member's duties and impairs the member's earning capacity. **On-duty total and permanent**: disability that makes the member unable to perform the duties of any gainful occupation for which they are trained with no indication of recovery. R.C. 742.38	Mentally or physically incapacitated for the performance of duty by a permanent disabling condition. R.C. 145.35(E)	Totally and permanently incapacitated for duty in the Highway Patrol. R.C. 5505.18
Eligibility	**On-duty total and permanent** disability benefit immediately on employment. **On-duty Partial** disability benefit immediately on employment.	**On-duty** disability benefit immediately on employment. O**ff-duty** disability benefit after five years of employment.	Eligible for **on-duty** disability benefit immediately on employment. **Off-duty** disability after five years of employment.

[61] Changes to federal law in the 1990s required PERS, STRS, and SERS to each develop a new disability benefit plan. Unless the member elected a new plan, a member hired before October 16, 1992 is covered by one of the original plans. A member hired after that date is under the new disability benefit plan established by the member's retirement system. These are referred to in this profile as "new plan" and "old plan."

	Off-duty disability after five years of employment. R.C. 742.38	R.C. 145.35	R.C. 5505.18
Benefit	**On-duty partial or off-duty**: an amount fixed by the Board. **On-duty total and permanent**: 72% of the members average annual salary. R.C. 742.39	A member hired **before** October 16, 1992: 2.2% FAS (projected to age 60). A member hired **after** October 16, 1992: the benefit is 2.2% FAS (no projection of age). R.C. 145.36 and 145.361	**On-duty disability:** Normal benefit, except member is deemed to have served 25 years. **Off-duty**: Normal benefit, except member is deemed to have served 12 years. R.C. 5505.18
Maximum/Minimum Benefit	**On-duty partial or off-duty**: 60% AAS/ No minimum. **On-duty total and permanent:** Set at 72% of member's AAS. R.C. 742.39	**Old Plan**: 75%/30% FAS **New Plan**: 60%/45% FAS R.C. 145.36 and 145.361	**On-duty**: 79.25%/61.25% FAS **Off-duty**: 79.25%/30% FAS R.C. 5505.18

NON-UNIFORMED PUBLIC EMPLOYEES

System	PERS	STRS	SERS
Disability Definition	Mentally or physically incapacitated for the performance of duty by a permanent disabling condition. A disability is permanent if it is expected to last for at least twelve months. R.C. 145.35(E), 3307.62, and 3309.39		
Eligibility	Five years of service. R.C. 145.36	If the member has any service prior to July 1, 2013, five years of service. For all others, ten years of service. R.C. 3307.62	Five years of service. R.C. 3309.39
Benefit	A member hired **before** October 16, 1992: 2.2% FAS (projected to age 60). A member hired **after** October 16, 1992: the benefit is 2.2% FAS (no projection of age). R.C. 145.36 and 145.361	A member hired **before** October 16, 1992: 2.0% FAS (projected to age 60). A member hired **after** October 16, 1992: the benefit is 2.2 FAS (no projection of age). R.C. 3307.63 and 3307.631	A member hired **before** October 16, 1992: 2.2% FAS (projected to age 60). A member hired **after** October 16, 1992: the benefit is 2.2% FAS (no projection of age). R.C. 3309.40 and R.C. 3309.401
Maximum/Minimum Benefit	**Old Plan**: 75%/30% FAS **New Plan**: 60%/45% FAS R.C. 145.36, 145.361, 3307.63, 3307.631, 3309.40, and 3309.401		

Social Security Benefit (2022)

Normal Retirement Eligibility	Age 67
Early Retirement	Age 62, benefit reduced by (8% x (67 – age)); e.g. at age 62 benefit amount reduced by 40% [(67-62) x 8%=40%]
Benefit Amount	Determined by the "Primary Insurance Amount" (PIA), a formula that uses the average indexed monthly earnings of the workers entire working career (reflecting the "general wage levels that occurred during the worker's years of employment"), and age of retirement, multiplied by the following formula: (1) 90% of the first $1,024 of the worker's average indexed monthly earnings, plus (2) 32% of the worker's averaged indexed monthly earnings between $1,024-$6,172, plus (3) 15% of the worker's averaged indexed monthly earnings above $6,172.

Benefit Averages

	Average Age and Service Benefit, 2022
PERS	$31,195
STRS	$48,166
SERS	$16,164
OP&F	$54,052
HPRS	$48,148
Social Security	$21,902 (all retired workers)[62]

[62] Retired workers for December 2022, available online at: https://www.ssa.gov/policy/docs/quickfacts/stat_snapshot/2022-12.pdf

PERS, STRS, and SERS Defined Contribution (DC) and Alternative Retirement Plan (ARP) Mitigating Contribution Rates (1998-2024) [63]

	PERS ARP	PERS DC	STRS ARP	STRS DC	SERS ARP
1998	6.0%	n/a	n/a	n/a	6.0%
1999	6.0%	n/a	6.0%	n/a	6.0%
2000	0%	n/a	6.0%	n/a	6.0%/3.1%
2001	0%	n/a	5.76%	n/a	0%
2002	0%	n/a	3.5%	3.5%	0%
2003-2005	0%	0%	3.5%	3.5%	0%
2006	0%	.54% (state)/ .70%(local)	3.5%	3.5%	6.0%
2007	.54% (state)/ .70%(local)	.54% (state)/ .70%(local)	3.5%	3.5%	6.0%
2008-2013	.77%	.77%	3.5%	3.5%	6.0%
2014	.77%	.77%	4.5%	4.5%	6.0%
2015[64]	.77%	.77%	4.5%	4.5%	6.0%
2016	.77%	1.00%	4.5%	4.5%	6.0%
2017[65]	2.44 %	1.50%	4.47%	4.5%	3.48%
2018	2.44%	2.00%	4.47%	4.47%	3.48%
2019	2.44%	2.44%	4.47%	4.47%	3.48%
2020-2021	2.44%	2.44%[66]	4.47%	4.47%	3.48%
2022-2024	2.24%	2.24%[67]	2.91%	2.91%	3.85%

[63] PERS years are calendar year. STRS and SERS years are for the fiscal year (1999 refers to the rate from July 1, 1998 through June 30, 1999).

[64] H.B. 64 of the 131st General Assembly froze the mitigating rates for ARP participants at the current rates.

