MainePERS
PUBLIC EMPLOYEES RETIREMENT SYSTEM

CHIEF EXECUTIVE OFFICER
Dr. Rebecca M. Wyke

February 10, 2021

Senator Matthea Daughtry, Senate Chair
Representative Mike Sylvester, House Chair
Members, Joint Standing Committee on Labor and Housing
100 State House Station
Augusta, ME 04333-0100

Re: Pension Designs Based on Participation in Social Security

Dear Senator Daughtry, Representative Sylvester, and Members of the Joint Standing Committee on Labor and Housing:

I am pleased to submit the enclosed report on Pension Designs Based on Participation in Social Security, which is required by Resolves 2021, chapters 66 and 72.

We look forward to assisting the Committee in its review of the report.

Sincerely,

Dr. Rebecca M. Wyke
Chief Executive Officer

RMW/mg

Enclosure

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Resolves 2021, Chapters 66 and 72 – Report to the Joint Standing Committee on Labor and Housing

Pension Designs Based on Participation in Social Security

MainePERS
PUBLIC EMPLOYEES RETIREMENT SYSTEM

February 10, 2022
Prepared by: Maine Public Employees Retirement System

Contents

Acknowledgements

Sponsors

The sponsors of Resolve 66 provided the opportunity to review options to improve retirement benefits for MainePERS members and recruitment and retention opportunities for state government and schools.

Senator Maxmin, Sponsor

Co-Sponsors

Senator Hickman

Senator Stewart

Representative Brennan

Representative Fecteau

Representative McCrea

Working Group

The working group provided review of the Plan Option framework. Their participation was valuable in assessing the plan design's impact on employees' ability to create an income in later life and on employers who pay for part of this benefit and who use retirement plans to recruit and retain employees:

Senator Chloe Maxmin, Maine State Legislature

Rachelle Johnson, Maine Education Association

John Kosinski, Maine Education Association

Deborah Roberts, Maine School Management Association

Dean Staffieri, Maine Service Employees Association

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Executive Summary

"Provide a sound retirement benefit at a reasonable cost that can be sustained without change through each member's lifetime"

The 130th Maine Legislature directed the Maine Public Employees Retirement System (MainePERS) and a working group, representing public employers and employees, to work together to develop new designs for public employee pensions based on participation in Social Security. Resolve 66 further directed that the new plan options should have comparable benefits to the current State Employee and Teacher Retirement Program (State/Teacher Plan).

Working group members have not taken positions on the plan options presented. They encourage additional legislative discussions. Each stakeholder group involved in the conceptual plan design reserves the right to discuss this further before taking a position.

The working group's efforts, as directed by the Resolve, build on two similar efforts conducted over the last decade. The lengthy reports submitted on those efforts included specific plan designs, implementation schedules, and technical information about how the plans would work.

This effort and report intentionally differs from those. It provides a conceptual, not final, design framework modeling variable plan design provisions with associated projected costs with the goal of encouraging additional questions and conversation. The plan design provisions used to create the examples in this report can be easily changed to create different benefit levels or costs. Designing a new retirement plan is a time-intensive effort that done correctly requires months of extensive stakeholder engagement until a design that works for all can be finalized. Consequently, this report does not include an implementation plan because such a plan first requires more detailed determinations.

A key difference between this effort and the prior two is the timing. The final payment on a 1996 State/Teacher Plan unfunded actuarial liability (UAL) schedule will occur in 2028. One of the uses for part of this savings is to strengthen the legacy State/Teacher Plan for current employees and to move into Social Security for new employees. Maine is in a unique position among peers to make this move in 2029 without a negative impact on the existing budget. Absent this change, Maine State/Teacher Plan employers will contribute less toward retirement of their employees than Social Security requires of all private sector and most public sector employers.

The conceptual framework design in this report starts by integrating state and teacher employment into Social Security. This provides a partially portable benefit because Social Security credits stay with the employee as they move between jobs. It also expands the pool of applicants for recruitment by eliminating the prospective impact of the Windfall Elimination Provision (WEP) and Government Pension Offset (GPO). (See Attachment 2.)

Two supplemental plan options, each of which when combined with Social Security benefits can create a benefit comparable to the current State/Teacher Plan, completes the conceptual framework.

The first option is a supplemental defined benefit plan similar in design to the State/Teacher Plan. It provides approximately one-half of the State/Teacher Plan benefit, which, when combined with Social Security, creates a benefit comparable to the State/Teacher Plan. It provides familiarity and continuity with the current retirement benefit.

The second option is a supplemental cash balance plan, which provides an account balance for each employee that converts to a lifetime annuity at retirement. Cash balance plans operate in a manner similar to defined contribution plans without placing the investment or longevity decisions on the member. This option has been similarly structured to provide approximately one-half of the State/Teacher Plan benefit and greater portability than the State/Teacher Plan.

Full equivalency between the State/Teacher Plan and the new options combined with Social Security is not possible. This is because Social Security benefits are means-weighted toward individuals with lower lifetime earnings. Supplementing Social Security with a uniform benefit such as a defined benefit or cash balance plan naturally creates differences in comparability between employees. As a result, benefit levels for the supplemental plans were designed to create comparable or greater benefits for most employees.

Although Resolve 66 did not request options to soundly maintain the State/Teacher Plan benefits going forward, the report does offer some suggestions to ensure the plan will continue to support current members and retirees throughout their retirement at a reasonable cost.

This report also addresses Resolve 72, which directed MainePERS to examine allowing teachers to participate in Social Security. This is a narrower scope than designing new retirement plans specifically to enable teachers to enter Social Security.

Resolve 66 – Public Pension Plan Options

The 130th Maine Legislature passed Resolve 66 in June 2021 directing MainePERS to convene a working group to investigate public pension options. (See Attachment 1).

Resolve 66 directed that MainePERS convene a working group of representatives of public employers and employees to work together to develop new designs for public employee pensions based on participating in Social Security. The resulting benefits should be comparable to those provided by the current State/Teacher Plan.

The Resolve also requested that this work build on a previous effort to design a plan based on Social Security, specifically the work performed pursuant to Public Law 2011, chapter 380, Part U. A second similar effort was completed in 2018 directed by Resolve 2017, Chapter 14.[1] This report builds on both previous efforts.

Changing retirement plans is a massive undertaking. This report should not be viewed as having developed a fully-designed plan with all of the answers on what changes to make. Instead, it should be viewed as a conceptual framework that is just the first step in a lengthy journey toward developing and implementing retirement plans that best meet the needs of state employees, teachers, and their employers. This journey requires extensive discussions and listening to stakeholders with the goal of providing a sound retirement benefit at a reasonable cost that can be sustained without change through each member's lifetime.

Because this represents the first step in the design process, the report does not address specifics such as special plans. Further, it is written to pique curiosity and encourage the in-depth discussion needed to move forward, not to answer all questions. Consequently, this report does not include an implementation plan because such a plan first requires more detailed determinations.

Three key factors are important in understanding the framework presented in the following pages:

- The overall goal of the design is to provide a sound retirement benefit at a reasonable cost that can be sustained without change through each member's lifetime;
- The framework is the important part of the design. The plan design provisions used to create the examples in this report can be easily changed to create different benefit levels or costs; and
- The design of all retirement plans offered by the State of Maine and Maine schools should be designed to be sustainable into the future without change to ensure predictability for employers, members and retirees.

This report includes information about the current State/Teacher Plan's benefits and costs as well as comparisons with options that provide a comparable benefit. The report also attempts to provide thorough, but brief descriptions in the body of the report with more detail in the attachments.

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[1] https://www.mainepers.org/wp-content/uploads/pdfs/bond-disclosure/State-Teacher-Report-to-the-Appropriations-Committee-4.9.18-FINAL.pdf.

Working Group Plan Design Goals

The working group set goals for the plan options that address the challenges of creating a secure retirement for members at a reasonable cost for both members and employers.

- Provide benefits that can attract the employees needed in a wide variety of careers while acknowledging their career goals may or may not be long-term employment;
- Provide predictable and reliable retirement benefits to career employees or those in the later stages of their careers with the goal of making it as close to the current benefit as possible;
- Provide plan benefit levels that are flexible and can be increased in the event Social Security benefit levels are reduced;
- Provide retirement benefit portability to short-term employees or those who work in state government/teaching only in the early years of their careers;
- Provide attractive retirement benefits at an affordable and predictable cost to both employers and employees;
- Integrate employer and employee risk-sharing into all options so that both parties have a positive outcome from the retirement plans offered; and
- Insulate the plan from future benefit level reductions.

State/Teacher Plan History

The State of Maine created the State/Teacher Plan in 1942. Membership in the plan is required for all State employees and qualifying educators identified in state law.

Participation in Social Security is not part of the State/Teacher Plan. Social Security payments of 6.2% for employers and 6.2% for employees are not required for government employees if they: (1) are not in a position that is covered by a Section 218 Agreement; and (2) are a member of a Social Security replacement plan.

The State has maintained this plan as a Social Security replacement plan and has never entered into a Section 218 Agreement covering members of this plan.[2]

This plan faced severe underfunding in the 1980s. A constitutional amendment introduced in the early 1990s strengthened the plan funding going forward. The amendment that passed in 1995 requires: (1) the payoff of the 1996 UAL by 2028; (2) all future actuarially determined annual payments be made each year; and (3) no new retirement benefits can be added to the plan unless fully funded in the year they are awarded.

