Georgia Department of Audits and Accounts
Performance Audit Division
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State Retirement Plans

Requested information on ERS, TRS, and ORP

Why we did this review

The Senate Appropriations Committee requested this special examination of Georgia's Employees' Retirement System (ERS), Teachers Retirement System (TRS), and the Optional Retirement Plan (ORP). Based on the request, we reviewed: (1) the impact of the creation of Georgia State Employees' Pension and Savings Plan (GSEPS) on the financial viability of ERS and whether GSEPS is a competitive retirement plan; (2) options to improve the financial viability of TRS while maintaining it as a defined benefit plan; and (3) how ORP compares to similar plans.

About State Retirement Plans

ERS and TRS represent the two largest public retirement systems in Georgia. ERS administers retirement benefits for most state of Georgia employees. TRS administers retirement benefits for employees of local school systems and other education entities, including the University System of Georgia (USG). ORP is an optional defined contribution 401(a) plan for certain TRS-eligible employees of USG.

Employer contributions to ERS, TRS and ORP total approximately $2.8 billion annually. There are approximately 226,000 active members in TRS, 34,500 active members in GSEPS, and 14,000 active members in ORP.

What we found

ERS, TRS, and ORP offer significantly different retirement benefits to their members. The plans range from offering a guaranteed defined benefit at retirement to a defined contribution 401(k)-style account to a hybrid plan that has both a defined benefit and a defined contribution component. While ERS has been reformed to address issues of financial sustainability, TRS has not. In addition, no major changes have been made to the benefits provided by ORP. Options exist to bring TRS and ORP costs and benefits in line with peers while continuing to offer a competitive benefit to their members.

Employee Retirement System (ERS)

To reduce costs, the ERS New Plan (a defined benefit plan) was closed and replaced with a hybrid retirement plan called the Georgia State Employees' Pension and Savings Plan (GSEPS) for all state employees hired on or after January 1, 2009. The creation of GSEPS has allowed the state to mitigate its pension costs and the funding risk of the ERS pension liability.

The state has saved approximately $71 million since the inception of GSEPS because employees are not maximizing the employer defined contribution match.[1] In addition, the creation of GSEPS has allowed the state to reduce the growth of the pension liability through a lower benefit multiplier of 1% of members' final average salary. Without the creation of GSEPS, the ERS unfunded accrued liability (UAL) would be $67 million (1.5%) higher than it is today and would have resulted in higher employer contribution rates. The current ERS UAL is approximately $4 billion, and the fiscal

[1]These savings will erode if employees maximize the employer match in the future.

year 2018 employer contributions were approximately $650 million.

Comparatively, GSEPS provides a nominal retirement benefit for the majority of its members, and its benefits are generally lower than those provided by TRS, ORP, and hybrid retirement plans in other states. Since the implementation of GSEPS, fewer than 18% of GSEPS members are projected to vest in the defined benefit, and approximately 30% fully vest in the defined contribution component. GSEPS has a longer than average vesting period for both the defined benefit and defined contribution components and provides a less portable benefit than other states' hybrid plans. The benefit multiplier of 1% of the final average salary is also lower than average. Lastly, TRS and hybrid plans in other states provide cost-of-living adjustments (COLAs) in retirement to offset inflation risk, while GSEPS does not.

Teachers Retirement System (TRS)

Although some other states have reformed their defined benefit retirement plans for teachers, TRS has not undergone any significant changes. Based on reforms in other states, DOAA, in coordination with an independent actuary, analyzed a number of options that could decrease employer contributions and risk while continuing to provide a defined benefit plan. Potential modifications include adjustments to COLAs, the interest crediting rate, and benefits for new hires. TRS currently has a UAL of approximately $25 billion, and employer contributions in fiscal year 2018 were approximately $2 billion. The state allocated an additional $224 million for TRS in the fiscal year 2018 budget and $365 million in the fiscal year 2019 budget to cover increases in the employer contribution rate.

- **COLAs** – Of the changes we considered, COLA adjustments have the greatest potential to reduce employer contributions while maintaining an adequate benefit. Modifications to the COLA could include changing the COLA rates and establishing a minimum age at which COLAs can begin as has been done in other states. In 21 of the last 26 years, the TRS COLA given to retirees has outpaced inflation. An independent actuarial analysis found that various options for modifying the COLA could result in employer contribution reductions ranging from $17 to $700 million annually.

- **Interest rates** – The interest credited on employee contributions could be more closely aligned with market interest rates. An independent actuarial analysis projected a $13 million annual reduction in costs by reducing the interest rate on employee contributions from 4.5% to 2%.

- **Final average salary** – Changing the final average salary calculation from the highest consecutive 24 months' salary to the highest consecutive 60 months' salary could result in further cost reduction. For example, we estimated that this change would have saved $50 million annually if it had been applied to the most recent five years of retirees.

- **Minimum retirement age** – An independent actuarial analysis projected that changing the minimum retirement age for those with less than 30 years of service from 60 to 62 for new hires would reduce employer contributions by $48 million annually.

Other than changes to the COLA, the remaining modifications are not expected to have a significant impact on individual employees' benefits.

Optional Retirement System (ORP)

Some USG employees are given the option to participate in ORP, a defined contribution plan, rather than TRS. ORP was created to provide a portable benefit alternative to USG employees who are not likely to retire from USG. Employer contributions in fiscal year 2017 totaled approximately $132 million. We found other public institutions' employer contribution rates range from 3% to 13% while private institutions' employer contribution rates range from 7.5% to 10% for their defined contribution plans. We estimate that USG could lower its employer contribution rate from 9.24% to 8% (which is above the average 7.8% among

peer institutions) and save over $16 million annually. A rate of 8.5% would reduce costs by nearly $10 million annually. In addition, implementing a vesting schedule for ORP would also reduce the plan's costs.

What we recommend

This report is intended to answer questions posed by the Senate Appropriations Committee and to help inform policy decisions. We recommend that any changes to the state's retirement plans balance (1) costs and sustainability, (2) the need to offer competitive benefits for recruitment and retention purposes, and (3) issues of parity across employee groups.

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Glossary of Terms and Definitions

Term	Definition
Accrued Liability	The accrued liability is the present value of promised pension benefits. If the plan assets are less than the accrued liability, the difference between the two figures would be the unfunded accrued liability (UAL).
Actuarial Assumptions*	Projections about future events. These fall into two categories: demographic and economic. Examples include expected rate of investment returns, expected career lengths, life expectancies of retirees, and wage growth of active employees.
Amortization Period, Closed*	A closed amortization schedule means a plan has a particular set date it is targeting to eliminate unfunded liabilities. A plan with a 25-year closed amortization period would pay off a portion of the unfunded liabilities each year. Ideally, after year 25 there will be no more unfunded liabilities, as long as there are no additional actuarial losses.
Amortization Period, Open*	An open amortization schedule has no set date for eliminating unfunded liabilities. Instead, the payments are reset annually, comparable to refinancing a mortgage each year.
Benefit Formula*	A calculation that determines the specific amount of monthly retirement income an employee receives, usually based on the employee's salary, years of service, and age.
Benefit Multiplier*	A factor in a defined benefit plan formula that determines the size of an annuity based on a predetermined percentage of an employee's salary.
Cost vs Risk	For this report, cost refers to outlays made by the employer. Risk refers to the potential underfunding of the pension plan in absolute dollars. Risk increases as the pension liability increases. An increase in unfunded pension liabilities will eventually result in an increase in cost.
Cost-of-living Adjustment (COLA)*	Annual increases to annuities designed to offset inflationary impacts that occur over time. COLAs are provided most commonly in defined benefit plans.
Defined Benefit (DB) Plan*	A plan where the employer promises a specific amount of retirement income based on a formula that usually takes into account an employee's salary, years of service, and age.
Defined Contribution (DC) Plan	A plan where retirement savings are based on accumulated employer and employee contributions, and the investment returns on those contributions. A common example is the 401(k) account.
Defined Contribution Employer Match	The amount an employer will match of an employee's contribution to the employee's defined contribution 401(k)-style account.

Final Average Salary*	A factor in a defined benefit formula that averages an employee's annual salary over a predetermined number of years to use in determining the amount of retirement benefit.
Funded Ratio*	The ratio of plan assets to plan liabilities. For example, a funded ratio of 80% means the plan has 80 cents in assets for every $1 dollar of liability.
Hybrid Plan	A plan with both defined benefit and defined contribution components. Hybrid plans are usually designed to offer new employees more portable benefits but provide a reduced defined retirement benefit for those who reach full retirement compared to defined benefit plans.
IRC 401(a) and 415(b) limits	These are limits on the benefits accrued and paid out from qualified retirement plans originally implemented by the IRS in the early 1990s. For 2018, the salary used to calculate a pension benefit is capped at $275,000, and the maximum pension benefit is $220,000.
Normal Cost*	Employees accrue new pension benefits every year. The normal cost is the annual equivalent of this and the result of spreading the value of the benefits earned over time.
Normal Retirement Age*	The age at which vested employees are entitled to the full calculated level of fixed retirement income according to the defined benefit plan formula.
Pension Support Ratio*	The ratio of active to retired members of a pension plan. The active members' contributions and the assets of the pension fund pay for the benefits paid out to plan retirees.
Qualified Plan	A retirement plan that satisfies the Internal Revenue Code (IRC) in form and operation. Contributions are generally not taxed until members withdraw money from their plans.
Supplemental Retirement Benefit Plan (SRBP)*	This is an excess benefit plan; its sole purpose is to pay benefits that exceed the Internal Revenue Code 415(b) limit. The benefits that exceed 415(b) limits may result from benefit calculations not limited by 401(a)(17). These plans are considered "pay as you go" and cannot be pre-funded.
Valuation*	An analysis conducted on a regular basis that determines the financial position of the plan and the future contribution rates needed to ensure its long-term funding using various assumptions concerning future events and behaviors.
Vesting Requirement/Schedule	The number of years an employee must work before becoming eligible to receive benefits. Vesting may occur when an employee becomes fully eligible at a specified time or it may be gradual, where an employee becomes partially vested in increasing amounts over time.

*Denotes term and definition used in defined benefit plans

Source: Pew Research Center and Internal Revenue Service (IRS)

Purpose of the Special Examination

This review of Georgia's Employees' Retirement System (ERS), Teachers Retirement System (TRS), and the Optional Retirement Plan (ORP) was conducted at the request of the Senate Appropriations Committee. Based on the request from the Senate Appropriations Committee and subsequent meetings with the Senate Budget and Evaluation Office, this examination will answer the following questions:

1. To what extent did creating the Georgia State Employees' Pension and Savings Plan (GSEPS) impact the financial viability of ERS?
2. Is GSEPS a competitive retirement plan that provides for an adequate retirement?
3. To what extent would possible reforms increase the financial viability of TRS while maintaining it as a defined benefit plan?
4. How does the ORP compare to similar retirement plans at other higher education institutions?

A description of the objectives, scope, and methodology used in this review is included in Appendix A. A draft of the report was provided to the Employees' Retirement System, the Teachers Retirement System, and the University System of Georgia for its review, and pertinent responses were incorporated into the report.

Background

The state's retirement plans provide designated employee groups with retirement benefits. The plans have different characteristics, but the same purpose: to provide income at retirement for employees. The responsibility for an employee's retirement is generally shared by the employee, employer, and the federal government through Social Security. Typically, the retirement benefits are funded through employer contributions, employee contributions, and investment earnings. Retirement benefits include traditional defined benefit pensions, defined contribution 401(k)-style accounts, and hybrid pensions that incorporate both traditional defined benefit and defined contribution components.

The Teachers Retirement System (TRS) and Employees' Retirement System (ERS) represent the two largest public retirement systems in Georgia. Established in 1943, TRS administers retirement benefits for employees of local school systems, charter schools, technical colleges, county and regional libraries, Regional Education Service Agencies (RESAs), the University System of Georgia (USG), and certain state agencies. TRS administers a single, defined benefit plan. Established in 1950, ERS administers retirement benefits for most other state of Georgia employees, and also manages several other retirement systems for the state.[2] Established in 1990, the Optional Retirement Plan (ORP) is an optional defined contribution 401(a) plan for certain TRS-eligible employees of USG. It is administered by USG.

[2]In addition to the Employees' Retirement System plans, ERS also administers several other retirement systems, not included in this review: Public School Employees' Retirement System, Georgia Judicial Retirement System, Legislative Retirement System, Georgia Military Pension Fund, Georgia Defined Contribution Plan, Group Term Life Insurance, and Peach State Reserves.

State Constitution, Laws, and Board Rules

The state's pension plans are managed within a complex environment of state laws, board rules, and federal laws. State laws govern many provisions of the systems, such as benefits and eligibility criteria. The General Assembly retains the power to statutorily modify the states' pension plans within certain limits and create new plans.

Additionally, oversight bodies, which include the ERS Board of Trustees, the TRS Board of Trustees, and USG's Board of Regents are, by state law, given the authority to develop board rules. Some board rules primarily deal with the maintenance of retirement systems while others determine more specific provisions like the annual interest rate on employee contributions or the criteria for offering cost-of-living-adjustments (COLAs).

While the state may modify its pension plans, there are limitations on modifications for current employees and retirees. Because statutes providing for pensions are generally considered to be contractual obligations, the Georgia Constitution likely prohibits state employers, including the General Assembly, from reducing defined pension benefits statutorily promised to current employees and retirees.

Federal Laws

Federal laws govern aspects of public retirement plans. For example, federal laws establish limitations on benefits that all qualified[3] public retirement systems must follow. ERS, TRS, and ORP are all qualified plans under Section 401(a) of the Internal Revenue Code (IRC).

In addition, IRC establishes maximum salaries used to calculate retirement benefits and the maximum benefits members of public retirement systems can receive. In 2018, the maximum salary used to calculate pension benefits was $275,000 and the maximum retirement benefit was $220,000. Certain ERS and TRS members may exceed these limits through enrollment into a Supplemental Retirement Benefit Plan (SRBP). The SRBP is not included in this report.

Attributes of Defined Benefit and Defined Contribution Plans

Public sector defined benefit and defined contribution plans are typically funded by employee contributions, employer contributions, and investment returns. A defined benefit is a guaranteed, lifetime benefit where the investment and some inflation risk[4] are borne by the employer. The funding for defined benefit plans is based on the employee contribution, as well as the employer's actuarially determined contribution. The employer contribution includes two components: the normal cost and the unfunded accrued liability (UAL) rate. The normal cost is the contribution allocated for the benefits accrued by employees in a given year. The UAL rate is the contribution to amortize, or pay off, the unfunded accrued liability. These rates can vary year to year based on market conditions, changes in actuarial assumptions, and changes in active membership.

[3] A qualified retirement plan satisfies the Internal Revenue Code (IRC) in form and operation. Contributions are generally not taxed until members withdraw money from their plans.

[4] In defined benefit plans that do not provide COLAs or that provide COLAs below CPI, some or all of the inflation risk is borne by the retiree.

Defined contribution plans are also funded by employee and employer contributions. However, these rates are not adjusted annually due to actuarial calculations. Usually, the contribution rates are consistent. In some plans, employees and employers are required to contribute a specific amount. In others, employers will match optional employee contributions on a specific matching schedule. The defined contribution benefit is dependent on market returns on contributions made by the employee and employer. As a result, the investment and inflation risk is borne by the employee.