[65] Pursuant to actuarial reports required under H.B. 520, the mitigating rates for 2017 apply to payrolls on or after July 1, 2017.

[66] Effective rate is 3.50%.

[67] Effective rate is 3.50%.

Appendix B

Contributions and Funding

Public Employees Retirement System (PERS): Contribution and Funded History						
Year	Employer Contribution Rate[68]	Employee Contribution Rate	Total Contribution	Normal Cost	Allocation to Health Care	Unfunded Accrued Liability
1998	13.31%	8.50%	21.81%	14.71%	4.20%	2.90%
1999	13.31%	8.50%	21.81%	14.71%	4.20%	2.90%
2000	13.31%	8.50%	21.81%	14.71%	4.30%	2.80%
2001	13.31%	8.50%	21.81%	16.18%	4.30%	1.33%
2002	13.31%	8.50%	21.81%	16.19%	5.00%	0.62%
2003	13.31%	8.50%	21.81%	14.67%	5.00%	2.14%
2004	13.31%	8.50%	21.81%	14.45%	4.00%	3.36%
2005	13.31%	8.50%	21.81%	14.20%	4.00%	3.61%
2006	13.54%	9.00%	22.54%	14.67%	4.50%	3.37%
2007	13.77%	9.50%	23.27%	14.66%	6.00%	2.61%
2008	14.00%	10.00%	24.00%	14.89%	7.00%	2.11%
2009	14.00%	10.00%	24.00%	14.89%	5.50%	3.61%
2010	14.00%	10.00%	24.00%	15.19%	5.00%	3.81%
2011	14.00%	10.00%	24.00%	15.17%	4.00%	4.83%
2012	14.00%	10.00%	24.00%	15.18%	4.00%	4.82%
2013	14.00%	10.00%	24.00%	15.18%	1.00%	7.82%
2014	14.00%	10.00%	24.00%	15.14%	2.00%	6.86%
2015	14.00%	10.00%	24.00%	13.12%	2.00%	8.88%
2016	14.00%	10.00%	24.00%	13.11%	2.00%	8.89%
2017	14.00%	10.00%	24.00%	13.02%	1.00%	9.98%
2018	14.00%	10.00%	24.00%	12.95%	0.00%	11.05%
2019	14.00%	10.00%	24.00%	13.77%	0.00%	10.23%
2020	14.00%	10.00%	24.00%	13.81%	0.00%	10.19%
2021	14.00%	10.00%	24.00%	14.55%	0.00%	9.45%
2022	14.00%	10.00%	24.00%	14.50%	0.00%	9.50%

[68] Contribution and Normal cost figures are for State service until 2010, when blended figures for the General division became available. Figures are for the Traditional Plan only.

PERS (Defined benefit plan; $ in millions)				
Year	Liabilities	UAAL	Ratio	Amortization Period
1998	$37,714	($646)	102%	0
1999	$43,070	$10	100%	0
2000	$46,347	($497)	101%	0
2001	$47,492	($1,256)	103%	0
2002	$50,872	$7,166	86%	29
2003	$54,774	$8,028	85%	29
2004	$57,604	$7,152	88%	24
2005	$61,146	$6,673	89%	20
2006	$66,161	$4,865	93%	26
2007	$69,734	$2,582	96%	14
2008	$73,466	$18,150	75%	30
2009	$76,555	$18,926	75%	30
2010	$79,630	$19,031	76%	29
2011	$84,530	$19,094	77%	30
2012	$87,105	$19,251	78%	30
2013	$86,645	$15,233	82%	24
2014	$89,285	$14,420	84%	21
2015	$91,832	$13,771	85%	19
2016	$100,167	$19,887	80%	19
2017	$102,656	$19,364	81%	18
2018	$108,705	$24,418	78%	27
2019	$111,371	$22,800	80%	23
2020	$113,372	$19,402	83%	18
2021	$118,517	$18,807	84%	16
2022	$122,463	$19,611	84%	16

State Teachers Retirement System (STRS): Contributions and Allocations						
Year	Employer Contribution Rate	Employee Contribution Rate	Total Contribution	Normal Cost[69]	Allocation to Health Care	Unfunded Accrued Liability
1998	14%	9.30%	23.30%	15.30%	3.50%	4.50%
1999	14%	9.30%	22.30%	15.40%	8.00%	-0.10%
2000	14%	9.30%	23.30%	15.30%	8.00%	0.00%
2001	14%	9.30%	23.30%	15.30%	4.50%	3.50%
2002	14%	9.30%	23.30%	15.30%	4.50%	3.50%
2003	14%	9.30%	23.30%	14.90%	1.00%	7.40%
2004	14%	10%	24%	14.90%	1.00%	8.10%
2005	14%	10%	24%	14.90%	1.00%	8.10%
2006	14%	10%	24%	14.80%	1.00%	8.20%
2007	14%	10%	24%	14.80%	1.00%	8.20%
2008	14%	10%	24%	14.20%	1.00%	8.80%
2009	14%	10%	24%	14.30%	1.00%	8.70%
2010	14%	10%	24%	14.30%	1.00%	8.70%
2011	14%	10%	24%	14.00%	1.00%	9.00%
2012	14%	10%	24%	15.70%	1.00%	7.30%
2013	14%	10%	24%	11.80%	1.00%	11.20%
2014	14%	11%	25%	11.50%	1.00%	12.50%
2015	14%	12%	26%	11.10%	0.00%	14.90%
2016	14%	13%	27%	10.60%	0.00%	16.40%
2017	14%	14%	28%	10.50%	0.00%	17.50%
2018	14%	14%	28%	10.70%	0.00%	17.30%
2019	14%	14%	28%	10.60%	0.00%	17.40%
2020	14%	14%	28%	10.60%	0.00%	17.40%
2021	14%	14%	28%	11.80%	0.00%	16.20%
2022	14%	14%	28%	10.60%	0.00%	17.40%
2023	14%	14%	28%	10.70%	0.00%	17.30%

[69] Normal cost is for the defined benefit plan.