Social Security Coordination

The WEP and the GPO frequently reduce the Social Security benefit earned by retirees who are also receiving a benefit from a public retirement plan for employment not covered by Social Security. (See Attachment 2). These offsets are one of the key issues state and federal officials hear about from their constituents.

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[2] MainePERS report on Resolves 2021, Chapter 84, https://www.mainepers.org/wp-content/uploads/2022/01/MainePERS-Resolve-2021-Chapter-84-Report.pdf.

State/Teacher Plan Costs

Defined benefit plans have two types of costs. The first is the normal cost, or the annual cost of the benefits currently accruing. The second is the unfunded actuarial liability (UAL) cost, or annual payment toward eliminating any prior shortfall between plan assets and accrued liabilities.

Most State/Teacher Plan employees pay 7.65% of their pay toward plan normal costs. Employers pay the remaining normal costs, which in FY 2022 range between 3.84% of payroll for teachers and 4.08% of payroll for regular state employees. These normal cost rates are expected to increase to 4.44% and 4.81%, respectively, in future years based on the latest valuation results. The State of Maine pays the UAL cost for all plan participants. The UAL rate for FY 2022 is 15.73%.

The UAL rate is anticipated to be substantially lower in FY 2029 after the 1996 UAL is paid down in FY 2028. The elimination of this legacy Plan debt, however, is not the same as reaching full funding of the State/Teacher Plan. This is because the UAL contribution consists of layered amortization schedules: one for the 1996 UAL, and one for each year in the current amortization model.[3] Each June 30th a new layer, or gain or loss from that year, is added to the schedule, and the oldest layer is retired. The funding level of the Plan will depend on the gains and losses in these amortization schedules.[4]

See Attachment 3 for more information on State/Teacher Plan funding history and projected future costs.

Understanding the State/Teacher Plan

Understanding the State/Teacher plan as it matures (i.e., retirees outnumber actives) and approaches full funding is important in considering and developing new plan options based on Social Security participation.

Strengths of the State/Teacher Plan include:

- The Plan provides retirement income replacement in relation to years worked;
- The combined employer and employee normal, or basic, costs are reasonable and similar to Social Security costs;
- The constitutional guards are sound risk protection measures for members and employers absent catastrophic market losses such as the 2009 Great Recession;
- Annual payment of actuarially calculated contributions is required;
- New benefits must be fully funded in the year awarded; and
- Investment and experience gains/losses are amortized over 20 years.

Challenges for the State/Teacher Plan include:

- Employees pay approximately 2/3 of the plan normal costs, with employers paying lower normal costs than they would under Social Security;

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[3] In addition to the initial 1996 layer, there are currently 10 amortization layers, increasing to 20 by 2027. The amortization period changed from 10 to 20 years in 2017. The new schedule started in 2012.

[4] MainePERS Actuarial Valuation Report, pages 32 and 33, https://www.mainepers.org/wp-content/uploads/pdfs/actuarial-valuation-reports/2021/MainePERS_2021-SandT-AVR_2021-10-14_vs.pdf.

- The cost-of-living adjustment (COLA) base, $23,636 for the COLA to be applied in September of 2022, provides less inflation protection for retirees with higher benefits levels;[5]
- A higher plan funding ratio increases funding vulnerability because the plan will lose more total dollars in a market downturn than if the funding ratio were low, creating greater budget disruption when losses occur;
- The aging retiree population will soon outnumber the active members over which future funding losses are spread; and
- The low-interest rate climate makes it more difficult to earn the assumed 6.5% investment return year-over-year without funding volatility.

Other considerations include:

- The State/Teacher Plan design favors career employees or those entering the plan mid- or late career and retiring from the plan;
- Shorter-term employees or those entering the plan early in their career and leaving mid-career or earlier receive a benefit that does not keep up with inflation;
- Employees that accumulate less than five years of service do not vest in the plan – they not only lose retirement benefits from the plan, but also forego any Social Security credits they could have earned during that time;
- Inability to earn Social Security credits can inhibit recruitment of candidates who do not want their Social Security benefits reduced by the WEP or GPO; and
- Members and retirees who have earned Social Security benefits in other employment are frequently unhappy about the impact of the WEP and the GPO on their Social Security benefits.

The State/Teacher Plan has strengths not contained in most traditional defined benefit plans. The wisdom of the 1995 Constitutional Amendment addressing plan underfunding helped the State/Teacher Plan maintain its path of funding improvements while navigating the financial turbulence from two recessions in the first decade of the 21st century. (See Attachment 3).

Many traditional defined benefit plans suffered more challenging funding setbacks from the market volatility of the first decade of this century than did the State/Teacher Plan. This is because their liabilities, or benefits owed, increased not only due to increased member longevity, but to new benefits awarded in the high market returns of the 1990s. Challenges facing all pension plans further increased the strain on funding levels as sustained low interest rates required either the investment of a larger portion of trust fund assets in higher risk equities or the lowering of assumed investment returns and consequently increasing plan costs.

One-Time Opportunity

The State of Maine is in an unusual position among peer plans that do not participate in Social Security. Peer plans are not seeking to enter Social Security because the added 6.2% cost for employees and employers would be a budgetary hardship. Maine, on the other hand, is facing a substantial employer retirement plan cost reduction in FY 2029 and subsequent years when the 1996 UAL is paid down.

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[5] The COLA is calculated annually as the Consumer Price Index for Urban Consumers (CPI-U) up to 3% of the first $20,000 of benefit indexed for each COLA awarded.

This substantial decrease in annual UAL costs provides an opportunity to implement new plan designs that, while increasing ongoing basic retirement benefit costs, still provide overall cost reductions when compared to historical State/Teacher Plan costs. This opportunity is likely to exist only in FY 2029 when the reduction occurs and before the funds are used for other purposes.

The following options have been designed to reduce overall costs, improve the retirement benefit, and maintain employee contributions at their current levels.

Public Pension Plan Options

The working group reviewed various options, including a framework similar to that submitted in 2018. The framework in this report takes a different approach from the 2018 report, selecting a cash balance plan option (See Option 2 below) instead of a defined contribution option. Defined contribution plans have traditionally shifted all plan risks to the member. The Option 2 cash balance plan, which operates in a similar way to a defined contribution plan, differs in that it creates a predictable retirement account balance that can be used for retirement planning.

Option 1 – Traditional Defined Benefit Plan with Social Security

Option 1 is a defined benefit plan based on the current State/Teacher Plan design. This option is designed to provide approximately one-half the benefit of the State/Teacher Plan, which when added to Social Security benefits provides an equivalent benefit to the State/Teacher Plan for members at the point of retirement.

The Option 1 retirement benefit is calculated the same way the State/Teacher Plan benefit is calculated.[6] The terms of Option 1 are the same as the State/Teacher Plan with the exception of three key provisions:

- The multiplier per year worked is 1% instead of 2%;
- The COLA is the CPI-U up to 3% of the entire benefit instead of the CPI-U up to 3% of the COLA base ($23,626 for the COLA to be applied in September of 2022); and
- Both employee and employer contributions are variable, with rate collars around each that prevent rates from going too high or too low – actuarially calculated rates that are greater than the maximum rates phase into retiree COLAs and phase out again as financial markets recover.

The rate structure differs from the State/Teacher Plan where employee rates are fixed and employer rates vary. MainePERS developed and implemented this variable rate structure in the Participating Local District Consolidated Retirement Plan (PLD Plan) in 2018. The Society of Actuaries and the American Academy of Actuaries have both recognized this design for the ability to manage risk and provide promised benefits and COLAs throughout each member's lifetime while controlling cost.[7] The benefits of this design include:

- Risk is shared among employers, employees and retirees without any one group bearing a disproportionate risk;

[6] The average of the highest 3 years of salary X years worked X multiplier.

[7] https://www.soa.org/resources/announcements/press-releases/2018/retirement-20-20/ and https://www.actuary.org/Retirement-for-the-AGES.

- Employees share in rate decreases as well as increases with minimal risk of benefit loss; and
- Retirees are protected from permanent COLA decreases or COLA freezes absent a catastrophic financial downturn.

Strengths and Challenges

The strength of this option is its similarity to the State/Teacher Plan. This makes it easy for employees to understand and for human resource personnel to manage.

The primary challenge of this option is that it favors career employees or those entering the plan mid- or late career and retiring from the plan, and can leave shorter-term employees with a less valuable benefit.

Option 2 – Cash Balance Plan with Social Security

Option 2 is a cash balance plan. Similar to Option 1, Option 2 is designed to provide approximately one-half the benefit of the State/Teacher Plan, which when added to Social Security benefits provides an equivalent benefit to the State/Teacher Plan for most members at the point of retirement.