Actuarial Valuation

O.C.G.A. § 47-2-26 and O.C.G.A. § 47-3-23 require ERS and TRS to designate an actuary who will conduct annual valuations of the assets and liabilities of the retirement system. In addition, at least every five years the actuary is required to conduct an actuarial investigation into the mortality, service, and compensation experience of members and retirees and recommend adoption, to each board of trustees, of any updated actuarial tables. O.C.G.A. § 47-2-57 and O.C.G.A. § 47-3-48 state that the normal and UAL rates, as determined by the last valuation, be certified by each board of trustees.

Employees' Retirement System (ERS)

Since its inception, the state has created new versions of ERS' retirement plan on two occasions. These plans are referred to as: the Old Plan (the original plan), the New Plan, and the Georgia State Employees' Pension and Savings Plan (GSEPS). As shown in **Exhibit 1**, the Old Plan consists mainly of retirees (approximately 99% of the Old Plan participants are retired), while the New Plan and GSEPS have over 60,000 active members.

Exhibit 1
Comparison of ERS Plans

	Old Plan	New Plan	GSEPS
Plan Type	Defined Benefit	Defined Benefit	Hybrid
Employment Start Dates	Before July 1, 1982	July 1, 1982 to December 31, 2008	January 1, 2009 to Current
Active Members	50	25,900	34,500
Retirees	51,000[1]		48
Defined Benefit Multiplier	2% to 2.2%	2%	1%

[1]*Retirees* includes all ERS retirees, including members of Old Plan and New Plan.

Source: ERS documents

*The **average monthly benefit of ERS retirees** is approximately*

$2,200

New Plan

The New Plan is a defined benefit plan that provides a guaranteed lifetime retirement benefit for those who have 30[5] years of creditable service in ERS or attain the age of 60 with at least 10 years of creditable service. The plan was closed to new hires on December 31, 2008. There were approximately 26,000 active members, as of June 30, 2018. As shown in **Exhibit 2**, the benefit formula is based on years of service and the final average salary multiplied by 2%. A New Plan retiree with a final average salary of

[5]Members may receive a reduced early retirement benefit after 25 years of service.

$50,000 and 30 years of creditable service would receive an annual benefit of $30,000[6], or 60% of the retiree's final average salary of $50,000.

Exhibit 2
New Plan Characteristics, Fiscal Year 2018

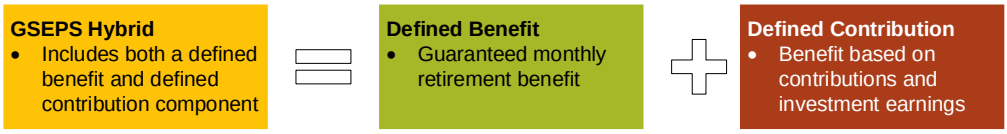
Plan Type	Defined Benefit
Active Members	25,900
Retirees	51,000[1]
Employee Contribution Rate	1.25%
Employer Contribution Rate	24.69%
Defined Benefit Formula	Final Average Salary[2] x 2% x Years of Creditable Service
Cost-of-Living Adjustments	Ad hoc
Average Monthly Benefit	$2,245[3]

[1]*Retirees* includes all ERS retirees, including members of Old Plan and New Plan.
[2]*Final Average Salary* is the average of the highest 24 consecutive months of salary.
[3]*Average Monthly Benefit* includes Old Plan and New Plan retirees. This would likely be lower for New Plan retirees as Old Plan retirees have more generous benefits.

Source: ERS documents

GSEPS

In order to reduce costs, the state closed the New Plan to new employees and replaced it with GSEPS on January 1, 2009. GSEPS is a hybrid retirement plan that combines a defined benefit component with a defined contribution 401(k) component. Vested contributions to a defined contribution plan can be taken with the participant upon separation from employment. The defined benefit component for GSEPS is lower than the New Plan's defined benefit.



As shown in **Exhibit 3**, GSEPS members' defined benefit formula has a multiplier of 1%. A GSEPS retiree with a final average salary of $50,000 and 30 years of creditable service would receive an annual defined benefit of $15,000. In addition to the defined benefit, this retiree would have a defined contribution (401k) account. The defined contribution account balance is composed of employee contributions, employer contributions, and investment earnings. The employer defined contribution match is up to 3% if the participating member makes a 5% defined contribution. We estimated that the average GSEPS 401(k) balance at retirement for current members would be

[6]This assumes the member takes the maximum benefit payout option. There are other benefit options, such as survivorship benefits and partial lump sum payouts, which result in a reduced monthly pension benefit.

$375,000[7] if members make an annual contribution of 5% of their salary and work for the state for 30 years.

Exhibit 3
GSEPS Plan Characteristics, Fiscal Year 2018

Plan Type	Hybrid Benefit
Active Members	34,500
Retirees	48
Employee DB Contribution Rate	1.25%
Employer DB Contribution Rate	21.66%
Defined Benefit Formula	Final Average Salary[1] x 1% x Years of Creditable Service
Employee DC Contribution Rate	Employer DC Contribution Match
0%	0%
1%	1%
2%	1.5%
3%	2%
4%	2.5%
5% or more	3%
Cost-of-Living Adjustments	Prohibited by Statute[2]
Average Monthly Benefit	$570[3]

[1]*Final Average Salary* is the average of the highest 24 consecutive months of salary.
[2]For members who began employment after July 1, 2009 (GSEPS opened on January 1, 2009).
[3]This is for the current 48 retirees.

Source: ERS documents

The GSEPS defined contribution benefit has a graduated, five year vesting schedule. As shown in **Exhibit 4**, a member vests in 20% of their employer contributions per year for the first five years. For example, a member with $1,000 in employer contributions in their account who departs after two years would leave with $400 (40%) and forfeit the remaining $600. A member with $1,000 in employer contributions in their account who departs after five years would leave with $1,000 (100%).

[7]This assumes a member with a starting salary of $38,000 and annual compensation increases of 3.5% who contributes 5% of their salary to their 401(k) and receives the 3% match for 30 years. It also assumes consistent 401(k) return of 5% annually.

Exhibit 4
GSEPS Members Vest Gradually in Their DC Benefit

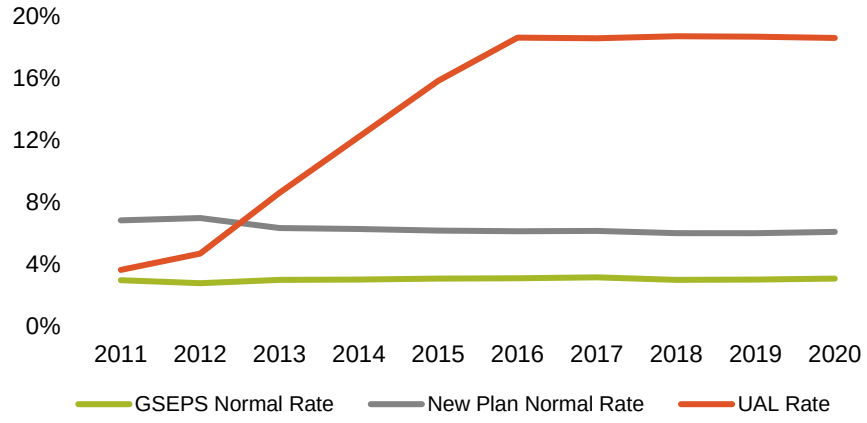
Years of Service	Vested Percentage
Less than 1	0%
1	20%
2	40%
3	60%
4	80%
5	100%

Source: ERS documents

Funding Status

As shown in **Exhibit 5**, the UAL contribution rate increased significantly from 2011 to 2016 due to the 2008 recession resulting in poor asset returns, improved mortality rates, and the decision by the ERS Board of Trustees to match industry best standards and move the fund from an open to a closed amortization period. The normal rate remained stable over this time period. The employer contribution rates of the New Plan and GSEPS vary because of changes in the actuarial valuation of the pension fund (i.e., an increase in the unfunded accrued liability due to unmet actuarial assumptions). For fiscal year 2019 the employer contribution rate is 24.66% for New Plan members, of which 18.68% is the UAL rate, and the remaining 5.98% is the normal rate. For GSEPS, the employer contribution rate is 21.66%, of which 18.68% is the UAL rate, and the remaining 2.98% is the normal rate.

Exhibit 5
ERS UAL Rate Increased from 2011 to 2016, then Stabilized



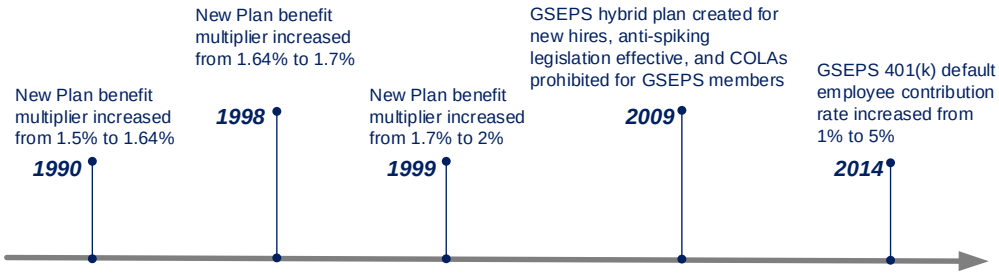
Source: ERS documents

Plan Modifications

As shown in **Exhibit 6**, the New Plan's benefit multiplier was increased twice in the 1990s. Additionally, GSEPS has undergone two major changes since its creation,

including limiting salary increases in employees' final years[8] and raising the default employee defined contribution 401(k) rate for new hires from 1% to 5%.[9]

Exhibit 6
Major ERS Modifications for New Plan and GSEPS



Source: ERS documents

Teachers Retirement System (TRS)

*The **average monthly benefit of TRS retirees** is approximately*

$3,100

TRS is a defined benefit plan that provides a guaranteed lifetime benefit for those who have 30 years[10] of creditable service within the system or attain age 60 with 10 years of service. The employee contribution rate is currently set at 6%. As shown in **Exhibit 7**, the benefit formula is based on years of service and the final average salary multiplied by 2%. There were approximately 127,000 retirees and 226,000 active members as of June 30, 2018. A TRS retiree with a final average salary of $50,000 and 30 years of creditable service would receive an annual benefit of $30,000.

Exhibit 7
TRS Plan Characteristics, Fiscal Year 2018

	Fiscal Year 2018
Active Members	226,000
Retirees	127,000
Employee Contribution Rate	6%
Employer Contribution Rate	16.81%
Defined Benefit Formula	Final Average Salary[1] x 2% x Years of Creditable Service
Cost of Living Adjustments	1.5% Adjustment Issued Semiannually if CPI is Higher than Base Year
Average Monthly Benefit	$3,079

[1]*Final Average Salary* is the average of the highest 24 consecutive months of salary.

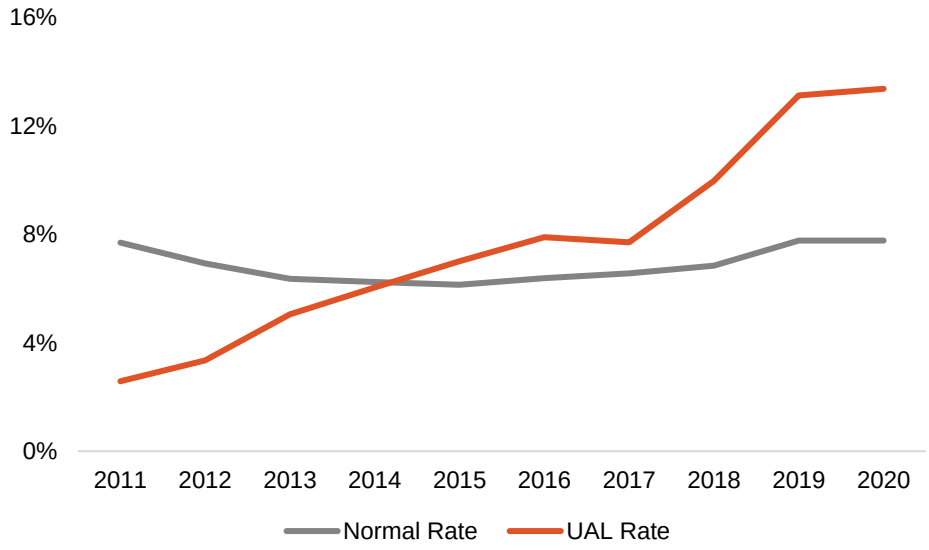
Source: TRS documents

[8]Known as anti-salary spiking, this prohibits salary increases over 5% in the last 12 months of employment from being used to calculate a member's final average salary for their pension.
[9]The employee contribution rate can be subsequently adjusted by the employee.
[10]Members may receive a reduced early retirement benefit after 25 years of service.

Funding Status

As shown in **Exhibit 8**, the UAL contribution rate has increased significantly since 2011 due to the 2008 recession resulting in poor asset returns, improved mortality rates, and a decision by the TRS Board of Trustees to match industry best standards and move the fund from an open to a closed amortization period. The normal rate remained stable over this time period. The TRS employer contribution rate varies annually because of changes in the actuarial valuation of the pension fund (i.e., an increase in the unfunded accrued liability due to unmet actuarial assumptions). For fiscal year 2019 the employer contribution rate is 20.9%, of which 13.13% is the UAL rate and the remaining 7.77% is the normal rate.

Exhibit 8
TRS UAL Rate Has Increased Since 2011

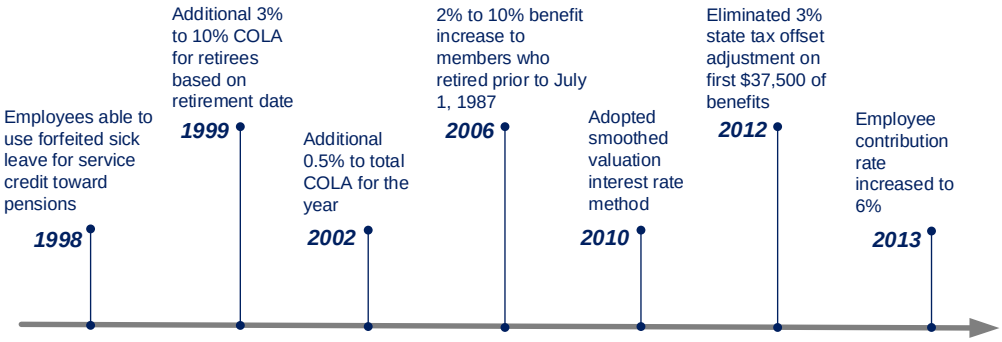


Source: TRS documents

Plan Modifications

Since its inception in 1943, TRS has offered one plan. The most significant modifications in benefits for active members and current retirees were supplemental postretirement benefit adjustments (COLAs) for retirees based on retirement date. **Exhibit 9** shows changes that continue to impact TRS' fund.

Exhibit 9
Major TRS Modifications



Source: TRS documents

Optional Retirement Plan (ORP)

ORP is a defined contribution 401(a) plan created to provide a portable benefit to USG faculty. USG employees eligible for ORP have a one-time, irrevocable decision within 60 days of hire to join either TRS or ORP. As shown in **Exhibit 10**, approximately 14,000 current USG employees participate in ORP. Currently ORP's employee contribution rate is 6%, the same as TRS, and its employer contribution rate is 9.24%.

As a defined contribution plan, ORP retirement benefits consist of accumulated employee contributions, employer contributions, and investment returns. ORP members vest in all contributions and earnings immediately, meaning they can leave at any point and take with them 100% of their earned retirement benefit.