STRS (defined benefit; $ in millions)				
Year	Liabilities	UAAL	Ratio	Amortization Period
1998	$48,972	$7,262	85%	24
1999	$51,980	$5,639	89%	16
2000	$55,774	$4,480	92%	23
2001	$59,425	$5,231	91%	28
2002	$63,216	$14,257	77%	39
2003	$65,936	$17,037	74%	42
2004	$69,867	$17,614	75%	42
2005	$73,817	$20,052	73%	56
2006	$77,371	$19,363	75%	47
2007	$81,127	$14,455	82%	26
2008	$87,432	$18,234	79%	41
2009	$91,441	$36,538	60%	Infinite
2010	$94,721	$38,774	59%	Infinite
2011	$98,766	$40,656	59%	Infinite
2012	$106,302	$46,812	56%	40
2013	$94,367	$31,776	66%	40
2014	$96,167	$29,510	69%	30
2015	$99,015	$30,359	69%	28
2016	$100,756	$30,642	70%	27
2017	$96,126	$23,910	75%	18
2018	$96,904	$23,789	75%	18
2019	$97,841	$23,429	76%	17
2020	$98,672	$22,315	77%	15
2021	$104,591	$20,830	80%	14
2022	$105,264	$20,122	81%	12
2023	$107,783	$20,203	81%	11

School Employees Retirement System (SERS): Contributions and Allocations						
Fiscal Year[70]	Employer Contribution Rate	Employee Contribution Rate	Total Contribution	Normal Cost	Allocation to Health Care	Unfunded Accrued Liability
1998	14%	9%	23%	13.99%	4.98%	4.03%
1999	14%	9%	23%	14.09%	6.30%	2.61%
2000	14%	9%	23%	13.75%	8.45%	0.80%
2001	14%	9%	23%	13.79%	9.80%	-0.59%
2002	14%	9%	23%	14.27%	8.54%	0.19%
2003	14%	9%	23%	14.40%	5.83%	2.77%
2004	14%	10%	24%	14.68%	4.91%	4.41%
2005	14%	10%	24%	14.69%	3.43%	5.88%
2006	14%	10%	24%	14.73%	3.42%	5.85%
2007	14%	10%	24%	13.95%	3.32%	6.73%
2008	14%	10%	24%	13.98%	4.18%	5.84%
2009	14%	10%	24%	14.08%	4.16%	5.76%
2010	14%	10%	24%	13.86%	0.46%	9.68%
2011	14%	10%	24%	13.79%	1.43%	8.78%
2012	14%	10%	24%	11.72%	0.55%	11.73%
2013	14%	10%	24%	11.23%	0.16%	12.61%
2014	14%	10%	24%	11.30%	0.14%	12.56%
2015	14%	10%	24%	11.41%	0.82%	11.77%
2016	14%	10%	24%	11.26%	0.00%	12.74%
2017	14%	10%	24%	10.73%	0.00%	13.27%
2018	14%	10%	24%	10.44%	0.50%	13.06%
2019	14%	10%	24%	9.98%	0.50%	13.52%
2020	14%	10%	24%	10.00%	0.00%	14.00%
2021	14%	10%	24%	10.06%	0.00%	13.94%
2022	14%	10%	24%	11.26%	0.00%	12.74%

[70] Fiscal year July 1-June 30th. Employer, employee, and normal cost determined from previous year's valuation.

SERS (defined benefit; $ in millions)				
Year	Liabilities	UAAL	Ratio	Amortization Period
1998	$7,037	$625	91%	21
1999	$7,535	$203	97%	20
2000	$8,100	($181)	102%	25
2001	$8,852	$62	99%	25
2002	$9,986	$1,108	89%	30
2003	$10,634	$1,863	83%	30
2004	$11,251	$2,584	77%	30
2005	$11,961	$3,137	74%	30
2006	$12,627	$3,155	76%	30
2007	$13,303	$2,734	80%	29
2008	$14,062	$2,689	82%	28
2009	$14,582	$4,746	68%	30
2010	$15,222	$4,312	73%	29
2011	$16,325	$5,812	65%	28
2012	$16,755	$6,358	63%	30
2013	$17,247	$6,121	65%	29
2014	$17,882	$5,851	68%	28
2015	$18,503	$5,902	68%	27
2016	$19,771	$6,591	67%	28
2017	$19,588	$5,875	70%	27
2018	$19,998	$5,986	70%	26
2019	$20,527	$6,054	71%	25
2020	$21,034	$5,997	71%	24
2021	$21,530	$5,498	74%	23
2022	$22,371	$5,484	75%	22

Ohio Police and Fire Pension Fund (OP&F): Contributions and Allocations						
Year	Employer Contribution Rate	Employee Contribution Rate	Total Contribution	Normal Cost	Allocation to Health Care	Unfunded Accrued Liability
1998	19.5%/24%	10%	31.43%	20.02%	7.00%	4.41%
1999	19.5%/24%	10%	31.44%	19.52%	7.25%	4.67%
2000	19.5%/24%	10%	31.50%	19.80%	7.25%	4.45%
2001	19.5%/24%	10%	31.50%	20.90%	7.50%	3.10%
2002	19.5%/24%	10%	31.50%	21.50%	7.75%	2.25%
2003	19.5%/24%	10%	31.50%	21.40%	7.75%	2.35%
2004	19.5%/24%	10%	31.60%	21.00%	7.75%	2.85%
2005	19.5%/24%	10%	31.60%	20.90%	7.75%	2.95%
2006	19.5%/24%	10%	31.60%	21.40%	7.75%	2.45%
2007	19.5%/24%	10%	31.60%	22.10%	6.75%	2.75%
2008	19.5%/24%	10%	31.60%	22.60%	6.75%	2.25%
2009	19.5%/24%	10%	31.60%	22.40%	6.75%	2.45%
2010	19.5%/24%	10%	31.60%	22.30%	6.75%	2.55%
2011	19.5%/24%	10%	31.60%	20.00%	6.75%	4.85%
2012	19.5%/24%	10%	32.00%	17.60%	6.75%	7.65%
2013	19.5%/24%	10.75%	32.70%	17.70%	2.85%	12.15%
2014	19.5%/24%	11.50%	33.50%	17.70%	0.50%	15.30%
2015	19.5%/24%	12.25%	33.90%	17.60%	0.50%	15.80%
2016	19.5%/24%	12.25%	33.90%	16.00%	0.50%	17.40%
2017	19.5%/24%	12.25%	33.90%	16.00%	0.50%	17.40%
2018	19.5%/24%	12.25%	33.90%	16.00%	0.50%	17.40%
2019	19.5%/24%	12.25%	33.90%	16.20%	0.50%	17.20%
2020	19.5%/24%	12.25%	33.90%	15.70%	0.50%	17.70%
2021	19.5%/24%	12.25%	33.90%	16.40%	0.50%	17.00%
2022	19.5%/24%	12.25%	33.90%	16.40%	0.50%	17.00%