How Cash Balance Plans Work

Cash balance plans operate in a manner similar to defined contribution plans, but differ in that they provide a predictable benefit at retirement. Cash balance plans offer an alternative way to create a secure lifetime benefit. They maintain a ledger, or notional account, for each employee. These notional accounts grow during employee working years through:

- An annual contribution, or Annual Account Credit, calculated as a percent of pay (We have used an Annual Account Credit of 9.5% of pay for purposes of creating a comparable benefit to the State/Teacher Plan, but other rates can be used); and
- Annual interest on the existing account balance called the Annual Interest Credit (We have used an Annual Interest Credit rate of 5.0% during employment and a rate based on treasury rates after termination for purposes of plan sustainability and creating a comparable benefit to the State/Teacher Plan, but other rates can be used).

Retiring employees whose account balances are converted to a fixed annuity with a COLA (CPI-U up to 3%) receive 100% of their Annual Account Credits. Employees withdrawing from the plan receive only their own contributions and part of the Annual Account Credits based on a graduated vesting schedule if offered by the employer.

Although similar in form to defined contribution plans that grow over time, cash balance plans are considered defined benefit plans. This is because the member's retirement account balance and monthly benefits during retirement do not depend on investment performance, only on pre-determined Annual Account Credits and Annual Interest Credits.

Cash balance plan participants avoid the investment and longevity risk built into defined contribution plans. Similar to traditional defined benefit plans such as the State/Teacher Plan or Option 1, cash balance plans can develop UALs and must be properly structured and funded.

How Employer and Employee Contributions to Cash Balance Plans Work

Employer and employee contributions to fund the cash balance plan are actuarially determined based on the expected cost of the benefits. Similar to Option 1 and the State/Teacher Plan, plan contributions are shared between employees and employers. Option 2 uses the same variable rate method included in the Option 1 design.

Strengths and Challenges

Broad flexibility exists for structuring cash balance plans. Option 2 has been designed to provide a secure lifetime benefit while enhancing portability for shorter-term employees or those leaving state or educator service early in their careers. Specific provisions in this model include:

- A graduated employer contribution vesting scale allowing shorter-term employees to earn some of the employer contribution when terminating and rolling their account balance over to another qualified retirement account. Members retiring from the plan retain 100% of their employer contributions;
- A rate sharing structure similar to Option 1 to minimize plan risk to members and employers; and
- Mandatory annuitization of funds in each individual member's account at retirement to provide a lifetime income.

The strength of this design is its flexibility and the pooling of investment and mortality risk, similar to Option 1 and the State/Teacher Plan. Option 2 provides a secure lifetime benefit for long-term employees while enhancing benefit portability for shorter-term employees.

The challenges to this plan include its unfamiliarity. Adopting Option 2 requires extensive education for members, employers, and human resource managers. However, cash balance plans, when properly structured, provide a positive retirement plan experience and benefit for members.

See Attachment 4 for more information on cash balance plans.

Benefit Levels, Contributions and Cost Comparisons

Benefit Levels

Comparison of benefit levels between the legacy State/Teacher Plan and Options 1 and 2 is challenging. One reason is that Social Security is means-weighted towards individuals with lower lifetime earnings or fewer years worked. Incremental increases in the Social Security benefit earned, therefore, decrease with each additional dollar earned or year worked.

In addition, Social Security is based on career earnings and is not easily attributed to different employers. While we developed and used a methodology to attribute a portion of an individual's Social Security benefit to their service under Options 1 and 2, these remain estimates and should be viewed as such.

Another reason for variability in benefits depends on when the employee leaves service. The traditional defined benefit plan retirement benefit depends on final average salary, with all years of service providing the same benefit. The cash balance plan benefit, on the other hand, is based on compounding interest so an Annual Account Credit earned at age 25 will provide a larger benefit than the same Annual Account Credit earned at age 40. In other words, the traditional defined benefit design of Option 1 has a different benefit accrual pattern than the cash balance design of Option 2. The cash balance plan has a similar accrual pattern to a defined contribution plan.

The example in Table 1 is an employee who works a full 25-year career in two different scenarios to demonstrate the variability in the comparisons.

Table 1 – Benefit Comparisons for 25 Year Career and Retirement at Age 65

	Legacy State / Teacher Benefit	Option 1 Defined Benefit + Social Security	Option 2 Cash Balance + Social Security
Terms			
Multiplier	2%	1%	
Annual account credit			9.5%
Annual interest credit			5.0%
Start at age 25, Leave at 50			
Starting Salary $35,000	$32,700	$38,900	$40,600
Starting Salary $60,000	$56,000	$60,100	$63,000
Starting Salary $90,000	$84,000	$83,600	$88,000
Start at age 40, Leave at 65			
Starting Salary $35,000	$32,700	$39,000	$36,100
Starting Salary $60,000	$56,000	$60,300	$55,300
Starting Salary $90,000	$84,000	$83,600	$76,100

Option 1 is similar to the Legacy Plan at a starting salary of $90,000. However, Option 1 provides a larger benefit at lower starting salaries. This is the result of the means-weighted nature of the Social Security benefit. Option 2 provides a larger benefit relative to Option 1 at the younger hire age but a smaller benefit at the older hire age due to the different patterns of benefit accrual described above.

The State/Teacher Plan COLA was changed in 2011 following the Great Recession, as were many other public retirement plan COLAs. The State/Teacher Plan COLA was reduced from the CPI-U up to 4% of the full benefit to the CPI-U up to 3% on the first $20,000 of benefits, $23,626 for the COLA to be applied in September of 2022. Both new plan options may provide a higher lifetime benefit because the COLA for these plans is the CPI-U up to 3% on the entire benefit. Social Security benefits also receive COLAs on the entire benefit.

Contributions

Contributions are structured differently under the legacy State/Teacher Plan and Options 1 and 2. The State/Teacher Plan has a traditional structure where employees pay a fixed percentage of their salary and the employer assumes 100% of the funding level risk. While this approach appears to insulate the employee from risk, the Great Recession demonstrated the risk to employees whose benefit levels changed when employers felt they could not afford the increase in costs from trust fund losses.[8]

[8] https://www.nasra.org/files/Spotlight/Significant%20Reforms.pdf.

As described earlier in this report, both Options 1 and 2 use a funding model developed for the PLD Consolidated Retirement Plan. In the PLD Plan, employees and employers share in total costs, normal and UAL, through variable rates based on annual rate calculations. Both have a "collar" around the rate they pay with a minimum and maximum rate established once the terms of the plans are determined. Excess contribution requirements from highly disruptive market losses are phased into and out of retiree COLAs, restoring full COLA eligibility when the markets recover. While full COLA's may not be paid during these disruptive markets, a partial COLA is highly likely. This method eliminates the need to reduce future benefits, freeze COLAs, or permanently reduce COLAs. Further, employees can share in extended strong markets through reductions in their contribution rate. This report does not attempt to determine appropriate contribution rate "collars". This is an area for further study before finalizing any design.

The PLD type of risk sharing arrangement is designed to be used under Options 1 and 2. However, until there are a sizable number of retired plan participants under each option, the phasing in and out of retiree COLAs will not be possible (existing State/Teacher Plan retirees will not participate in this risk sharing). Until that time, the establishment of a stabilization reserve can serve as a replacement for the COLAs phase ins and outs. This reserve can be funded through a portion of any earnings in excess of the 5% interest-crediting rate (i.e. 5%) plus an initial employer contribution to establish this stabilization reserve. Once established, the reserve can be tapped into whenever the required contribution exceeds the employer and or employee caps. Like the rate "collars", the terms of the stabilization reserve would be studied and designed when the terms of the new plans are developed.

MainePERS would continue to manage the trust funds for the new options along with the existing defined benefit plans. This would allow funds for the new options to be managed in the same fashion with the same low costs as existing assets and avoid having initial costs that are disproportionately high relative to the small starting fund asset levels that any new option would have.

Costs

The costs were developed using the current MainePERS assumptions for mortality, retirement age, inflation, earnings and others. These assumptions change over time in response to periodic experience studies or environmental factors. The costs for the new options as well as the State/Teacher Plan could therefore be higher or lower than the following modeled costs in the future.

Plan options using Social Security to provide an equivalent benefit have a higher normal cost than the State/Teacher Plan. This is primarily because Social Security adds a tax of 6.2% of total salary up to $147,000[9] for both employees and employers.[10] State employees and teachers already pay the 1.45% Medicare tax in addition to their state retirement plans costs.

However, Options 1 and 2 may or may not have a higher long-term cost because Social Security is paid at a fixed payroll tax rate. It other words, the Social Security tax rates will not automatically increase after poor experience, like a market crash. Additionally, while the new

[9] https://www.ssa.gov/benefits/retirement/planner/maxtax.html.

[10] The total payroll tax rate generally attributed to Social Security consists of a 6.2% Social Security tax and a 1.45% Medicare tax for both employers and employees.

plan options can incur UALs, they are likely to be less than would be incurred by the State/Teacher Plan because they provide approximately one-half of the benefit of the State/Teacher Plan.

Total Option 1 and Option 2 normal costs represent a noticeable increase over State/Teacher Plan normal cost. They do not, however, create additional cost compared to the current State/Teacher Plan costs that still include payments on the large 1996 UAL. While additional UALs could be incurred from market or experience losses between now and 2028, the total UAL expected annual cost will decrease by approximately $390m in FY 2029 (see Attachment 3). Coordinating the 1996 UAL payoff with a new plan design presents a unique opportunity to restructure the retirement program by participating in Social Security and increasing normal cost while total costs still decrease.