Exhibit 10
ORP Characteristics, Fiscal Year 2019

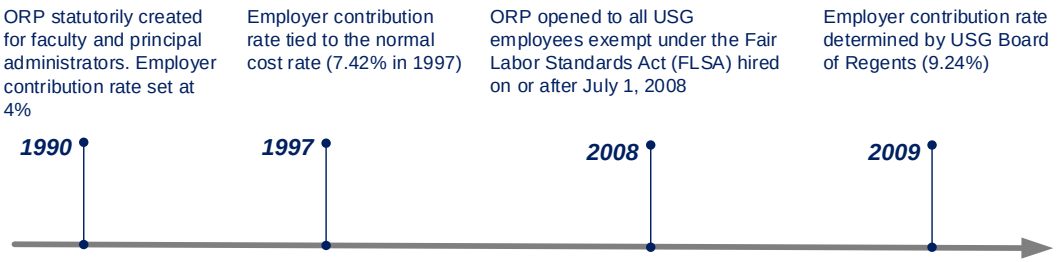
	Fiscal Year 2019
Members	14,000
Employee Contribution Rate	6%
Employer Contribution Rate	9.24%
Vesting	Immediate

Source: USG documents

Plan Modifications

The most significant modifications in benefits include an expansion of eligibility to all exempt USG employees and increases to the employer contribution rate. **Exhibit 11** shows benefit modifications to the ORP plan.

Exhibit 11
Major ORP Plan Modifications



Source: USG documents and the O.C.G.A.

Other Public Sector Retirement Plans

Other states and local governments offer retirement plans. Defined benefit plans remain the most common type of retirement plan among public sector retirement systems. Since the Great Recession, governments have reformed their pension plans to lower costs.

Some states and local governments have implemented minor reforms designed to mitigate long-term liabilities. These include establishing or increasing minimum retirement age or years of service requirements, lowering the benefit multiplier, reducing COLAs, increasing employee contribution rates, and/or increasing the number of years required to vest.

Some states and local governments have implemented more significant reforms, such as adopting defined contribution and hybrid plans and closing their defined benefit plans to new hires. In addition, some states have moved to cash balance plans, which promise a specific defined benefit that accumulates on an annual basis based on the amount of contributions accumulated at a certain point in time. Currently, three states offer some form of cash balance plan to state employees.

Requested Information

Employee Retirement System (ERS)

To what extent did creating the Georgia State Employees' Pension and Savings Plan (GSEPS) impact the financial viability of ERS?

The creation of GSEPS has allowed the state to mitigate its costs and risk. Costs have been mitigated primarily because employees are not maximizing the employer defined contribution 401(k)[11] match. Because of this, the state has saved an estimated $71 million since the start of GSEPS in 2009. However, future savings will erode if more employees maximize the employer defined contribution match and fully vest in the employer contributions. The state has mitigated its risk by decreasing the defined benefit for GSEPS members which, projecting decades out, reduces the total ERS pension plan liability significantly.

In addition, the low percentage of GSEPS members who have remained employed long enough to vest in either the defined benefit or defined contribution component of the plan has contributed to the state's ability to reduce costs and mitigate risk. As shown in **Exhibit 12**, only a third of GSEPS members have remained employed at least five years, long enough to receive the maximum employer match of 3%. In addition, only 18% of GSEPS members have remained employed since the inception of GSEPS (nine years ago).[12] Those who remain for 10 years will vest in the defined benefit component.

Exhibit 12
Less than 50% of GSEPS Members are Retained Beyond Two Years of Service[1]

Start Year	1 year	2 years	3 years	4 years	5 years	6 years	7 years	8 years	9 years
2009	74%	54%	41%	33%	28%	24%	22%	20%	18%
2010	74%	54%	42%	35%	30%	27%	24%	23%	
2011	74%	56%	45%	38%	33%	29%	26%		
2012	73%	55%	45%	37%	32%	28%			
2013	72%	55%	44%	37%	32%				
2014	67%	51%	41%	35%					
2015	69%	53%	44%						
2016	72%	56%							
2017	72%								
DC Vested %	20%	40%	60%	80%	100%	100%	100%	100%	100%
Employer Match[2]	0.6%	1.2%	1.8%	2.4%	3.0%	3.0%	3.0%	3.0%	3.0%

[1]Retention based off June 2018 data from ERS.
[2]Each cohort is made up of members with the same years of service (or vesting period).Vesting influences the amount of employees' defined contribution match. For example, after one year of employment, 20% of the 3% match is vested, which means the benefit to the employee is equal to 0.6% of the match.

Source: DOAA analysis of ERS documents

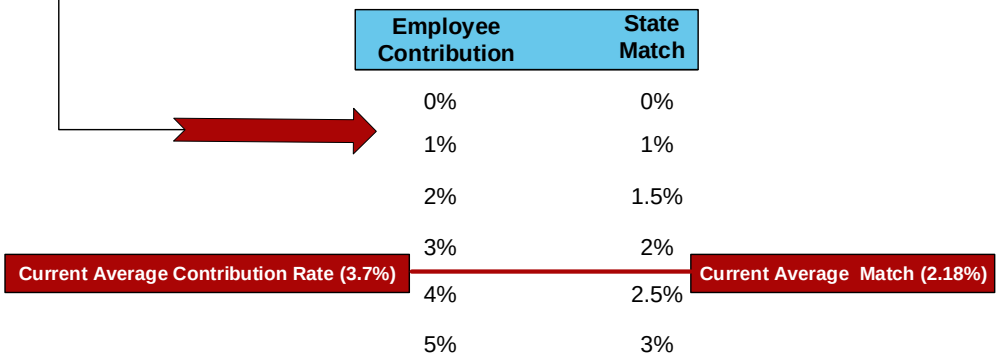
[11]The defined contribution (DC) benefit received by GSEPS members is in the form of a 401(k) account.
[12]We did not study the factors that influence retention of GSEPS members or compare retention rates of state employees before or after the creation of GSEPS as part of this review.

Cost[13]

As shown in **Exhibit 13**, the cost structure of GSEPS results in a total employer cost that equals the New Plan[14] despite providing a lower retirement benefit when an employee's defined contribution is 5%. Employers of active New Plan and GSEPS members support retirees through funding ERS' UAL. The potential for cost savings in the GSEPS plan results from employees not maximizing the employer defined contribution match. For employees who contribute 0% to 5% of their salary, the state matches 0% to 3%. The average employer defined contribution match is 2.18% due to GSEPS members on average contributing only 3.7% to their GSEPS 401(k).[15] The difference between the actual employer match (2.18%) and the potential maximum match (3%) represents a savings to the state. Since the start of GSEPS, this savings is estimated to be $71 million.

Exhibit 13
ERS GSEPS and New Plan have Similar Employer Costs, FY2019

	GSEPS	New Plan
Defined Benefit **Employee** Contribution	1.25%	1.25%
Defined Benefit **Employer** Cost		
Normal Cost	2.98%	5.98%
Accrued Liability	18.68%	18.68%
Total	21.66%	24.66%
Defined Contribution **Employer** Cost	0 - 3%	N/A
Total **Employer** Cost	**21.66% - 24.66%**	**24.66%**



Source: ERS documents

As GSEPS members' contributions increase, cost savings to the state decrease. **Exhibit 14** shows approximately 33% of GSEPS members do not maximize the employer

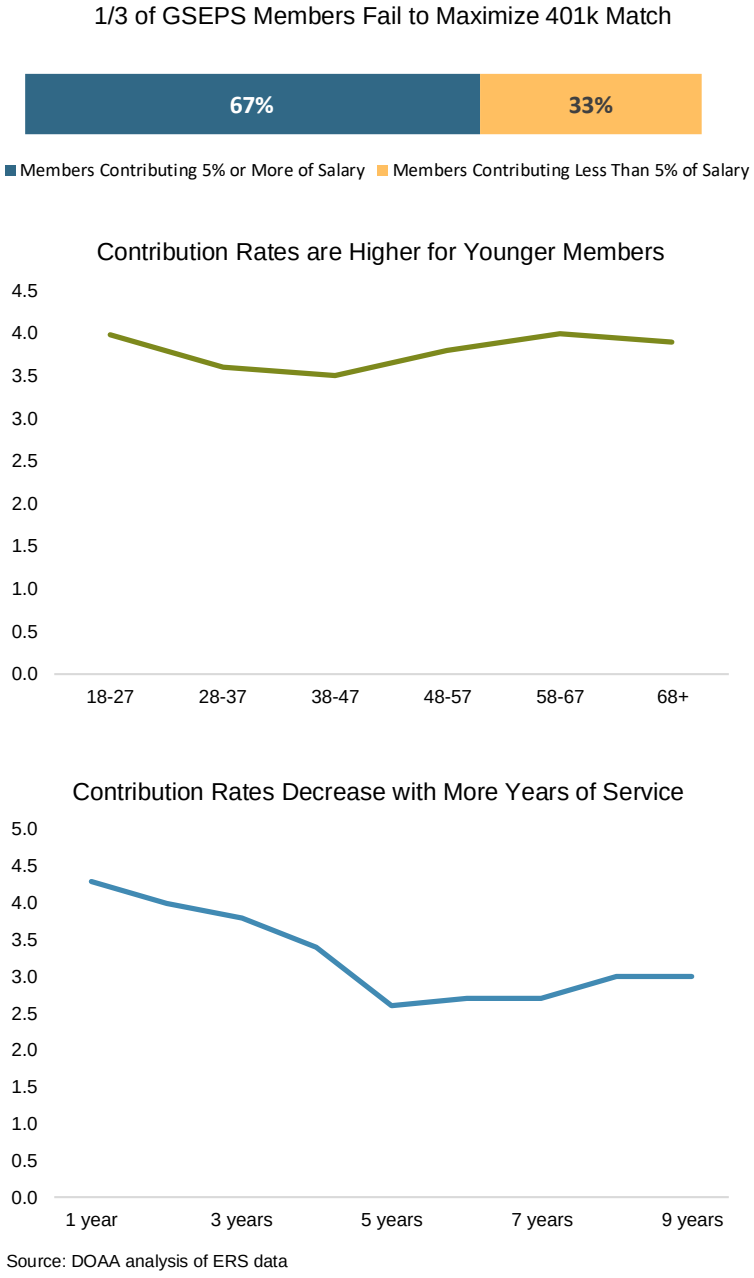
[13]For this report, cost refers to outlays by the employer and risk refers to the potential underfunding of the pension plan.

[14]GSEPS replaced the New Plan in 2009.

[15]Members may voluntarily contribute above the 5% plan maximum. We did not consider contributions above the plan maximum because they are outside the parameters of the plan and do not receive any state match. Approximately 13% (4,300) of the nearly 33,000 active GSEPS members elected to contribute more than 5% to their 401(k) at the end of fiscal year 2017. These members' contributions were capped at 5% for the purpose of these analyses.

match. In addition, **Exhibit 14** shows higher contribution rates for GSEPS members with fewer years of service. A contributing factor to higher contribution rates for newer GSEPS members is that, starting July 2014, new employees began employment at a default contribution rate of 5%. Prior to this, GSEPS members started employment at a default contribution rate of 1%. Even though the current default employee contribution rate is 5%, employees have the option to reduce their contribution rate.

Exhibit 14
GSEPS Members 401(k) Contribution Rates do not Maximize Employer Match (as of 6/30/2018)[16]



Source: DOAA analysis of ERS data

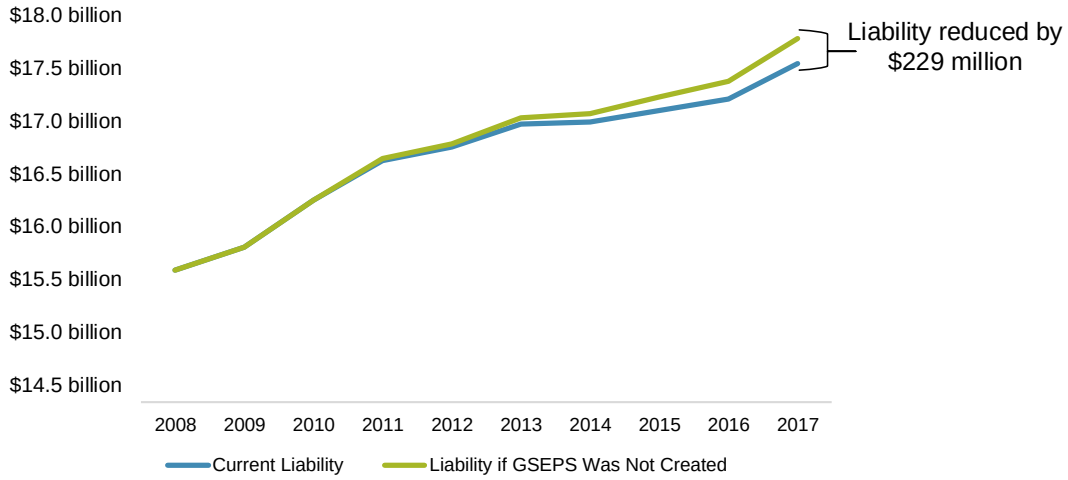
[16]These rates reflect contributions that were matched by the state (1%-3%). Any voluntary contributions above 5% were capped at 5% for purposes of the analysis.

Risk

The creation of GSEPS decreased the state's future defined benefit funding risk by reducing the growth of the pension liability. Projecting decades out, the total ERS pension liability will be significantly less. This reduction is due to GSEPS members receiving a defined benefit multiplier of 1% versus the 2% multiplier for New Plan members. An analysis performed by an independent actuary projected what the pension liability would be if GSEPS had not been created, and GSEPS participants were placed into the New Plan instead. As shown in **Exhibit 15**, it is estimated that the accrued liability would be $229 million higher without GSEPS.

The projection also determined the UAL would only be $67 million higher if GSEPS members had been enrolled in the New Plan.

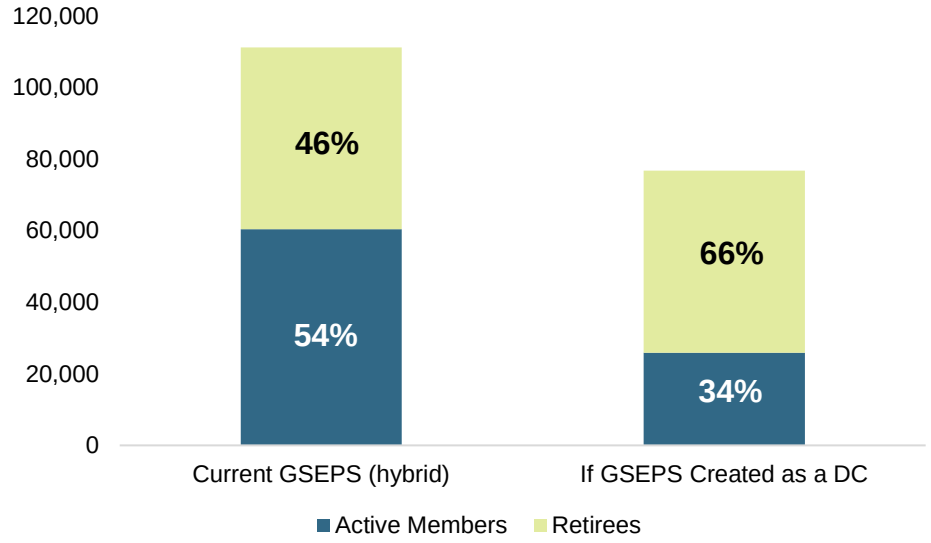
Exhibit 15
The Creation of GSEPS Decreased ERS' Liability



Source: Independent actuary's analysis of ERS data

As shown in **Exhibit 16**, by creating GSEPS as a hybrid plan as opposed to a defined contribution plan, the state maintained the financial viability of ERS by retaining the payroll of GSEPS members as part of the ERS pension. If GSEPS had been created as a defined contribution plan, the entirety of the UAL for Old and New Plan retirees would be borne by employers of active New Plan members. The ratio of New Plan active members to retirees would continue to decline as the New Plan active members retired, eventually reducing the active membership to zero. Under this scenario the state would be required to make a direct UAL payment into ERS.