OP&F ($ in millions)				
Year	Liabilities	UAAL	Ratio	Amortization Period
1998	$8,453	$1,146	87%	48
1999	$8,996	$1,007	89%	27
2000	$9,506	$1,008	89%	29
2001	$9,786	$709	93%	28
2002	$10,508	$1,826	83%	Infinite
2003	$10,798	$1,461	87%	Infinite
2004	$11,545	$2,208	81%	Infinite
2005	$12,190	$2,639	78%	Infinite
2006	$12,988	$2,830	78%	Infinite
2007	$13,728	$2,515	82%	Infinite
2008	$14,307	$4,998	65%	Infinite
2009	$14,831	$4,037	73%	Infinite
2010	$15,384	$4,703	69%	Infinite
2011	$16,347	$6,038	63%	Infinite
2012	$16,008	$5,730	64%	47
2013	$16,578	$5,515	67%	33
2014	$18,396	$5,366	71%	30
2015	$19,136	$5,483	71%	29
2016	$20,290	$6,128	70%	28
2017	$20,887	$6,293	70%	28
2018	$21,265	$6,512	69%	29
2019	$22,044	$6,684	70%	28
2020	$22,629	$6,516	71%	25
2021	$24,518	$7,422	70%	29
2022	$25,363	$7,605	70%	27

Highway Patrol Retirement System: Contributions and Allocations						
Year	Employer Contribution Rate	Employee Contribution Rate	Total Contribution	Normal Cost	Allocation to Health Care	Unfunded Accrued Liability
1998	24.00%	10%	34.00%	24.96%	4.00%	5.04%
1999	23.50%	10%	33.50%	25.41%	4.75%	3.34%
2000	23.50%	10%	33.50%	23.10%	4.75%	5.65%
2001	23.50%	10%	33.50%	23.10%	5.75%	4.65%
2002	23.50%	9.50%	33.00%	21.90%	5.75%	5.35%
2003	24.50%	10%	34.50%	21.90%	3.50%	9.10%
2004	24.50%	10%	34.50%	21.70%	3.50%	9.30%
2005	25.50%	10%	35.50%	21.00%	3.50%	11.00%
2006	25.50%	10%	35.50%	20.80%	3.50%	11.20%
2007	25.50%	10%	35.50%	20.80%	3.50%	11.20%
2008	25.50%	10%	35.50%	21.20%	4.50%	9.80%
2009	26.50%	10%	36.50%	21.20%	5.50%	9.80%
2010	26.50%	10%	36.50%	21.70%	3.50%	11.30%
2011	26.50%	10%	36.50%	21.80%	1.75%	12.95%
2012	26.50%	10%	36.50%	18.30%	1.75%	16.45%
2013	26.50%	10%	36.50%	18.10%	3.65%	14.75%
2014	26.50%	11.50%	38.00%	18.10%	4.30%	15.60%
2015	26.50%	12.50%	39.00%	19.70%	4.00%	15.30%
2016	26.50%	12.50%	39.00%	19.70%	4.00%	15.30%
2017	26.50%	12.50%	39.00%	19.10%	4.00%	15.90%
2018	26.50%	12.50%	39.00%	20.00%	3.50%	15.50%
2019	26.50%	14%	40.50%	18.10%	0.00%	22.40%
2020	26.50%	14%	40.50%	18.30%	0.00%	22.20%
2021	26.50%	14%	40.50%	18.30%	0.00%	22.20%
2022	26.50%	14%	40.50%	18.10%	3.36%	19.04%

HPRS ($ in millions)				
Year	Liabilities	UAAL	Ratio	Amortization Period
1998	$533	$23	96%	10
1999	$577	$30	95%	20
2000	$594	$24	96%	8
2001	$637	$85	87%	31
2002	$663	$136	80%	32
2003	$703	$157	78%	40
2004	$734	$165	78%	34
2005	$774	$182	77%	35
2006	$808	$154	81%	28
2007	$866	$165	81%	27
2008	$905	$301	67%	Infinite
2009	$940	$320	66%	Infinite
2010	$1,018	$387	62%	Infinite
2011	$1,048	$424	60%	Infinite
2012	$966	$309	68%	30
2013	$989	$299	70%	30
2014	$1,013	$301	70%	29
2015	$1,079	$339	69%	30
2016	$1,128	$364	68%	29
2017	$1,154	$379	67%	27
2018	$1,158	$389	66%	23
2019	$1,173	$377	68%	23
2020	$1,204	$359	70%	22
2021	$1,233	$339	73%	24
2022	$1,264	$329	74%	21

Appendix C Funding Policies

STRS
POLICY TYPE: ENDS

POLICY TITLE: *FUNDING*

The ends to be achieved regarding funding are as follows:

The purpose of the policy is to state the Board's objectives for funding and to lay out clear criteria for making decisions regarding changes to funding and benefits, as well as when those changes should be considered by the Board.

The goal is to safeguard members' benefits in the long term.

The funding philosophy and objectives shall establish the framework and specific objectives to monitor the Retirement System's funding status with an intent to preserve the financial improvements realized by the passage of pension reform legislation in 2012 – Sub. S.B. 342 of the 129th General Assembly.

This statement sets forth policy and describes the organization and division of responsibilities to prudently implement the funding philosophy and objectives in accordance with Sections 3307.51 and 3307.512 of the Ohio Revised Code ("Revised Code" or "R.C.") and promotes effective communication between the Board and staff.