Table 2 demonstrates plan normal costs in 2029, modeled to reflect 100% of employees in each plan for cost comparison purposes only. Actual costs will differ as employees gradually enroll in the new plans over time.

Table 2 –2029 Normal Cost and Payroll Rate Comparisons Based on Projected Payroll and Expected Investment Returns of 6.50%

	Legacy State / Teacher Plan	Option 1 Defined Benefit + Social Security	Option 2 Cash Balance + Social Security
Normal Cost Payroll Rates			
Employer Social Security		6.20%	6.20%
Employer normal costs	4.60%	5.01%	4.61%
Total	4.60%	11.21%	10.81%
Employee Social Security		6.20%	6.20%
Employee normal costs	7.65%	1.45%	1.45%
Total	7.65%	7.65%	7.65%
Total	12.25%	18.86%	18.46%
Total Costs*			
Employer Social Security		$167m	$167m
Employer normal costs	$124m	$135m	$124m
Total	$124m	$302m	$291m
Employee Social Security		$167m	$167m
Employee normal costs	$206m	$ 39m	$ 39m
Total	$206m	$206m	$206m
Total	$330m	$508m	$497m

* These costs assume 100% of the employee population is in each plan.

Plan Design Flexibility

The benefit levels and costs of the two plan options depend on the plan design provisions used. Modifying these provisions changes the benefit and total cost of the plans.

For example:

- Option 1 could have a lower multiplier, such as .75% or .85% to accommodate the higher COLA, creating longer-term equivalency with the State/Teacher Plan; and
- Option 2 could have a lower Annual Account Credit or an Annual Account Credit that increases with service.

Consideration could also be given for flexibility of the current or legacy State/Teacher Plan through partial restoration of the 2011 COLA reduction. The COLA base in the State/Teacher Plan could be increased to $30,000 in 2029 through a one-time payment for the associated UAL of approximately $300M. This could be funded in part or in total by the FY 2029 cost decrease after the pay down of the 1996 UAL. Normal costs to fund new benefits earned going forward at the higher COLA base level would increase from 4.60% to 4.69% of payroll.

Employer Choice

One other option to explore is allowing employers the choice of staying in the State/Teacher Plan or entry into Social Security. This eliminates the need to select a one-size-fits-all retirement plan that may only fit part of the employer population. Not all of the current 238 State/Teacher Plan employers may be unanimous in their support for a change.[11]

The cost of entering Social Security is 6.2% for employers and 6.2% for employees. Some employers may wish to incur the additional cost of Social Security to expand their recruitment pool or enhance benefits available to employees by eliminating the WEP and GPO. Other employers may not want to incur the additional cost of Social Security, may want to offer the same plan to all of their employees to avoid the "haves and have nots" comparison among their staff, or may decide they like the current benefit better than the other options.

The downside of this approach is that it would complicate employee transferability between plans offered by employers with and without Social Security. Another downside is that this option could disadvantage recruitment for employers who believe their budget cannot absorb the increased cost.

Protecting the State/Teacher Plan

Maintaining the solvency and stability of the legacy, or current, State/Teacher Plan is a critical component of any new plan design. Steps that should be taken to preserve the plan viability depend on whether employers have the choice of entering Social Security and offering the new plan options to their employees or staying in the legacy State/Teacher Plan. An additional consideration to maintain the solvency is how to incorporate Options 1 and 2 into the retirement program. Options 1 and 2 could be incorporated into the legacy State/Teacher Plan as a new tier (particularly, Option 1 with its fundamentally similar benefit design) or managed as a separate plan. In either case, assets associated with Options 1 and 2 would need to be tracked separately for the proposed rate sharing structure.

Defined benefit plans are more vulnerable to market volatility as they mature and reach full funding. One reason is that in a market downturn the same plan that is 100% funded loses more actual dollars than if it were 40% funded. Another reason is that when a majority of members are in retired status, the rate at which money is going out of the plan to pay benefits is

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[11] June 30 2021 MainePERS Annual Comprehensive Financial Report, page 45, https://www.mainepers.org/wp-content/uploads/pdfs/annual-reports/ACFR21.pdf.

growing while the money coming into the plan from contributions is shrinking. Finally, as the plan matures, the investment losses are recovered through increased UAL payments. These increased UAL payments are recovered as a percentage of payroll. While the dollar amount to be recovered stays the same, recovering it as a percentage of payroll over a smaller active population increases the UAL rate paid on payroll.

Since the legacy State/Teacher Plan is maturing regardless of whether it is closed to new employees, the plan should be de-risked by lowering the earnings assumption on Plan assets from the current 6.5% to reflect the increasing ratio of retiree liabilities to active liabilities and the associated shorter investment horizon. Keeping in mind that lowering the discount rate increases normal costs, one approach would be to reduce the discount rate to 5.95%, which would increase projected FY 2029 employer normal costs from 4.60% to the 6.20% employer cost of Social Security. There would also be an additional UAL contribution of about $81 million over 20 years associated with a 2028 decrease in the discount rate from 6.50% to 5.95%.

If the legacy plan remains open and employers can choose whether or not to enter Social Security, the discount rate should be lowered to a level consistent with the portion of employers remaining in the plan to safely accommodate the aging of the plan. As discussed above, any decrease in the discount rate would increase ongoing costs.

One other consideration that should be given to members of this plan is to recognize that the 2011 COLA reductions were more substantial than needed to protect the plan at that time. Partially restoring the COLA, as discussed earlier in the section of this report on plan flexibility, is expensive. FY 2029 is an ideal opportunity to make a one-time payment to increase the COLA base, whether to $30,000 as earlier described or higher.

Resolve 72

Resolve 72 directs MainePERS to examine options and make recommendations to allow teachers to participate in Social Security while continuing to participate in the current State/Teacher Plan. The Resolve requires MainePERS to "consider and outline the process for amendment to the State's so-called Section 218 Agreement with the United States Social Security Administration" and "develop implementation timelines and outline statutory and other changes necessary" for implementation.

There are two options for providing Social Security coverage to state or local governmental employees. First, Social Security coverage is mandatory if the employees are not covered by a retirement plan that meets certain requirements that are set out in federal regulation.[12] As the State/Teacher Plan does meet these requirements, Maine teachers are not subject to mandatory Social Security coverage. This option is not considered further in this report because Resolve 72 is premised on continued participation in the State/Teacher Plan.

The second option is providing Social Security coverage through an agreement with the Social Security Administration under Section 218 of the Social Security Act (a "218 Agreement").[13] This option would require a change in Maine law, a majority of eligible teachers voting in favor of Social Security coverage, and a modification of Maine's existing 218 Agreement.

History of Social Security Coverage for Maine Governmental Employees

The Social Security Act of 1935 excluded state and local government employees from Social Security coverage because of concerns about the federal government's authority to tax state and local governments and their employees. An amendment to the Act in 1951 permitted states to enter into voluntary agreements with the federal government to provide Social Security coverage to these employees. All 50 states have 218 Agreements providing some degree of coverage for their governmental employees.[14]

Title 5, Maine Revised Statutes, Chapter 431 authorizes Maine's entry into a 218 Agreement. The authority does not currently extend to providing coverage for teachers who are members of the State/Teacher Plan.[15]

Maine entered into a 218 Agreement with the Social Security Administration on December 3, 1951 to provide coverage for certain local government employees. The Agreement has since been modified a total of 328 times to expand or clarify coverage.

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[12] Federal State Reference Guide, IRS Publication 963, July 2020, https://www.irs.gov/pub/irs-pdf/p963.pdf, page 53.

[13] 42 U.S.C. § 418.

[14] Federal-State Reference Guide, page 1.

[15] 5 M.R.S. § 19001.

Process for Providing Coverage under the 218 Agreement

The first step for providing coverage would be to amend Title 5, Chapter 431 to authorize teachers who are members of the State/Teacher Plan to be covered by the 218 Agreement.

Once that authority is in place, federal law requires a referendum to be conducted among the group to be covered.[16] The referendum can pass only if a majority of those who are eligible to vote cast a vote in favor of Social Security coverage.[17] If the referendum does not pass, the 218 Agreement cannot be modified to provide coverage.

That means that here, to provide coverage for all teachers, a referendum would have to be conducted of the approximately 28,000 teacher members of the State/Teacher Plan, and a majority, approximately 14,000, would have to vote in favor of Social Security coverage. Teachers who voted against coverage and those who did not vote would be counted against coverage.

Alternatively, referenda could be conducted by school unit.[18] Social Security coverage would be provided only for those units where a majority of teacher-members vote in favor of coverage.

Following a successful referendum, Maine would have to enter into a modification of its 218 Agreement with the Social Security Administration. We understand that the Social Security Administration can take up to two years to review a proposed modification.

Once a 218 Agreement modification is executed, coverage can begin. Both employers and covered employees must pay employment taxes of 6.2% of wages for Social Security coverage up to a maximum wage amount that is adjusted annually for changes in cost of living.[19] For 2022, the maximum is $147,000.[20] Federal law permits but does not require coverage to be retroactive for up to five years.[21]

Timeline for Implementation

As noted above, the first step would be to amend Title 5, Chapter 431 to authorize teachers who are members of the State/Teacher Plan to be covered by the 218 Agreement.