Exhibit 16
GSEPS Hybrid Structure Maintains ERS Ratio of Active Members to Retirees



Source: DOAA analysis of ERS documents

ERS' Response:
ERS believes the information in this section generally addresses the question of the impact of GSEPS on the financial viability of ERS.

ERS indicated that the idea of controlling liability growth in a defined benefit plan is a very important component of the GSEPS design and is probably underemphasized in this report. "It bears noting that one of the benefits to an employer of a defined contribution plan ... is that liabilities in a defined contribution plan can never exceed the assets of the plan."

Also, ERS noted that while the graphs in Exhibit 14 are technically accurate, the increase of the default employee contribution rate in 2014 from 1% to 5% has impacted the contribution rates for more recent hires. With this law, ERS believes the employee contribution rates are certain to change over the next several years.

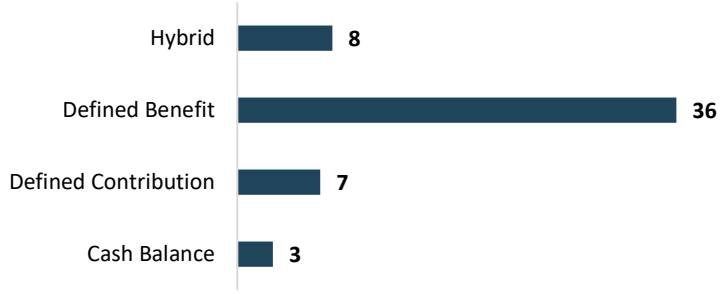
Auditor's Response:
While it is true that the 2014 law has increased the initial employee contribution rate for members hired since 2014, the graph also shows some members are voluntarily decreasing their contribution rates.

Is GSEPS a competitive retirement plan?

The benefits provided by GSEPS are generally lower than the benefits provided by other hybrid retirement plans. Comparatively, GSEPS has a longer than average vesting period for both the defined benefit and defined contribution components, and it provides a less portable benefit than other hybrid plans. The benefit multiplier for the defined benefit is also lower than average. Lastly, other hybrid plans provide COLAs in retirement to offset inflation risk, while GSEPS is prohibited[17] from providing COLAs.

A majority (36) of other states still offer a defined benefit plan to new state employees. As shown in **Exhibit 17**, others offer a cash-balance or defined contribution 401(k)-style plan, and four offer a choice between different types of retirement plans. Eight states offer employees a hybrid retirement plan.

Exhibit 17
Defined Benefit Plans Remain Most Common Plan in Other States



Source: DOAA analysis of other states' plan documents

As shown in **Exhibit 18**, employee contributions toward their defined benefit in the other states' hybrid plans range from 0% to 5%. A majority have a benefit multiplier of 1%, the same as GSEPS, while three have a higher benefit multiplier (1.1%-1.5%). A majority of other plans have a defined benefit vesting period of five years or less (compared to 10 years for GSEPS) and provide COLAs in retirement. The employer contribution is not included because it is an actuarially determined contribution that varies year-to-year based on the current funding status of the pension fund.

[17]For members who began employment after July 1, 2009 (GSEPS opened on January 1, 2009).

Exhibit 18
GSEPS' Defined Benefit Compares Unfavorably to Other States' Hybrid Plans

	Employee Contribution Rates	Benefit Multiplier	Vesting	Cost-of-Living Adjustments
Georgia	1.25%	1%	10 years	None
Indiana	0%	1.1%	10 years	Ad hoc
Ohio	0%	1%	5 years	CPI up to 3%
Oregon	0%	1.5%	5 years	CPI up to 2%
Rhode Island	3.75%	1%	5 years	Suspended
Tennessee	5%	1%	5 years	CPI up to 3%
Utah	Variable	1.5%	4 years	CPI up to 2.5%
Virginia	4%	1%	5 years	CPI up to 2%[1]
Washington	0%	1%	10 years	CPI up to 3%

[1]50% of CPI above 2%

Source: DOAA analysis of ERS and other state plan documents

The GSEPS defined contribution benefit is less portable than the retirement benefit offered by other states' hybrid plans. As shown below in **Exhibit 19**, the vesting period for the GSEPS defined contribution is longer than the vesting period of other hybrid plans.

Exhibit 19
GSEPS' Defined Contribution is Less Portable than Other States' Hybrid Plans

	Employee DC Rate	Minimum Employer DC Rate	Maximum Employer DC Rate	Full DC Vesting	Vesting Method
Georgia	Optional	0%	3%	5 years	Graduated[1]
Indiana	Optional	3%	3%	Immediate	N/A
Ohio	10%	0%	0%	N/A	N/A
Oregon	6%	0%	0%	N/A	N/A
Rhode Island	5%	1%	1%	3 years	Cliff[2]
Tennessee	Optional	5%	5%	Immediate	N/A
Utah	Optional	Variable	Variable	4 years	Cliff[2]
Virginia	4%	1%	3.5%	4 years	Graduated[1]
Washington	5%	0%	0%	N/A	N/A

[1]Employees vest in a certain percentage each year.
[2]Employees become 100% vested at the end of the vesting period.

Source: DOAA analysis of ERS and Other State Plan Documents

Furthermore, GSEPS members who have a break in service of more than 31 days start over at 0% vested in the defined contribution if they return to state employment. Most other states (4 out of 5) that contribute to employees' 401(k) accounts allow employees to retain their vesting status if they return to state employment.

In addition, 75% (6 out of 8) of other states provide COLAs to retirees based on changes in the Consumer Price Index (CPI) in order to maintain the buying power of the retirement benefit. Georgia statutorily prohibits GSEPS members from ever receiving a COLA.[18] As shown in **Exhibit 20**, shows the impact of the COLA.

Exhibit 20
GSEPS Defined Benefit Payments are Less than Other States Because of the Lack of a COLA[19]

Source: DOAA Analysis of Georgia ERS and Other State Retirement Plan Documents

As shown in **Exhibit 21**, GSEPS' benefits are less generous than other hybrid plans due to the design of the plan and the longer than average vesting periods. In addition, in a majority of hybrid plans, employees either contribute toward their defined benefit or defined contribution benefit, but not both. Currently, four do not require employee contributions toward the defined benefit. Instead, these plans require employees to fund their defined contribution benefit. This plan design creates a more portable benefit as employees can leave with 100% of their employee contributions and investment returns on those contributions.

[18]For members who began employment after July 1, 2009. (GSEPS opened on January 1, 2009.)
[19]The initial "Retirement Year" benefit is calculated using the benefit salary of $50,000*benefit multiplier (1% to 1.5%)*30 years of creditable service. COLAs are calculated and added based on the 25 year CPI average of 2.2% and any other COLA restrictions or caps specific to each hybrid plan.

Exhibit 21
GSEPS Benefits are Less Generous than Other States' Hybrid Plans

	DB Employee Rate	DC Employee Rate	DC Employer Rates	Multiplier	DB Vesting	DC Vesting	COLAs
Georgia	1.25%	0-5%	0-3%	1%	10 years	5 years	No
Indiana	0%	Optional	3%	1.1%	10 years	Immediate	Yes
Ohio	0%	10%	0%	1%	5 years	N/A	Yes
Oregon	0%	6%	0%	1.5%	5 years	N/A	Yes
Rhode Island	3.75%	5%	1%	1%	5 years	3 years	No
Tennessee	5%	Optional	5%	1%	5 years	Immediate	Yes
Utah	Variable	Optional	Variable	1.5%	4 years	4 years	Yes
Virginia	4%	1-4%	1-3.5%	1%	5 years	4 years	Yes
Washington	0%	5%	0%	1%	10 years	N/A	Yes

Source: DOAA analysis of ERS and other state plan documents

As noted earlier, defined contribution plans are offered as a retirement option in seven states and a number of local governments in Georgia. It is difficult to compare a defined contribution plan to a hybrid plan because the comparison ignores the employees' defined benefit and the employers' cost to provide the defined benefit in a hybrid plan.[20] However, as shown in **Exhibit 22**, the 12 local governments we surveyed in Georgia that offer a defined contribution benefit offer better average employer contributions than other states.

Exhibit 22
GSEPS DC Component is Less Generous than Other Public DC Plans

	DC Employee Contribution	DC Employer Contribution	DC Vesting
GSEPS	5%	3%	5 years
Other States' Average[1]	6.7%	6.3%	4.1 years
Georgia Local Government Average[2]	5.6%	9.8%	3.8 years

[1] Average of all seven states that offer a defined contribution plan
[2] Defined contribution average from the 12 local governments that offer a defined contribution plan identified in our survey

Source: DOAA analysis of ERS and other state plan documents

ERS' Response:
ERS believes the information in this section generally addresses the question of the competitiveness of GSEPS. ERS notes "that the single most impactful liability control measure" has been "withholding COLAs from current retirees" which could have an impact "on the order of $3 billion or more."

[20] The GSEPS DC component composes half the GSEPS retirement benefit.

In addition, ERS noted that "comparing the GSEPS 401(k) plan to most municipal plans, which are the sole retirement plan for their employees, is an "apples to oranges" comparison that does not allow for any useful conclusions. It's a comparison of just half of the GSEPS program to the entire retirement programs of those municipalities."

Auditor's Response:
We agree that a comparison of GSEPS to municipal defined contribution plans is problematic. It was included to address questions posed regarding municipal plans.

Does GSEPS provide an adequate retirement?

GSEPS provides a nominal retirement benefit for the majority of its members. Fewer than 18% of GSEPS members are projected to vest in the defined benefit component and approximately 30% fully vest in the defined contribution component.

A common financial planning rule is that retirees need 80% of their pre-retirement income to maintain their standard of living.[21] If GSEPS members reach 30 years of service and contribute at least 5% of their salary to their 401(k), GSEPS combined with Social Security may provide an adequate retirement benefit. However, investment returns and inflation risk could impact the GSEPS retirement benefit.

As a hybrid plan, GSEPS is designed to provide the benefits of both a defined contribution and defined benefit plan. The primary benefit of a defined contribution plan for employees is its portability. Vesting periods can be shorter than defined benefit plans, and if vested the participant can take both the employee and employer contributions upon separation. Participants also have more control over their investments, which could provide better or worse investment returns depending on their investment realizations. Disadvantages of defined contribution plans include higher inflation and life expectancy risks (the risk of living longer than expected and outliving one's savings), and risks that retirement income will be insufficient. The defined benefit component of GSEPS mitigates some of the investment and life expectancy risk for GSEPS members who vest. However, it does not mitigate inflation risk because the COLAs traditionally offered in defined benefit plans are statutorily prohibited for GSEPS members.[22]

GSEPS members leave on average with

$650

in vested employer contributions

A GSEPS member's length of service significantly impacts the amount of retirement benefit a member accumulates. As shown in **Exhibit 23**, approximately 21,500 (47%) of the 45,000 GSEPS members who have left state employment ceased employment within the first year, leaving with $0 in vested employer contributions. Only 4% leave fully vested in their 401(k) account (full vesting is at five years). GSEPS members have left with an average of 1.5 years of service, and nearly 75% left with only 0% to 20% of their employer contributions.

[21]Post retirement income can be comprised of any of the following: employer based retirement plan, Social Security, and personal savings and investments.
[22]COLAs are prohibited for anyone who began after July 1, 2009.

*The **average GSEPS member who left state employment stayed** for approximately*

1.5 years

Exhibit 23
85% GSEPS Members Leave Employment with Less than 50% Vesting in Employer Contributions

Retention	GSEPS Members[1]	% of Total	Average Years of Service	DC Vesting %[2]
<1 year	21,535	47%	0.44	0%
1 year	11,339	25%	1.40	20%
2 years	5,902	13%	2.41	40%
3 years	3,202	7%	3.42	60%
4 years	1,730	4%	4.40	80%
5+ years	1,774	4%	6.07	100%

[1]Number of GSEPS members who leave state employment each time period.

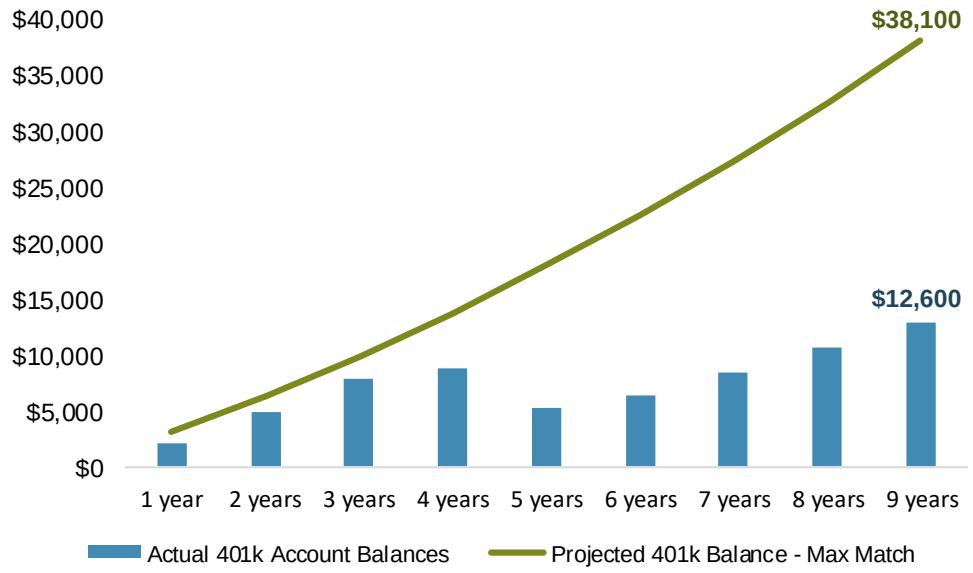
[2]For those GSEPS members who contribute 5% and receive the maximum 3% match but only vest in a percentage of the match, these funds are retained by ERS. GSEPS members who have a break in service of more than 31 days start over at 0% vested if they return to state employment.

Source: DOAA analysis of ERS data

As noted earlier, the average GSEPS member does not contribute the 5% required to receive the full 3% employer match for their GSEPS 401(k) account. As shown in **Exhibit 24**, the typical member with nine years of service has approximately $13,000 in their 401(k) account. Conservatively, this member would have an account balance of $38,000 if they had contributed 5% of their salary to their 401(k) and received the full employer match.[23]

[23]This analysis assume a member with a starting salary of $38,000 and annual compensation increases of 3.5% contributing 5% of their salary to their 401(k) and receiving the 3% match for nine years, as well as achieving consistent 401(k) returns of 5% annually.