Funding objectives shall include:

- 100% funding
  - At 85% or greater, the Board may consider plan changes that in the determination of the Board's actuary do not materially impair the fiscal integrity of the system.
- Manage the risk of unanticipated benefit changes
- Intergenerational equity, to the extent consistent with other funding objectives
- Transparency and accountability

Elements of a funding policy shall include:

- Actuarial Cost Method: entry age normal
- Asset Smoothing Method: 4-year smoothing of gains/losses in excess of assumed earnings, with an actuarial value corridor of 91% to 109% of market value

- Funding Period Policy: a closed funding period, starting from 30 years as of 7/1/2015, with a level percentage of payroll amortization of all UAAL

On an annual basis, an actuarial valuation of the pension assets, projected liabilities and projected funding requirements of the Retirement System will be prepared by an actuary. Such valuation study shall meet all requirements of Section 3307.51(A) of the Revised Code.

On an annual basis following the completion of the actuarial valuation, staff, working with an actuary, will update the funding scorecard according to the criteria set forth in the Metrics to Guide Funding Policy. Staff will update the Board of the resulting score. Should the overall score, or any of the individual metrics, fall outside the range of advisory levels established by the Metrics to Guide Funding Policy, the Board will either initiate action to mitigate this risk or approve a written statement explaining why mitigation is not considered necessary, possible or desirable at that time.

On an annual basis, to assist the Board's interpretation of scorecard results and to facilitate consideration of actions that may be necessary to meet funding objectives, STRS Ohio staff and an actuary will prepare a sensitivity analysis detailing the projected impact of a range of possible plan design changes.

At least once in every quinquennial period, an actuarial review shall be prepared by or under the supervision of an actuary to update the actuarial assumptions used in the annual actuarial valuation study. Such review shall comply with the requirements set forth in Section 3307.51(B) of the Revised Code. The review will include demographic factors, such as the mortality, service and other experience of the members, retirees and beneficiaries, as well as the economic experience of the Retirement System.

At intervals determined by the Board, an actuarial study shall be prepared to assess the negative financial impact, if any, on the defined benefit plan resulting from participation of members in the defined contribution plan. Such review shall comply with the requirements of Section 3307.84 of the Revised Code.

As necessary, an analysis shall be prepared under the supervision of an actuary of any introduced legislation expected to have a measurable financial impact on the Retirement System. Such review shall comply with the requirements of Section 3307.51(D) of the Revised Code.

BD5-011

SERS Funding Policy

Effective Date:	11/21/1997	Revision Date:	06/18/2015	Audience:	Everyone
Owner:	Board	Certifier:	Richard Stensrud	Co-Owner (s):	None
Document Links:	Policy, Procedure, Definitions, Related Documents, Policy History				

Policy

I. Purpose.

The purpose of this Statement of Funding Policy is to describe the funding philosophy and objectives of the Retirement Board of the School Employees Retirement System of Ohio (Board). This Statement sets forth policy and describes the organization and division of responsibilities to prudently implement the Board philosophy and objectives in accordance with sections 3309.21 and 3309.211 of the Ohio Revised Code. It also establishes the framework and specific objectives to monitor the System's funded status and to promote effective communication between the Board and SERS staff.

II. Background.

The School Employees Retirement System of Ohio (SERS or System) was initially established by the Ohio Legislature to provide retirement and disability benefits for all non-certificated persons employed by Ohio's public schools. This purpose is sustained by the member and employer contributions, and the return realized from investment of those contributions.

The System is governed by a nine-member Board, including four members elected by the general membership (those who contribute to SERS), two members elected by the retirees and three members with investment expertise appointed by the governor, treasurer of state and the legislature. The Board is responsible for managing the System in accordance with Chapter 3309 of the Ohio Revised Code, and establishing the employer and employee contribution rates (sections 3309.49 and 3309.47, respectively) in accordance with section 3309.21.

III. Funding Philosophy.

The Board realizes that its primary responsibility is to assure that, at the time benefits commence, sufficient funds will be available to provide retirement, disability and survivor benefits along with Medicare B reimbursements and lump sum retiree death benefits
(collectively, “SERS’ basic benefits”) for the System's members. The Board also recognizes that the law governing SERS’ financing intends the contribution rates to remain approximately level from generation

to generation (a level percentage of payroll.) Finally, the Board is cognizant of the necessity to balance the needs of System members for proper funding of SERS' basic benefits with the desire to receive, where possible, an appropriate level of retiree health care coverage.

IV. Funding Objectives.

In defining funding objectives, the Board seeks to enhance the soundness of the System in order to balance as efficiently as possible the affordability and adequacy of the retirement benefits and health care coverage provided to System members. To that end, the Board establishes the following funding objectives:

A. The program of retirement benefits at SERS reflects that primary consideration is given to the career school employee. The accumulation of assets shall be for the purpose of funding retirement benefits for members who commit a significant portion of their working lives to an educational institution. Members who do not qualify for a retirement benefit shall be entitled only to a refund of their employee contributions.

B. The System shall amortize its unfunded actuarial accrued liability over a closed period of time, decreasing one year with each annual actuarial valuation. However, the Board may approve a flat or increasing amortization period over the short term if necessary to meet the goals of affordability and adequacy of retirement benefits and health care coverage. The Ohio Revised Code section 3309.211 establishes a 30-year maximum amortization period.

C. The Board seeks to maintain a funded ratio, that percentage of actuarial accrued liabilities covered by actuarial assets, of at least 90% within the amortization period defined in Section IV B. If the funded ratio is less than 70%, all 14% of the employers' contribution shall be allocated to SERS' basic benefits. If the funded ratio is 70% but less than 80%, at least 13.50% of the employers' contribution shall be allocated to SERS' basic benefits, with the remainder (if any) allocated to the Health Care Fund. If the funded ratio is 80% but less than 90%, at least 13.25% of the employers' contribution shall be allocated to SERS' basic benefits, with the remainder (if any) allocated to the Health Care Fund. If the funded ratio is 90% or greater, the Health Care Fund may receive any portion of the employers' contribution that is not needed to fund SERS' basic benefits.

D. After satisfying objectives B. and C., above, and while maintaining its funding philosophy of annually reducing the amortization period, the Board may choose to pursue any of the following objectives:

a. To improve the funded ratio of the System;

b. To achieve a 20-year solvency period for the Health Care Fund;

c. To propose legislation that provides for affordable benefit enhancements for active members and/or retirees; or

d. To reduce employee and/or employer contributions.

V. Responsibilities.

In order to implement this Statement of Funding Policy, the following responsibilities are delineated:

A. To the Board.

a. After consultation with the Actuary, the Executive Director and SERS staff, the Board will determine the economic assumptions and actuarial funding method and establish the non-economic assumptions used in the annual actuarial valuation.

b. Where possible and when appropriate, the Board will provide statements of policy to direct and focus the activities of SERS' staff and outside consultants.