Following that statutory change, it is estimated that nine months to a year would be required for planning, coordination with the Social Security Administration, and conduct of a single state-wide referendum or referenda by school unit.

This would be followed by preparation of modification documents and up to two years for review by the Social Security Administration.

The entire process outlined above could take more than three years after statutory authorization.

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[16] Federal-State Reference Guide, page 40.

[17] Under federal law, some states do not have this majority requirement. In those states, those voting in favor of coverage and all future employees are covered, and those voting against coverage remain without Social Security coverage. *See* Federal-State Reference Guide, page 40. A change in federal law would be required for Maine to become a divided-vote state.

[18] Federal-State Reference Guide, page 40.

[19] Federal-State Reference Guide, pages 14-15.

[20] https://www.ssa.gov/news/press/releases/2021/#10-2021-2.

[21] http://policy.ssa.gov/poms.nsf/lnx/1930001375.

Glossary

Actuarial Liability (AL)

The AL equals the present value, at the time of the valuation, of the future benefit payments less the present value of future employer normal cost contributions and future member contributions. Alternatively, the AL represents the value of past normal costs with interest to the valuation date.

Annual Account Credit

The Annual Account Credit is the annual accrual to an individual member's Cash Balance account. The Credit is calculated as a percent of pay. The Annual Account Credit will differ from the cash contribution to the plan because the Cash Balance account is a notional account maintained only for benefit calculation purposes and is not a separate individual account within the assets. No Annual Account Credits occur after termination from employment. In addition to the Annual Account Credit, an individual's Cash Balance account will grow with the Annual Interest Credit. At retirement, the member's benefit will be based on the accumulated Annual Account Credits and Annual Interest Credits.

Annual Interest Credit

The Annual Interest Credit is the annual interest credited on an individual employee's existing Cash Balance account. The interest-crediting rate can be a fixed percentage and is not necessarily tied to plan investment performance. Annual Interest Credits occur both before and after termination from employment. In addition to the Annual Interest Credit, an individual's Cash Balance account will grow with the Annual Account Credit. At retirement, the member's benefit will be based on the accumulated Annual Account Credits and Annual Interest Credits.

Consumer Price Index for All Urban Consumers (CPI-U)

The CPI-U is a measure of price inflation compiled by the U.S Department of Labor's Bureau of Labor Statistics (BLS). The CPI-U measures the average change in the prices paid by urban consumers for a basket of goods and services. This index is used by the State/Teacher Plan to determine COLAs.

Cost-of-Living Adjustments (COLAs)

COLAs are postretirement increases to retirees' benefits intended to offset the impact of inflation since retirement. The State/Teacher Plan provides an annual COLA equal to the percentage change in the Consumer Price Index for All Urban Consumers (CPI-U), but not more than 3% per year. The COLA is applied to the portion of the benefit that is not in excess of a COLA base that grows annually with the same adjustment as the COLA. In 2022, the COLA base is $23,636.

Experience Gains and Losses

Experience gains and losses are the difference between actual experience and that expected based on a set of actuarial assumptions during the period between two actuarial valuation dates. Actuarial assumptions include economic assumptions, such as the investment rate of return, and demographic assumptions, such as retirement and mortality rates. Actual experience will never conform exactly to the assumptions and may differ significantly from the assumptions.

Government Pension Offset (GPO) See Attachment 2.

Normal Cost

The Normal Cost is the portion of the present value of future benefit payments at the value date that are allocated to the valuation year by the actuarial cost method. The State/Teacher Plan uses the Entry Age Normal (EAN) actuarial cost method. Under this method, the present value of future benefit payments for each individual is allocated on a level basis over the individual's earnings between plan entry age and assumed exit ages. As a result, an individual's Normal Cost is expected to remain a level percent of pay throughout that individual's career.

Unfunded Actuarial Liability (UAL)

The UAL is the Actuarial Liability (AL) less current assets. A negative UAL is a surplus. The UAL can be calculated using either the Market Value of Assets (MVA) or an Actuarial Value of Assets (AVA) that smooths out fluctuations in market values. The State/Teacher Plan uses an AVA to develop the UAL contribution, or amortization payment. The UAL amortization payment is the amount expected to amortize the UAL according to the plan's amortization policy. The State/Teacher Plan uses a level percent of pay method with payroll assumed to increase at 2.75% annually.

Windfall Elimination Provision (WEP) See Attachment 2.

Attachment 1 – Resolves 66 and 72

Resolve 66

Sec. 1. Maine Public Employees Retirement System to convene working group. Resolved: That the Maine Public Employees Retirement System shall convene a working group of representatives of public employers, including the State and school administrative units, and public employees, including the Maine Service Employees Association and the Maine Education Association, to work together to develop new designs for public employee pensions that are based on social security and have comparable benefits to the current defined benefit plan. The working group shall build on work completed by the working group that was convened pursuant to Public Law 2011, chapter 380, Part U to refine and further develop options. The Maine Public Employees Retirement System shall submit to the Legislature no later than December 1, 2021 a report containing options for public pensions developed by the working group and proposed plans and timelines for implementation.

Resolve 72

Sec. 1. Develop plan for teachers to collect social security. Resolved: That the Maine Public Employees Retirement System shall examine options and make recommendations for a plan to allow teachers in the State to contribute, accumulate credit and collect benefits under the United States Social Security Act in addition to collecting benefits under the Maine Public Employees Retirement System. In examining options, the Maine Public Employees Retirement System shall consider and outline the process for an amendment to the State's so-called Section 218 Agreement with the United States Social Security Administration and any other available avenues to allow teachers to collect social security. In conducting its work under this section, the Maine Public Employees Retirement System shall consult, as needed, with experts in public retirement and social security issues. In making recommendations, the Maine Public Employees Retirement System shall develop implementation timelines and outline statutory and other changes necessary to implement the plan. For the purposes of this section, "teacher" has the same meaning as in the Maine Revised Statutes, Title 5, section 17001, subsection 42.

Sec. 2. Report. Resolved: That no later than December 1, 2021, the Maine Public Employees Retirement System shall submit to the Joint Standing Committee on Labor and Housing a report, including its findings and recommendations as required under section 1, for a plan to allow teachers to collect social security in addition to collecting benefits under the Maine Public Employees Retirement System. Following receipt and review of the report, the committee is authorized to submit a bill to the Second Regular Session of the 130th Legislature.

Attachment 2 - WEP and GPO

Windfall Elimination Provision (WEP)

If a State/Teacher Plan member receives a retirement benefit from the plan, any Social Security benefits they earned from other work in which Social Security was paid may be reduced by 10-60% depending on the number of years worked in those positions.

The WEP was designed to make Social Security benefits equivalent between those who paid into Social Security for all of their earnings and those who paid into Social Security for some, but not all of their earnings. This is because Social Security benefits are weighted toward workers with lower lifetime earnings. Before the WEP was adopted, "people whose primary job wasn't covered by Social Security had their Social Security benefits calculated as if they were long-term, low-wage workers. They had the advantage of receiving a Social Security benefit representing a higher percentage of their earnings, plus a pension from a job for which they didn't pay Social Security taxes."[22] Many workers in retirement plans exempt from Social Security will work for fewer years in Social Security, benefitting from the weighting originally intended for low wage workers. The WEP formula was intended to address this, although the many legislative attempts to repeal or revise the original WEP formula suggest that it could be improved.

https://www.ssa.gov/benefits/retirement/planner/wep.html

Government Pension Offset (GPO)

If a State/Teacher Plan member receives a retirement benefit from the plan, Social Security spousal benefits are reduced by two-thirds of any State/Teacher benefits received.

The GPO does not reduce a worker's own Social Security benefit. It reduces benefits the worker is receiving as a spouse or surviving spouse of a Social Security participant. The spousal benefit was adopted in the 1930s "to compensate spouses who stayed home to raise a family and were financially dependent on the working spouse." Where both spouses earn their own Social Security benefit, the spousal benefit is reduced dollar-for-dollar by the worker's own benefit. This is known as the "dual entitlement rule." The GPO was enacted in 1977 to create a comparable reduction to the Social Security spousal benefit for workers who are not covered by Social Security but receive a government pension. The GPO initially was a dollar-for-dollar reduction to the spousal benefit for the pension benefit, but was changed through a political compromise in 1983 to be a reduction of two-thirds of the government pension. Therefore, the GPO imposes a smaller benefit reduction than the dual entitlement rule imposes on workers covered by Social Security.[23]

https://www.ssa.gov/benefits/retirement/planner/gpo-calc.html

[22] MainePERS report on Resolves 2021, Chapter 84; https://www.mainepers.org/wp-content/uploads/2022/01/MainePERS-Resolve-2021-Chapter-84-Report.pdf.
[23] MainePERS report on Resolves 2021, Chapter 84; https://www.mainepers.org/wp-content/uploads/2022/01/MainePERS-Resolve-2021-Chapter-84-Report.pdf.