Exhibit 24
401(k) Balances are Typically[24] Lower than Possible Because GSEPS Members, on Average, Do Not Contribute 5% Annually

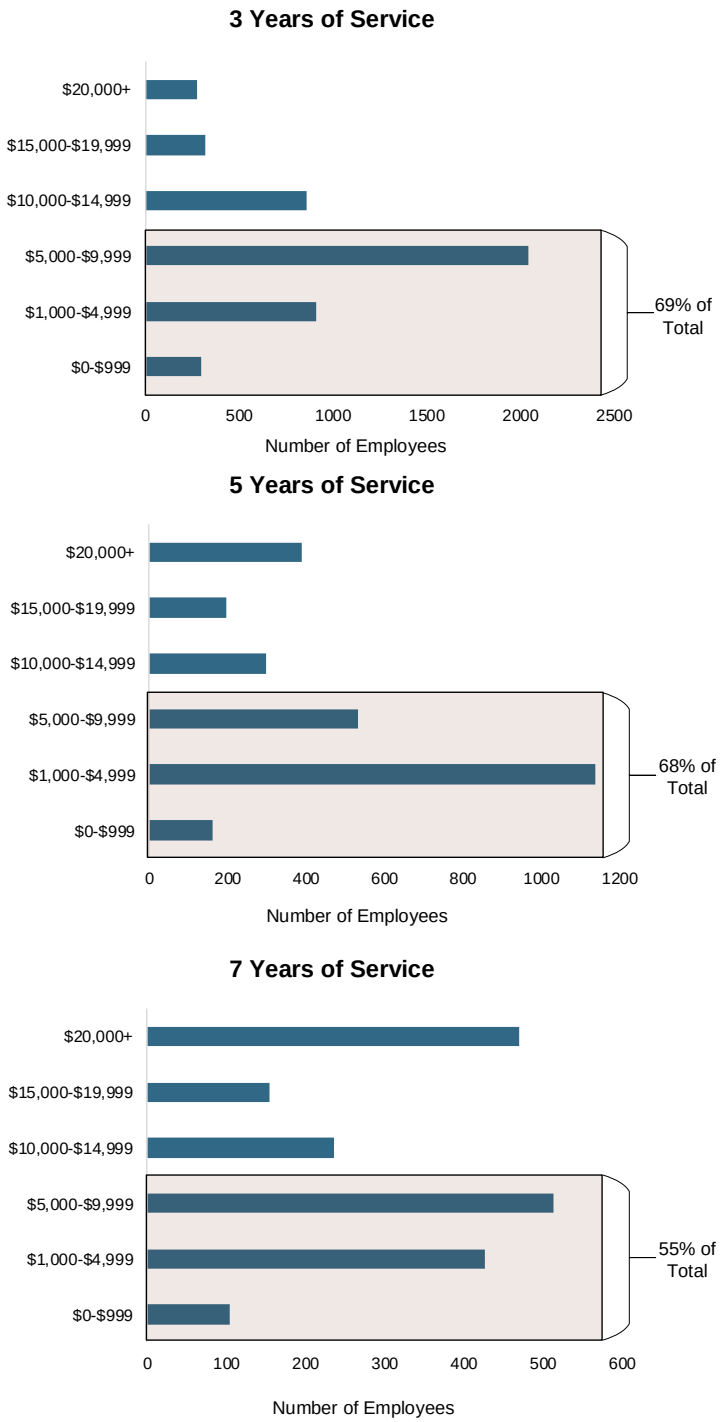


Source: DOAA analysis of ERS data

Exhibit 25 shows 401(k) account balances for GSEPS members with three, five, or seven years of service, with most balances being less than $10,000. As indicated in **Exhibit 24**, however, the average GSEPS member should have approximately $10,000 in their GSEPS 401(k) after three years of service, if they contribute 5% and receive the maximum 3% employer match. The account balances with less than $10,000 could be particularly problematic for those with five or seven years of service if GSEPS is their only retirement savings. It is also possible the low account balances for these longer tenured employees could be the result of the default contribution rate being set at only 1% for all new hires prior to July 2014. Currently, the average contribution rate based on state match is 3.7%.

[24]We used the median account balance for all members within each years' group to account for outliers from members who contribute 0% or more than 5%. This gives a better picture of the "typical" account balance.

Exhibit 25
68% of GSEPS Members with 5 Years of Service Have Less than $10,000 in 401(k) Savings[25]



Source: DOAA analysis of ERS 401(k) data

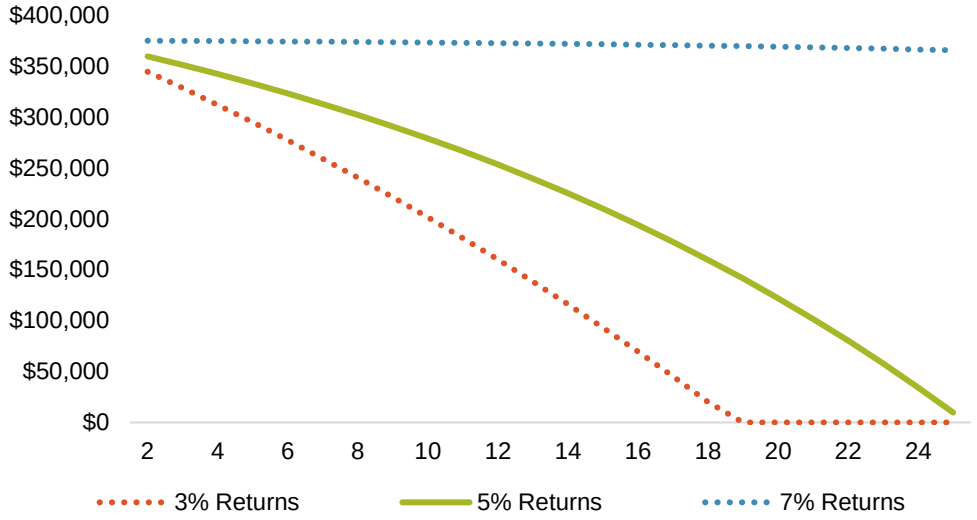
[25]This includes the 13% of the GSEPS population that currently contributes more than 5% to their GSEPS 401(k), which results in account balances including more than the benefit established within the parameters of GSEPS.

For an employee with 30 years of service and a final average salary of $88,000[26] (in year 2048), the employee's annual defined benefit would be $52,000 in the New Plan and $26,000 in GSEPS. In order for this GSEPS retiree to receive a benefit equal to the benefit received by a New Plan retiree[27], the retiree would need to withdraw $26,000 each year from their 401(k). We estimated that the GSEPS 401(k) balance at retirement for this employee would be approximately $375,000,[28] if the member makes a contribution of 5% of their salary. **Exhibit 26** shows potential drawdown scenarios for this 401(k) account, assuming this member withdraws $26,000 annually.

The $375,000 would fall to approximately $10,000 after 25 years of retirement, assuming a consistent annual investment return of 5%. The scenario changes significantly if the investment returns were to exceed or fall below 5% annually. A consistent annual investment return of 3% would fully deplete the 401(k) account in 19 years, while consistent returns of 7% would leave approximately $365,000 in the 401(k) account after 25 years of retirement.

In addition, the purchasing power of the benefit could decrease over time depending on inflation. In GSEPS, the entirety of the inflation risk is borne by the member's 401(k) account. Members may need to draw down funds at a more rapid pace than shown in **Exhibit 26** to offset the declining purchasing power of their retirement dollars if they have no other retirement savings. This could result in members depleting their retirement funds earlier in retirement. In the New Plan, members are eligible for COLAs that, if granted, could help offset the impact of inflation.

Exhibit 26
Investment Returns Significantly Impact 401(k) Balances



Source: DOAA analysis of GSEPS 401(k) scenarios

[26]Member with a starting salary of $38,000 and annual compensation increases of 3.5%.
[27] This assumes the New Plan retiree receives no COLAs.
[28]Based on member contributing 5% of their salary to their 401(k) and receiving the 3% match for 30 years, as well as achieving consistent 401(k) returns of 6.5% annually.

ERS' Response:

ERS notes that the data in Exhibit 25 could be skewed because those in the five and seven year categories began employment with a default contribution rate of 1%. While the report acknowledges that the lower contribution rates "could be" the result of the default rate change, ERS does not believe that statement is strong enough or prominent enough.

Teachers Retirement System (TRS)

To what extent would possible reforms increase the financial viability of TRS while maintaining a defined benefit plan?

Historically, the TRS pension fund witnessed dramatic shifts in its funded ratio, from fully funded (104%) in 2001 to 74% in 2017. These dramatic shifts are caused by the benefits promised, economic factors such as the 2008 recession, poor asset returns, improved mortality rates, and unrealized actuarial assumptions. As the funded ratio has declined, the unfunded accrued liability (UAL) rates have increased from -0.94% in 2004 to 13.13% in 2019. A contributing factor to the increase in the UAL rate has been closing the amortization period. This increase in the UAL rate has resulted in significant increases in state expenditures for retirement benefits. For example, the state allocated an additional $224 million for TRS in the fiscal year 2018 budget and $365 million in the fiscal year 2019 budget to cover increased employer contribution rates. Pension reform is intended to mitigate the cost and risk of a pension plan.

Reforms undertaken by other states, such as adjusting the COLA, interest crediting rate, retirement age, and benefit formula (for new hires), could help reduce costs and funding risk of the TRS pension plan. We engaged an independent actuary to calculate the impact these changes would have on employer contributions. As shown in **Exhibit 27**, there is potential to significantly reduce costs while continuing to provide a defined benefit to TRS members. Revising the COLA has the most significant impact; employer contributions could be reduced by anywhere from $17 to $700 million annually. Changes to interest crediting rate, retirement age, and benefit formula (for new hires) would also result in cost reductions. (Each change is discussed in detail throughout the TRS section of this report.) It is important to note that combining various changes is possible; however, not all options are additive, meaning some changes impact each other when combined. Therefore, totaling individual cost saving measures may overstate total cost savings. Additionally, whenever pension plans are revised, there are legal considerations to be considered, and some changes may be limited to specific members, (e.g., new hires, active members, or retirees, depending on legal protections). Lastly, it would take several years for the impact on employer contributions to be realized because of the timeframe for actuarial valuations.

Exhibit 27
Potential Modifications Could Decrease TRS Employer Contributions Significantly

	Scenario (all in $ millions)[1]	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
	Baseline Forecast Employer Contribution	$2,317	$2,558	$2,460	$2,218	$2,370
Interest Crediting	Scenario 1A: Lower employee interest crediting to 3% for all employees	-$7	-$6	-$8	-$9	-$7
Interest Crediting	Scenario 1B: Lower employee interest crediting to 2% for all employees	-$11	-$12	-$13	-$13	-$13
Cost-of-Living Adjustments	Scenario 2A: Change COLA from 1.5% twice per year to 3% once per year to eliminate compounding effect	-$17	-$18	-$21	-$21	-$22
Cost-of-Living Adjustments	Scenario 2B: Reduce COLA to 1.6% per year for all new hires and those hired after 7/1/1993	-$446	-$495	-$529	-$530	-$553
Cost-of-Living Adjustments	Scenario 2C: Reduce COLA to 1.6% per year for new hires and those with less than 5 years of service	-$130	-$142	-$150	-$147	-$152
Cost-of-Living Adjustments	Scenario 2D: End COLA for new hires only	-$197	-$213	-$223	-$217	-$223
Cost-of-Living Adjustments	Scenario 2E: Make COLA payable starting at age 65 for post 7/1/1993 hires	-$340	-$378	-$404	-$406	-$424
Cost-of-Living Adjustments	Scenario 2F: Make COLA payable starting at age 70 for post 7/1/1993 hires	-$552	-$613	-$656	-$656	-$685
Age	Scenario 3A: Increase retirement age by 2 years for new hires only	-$50	-$51	-$52	-$48	-$48
Benefit Formula	Scenario 3B: Change benefit calculation to 5 year salary average from 2 year average for new hires	-$38	-$41	-$43	-$43	-$44
Benefit Formula	Scenario 3C: Move to a 1.9% benefit multiplier (from a 2.0% multiplier) for new hires only	-$40	-$42	-$45	-$43	-$44

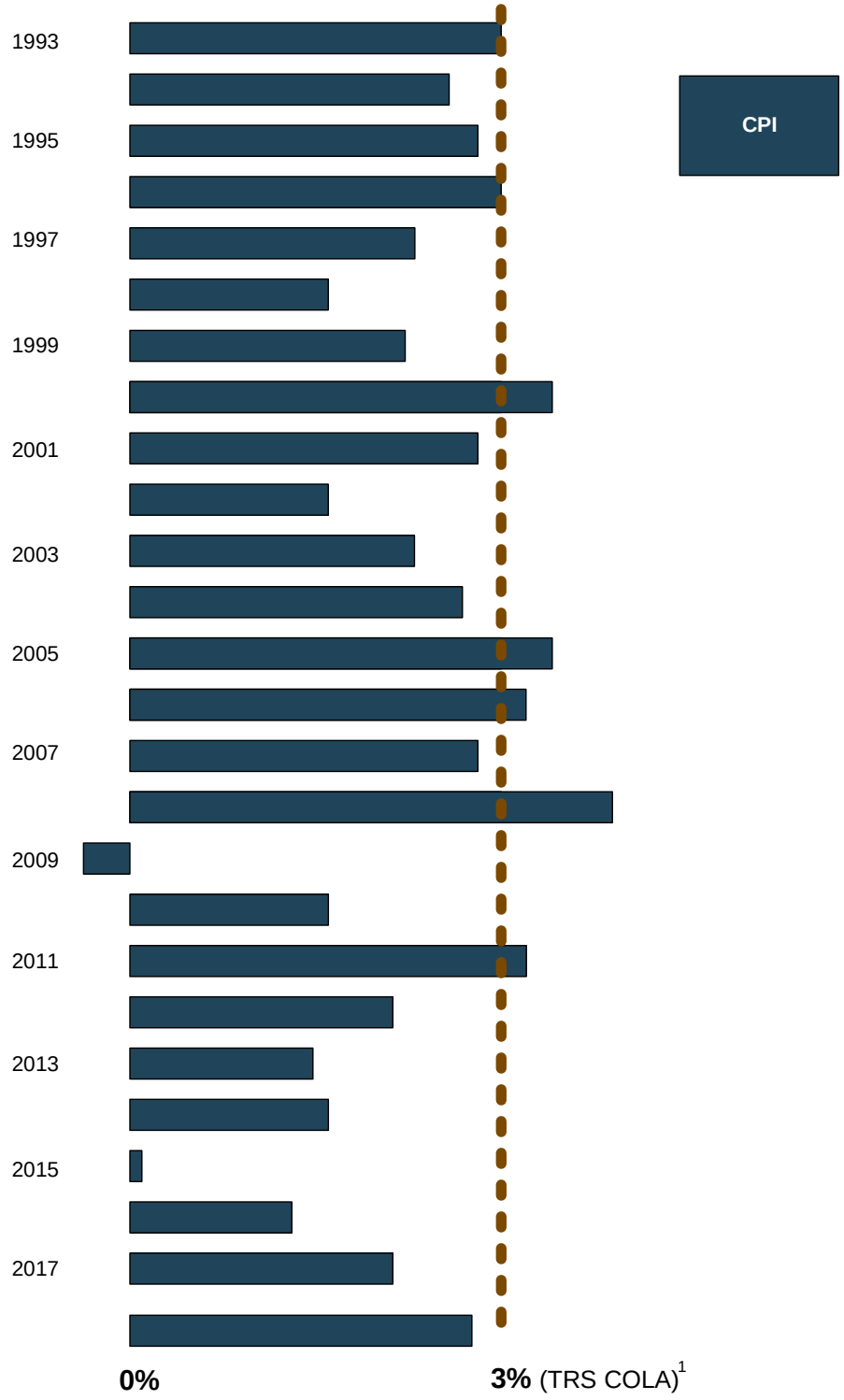
[1]An independent actuary calibrated a valuation system based on the TRS valuation census files and used the assumptions and plan provisions outlined in the June 30, 2017 TRS valuation report. Overall, the valuation system is calibrated to within 0.5% of the liability reported in the TRS valuation report. The different scenarios listed above were then actuarially determined using the calibrated valuation system.