B. To the Staff.

a. In accordance with the Board's statements of policy, SERS' staff will implement the Mission of SERS: To provide pension benefit programs and services to our members, retirees, and beneficiaries through benefit programs and services that are soundly financed, prudently administered and delivered with understanding and responsiveness.

b. The SERS Executive Director or, in the absence of the Executive Director, the Deputy Executive Director, will report to the Board annually on SERS' actions and activities in carrying out the Board's funding policies and directives, and more often, as necessary, when Board action may be required under the terms of this Policy.

c. The staff is responsible for providing the Actuary with timely and accurate information regarding SERS' members, retirees and the benefits provided by SERS.

C. To the System Actuary.

a. In addition to preparing the various reports required by law, the Actuary will assist the Board and SERS' staff by providing education and insight regarding effective administrative practices within the community of public pension plans.

b. When requested, the System Actuary will assist in SERS' strategic planning by identifying emerging trends pertaining to benefits and health care.

VI. Review and evaluation.

In order to establish appropriate and effective policy, and to maintain the efficient, ongoing administration of the System, the System will employ the services of a qualified actuary who will prepare, at a minimum, the following:

A. Annual Reports

a. Basic Benefits Actuarial Valuation.
b. Gain/Loss Analysis of Financial Experience of Basic Benefits.
c. Basic Health Care Actuarial Valuation.
d. Report on the solvency period of the Health Care Fund.

B. Five-Year Experience Study

VII. Health Care.

Access to health care is provided in accordance with section 3309.69 of the Ohio Revised Code, and is financed through a combination of employer contributions and retiree premiums, copays and deductibles on covered health care expenses, investment returns, and any funds received as a result of SERS' participation in Medicare programs. The System's goal is to maintain a health care reserve account with a 20-year solvency period in order to ensure that fluctuations in the cost of health care do not cause an interruption in the program. However, during any period in which the 20-year solvency period is not achieved, the System shall manage the Health Care Fund on a pay-as-yougo basis.

The Ohio Revised Code permits SERS to offer access to health care to eligible individuals receiving retirement, disability, and survivor benefits and to their eligible dependents. Health care coverage may be changed at any time, resulting in adjustments in the required funding of the health care program.

Included within the aforementioned employer contribution is a surcharge determined in accordance with Ohio Revised Code section 3309.491. The surcharge is levied against employers whose employees earn less than a specified minimum salary. In order to avoid shifting an onerous financial burden to our members and retirees, the employer surcharge will continue to be an important source of health care revenues.

If a member dies while participating in DROP, the member's surviving spouse, designated beneficiary or estate will receive the entire DROP account balance determined at the time of death. Also, the member' surviving spouse or contingent dependent beneficiary will receive either a 50% joint and survivor annuity or the annuity plan selected by the member, whichever is greater. All other statutory death benefits will apply.

If the member becomes disabled while in DROP, and has not terminated employment, the member must choose between receiving a disability benefit or DROP and a service retirement benefit. If the member stays in DROP, the disability benefit is forfeited. If the member chooses the disability benefit, the member forfeits all DROP benefits and receives the disability benefit, with service credit during the DROP period included.

REFUNDS

Upon separation from service, a member can receive the contributions that he or she made to the plan or the employee share of member contributions picked-up on the member's behalf by their employer. Acceptance of a refund of employee contributions cancels the member's rights, benefits and total service with OP&F. Employer contributions to OP&F are not refundable.

HEALTH CARE

A stipend funded by OP&F via the HCSF is available to eligible members through a Health Reimbursement Arrangement and can be used to reimburse retirees for qualified health care expenses. This stipend model allows eligible members the option of choosing an appropriate health care plan on the insurance exchange. Implementation of the stipend model has helped OP&F meet the funding goal of a 15 year future solvency projection in the HCSF.

Health care costs paid from the funds of the plan are included in the employer contribution rates, which are currently 19.5% and 24.0% of salaries for police and fire employers, respectively. During 2022, the Board of Trustees has allocated employer contributions equal to 0.5% of annual covered payroll to the HCSF. The HCSF is part of the Pension Reserve Fund.

OP&F maintains funds for health care in two separate accounts: one account for health care benefits and one account for Medicare Part B reimbursements. A separate health care trust accrual account is maintained for health care benefits under IRS Code Section 115 trust. IRS Code Section 401(h) account is maintained for Medicare Part B reimbursements.

12. NET OTHER POST-EMPLOYMENT BENEFITS (OPEB) LIABILITY AND ACTUARIAL INFORMATION

PLAN ADMINISTRATION

The OP&F Board of Trustees consists of four elected active members, two elected retired members and three state appointed professional investment experts. The OP&F Board of Trustees is responsible for administering the OP&F retiree health care stipend program, a cost-sharing, multiple-employer, defined benefit OPEB plan that provides various levels of health care to eligible benefit recipients and their eligible dependents.

PLAN MEMBERSHIP

As As of Jan. 1, 2022, OP&F's health care plan membership consisted of the following:

PARTICIPANTS BY STATUS

Status	Number
Active Members*	29,384
Inactive Members Eligible for Allowances	257
Retiree Members or their Beneficiaries Currently Receiving Benefits	25,078
TOTAL	**54,719**

* Excludes Rehired Retirees.

BENEFITS PROVIDED

A stipend funded by OP&F via the Health Care Stabilization

Fund (HCSF) is available to eligible members through a Health Reimbursement Arrangement and can be used to reimburse retirees for qualified health care expenses. This stipend model allows eligible members the option of choosing an appropriate health care plan on the insurance exchange. Implementation of the stipend model has helped OP&F meet the funding goal of a 15-year future solvency projection in the HCSF.

CONTRIBUTIONS

OP&F's health care plan is financed through a combination of employer contributions and investment returns. A portion of OP&F's investment gain/(loss) is allocated to the HCSF. In 2022, OP&F's investment portfolio had an unfavorable gross return of negative 8.73%. During 2022, the Board of Trustees allocated employer contributions equal to 0.5% of annual covered payroll to the HCSF.