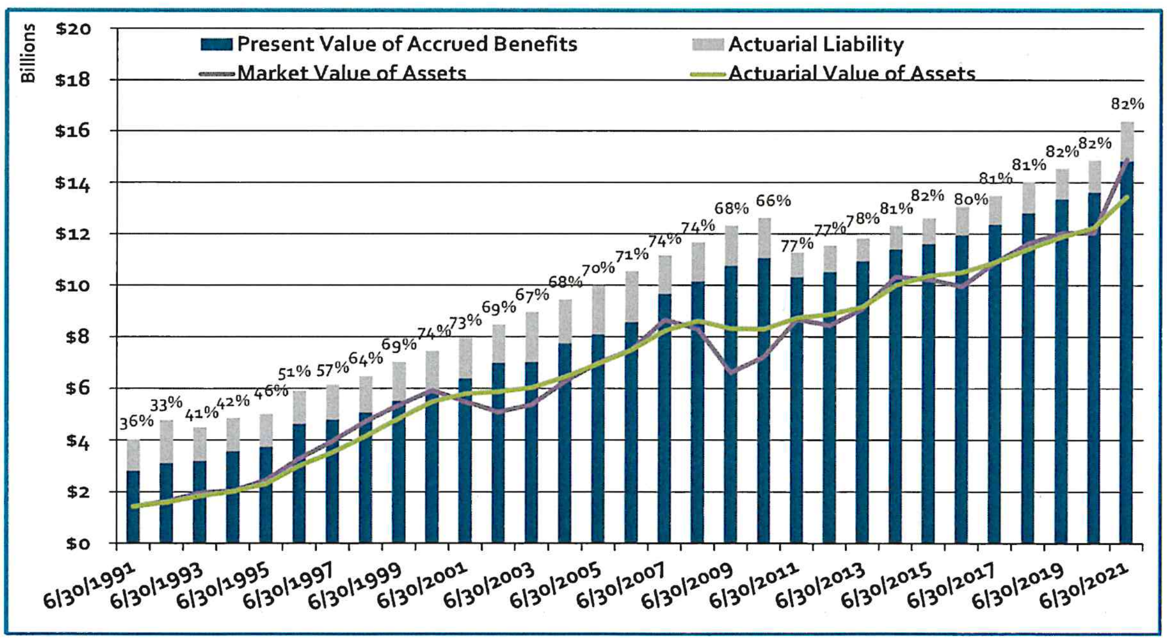
Attachment 3 - State/Teacher Plan Funding

Funding History

Understanding the State/Teacher Plan funding history is important in considering whether or not to change the plan design.

The State/Teacher Plan has an unusual, and remarkable, funding history. By the 1980's, it was among the worst funded public retirement plans in the country with a funding level of less than 22%, or less than 22 cents on hand for every dollar owed. A constitutional amendment was introduced to prevent similar future actions that caused the underfunding and to strengthen the plan funding going forward. The amendment passed in 1995 requiring: 1) the payoff of the existing underfunding by 2028; 2) all future actuarially determined annual payments be made each year; and 3) no new retirement benefits can be added to the plan unless fully funded in the year they are awarded.

The State/Teacher Plan is 82% funded on an actuarial basis as of June 30, 2021. The following chart illustrates the State/Teacher Plan funding history since 1993.[24] The decrease in liabilities in 2011 resulted primarily from the reduction in the COLA from the CPI-U up to 4% on the total benefit to CPI-U up to 3% on the first $20,000 benefits.



State/Teacher Plan funding increased by 8% from 2000 to 2020 compared to the average funding of public pension funds, which declined over 25% in the same time period.[25] The State/Teacher Plan COLA reduction was a significant factor in maintaining the funding through the recession. However, the majority of states also made changes to their pensions following

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24 Prepared by MainePERS Actuary Cheiron.

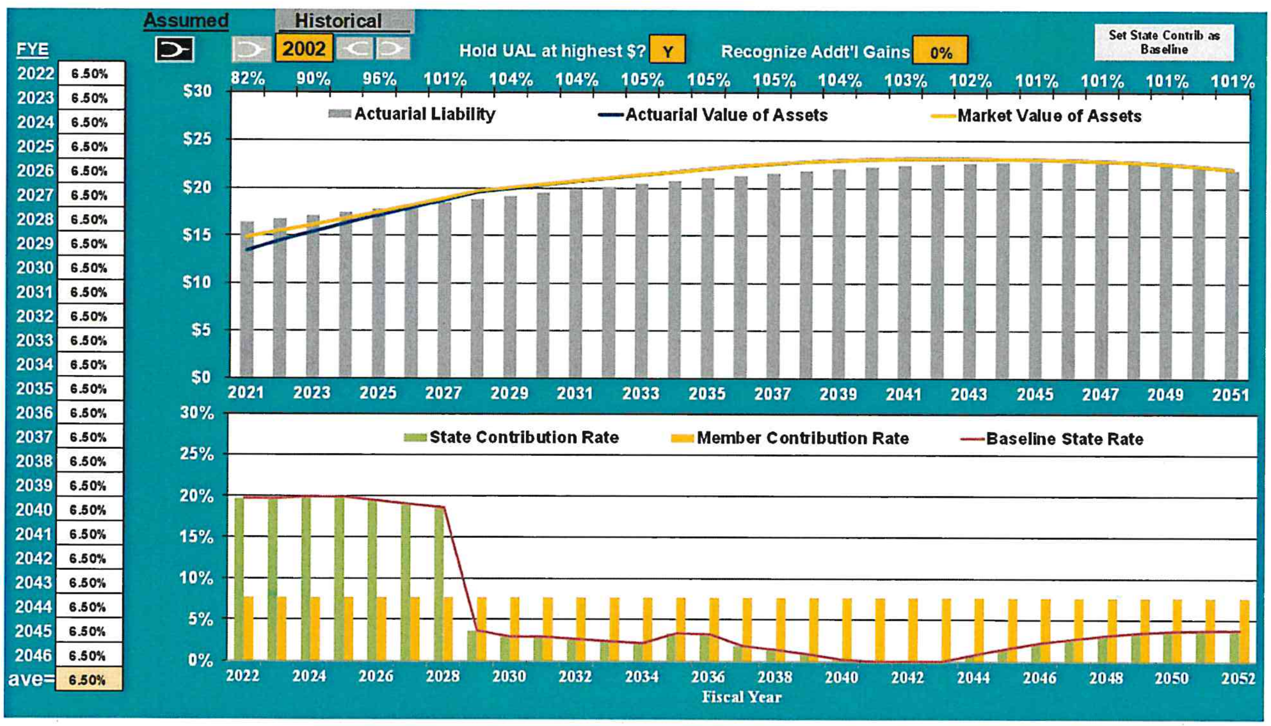
25 https://www.nasra.org/publicfundsurvey Figure A.

the recession, many of which were more significant than the changes made to the State/Teacher Plan in 2011.[26]

Future Funding

The 2028 pay down of the 1996 UAL is not the same as reaching full funding of the State/Teacher Plan. It specifically pays down the 1996 UAL. Subsequent gains and losses are amortized over 20 years so that each June 30th there are 20 amortization schedules with a new one being added and the oldest being retired.

The next chart compares the funding and projected required State/Teacher Plan payments up to and after the 1996 UAL is paid down in 2028.[27] The projected future payments use the trust fund earnings assumption of 6.5% set by the MainePERS Board of Trustees. MainePERS' earnings assumption compares favorably to peer retirement systems as the industry continues to lower earnings assumptions.[28]



The top portion shows the projected Actuarial Value of Assets (AVA) funded ratio (AVA divided by Actuarial Liability) over the next 30 years. It shows the AVA funded ratio improves from 82% as of FY 2021 to over 100% starting in FY 2027. The AVA funded ratio increases to 105% and then gradually declines to 101%. The timing of contribution development and payment, as well as the combination of the amortization schedules, is why the funded status is projected to exceed full funding. The ratios based on Market Value of Assets would be different.

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[26] https://www.nasra.org/files/Compiled%20Resources/nasrapensionchanges.pdf.

[27] Prepared by MainePERS actuary Cheiron. A small residual balance will exist due to the actuarial smoothing method used to calculate payments.

[28] https://www.nasra.org/publicfundsurvey Figure L.