Source: Independent actuarial analysis of TRS data

Cost-of-Living Adjustments (COLAs)

The goal of defined benefit plans is to provide adequate income in retirement to sustain a person's standard of living once they are no longer working. Currently, TRS beneficiaries receive a COLA of 1.5% every six months per Board rule, as long as there is any increase in the Consumer Price Index (CPI) from the beneficiaries' base (retirement) year. In practice, retirees have received COLAs that outpace the rate of inflation. As shown in **Exhibit 28**, TRS COLAs exceeded CPI for 21 out of the last 26 years. Typically, the purpose of a COLA is to maintain a person's buying power, not increase it.

Exhibit 28
TRS COLAs Outpaced CPI in 21 of the Last 26 Years

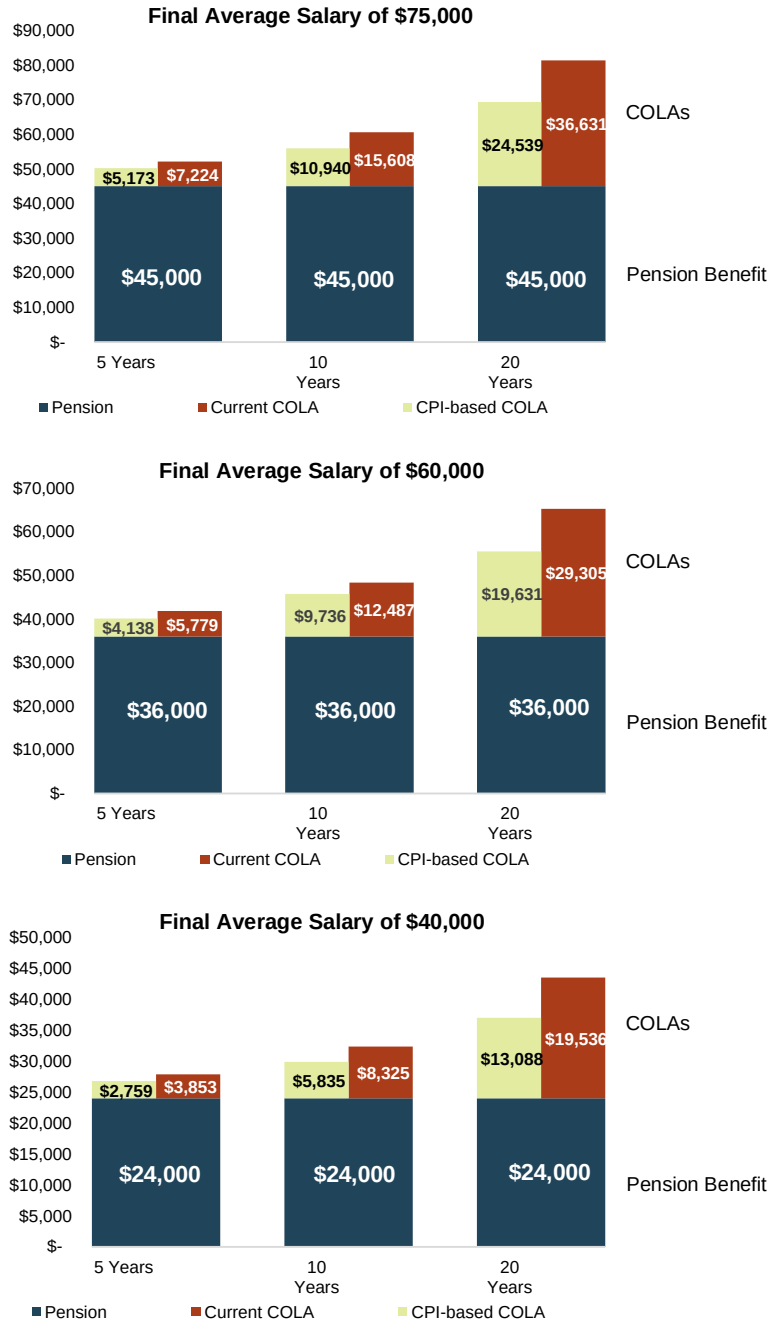


[1]TRS COLAs are 1.5% every six months, which exceeds 3% on an annualized basis due to compounding

Source: DOAA Analysis of COLAs and CPI

COLAs compound and, over the length of one's retirement, result in a substantial increase in pension benefits. Over the length of one's retirement accumulated COLAs could be substantial, but a COLA that outpaces CPI year over year will result in an accumulated COLA significantly higher than a CPI-based COLA. As shown in **Exhibit 29**, after 20 years of retirement, TRS retirees (who retired after 30 years of service) receive a COLA that is 49% higher than the COLA needed to maintain purchasing power.

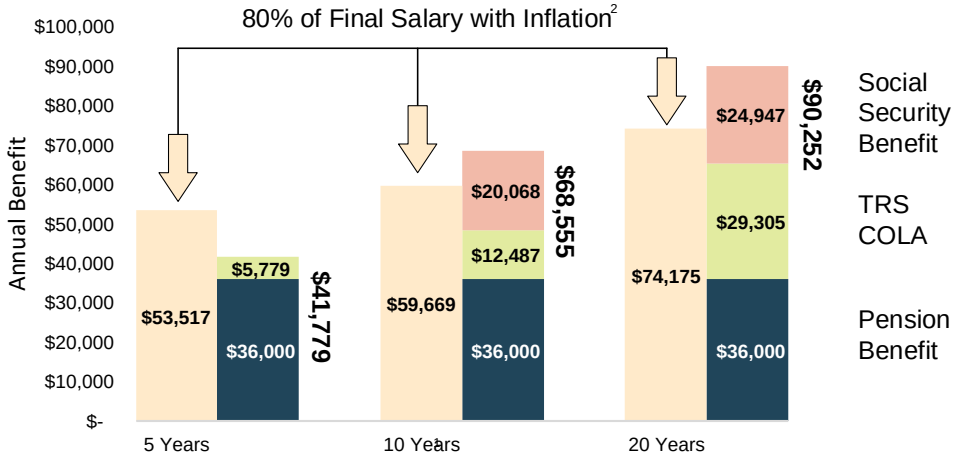
Exhibit 29
TRS Retirees Pension COLAs Increase Purchasing Power in Retirement



Source: DOAA analysis of TRS COLAs

In addition to the TRS benefit and COLAs, retirees also receive Social Security benefits.[29] These benefits are funded by both employee and employer contributions. **Exhibit 30** shows a hypothetical scenario for the total retirement benefit (pension, COLAs, and Social Security) that a retiree with a final average salary of $60,000 would receive, assuming no other personal savings or investments. A common financial planning rule is that retirees need 80% of their pre-retirement income to maintain their standard of living.[30] As shown in the hypothetical scenario in **Exhibit 30**, TRS retirees exceed 80% of inflation-adjusted pre-retirement income when they begin to receive their Social Security benefit.[31] At ten years, 80% of the pre-retirement income would be $59,669 (adjusted for inflation) while the projected retirement income is $68,555 or 115% of inflation-adjusted pre-retirement income.

Exhibit 30
COLAs and Social Security Benefits Allow TRS Retirees to Exceed 80% of Inflation-Adjusted Final Salary



[1] This assumes a retiree retires at age 55, after 30 years, of service and takes Social Security at the age of 62. If taken later, the benefit would be higher.

[2] This assumes the 25 year CPI average of 2.2%. The ten year average for CPI is 1.6%.

Source: DOAA analysis of TRS COLAs and Social Security benefits

Other States' COLAs

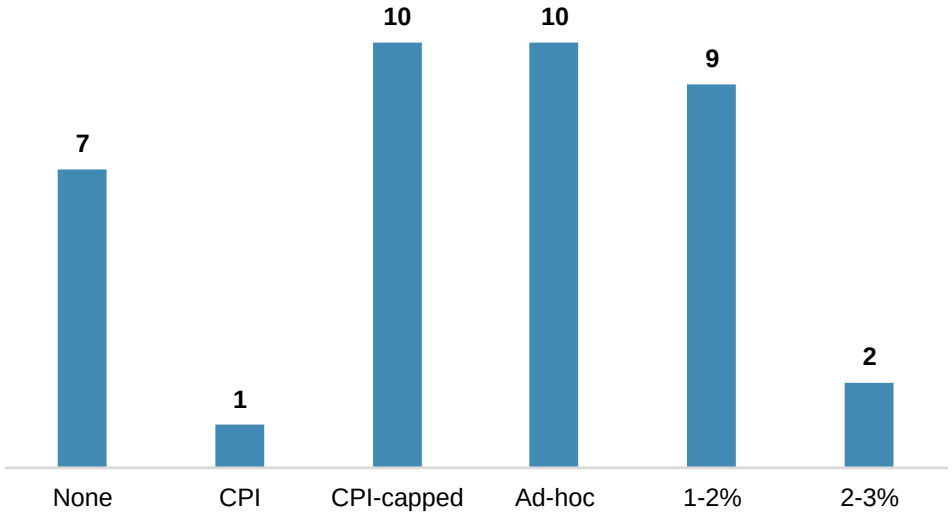
Based on our review of teacher retirement systems in other states that provide a defined benefit plan, the COLA given to TRS retirees exceeds COLAs provided by any other. As shown in **Exhibit 31,** a majority (21 out of 39) of other defined benefit teacher retirement systems provide COLAs on an ad-hoc basis or based on changes in the CPI. Seven states provide no COLAs to retired teachers.

[29] Most local school systems participate in Social Security; however, approximately 10% do not. Some local school systems that opt out offer an alternative retirement savings vehicle (such as a 457 account) while others only provide TRS.

[30] Post retirement income can be comprised of any of the following: employer based retirement plan, Social Security, and personal savings and investments.

[31] This assumes an employee retires at age 55 and takes Social Security at the age of 62. If taken later, the benefit would be higher. It also assumes a COLA of 1.5% every six months.

Exhibit 31
The Majority of Other States' Teacher Retirement Plans Provide Ad-hoc or CPI-based COLAs



Source: DOAA analysis of other states' teacher retirement plan documents

Potential COLA Modifications

COLA adjustments have the greatest potential to reduce employer contributions of any of the TRS reforms that we considered. The state could increase the sustainability of TRS as a defined benefit plan by changing COLA rates and/or establishing a minimum age for COLAs to begin as discussed below.

- **CPI-based COLA** – A DOAA analysis found that aligning the COLA with CPI for only those who have retired within the past five years would reduce costs by approximately $4 million annually, assuming the 2018 CPI rate of 2.8%. This cost savings would increase to $11.7 million annually if the CPI rate was capped at 2%. Ten states set COLAs to CPI with a cap.

- **Minimum retirement age** – A DOAA analysis found that establishing a minimum age to begin receiving COLAs would reduce costs significantly. Applying a minimum age of 65 to receive a COLA to those who retired in the past five years would create an annual savings of more than $22 million. This assumes the existing COLA rules are maintained, and that the retirees still receive a COLA of 1.5% every six months, after attaining 65 years of age.

An independent actuarial analysis reviewed the financial impacts of reforming the COLA. It found that total employer contributions could be reduced by tens of millions annually. **Exhibit 32** shows the actuarial projection of the annual employer contributions to TRS in fiscal year 2025 if reforms are implemented now. Possible reforms to the COLA would decrease total 2025 employer contributions by $17 to $700 million.

Exhibit 32
Potential COLA Reforms Would Reduce Total TRS Employer Contributions

	Projected 2025 Employer Contribution
No Reforms	**$2.4 billion**
Establish CPI[1] as COLA Rate – New Hires	**$2.2 billion**
Eliminate COLAs – New Hires	**$2.1 billion**
Begin COLAs at age 65[2]	**$1.9 billion**
Establish CPI[1] as COLA Rate	**$1.8 billion**
Begin COLAs at age 70[2]	**$1.7 billion**

[1]CPI is based on 10 year average of 1.6% annually

[2]For those hired after 7/1/1993

Source: TRS data and analysis by independent actuary

Basis for COLA Benefit

O.C.G.A. § 47-3-126 authorizes the TRS Board of Trustees to adopt postretirement benefit adjustments (such as COLAs) based upon (1) recommendation of the Board of Trustees actuaries and (2) maintaining the actuarial soundness of the system. TRS Board Rule 513-5-1-.16 establishes COLAs for retirees of 1.5% every six months when there is an increase in CPI from the beneficiaries' base (retirement) year.

O.C.G.A. § 47-1-31 specifies that COLAs granted to members hired after July 1, 1993 (post-1993) are subject to reduction by subsequent legislation and are not considered contractual elements of employment. Furthermore, COLAs, as well as any portion of the TRS benefit, can be changed for all future members.

A complicating matter in reducing the COLA for current members is that some consider COLAs to be pre-funded, meaning TRS has set the required contribution rates at levels to fund the actuarially anticipated cost of the COLAs. However, because TRS has a funding ratio of 74%, one view could be that 100% of the COLA has not been pre-funded. TRS would need to determine if COLA modifications can be applied to post-1993 members or could only be applied to new members. See **Appendix B** for a general discussion of COLA pre-funding and its relationship to the UAL.

In addition, O.C.G.A. § 47-3-126 grants the TRS Board the authority to establish a minimum age a retiree must attain to be eligible for a post-retirement benefit

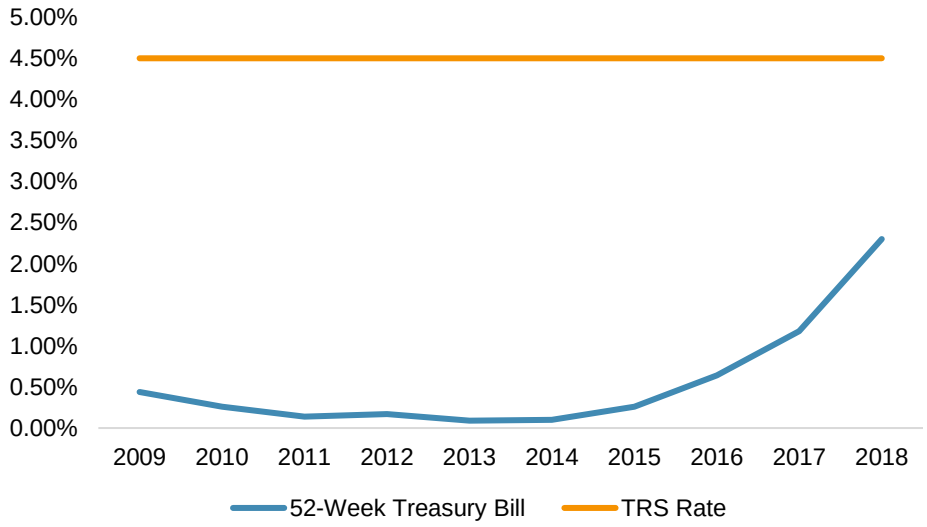
adjustment. As discussed, TRS could establish 65 or 70 as the age retirees must attain before they begin to receive COLAs. TRS would need to determine if this modification could be applied to post-1993 members or only to new members.

Interest Credited on Employee Contributions

Another option for reducing costs while maintaining a defined benefit is to decrease the interest credited on employee contributions. TRS credits member accounts with 4.5% interest on employee contributions each year. TRS established this interest rate in 1975 by board rule. When members leave prior to retirement, they receive the interest that has accrued on their employee contributions, if they choose to withdraw their contributions from TRS. Members can also leave the funds with TRS and continue to receive 4.5% interest annually for up to four years.