DISCOUNT RATE

The discount rate used to measure the total OPEB liability at

Jan. 1, 2022 and rolled forward to Dec. 31, 2022 was 4.27%
(using Dec. 31, 2022's S&P Municipal Bond 20-Year High Grade Rate Index of 3.65%). The discount rate used to measure the total OPEB liability as of Jan. 1, 2021 and rolled forward to Dec. 31, 2021 was 2.84% (using Dec. 31, 2021's S&P Municipal Bond 20-Year High Grade Rate Index of 2.05%). The projection of cash flows used to determine the discount rate assumed that OP&F will contribute at a rate equal to 0.50% of payroll. Based on those assumptions, the OPEB plan's fiduciary net position was projected to be available to make all projected OPEB payments for current active and inactive employees until 2036. After that time, the funding of benefit payments is uncertain. The discount rate is the single equivalent rate which results in the same present value as discounting future benefit payments made from assets at the long term expected rate of return and discounting future benefit payments funded on a pay-as-you go basis on the municipal bond 20-year index rate.

RATE OF RETURN

The long-term expected rate of return on plan assets is reviewed as part of the actuarial five-year experience study. The most recent study covered fiscal years 2017 through 2021. Several factors are considered in evaluating the longterm rate of return assumption including long-term historical data, estimates inherent in current market data, each major investment asset class and expected inflation. The long-term expected rate of return is 7.50% which was changed from 8.00% in 2022.

The long-term expected rate of return on pension plan investments was determined using a building-block approach and assumes a time horizon, as defined in the Investment Policy and Guldelines Statement. A forecasted rate of inflation serves as the baseline for the return expected. Various real return premiums over the baseline inflation rate have been established for each asset class. The long-term expected nominal rate of return has been determined by calculating a weighted average of the expected real return premiums for each asset class, adding the projected inflation rate and adding the expected return from rebalancing uncorrelated asset classes.

PERIODS OF PROJECTED BENEFIT PAYMENTS

Future benefit payments for all current plan members were projected through 2122.

INVESTMENT POLICY

The health care stipend program follows the same investment policy and guidelines as the pension plan.

8.1 1 Funding Policy

FUNDING OBJECTIVE:

Effective April 21, 2022 (the Effective Date"), the Board adopts this Funding Policy to assist the System in meeting the objectives of funding the long-term cost of benefits in an equitable manner and by maintaining intergenerational equity. Below are the mission and vision statements which can be found on the System's website https://www.ohprs.orq/ohprs/missionStatement.isp.

Mission Statement - Provide stable pension services that are fiscally responsible, prudently administered, and delivered with understanding and responsiveness to all members and beneficiaries.

Vision Statement— Maintain a financially sound pension system that is a leader in the oversight of our investments and liabilities, providing for the long-term financial wellbeing of our retirement system.

The System will strive to satisfy these objectives by targeting a i 00% funded ratio, which is the ratio of the System's Actuarial Value of Assets divided by the System's Actuarial Accrued Liability, by 2049.

This Funding Policy also establishes the philosophy, objectives, and protocols of the Board as they pertain to setting annual rates for Employee Contributions, Cost-of-Living Adjustments (COLAs), and health care funding contributions.

This Funding Policy sets forth the System's strategy for achieving these objectives.

The execution of this Funding Policy should be accomplished in a manner that fulfills the statutory requirements of ORC Chapter 5505 and fairly represents the entire membership body. This Funding Policy will be actively managed as part of the decision-making process related to finances, benefits, fund balances, investment returns, revenues, and expenses to ensure it remains comprehensive and sound.

STRATEGIC PLAN:

The System adopted a Strategic Plan for years 2019-2024 which sets forth the mission, vision, values, goals, objectives, and performance measures to address future fiscal and health care challenges in an everchanging economic environment. A copy of the Strategic Plan can be found at https://www.ohprs.orq/ohprs/downloads/miscDocs/StrateqicPlanninq.pdf and the goals applicable to this Funding Policy have been restated below.

Goal #1 Ensure the financial soundness and effective management of the Highway Patrol Retirement System while maintaining an Amortization Period of no more than 30 years with a System design goal to reduce the Unfunded Actuarial Accrued Liability (UAAL) to a fully-funded System by 2049.

Goal #2 — Ensure continued financial soundness of the retiree Health Care Fund (HCF) with a System design policy goal to maintain a minimum 20-year funding balance by 2029 and be fully-funded by 2050 while maintaining a program that is valued and responsive to the needs of the members.

AMORTIZATION METHOD:

Based on the nature of the System's fixed-rate contributions, there is no explicit amortization method; instead, the funding period required to amortize any existing UAAL (such period, the "Amortization Period") is determined in conjunction with each Actuarial Valuation report. The Amortization Period is calculated as the present value of the expected contributions available to fund the UAAL each year, after considering the contributions allocated to fund the Normal Cost rate.

ORC Section 5505.121, Amortizing state highway patrol retirement system's unfunded actuarial accrued pension liabilities, states "the state highway patrol retirement board shall establish a period of not more than thirty years to amortize the state highway patrol retirement system's unfunded actuarial accrued pension liabilities. If in any year the period necessary to amortize the unfunded actuarial accrued pension liability exceeds thirty years, as determined by the annual actuarial valuation required by Section 5505.12 of the Revised Code, the board, not later than ninety days after receipt of the valuation, shall prepare and submit to the Ohio retirement study commission and the standing committees of the house of representatives and the senate with primary responsibility for retirement legislation a report that includes the following information:

A. The number of years needed to amortize the unfunded actuarial accrued pension liability as determined by the annual actuarial valuation; and

B. A plan approved by the board that indicates how the board will reduce the amortization period of unfunded actuarial accrued pension liability to not more than thirty years."

ESTABLISHMENT OF FUNDING BENCHMARK:

Since the Employer and Employees each contribute to the System at a fixed rate, it is imperative that the Board be aware of how these rates compare to a rate that is actuarially determined. In this section, an Actuarially Determined Contribution (ADC) benchmark will be created for comparative purposes only and will be constructed under the actuarial assumptions and methods identical to those disclosed in the annual Actuarial Valuation report.

In conjunction with each annual Actuarial Valuations the System's actuary will calculate the ADC benchmark by determining the fixed-rate contribution rates that would result in a 30-year Amortization Period. The System's actuary will also prepare a comparison of the ADC benchmark with the actual fixed contributions being received by the System each year.