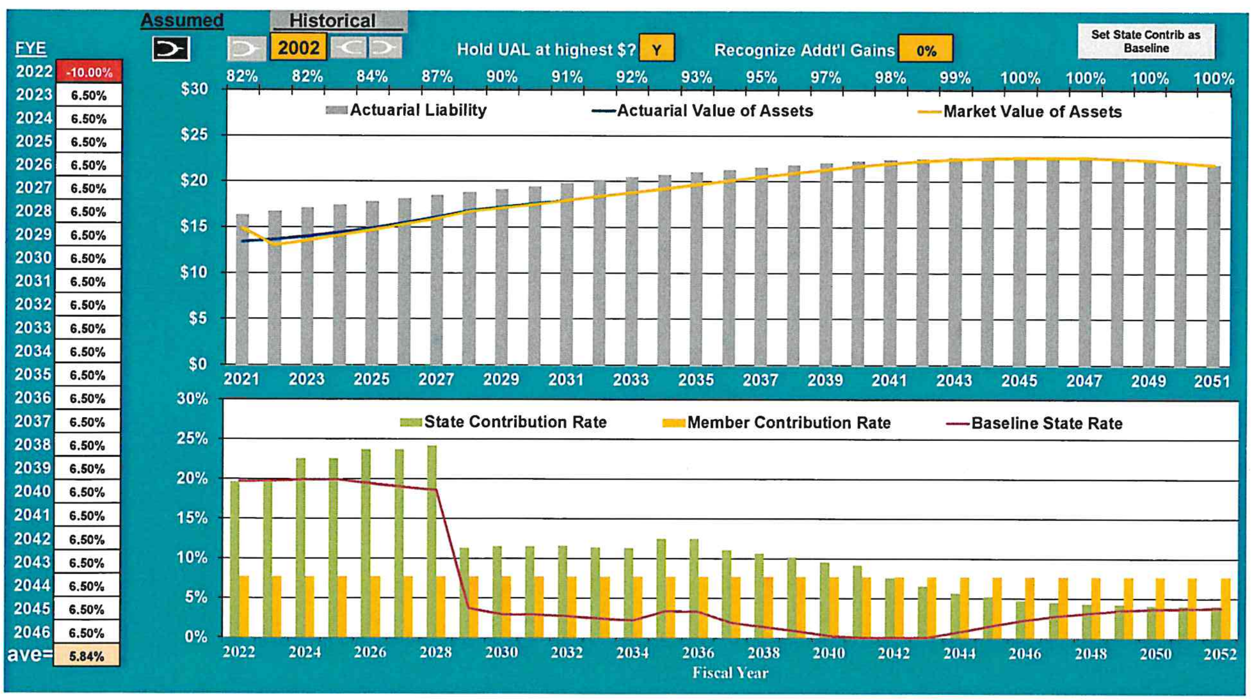
The bottom portion shows that the employer, or State, contribution rate is projected to remain within approximately one percentage of the current rate through FY 2028, and then dramatically drop off in FY 2029 once the 1996 UAL is fully paid off. **Contributions decrease from FY 2028 to FY 2029 by about 15% of pay or $390 million.** Employer contribution rates initially decrease to about 4%, with small further changes thereafter with a general downward trend, dropping to 0.0% due to the amortization of the UAL offsetting the employer normal cost in entirety. Eventually, employer contribution rates increase again to approximately equal to the normal cost rate as existing UAL amortization schedules are fully paid off.

These projections are a baseline scenario based on all actuarial assumptions being exactly met during the projection period. Market performance, assumption changes and experience gains or losses will determine the actual gains and losses through 2028, which in turn will determine the actual funding ratio and any UAL in 2029.[29]

While the baseline scenario represents a reasonable expectation for the state of the plan in 2029, there are a range of possible outcomes, some better and some worse. These deviations are the risk that the pension plan sponsors undertake in relying on a pension plan's actuarial valuation results.

One way to understand these risks is to consider outcomes under alternate scenarios, often created by varying a single important assumption, the investment earnings. Below are charts that show the status of the plan under alternative investment return scenarios.

First, consider a significant investment loss in FY 2022.



Under this scenario, the funded ratio drops due to less assets in the trust (yellow line). Employer contributions (green columns) increase to fund this gap. Relative to the baseline assumptions (red line), employer contribution rates increase by up to 10%. Contributions remain elevated over the baseline for about 25 years.

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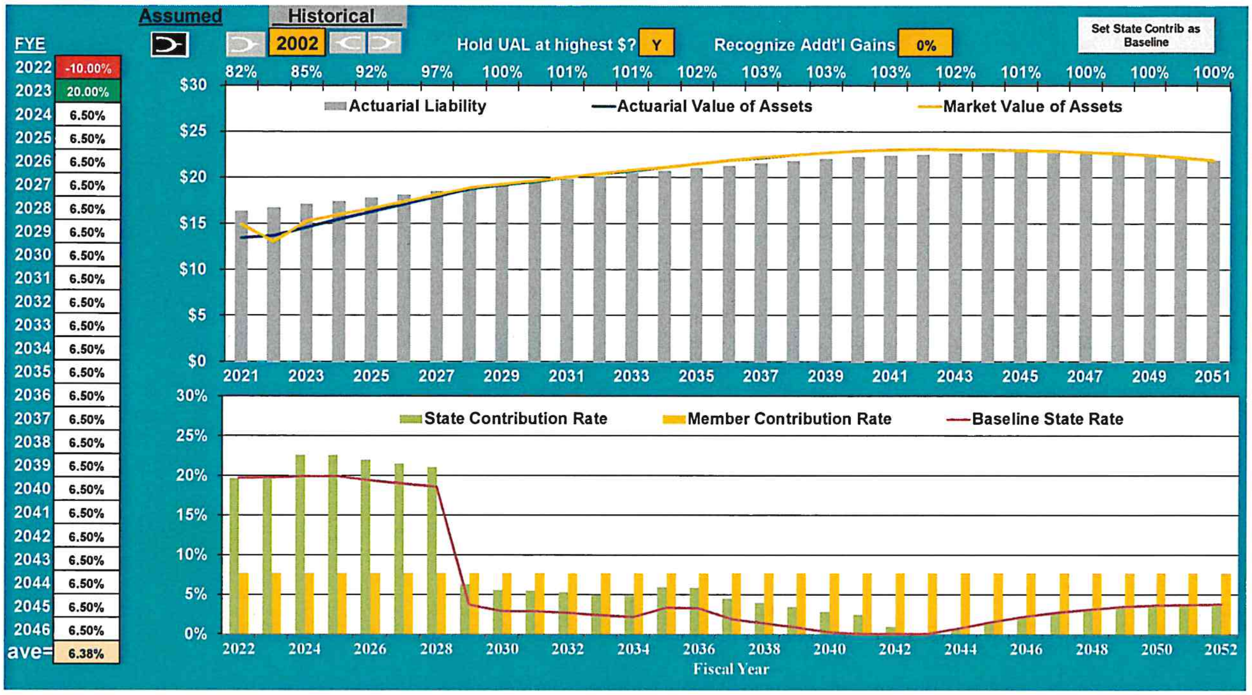
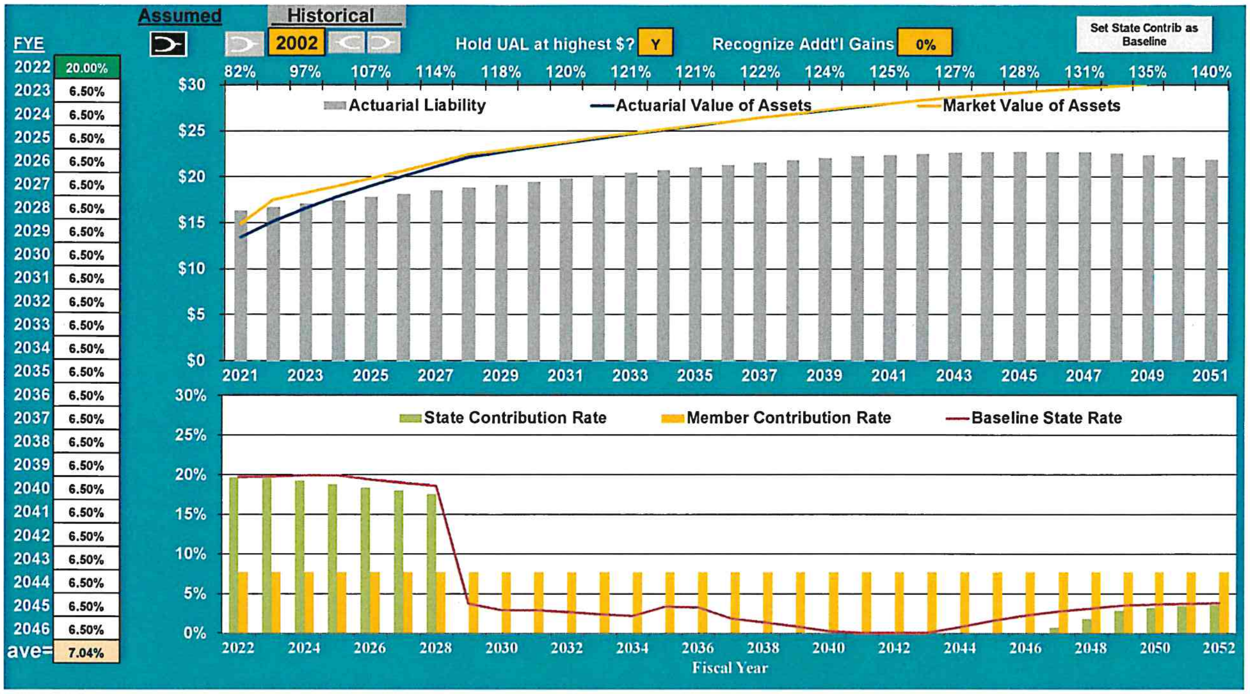
[29] Experience gains or losses are due to differences between actual plan experience and the plan assumptions such as mortality or the investment earnings assumption.

Next, consider a significant investment loss in FY 2022 followed immediately by a significant investment gain in FY 2023.