The interest credited is a risk-free return on members' contributions. The 52-week U.S. Treasury Bill is often used as a proxy for risk-free rate. As shown in **Exhibit 33**, the TRS interest rate has exceeded the 52-week Treasury Bill rate in recent years.

Exhibit 33
TRS Interest Rates Have Been Consistently Higher than 52-Week Treasury Bill Rates, 2009 to 2018



Source: DOAA analysis of Federal Reserve T-bill rates

Other States' Interest Rates

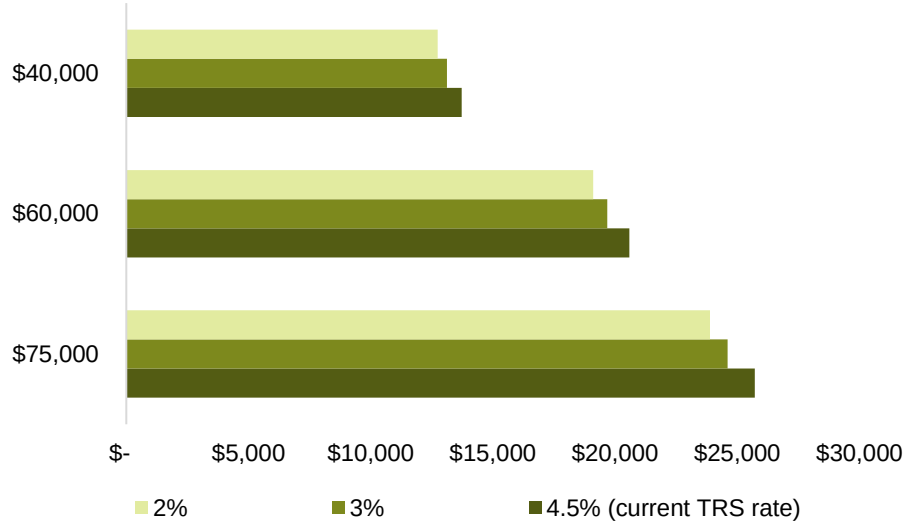
Other states' teacher retirement systems also credit interest on employee contributions. The interest rates in other states average 3.6%, ranging from 0% to 6%. Ten states vary the interest rate annually based on investment returns, a variable rate such as the 52-week Treasury bill rate, or annual retirement board vote.

Potential Interest Rate Modifications

Changing the interest rate on employee contributions would have little impact on the amount received by TRS members when they leave employment prior to retirement and have their contributions refunded. We looked at members who recently left to determine the individual impact of decreasing the interest rate. **Exhibit 34** shows the

total refund members would receive if they left after five years of service at average salaries of $40,000, $60,000, and $75,000. For an employee who leaves after five years and who had an average salary of $60,000, reducing the interest rate from 4.5% to 3% would decrease the employee's refund check by approximately $1,000, and reducing to 2% would decrease it by approximately $1,500.

Exhibit 34
Little Impact to Employees From Changing the Interest Rates for Employees Departing After 5 Years



Source: DOAA analysis of TRS interest rates

$13 million

projected annual reduction in total employer contributions from reducing the interest rate on employee contributions from 4.5% to 2%.

In terms of the TRS fund, interest rate reductions would have a cumulative impact. Our analysis of TRS employees who left within the last five years found that reducing the interest rate to 3% would have reduced costs by approximately $4 million annually; cost reductions increase to approximately $6 million annually if the interest rate was set at 2%.

An independent actuarial analysis projected an annual $13 million reduction in employer contributions by fiscal year 2025 by reducing the interest rate on employee contributions from 4.5% to 2%.

Basis for Interest Rate Benefit

The interest rates on employee contributions for TRS members are established by TRS Board Rule 513-5-1-.50 and can be legally decreased (or increased). They are not considered part of the employment contract and can be changed for future interest payments on current and future contributions. Changing the interest rates would have no impact on a member's current or future TRS pension benefit.

Benefit Formula Reforms

Changing aspects of the TRS benefit formula would decrease costs, potentially saving tens of millions of dollars annually. The items that could be reformed include the benefit multiplier (currently 2% of final average salary), the number of months used to calculate the final average salary (currently 24 months), and the minimum retirement age for those with less than 30 years of service (currently 60).

Other States' Benefit Formulas

On average, other states that offer a defined benefit use the 52 highest consecutive months of salary to calculate the final average salary for the retiree benefit formula. The 24 months used by TRS is more generous than all but one state. Other teacher retirement systems have an average benefit multiplier of 2%, the same multiplier currently used by TRS. A number of states have a minimum retirement age for those with less than 30 years of service, ranging from 60 to 67 years of age.

Potential Benefit Formula Modifications

As shown in **Exhibit 35,** changing the final average salary calculation from the highest 24 months to the highest 60 months. For members who retired in the last five years, this change would result in a $50 million savings.[32] Changing the benefit multiplier on this same group of retirees from 2% to 1.9% is estimated to have a similar annual cost savings of approximately $50 million. We did not estimate the cost of changing the minimum retirement age for those with less than 30 years of service. It should be noted that this analysis is theoretical in that the formula can likely only be changed for new hires.

Exhibit 35
Changing the Final Average Salary Calculation Could Reduce TRS Costs

	24 Month Final Average Salary	36 Month Final Average Salary	60 Month Final Average Salary
Average Annual Pension Benefit	$29,000	$28,500	$28,000
Total Annual Pension Payout	$1.02 billion	$1 billion	$970 million
Projected[1] Pension Savings		**$20 million**	**$50 million**

[1] Our calculation used the last five years of salary history as we did not have a way to extract the highest five years, so the cost savings could be lower than the estimated amount. It should be noted that this analysis is theoretical in that the formula can likely only be changed for new hires.

Source: DOAA analysis of TRS data

An independent actuarial analysis found reducing the benefit multiplier to 1.9% and increasing the final average salary calculation to the highest 60 months would have a similar impact on the annual employer contributions made to TRS. Each would result in a decrease in employer contributions of $44 million annually by fiscal year 2025. The actuarial analysis projected a reduction of employer contributions of $48 million from increasing the retirement age by two years. These calculations are for new hires only.

Basis for Benefit Formula

The benefit formula is established by O.C.G.A. § 47-3-120, and therefore can only be changed legislatively for new hires. The current statutory benefit formula is

[32]Our calculation used the last five years of salary history as we did not have a way to extract the highest five years, so the cost savings could be lower than the estimated amount in **Exhibit 35**.

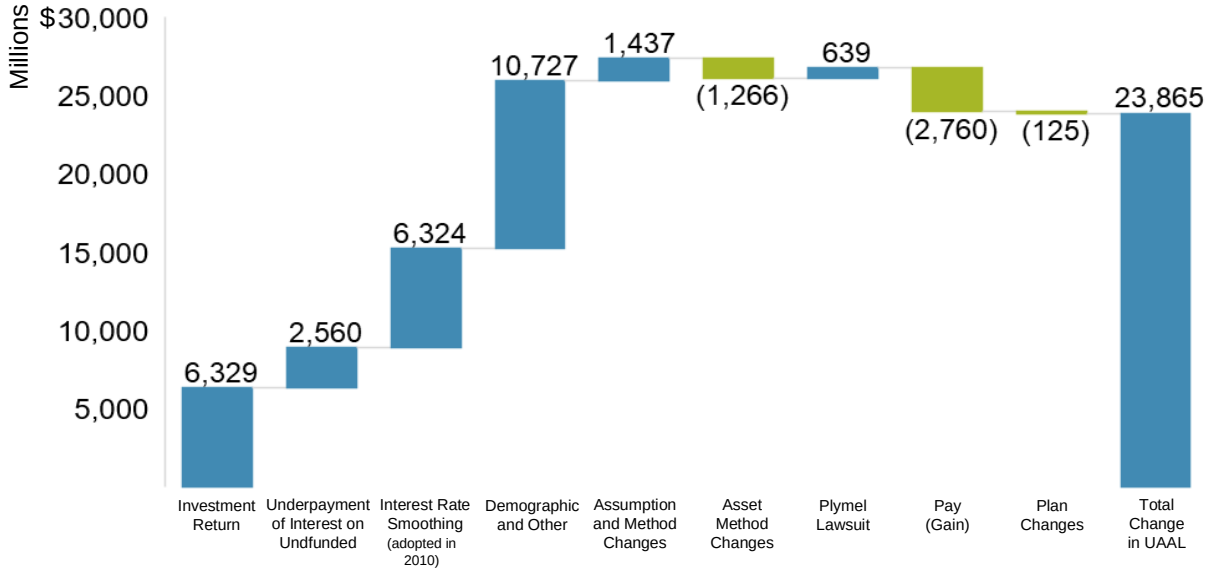
considered an element of current members' employment contract. It cannot be reduced without an impairment of the contract, which is not allowed under the Georgia Constitution.

Purpose of Pension Reform

Pension reform is intended to mitigate the cost and risk of the pension plan.[33] In addition, pension reform is intended to increase the sustainability of a pension fund or allow the fund to be maintained indefinitely. When considering pension reform, the existing and projected funding status should be considered. Currently, the TRS pension has liabilities of $96 billion and assets of $71 billion, resulting in an unfunded accrued liability (UAL) of $25 billion.[34] Recently, the state allocated an additional $224 million for TRS in the fiscal year 2018 budget and $365 million in the fiscal year 2019 budget, due to increased employer contribution rates.

As shown in **Exhibit 36,** the primary factors contributing to TRS' UAL include unrealized demographic assumptions, investment returns failing to meet expectations, and the use of the interest rate smoothing method. UALs, in general, result from a pension plan not meeting the actuarial assumptions of the plan.

Exhibit 36
Unrealized Investment Returns, Demographic Changes, and Interest Rate Smoothing are Primary Causes of TRS' UAL, Cumulative FY1999 to FY2017



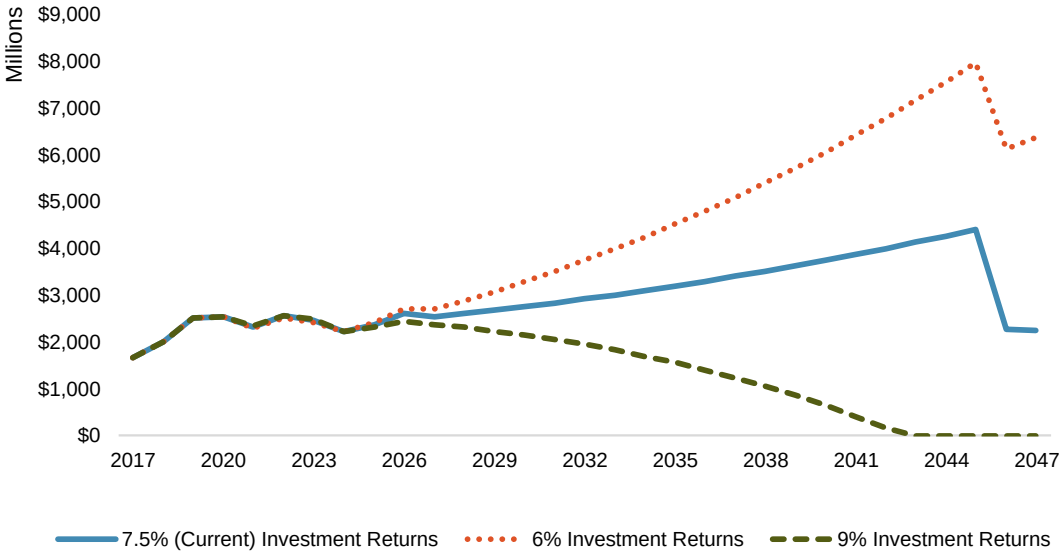
Source: Independent actuarial analysis of TRS data

Investment returns are an important factor in the financial viability of a pension plan. An independent actuary projected employer contributions for TRS assuming asset

[33] TRS' costs and risks are shared with multiple employers who pay into TRS, including local school systems, charter schools, technical colleges, county and regional libraries, Regional Education Service Agencies (RESAs), the University System of Georgia (USG), and certain state agencies.
[34] From the fiscal year 2018 CAFR. This is a different point in time than the data used in Exhibit 36.

returns of 6%, 7.5%, and 9%. The current actuarial assumption is for an asset return of 7.5%. Each possible asset return scenario results in a different estimate of required the total employer contribution and is shown in **Exhibit 37**. The fiscal year 2018 total employer contribution was $2.0 billion. Based on an independent actuarial projection, the employer contribution will gradually rise to $4.4 billion in fiscal year 2045, at which point the plan will be fully funded (if assets earn 7.5% every year, a discount rate of 7.5% is maintained, and all other actuarial assumptions are met).

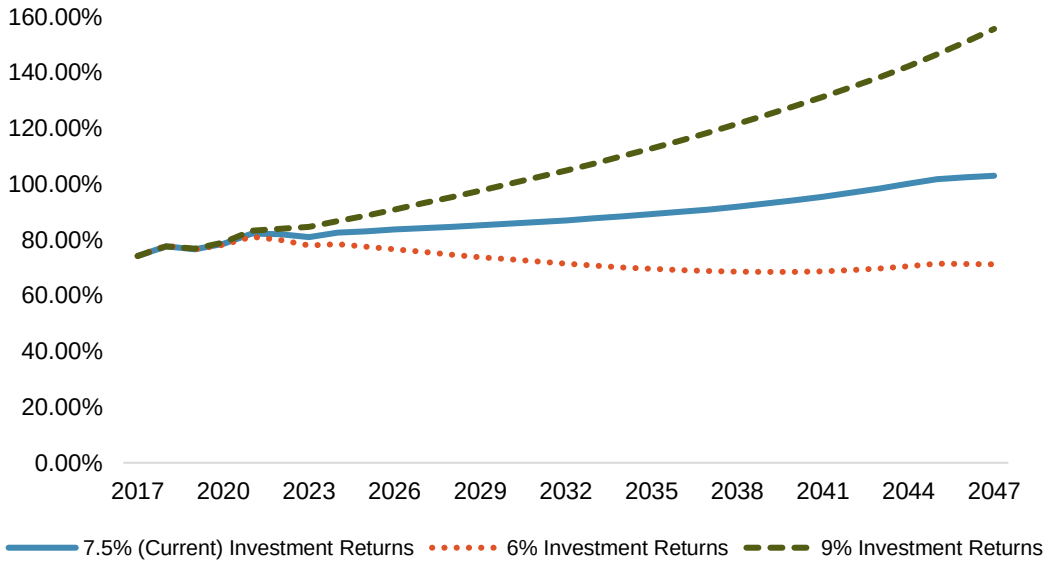
Exhibit 37
Actuarial Projection Shows Employer Contributions Will Rise to $4.4 Billion, Assuming All Actuarial Assumptions are Realized



Source: Independent actuarial analysis of TRS data

Exhibit 38 shows a projection of the funded status of TRS assuming asset returns of 6%, 7.5%, and 9%. If the TRS fund realizes all actuarial assumptions and asset returns on 7.5% annually, it will be fully funded in 2045.

Exhibit 38
Actuarial Projection Shows TRS will be Fully Funded in 2045, Assuming All Actuarial Assumptions and Asset Returns of 7.5% are Realized



Source: Independent actuarial analysis of TRS data

TRS' Response:

TRS highlighted that actions have been taken by the Board of Trustees during the past decade that have enhanced sustainability. "Though these measures certainly do not qualify as "significant reforms,... they do reflect awareness by the Board that some changes have been within their authority and initiated." Additionally, TRS noted, "the State of Georgia has continued to fund the Actuarially Determined Employer Contribution Rate (ADEC) each year as required by Georgia Code." To the primary question of "to what extent would possible reforms increase the financial viability of TRS while maintaining a defined benefit plan," TRS agrees that the answers to the question, to whatever extent they are employed, can lend toward greater sustainability.