OVERSIGHT AND MONITORING:

As part of its fiduciary duty, the Board will oversee and monitor the ongoing solvency of the System and the adequacy of the scheduled contribution rates. In doing so, the Board will take the following actions or arrange for them to occur:

Annual Actuarial Valuation — The Board shall have prepared annually by or under the supervision of an actuary an Actuarial Valuation of the pension assets, liabilities, and funding requirements of the System as established pursuant to Section 5505.12 of the ORC.

Review of Actuarial Assumptions — The Board shall, at least once in each five-year period, have prepared by or under the supervision of an actuary an actuarial investigation of pertinent actuarial assumptions used in the Actuarial Valuation report as established pursuant to Section 5505.12 of the ORC.

Deferred Retirement Option Plan (DROP) Analysis — The Board shall, at least once in each five-year period, have prepared by or under the supervision of an actuary an actuarial investigation of the DROP established under Section 5505.50 of the ORC. The investigation shall include an examination of the financial impact, if any, on the retirement system of offering the plan to members as established pursuant to Section 5505.12 of the ORC.

Review of Funding Policy The Board will review this Funding Policy periodically, but no less frequently than in connection with any actuarial experience study.

BENEFIT / CONTRIBUTION IMPROVEMENTS:

In 2012, Amended Substitute Senate Bill 345 granted the Board the authority to set Employee Contribution Rates and grant Cost-of-Living Adjustments as the Board deems necessary to comply with the annual Actuarial Valuation requirements of ORC 5505.121.

This section establishes protocols of the Board as they pertain to, but not limited to, setting annual rates for Employee Contributions, COLAs, and health care funding contributions. A primary objective stated with respect to Goal #1 of the above referenced Strategic Plan is to create a funding policy that will fairly and equitably address the annual setting of Employee Contribution and COLA

The procedure outlined below provides the Board adequate direction regarding how, when, and if modifications to benefits or contributions will be made by establishing clear pre-defined criteria and defensible parameters which can be communicated to all stakeholders. To the greatest extent possible, the established guidance will produce a decision-making process for the Board which relies on quantitative results. The analysis will be performed by the System's actuary following completion of the annual Actuarial Valuation report.

A decision tree summarizing the step-by-step analysis outlined below and several examples are also included in this section.

ANALYSIS:

Step 1 — Determine if current Actuarial Valuation resulted in Amortization Period (using Market Value of Assets) which yields no negative amortization

If there is negative amortization, there is no availability for improvements. If negative amortization does not exist, move on to Step 2.

Step 2 — Determine collective adjustment amount available for improvements

A. Determine increase in Actuarial Accrued Liability available such that Amortization Period after improvement yields no negative amortization

B. Employ Sensitivity Analysis (aka "Stress Test")

Determine if Amortization Period remains under 25 years if System realizes a 0% investment return for two years immediately following valuation date

i. If yes, determine increase in Actuarial Accrued Liability available (as of valuation date) ii. If no, there is no availability for improvements

C. The amount available for improvements is redetermined by taking the lesser of the results from Step 2A and 2B.

Step 3 — Determine amount available for retirees in form of COLA

Lesser of:

A. 45% of total amount available for improvements (as determined in Step 2C)
B. Increase in Actuarial Accrued Liability associated with COLA which is equal to the change in Consumer Price Index (CPI) over valuation year (maximum of 3%)

Step 4 — Determine amount available for active employees in form of contribution rate reduction

Active allocation is equivalent to retiree allocation (as determined in Step 3).

Convert the allocation to Employee Contribution Rate reduction by spreading available amount over Present Value of Future Salaries.

Step 5 — Determine amount available for health care funding contribution

Lesser of:

A. 10% of total amount available for improvements (as determined in Step 2C)
B. $5.0 million

NOTE — Allocation to Health Care Fund will be made only if the Health Care Fund is projected to be insolvent in fewer than twenty (20) years.

Appendix D

Assumed Rates of Return

System Discount Rates used in Valuations

Year	PERS	STRS	SERS	OP&F	HPRS	NASRA Median[71]
1999	8.00%	7.50%	8.25%	8.25%	8.00%	
2000	8.00%	7.75%	8.25%	8.25%	8.00%	
2001	8.00%	7.75%	8.25%	8.25%	8.00%	8.00%
2002	8.00%	7.75%	8.25%	8.25%	8.00%	8.00%
2003	8.00%	8.00%	8.25%	8.25%	8.00%	8.00%
2004	8.00%	8.00%	8.25%	8.25%	8.00%	8.00%
2005	8.00%	8.00%	8.25%	8.25%	8.00%	8.00%
2006	8.00%	8.00%	8.00%	8.25%	8.00%	8.00%
2007	8.00%	8.00%	8.00%	8.25%	8.00%	8.00%
2008	8.00%	8.00%	8.00%	8.25%	8.00%	8.00%
2009	8.00%	8.00%	8.00%	8.25%	8.00%	8.00%
2010	8.00%	8.00%	8.00%	8.25%	8.00%	8.00%
2011	8.00%	8.00%	7.75%	8.25%	8.00%	7.95%
2012	8.00%	7.75%	7.75%	8.25%	8.00%	7.90%
2013	8.00%	7.75%	7.75%	8.25%	8.00%	7.75%
2014	8.00%	7.75%	7.75%	8.25%	8.00%	7.75%
2015	8.00%	7.75%	7.75%	8.25%	8.00%	7.50%
2016	7.50%	7.75%	7.50%	8.25%	7.75%	7.50%
2017	7.50%	7.45%	7.50%	8.00%	7.75%	7.50%
2018	7.20%	7.45%	7.50%	8.00%	7.75%	7.50%
2019	7.20%	7.45%	7.50%	8.00%	7.25%	7.25%
2020	7.20%	7.45%	7.50%	8.00%	7.25%	7.25%
2021	6.90%	7.00%	7.00%	8.00%	7.25%	7.00%
2022	6.90%	7.00%	7.00%	7.50%	7.25%	7.00%

[71] NASRA Issue Brief: Public Pension Plan Investment Return Assumptions (March 2023) (https://www.nasra.org/files/Issue%20Briefs/NASRAInvReturnAssumptBrief.pdf)