Even with largely offsetting gains and losses, the system has a larger funding shortfall than under the baseline. This is caused by large negative cash outflows from assets each year, in the form of benefit payments offset by contributions. When plans with large negative cash flows suffer investment losses, they need to liquidate enough assets to pay for benefits in excess of contributions. These outflows are no longer in the assets to participate in any subsequent recovery. These plans will need to earn even higher returns to rebuild their assets to previous levels. Employer contributions as a percent of payroll (green columns) increase by 2% to 3% to fund this gap, relative to the baseline. Contributions remain elevated over the baseline for about 20 years.

Finally, consider a significant investment gain in FY 2022.



Under this scenario, the funded ratio immediately improves due to more assets in the trust (yellow line), and a surplus develops (assets exceed liabilities). Employer contributions (green columns) decrease due to the surplus. Relative to the baseline assumptions (red line), employer contribution rates decrease by up to 4%. Contributions remain below the baseline for about 25 years.

Contribution rates vary considerably from scenario to scenario, but in each scenario considered there is a large decrease in FY 2029 contributions from the FY 2028 baseline when the 1996 initial UAL is fully paid off. We have not examined all possible cases, and worse experience can occur.

Attachment 4 – Cash Balance Plan Benefit

The Option 2 Cash Balance benefit formula represents a significant shift from the traditional defined benefit formula used by the current State/Teacher Plan. While this option is designed to provide a similar benefit to the current State/Teacher Plan when combined with Social Security, the calculation mechanics differ greatly. The following example illustrates the calculation of the Option 2 Cash Balance retirement benefit for a sample participant.

Key Option 2 Plan Provisions:

- Annual Account Credits of 9.50% of pay;
- Annual Interest Crediting rate of 5.00%.

Sample Participant Data:

- Hire Age of 40;
- Starting Pay of $35,000;
- Annual pay increase of 2.75%;
- Retirement Age of 65.

Age Beginning of Year	Service End of Year	Pay During Year	Notional Cash Balance Account		
			Account Credit	Interest Credit	End of Year Balance
40	1	$ 35,000	$ 3,325	$ 82	$ 3,407
41	2	35,963	3,416	255	7,078
42	3	36,951	3,510	441	11,029
43	4	37,968	3,607	641	15,277
44	5	39,012	3,706	855	19,838
45	6	40,085	3,808	1,086	24,732
46	7	41,187	3,913	1,333	29,978
47	8	42,320	4,020	1,598	35,597
48	9	43,483	4,131	1,882	41,609
49	10	44,679	4,245	2,185	48,039
50	11	45,908	4,361	2,510	54,910
51	12	47,170	4,481	2,856	62,248
52	13	48,467	4,604	3,226	70,078
53	14	49,800	4,731	3,621	78,430
54	15	51,170	4,861	4,042	87,332
55	16	52,577	4,995	4,490	96,817
56	17	54,023	5,132	4,968	106,917
57	18	55,508	5,273	5,476	117,666
58	19	57,035	5,418	6,017	129,102
59	20	58,603	5,567	6,593	141,262
60	21	60,215	5,720	7,204	154,187
61	22	61,871	5,878	7,854	167,919
62	23	63,572	6,039	8,545	182,503
63	24	65,321	6,205	9,278	197,987
64	25	67,117	6,376	10,057	214,420

The end of year balance of **$48,039** equals the prior year balance plus the account credit plus the interest credit (**$41,609 + 4,245 + 2,185**).

The account credit of **$6,376** is 9.50% of pay (**9.50% x $67,117**).

The interest credit of **$10,057** is a full year of interest on the prior year balance plus half a year of interest on the account credit (**5% x $197,987 + 2.47% x $6,376**).

Upon retirement at age 65, this participant has a cash balance account of **$214,420**. This account value converts to an annual annuity of **$13,400** payable over the member's expected lifetime based on the following assumptions:

- Annual interest rate of 5.0%;
- Annual COLA of 2.50%; and
- Average life expectancies represented by the IRS 2022 Applicable Mortality Table for Minimum Present Value Requirements under IRC § 417(e)(3).

In other words, the present value of the annual annuity payments of $13,400 equals the account value of $214,420 using these conversion assumptions for interest rate, mortality and COLA. Different conversion assumptions would result in different annuity amounts.

Attachment 5 – Plan Provisions, Assumptions, and Methodology

Plan Provisions

	Legacy S/T	DB + SS	CB + SS	SS
INPUTS				
Normal Retirement Age	65	65	59 ½	62 (67)
Vesting	5 years	5 years	5 years	10 years
Vesting of Employer Contribution upon Withdrawal (Not Retirement)			10 yr – 20% 15 yr – 40% 20 yr – 60% 25 yr – 80%	
DB Multiplier per year worked	2%	1%		
DB FAS calculated on	High 3	High 3	Annual Interest and Pay Credits	High 35 Earnings Indexed
Service Eligibility Retirement	25 years	25 years		10 years
Early Retirement Reduction Factor	6%	6%	10% Penalty Pre-59 1/2	No
Earnable Compensation Additions				
Overtime Pay	Yes			
Longevity Pay	Yes			
Extracurricular Act	Yes			
Creditable Service Additions				
Accrued, Unpaid Vacation	Yes			
Accrued, Unpaid Sick Leave	Yes			
Unpaid Leaves of Absence	Yes			

OUTPUTS	Legacy S/T	DB + SS	CB + SS	SS
Cost-of-Living Adjustment	CPI-U up to 3% of 1st $20,000 indexed	CPI-U up to 3%	Optional CPI-U up to 3% in annuity	CPI-W
Disability Retirement	Yes	Yes	Yes	Yes
Death Benefits	Yes	Yes	Vested Balance	Yes
Annuity Option			Yes	
COST				
EE Contributions	Fixed at current rates	Variable	Variable	6.2%
ER Contributions	Variable	Variable	Variable	6.2%
Unfunded Actuarial Liability	ER	EE-ER Shared	EE-ER Shared	
CB Annual **Account Credit**			9.5%	
CB Annual Interest Credit on Active Account Balance			5%	
Annual Interest Credit on Vested, Non-active Account balance	10-year Treasury Note Rate	10-year Treasury Note Rate	10-year Treasury Note Rate	
Annual Interest Credit on Non-Vested Non-Active	10-year Treasury Note Rate	10-year Treasury Note Rate	10-year Treasury Note Rate	
Investments	Pooled	Pooled	Pooled	

Assumptions

For the benefit comparisons in Table 1:

- Salary increases at 2.75% per year (merit salary increases are not included in the model);
- Cash Balance post-termination Annual Interest Credits equal 2.00% per year; and
- Cash balance accounts convert to annuities based on an interest rate of 5.00%, COLAs of 2.50% and the IRS 2022 Applicable Mortality Table for Minimum Present Value Requirements under IRC § 417(e)(3).

For the cost comparisons in Table 2, the assumptions are the same as those used in the MainePERS State/Teacher Actuarial Valuation Report as of June 30, 2021. The Option 2 Cash

Balance cost is determined so that the cash balance accounts are fully funded at decrement. In addition, for Option 2, forfeitures upon withdrawal are assumed to represent 50%, in aggregate, of the value of cash balance accounts upon termination.

Social Security Attribution Methodology

An individual's Social Security benefit is based on career earnings and is not easily attributed to different employers. To facilitate a comparison between the existing and new plan designs, we use the following methodology to attribute a portion of an individual's Social Security benefit to their service under MainePERS.

1. Fully projected Social Security benefit calculated at retirement age 65 based on following assumptions:
    a. Individual assumed to start Social Security covered employment at age 25;
    b. Individual assumed to join MainePERS in 2022;
    c. Prior to MainePERS service, salary is projected back from MainePERS starting salary based on changes in the SS National Average Wage;
    d. After MainePERS service, salary is assumed to continue increasing at the same rate as under MainePERS service;
    e. National Average Wage increases assumed to be 3.00% per year; and
    f. Price Inflation assumed to be 2.75% per year.
2. Social Security benefit adjusted to year of termination. In other words, indexing for inflation stopped at termination.
3. Social Security Benefit prorated by years of MainePERS service over 35. Thirty-five is the number of years of earnings used in the calculation of the Social Security benefit. This amount is the Social Security benefit attributed to MainePERS service.

To demonstrate, Table 3 shows the attribution of the Social Security benefit for the individuals in Table 1. The amounts under Step 3 in Table 3 are included in Table 1 as the Social Security benefit for Option 1 Defined Benefit + Social Security and Option 2 Cash Balance + Social Security.

Table 3 – Social Security benefit attribution examples

MainePERS Demographic Data	**Step 1: Fully Projected Benefit**	**Step 2: Adjust for Year of Termination**	**Step 3: Prorate by MainePERS Service**
Start at age 25, Leave at 50			
Starting Salary $35,000	$48,636	$31,608	$22,577
Starting Salary $60,000	$69,096	$44,952	$32,109
Starting Salary $90,000	$89,856	$58,296	$41,640
Start at age 40, Leave at 65			
Starting Salary $35,000	$31,728	$31,728	$22,663
Starting Salary $60,000	$45,240	$45,240	$32,314
Starting Salary $90,000	$58,296	$58,296	$41,640

The attributed Social Security benefits are very similar for both starting ages. The minor differences are due to changes in the inflation indexing of the Social Security benefit formula at age 60.