TRS concurs that the COLA is a cost driver to employer contributions and "believes, as pointed out in the report, that there are some real or assumed contractual obligations to certain retirees or members based on start date" and that the "employee contribution rate has long been a part of the equation that included any notion of pre-funding."

For interest crediting on employee contributions, TRS concurs and "has proposed a downward move in the interest paid on member accounts." Regarding retirement age adjustments and benefit formula reforms, TRS concurs adjustments "would have a positive impact on viability and sustainability" and that "further educational policy implications may want to be considered for an effective cost-benefit analysis."

In addition, TRS notes that "expanded sustainability could be found in revenue enhancements" such as adjustments to employee contribution rates for new members and "payment of employer and employee contributions for retired members who re-enter the work force from which they retired."

Optional Retirement Plan (ORP)

How does ORP compare to similar retirement plans at other higher education institutions?

Comparison studies conducted by DOAA and USG found Georgia's ORP employer contribution rates to be higher than similar plans offered by other higher education institutions. Over the last ten years, public universities and university systems in other states with similar optional, defined contribution plans have enacted reforms. These include lowering employer contribution rates and lengthening vesting periods.

Between 1997 and 2009, the ORP employer contribution rate was statutorily tied to TRS' annual normal rate, which ranged from a low of 7.42% in 1997 to a high of 10.03% in 2004. O.C.G.A. § 47-21-4(b)(3) gave the USG Board of Regents authority to set the employer contribution rate and required it review the employer contribution rate of ORP every three years, beginning in 2012. Since 2009, the Board has set ORP's employer contribution rate at 9.24%. ORP's vesting period has not changed since its inception. Plan members vest in all contributions and earnings immediately. USG conducted reviews in 2012 and 2016. The results of these surveys are summarized below.

USG Reviews

Both USG reviews found that the ORP employer contribution rate was more competitive than its peers. For each review, USG surveyed higher education peers who had an ORP-type plan. In 2012, the average employer contribution to plans of this type was approximately 7.7%. The external market study found the ORP rate to be extremely competitive and that an increase of employer contribution rates was not warranted. The study also found that other states were considering reducing their employer contribution rates.

USG's 2016 higher education survey of peers also found that ORP employer contribution rates were higher than most other states' systems and higher than all non-education, for-profit employers reviewed. The average employer contribution found in other states' systems was approximately 7.8%, with vesting periods ranging from immediate to five years. The average employer rate in this survey of private higher education institutions was approximately 9.5%.

Exhibit 39 shows each institute of higher education USG surveyed in 2016, including contribution rates and vesting schedules, in order from the highest employer contribution rate to the lowest.

Exhibit 39
2016 USG Survey Finds Rates are Higher than Comparison Group

	Employer Contribution Rate	Employee Contribution Rate	Total Contribution Rate	Vesting Schedule
Public				
Mississippi	13.25%	9%	22.25%	Immediate
Kentucky	10%	5%	15%	3 years
New York (SUNY)	10%	6%[1]	16%	1 year
Michigan	10%	5%	15%	Immediate
Ohio (State)	9.5%	14%	23.5%	1 year
Georgia (USG)	9.24%	6%	15.24%	Immediate
Tennessee	9%	5%	14%	Immediate
Virginia	8.9%	5%	13.9%	2 years
California	8%	7%	15%	1 year
Iowa	8%	7%	15%	Immediate
Maryland	7.25%	n/a	7.25%	Immediate
Arizona	7%	7%	14%	5 years
North Carolina	6.84%	6%	12.84%	5 years
Texas	6.65%	6.6%	13.25%	2 years
Louisiana	5.18%	8%	13.18%	Immediate
Florida	5.14%	3%	8.14%	n/a
Arkansas	5%	5%	10%	2 years
Massachusetts	5%	20%[3]	25%[3]	Immediate
South Carolina	5%	8%	13%	n/a
Private				
Cal Tech	12.3%	n/a	12.3%	Immediate
Johns Hopkins	12%	n/a	12%	Immediate
Cornell	10%	n/a	10%	Immediate
Purdue	10%	4%	14%	Immediate
Penn State	9.29%	5%	14.29%	n/a
Carnegie Mellon	8%	n/a	8%	3 years
Northwestern	5%	n/a	5%	Immediate

Note: The figures presented in this table are taken directly from the USG survey. While we noted several errors, we did not correct the numbers and presented them as is. For example, the Massachusetts employee contribution rate is 9% for first $100,000 and 11% for salary above $100,000, not a 20% total contribution rate. Although we did not verify all figures, all errors we found resulted in increasing the competitiveness of ORP in comparison to peers.

Source: USG documents

DOAA Review

Our more recent review also found the ORP employer contribution rates were higher than most other public institutions of higher education we surveyed. We reviewed[35] the defined contribution plans offered by 15 public university systems and private universities with like plans. As shown in **Exhibit 40**, ORP's employer contribution rate exceeds the rates of eight of ten public universities in our sample. Other public institutions' employer contribution rates range from 5% to 13% while private institutions' employer contribution rates range from 7.5% to 10%.

ORP members vest immediately in all employee and employer contributions and investment earnings. A growing trend in other public institutions' retirement plans is to require members to work a minimum number of years to receive employer contributions and investment earnings on those contributions. As shown in **Exhibit 40**, 10 of the institutions in our sample have vesting schedules. The average vesting period in other states' public institutions is more than a year, and the average vesting period is even longer at private institutions.

[35]Our review included the public universities and systems in the five states bordering Georgia, as well as the eight large public institutions and the five large private institutions in the U.S. Three did not have like plans and were excluded from comparison.

Exhibit 40
DOAA Review Finds ORP Rates and Vesting Schedule are More Generous Than Like Plans

	Employer Contribution Rates	Employee Contribution Rates	Total Contribution Rates	Vesting Schedule
Public				
Mississippi	13.1%	9%	22.1%	Immediate
Ohio (State)[1]	9.53%	14%	23.53%	1 year
Georgia (USG)	9.24%	6%	15.24%	Immediate
Virginia	8.5%	5%	13.5%	2 years
Tennessee	9%	5%	14%	Immediate
California	8%	7%	15%	1 year
Illinois	7.35%	8%	15.35%	5 years
North Carolina	6.84%	6%	12.84%	5 years
Texas	6.6%	6.65%	13.25%	1 year
Florida[1]	5.14%	3%	8.14%	Immediate
Massachusetts	5%	11%	16%	Immediate
Private				
DePaul	10%	5%	15%	1 year
Northeastern	10%	5%	15%	2 years
NYU	10%	5%	15%	1 year
University of Southern California	10%	5%	15%	4 years
Brigham Young	7.5%	5%	12.5%	Immediate

[1]These states have separate plans available for all staff.

Source: DOAA review of retirement plan documents and state laws

We estimate that ORP's employer contributions for fiscal year 2019 totaled approximately $119.6 million. As shown in **Exhibit 41**, USG could maintain an employer contribution rate above the 7.83% average of public institutions in other states and reduce costs by $16 million annually. A rate of 8.5% would reduce costs by nearly $10 million annually.

Exhibit 41
Reducing the ORP Employer Contribution Rate Would Reduce USG Employer Costs

ORP Employer Contribution Rate	Projected Annual Cost Savings
9.24%	**Current Rate**
9%	**$3.1 million**
8.5%	**$9.6 million**
8%	**$16.1 million**

Source: DOAA analysis of USG data

In addition to employer contribution adjustments, implementing a vesting schedule for ORP would reduce the plan's costs. With a vesting schedule, employees who leave prior to vesting would forfeit their employer contributions and earnings. Several public institutions in other states require employees to remain for 366 days before vesting in their employer contributions. Requiring ORP members to work for 366 days to vest would exclude employees with one-year contracts from vesting in employer contributions through the plan.

USG's Response:

USG agrees that costs, sustainability, competitiveness, and parity across employee groups are important considerations. "Based on our assessment, we do not recommend reducing the ORP contributions from 9.24% to 8% because it would reduce the ability to recruit and retain faculty and staff. USG has not raised the ORP employer contribution rates for over 10 years." USG noted that the report "considers retirement benefits in isolation without considering the entire compensation package. Based on recent studies (conducted by USG), USG compares less favorably in both salaries and healthcare costs to USG's higher education comparators." In addition, "USG will review the impact of implementing a vesting schedule within ORP" and "consider this in coordination with the annual review and benchmarking of the plan."

Auditor's Response:

The focus of this review is on state retirement plans as requested by the Senate Appropriations Committee, but DOAA believes a future study of total compensation would be beneficial for all state employees, including USG and BOR faculty and staff. Many state employees may also have lower compensation than their peers. We agree that any changes designed to lower employer costs or to align benefits with peers should be balanced against recruitment and retention goals.

It should also be noted that the salary studies cited in USG's response are limited to a comparison of salaries of full time faculty and do not include other USG administrators and staff.

Matters for Consideration

ERS, TRS, and ORP offer vastly different retirement benefits for similar taxpayer-funded positions.

With the creation of GSEPS in 2009 and expansion of ORP in 2008, the difference in retirement benefits among employees covered by state-funded retirement plans included in this review has grown. This results in employees in similar positions receiving significantly different retirement benefits.

Exhibit 42 compares retirement benefits accrued by state employees in each of the open state retirement plans we reviewed for an employee with a salary of $50,000.[36] As shown, if an employee left employment after five years of service, the employee would receive $19,294 under GSEPS, $15,559 under TRS, and $42,954 under ORP. The amount received would be a combination of employer and employee contributions and earnings.

Exhibit 42
Comparison of Benefits for an Employee Making $50,000 Annually Under Each Plan

	ERS GSEPS[1]	TRS[2]	ORP[3]
Payout After Three Years			
Employee Contributions and Earnings	$7,765	$9,000	**$9,551**
Employer Contributions and Earnings	$1,961	$276	**$14,708**
Total	**$9,726**	**$9,276**	**$24,259**
Payout After Five Years			
Employee Contributions and Earnings	$13,554	$15,000	**$16,911**
Employer Contributions and Earnings	$5,740	$559	**$26,043**
Total	**$19,294**	**$15,559**	**$42,954**
Payout After Seven Years			
Employee Contributions and Earnings	$19,904	$21,000	**$25,182**
Employer Contributions and Earnings	$8,549	$842	**$38,780**
Total	**$28,453**	**$21,842**	**$63,962**
Defined Contribution Balance After 30 Years	$225,000	N/A	**$600,000**
Defined Benefit			
At Retirement	$15,000	**$30,000**	N/A
Five Years of Retirement	$15,000	**$33,795**	N/A
10 Years of Retirement	$15,000	**$39,220**	N/A
20 Years of Retirement	$15,000	**$52,824**	N/A

[1]Assumes the average 401(k) contribution of 3.7%, and a 2% employer match (with graduated vesting), and 6% annual investment returns.

[2]Employer contributions and earnings payout for TRS is the 4.5% interest credited to member accounts.

[3]Assumes 6% annual investment returns

Source: DOAA analysis using ERS, TRS, and ORP plan documents

[36]All figures are in present dollars.

We found the following:

- Employees who stay fewer than 10 years receive a more substantial payout in ORP than in either TRS or GSEPS.

- Despite being a hybrid retirement plan, GSEPS is less portable than ORP and comparable to TRS for the first five years.

- For those with 30 years of service, the ORP is likely to provide greater retirement income than GSEPS. The ORP 401(a) defined contribution retirement benefit is projected to be more than $600,000, compared to approximately $225,000 for the GSEPS 401(k) employee. While a GSEPS member would also receive an annual defined benefit of $15,000, it would take 25 years to makeup the $375,000 difference between ORP and the GSEPS 401(k). When accounting for investment gains in retirement, it would take longer than 25 years.

- The pension benefit received by a TRS member is initially double that received by a GSEPS member but expands to three and a half times the benefit in 20 years. This is due to TRS retirees receiving a COLA every six months, and GSEPS members being statutorily prohibited from receiving COLAs.[37]

The differences in benefits are driven by differences in plan structure. Some key points of comparison include:

- GSEPS members may contribute 6.25% (1.25% for the defined benefit and 5% for the 401(k)) of their salary for their retirement benefit, higher than all other plans and still receive the lowest retirement benefit.

- TRS retirees receive a COLA of 1.5% every six months, as long CPI is higher than it was when they retired. GSEPS retirees will be prohibited from receiving any COLA.

- The GSEPS defined benefit multiplier is half of TRS' (1% vs 2%), and the 401(k) benefit received by GSEPS members will be insufficient to make up that difference.

- ORP members vest immediately in the defined contribution benefit, while it takes GSEPS members five years to vest.

While the three plans have different primary members, as shown in **Exhibit 43**, some of the jobs that are eligible for TRS or ORP are similar to jobs held by state employees who receive retirement benefits through ERS GSEPS.

[37]GSEPS members who began after July 1, 2009 are prohibited from receiving COLAs.

Exhibit 43
ERS GSEPS, TRS, and ORP Members can Have Comparable Jobs

	ERS GSEPS	TRS	ORP
Primary members	State Employees	Teachers	USG Faculty
	Accountants	Accountants	Accountants
	Administrative Staff	Administrative Staff	
	Application Developers	Application Developers	Application Developers
	Auditors	Auditors	Auditors
	Budget Analysts	Budget Analysts	Budget Analysts
	Business Analysts	Business Analysts	Business Analysts
	Communication Personnel	Communication Personnel	Communication Personnel
	Engineers	Engineers	Engineers
	Facilities Personnel	Facilities Personnel[1]	
	Financial Analysts	Financial Analysts	Financial Analysts
	Grants Administrators	Grants Administrators	Grants Administrators
	Human Resources Personnel	Human Resources Personnel	Human Resources Personnel
	IT Staff	IT Staff	IT Staff
	Lawyers	Lawyers	Lawyers
	Librarians	Librarians	Librarians
	Medical Personnel	Medical Personnel	Medical Personnel
	Public Safety Officers	Public Safety Officers	Public Safety Officers
	Risk Management Personnel	Risk Management Personnel	Risk Management Personnel

[1]Only facilities personnel in supervisory positions are eligible for TRS

Source: DOAA Review of Job Descriptions from the Department of Administrative Services, USG, and Fulton County Schools

State leadership should determine if there is a purpose and need for the difference in benefits. The disparities can also lead to recruitment advantages or disadvantages, depending on the employer. Staff in similar positions could be eligible for GSEPS or, if employed by USG, have the choice of TRS or ORP.

As discussed throughout the report, any review of the retirement benefit plans should balance sustainability with competitive benefits for recruitment and retention purposes. Parity across the plans is also an important consideration.

USG's Response:

"Since cost was a significant factor in the report, USG believes it would be beneficial to mention total cost to the state for each plan." USG stated that the total cost to the State for an employee with an annual salary of $50,000 using fiscal year 2018 employer rates and average 401(k) contribution rates, would be lower for ORP ($4,620) than ERS/GSEPS ($11,845) and TRS ($8,405), not including any unfunded liability contributions.

Overall, USG believes ORP is a financially sustainable, cost effective plan option for USG faculty and staff.

Auditor's Response:

O.C.G.A § 47-21-5 directs USG to contribute the UAL rate and any change in the normal rate to TRS on behalf of ORP participants to mitigate the cost of USG employees joining ORP rather than TRS. Taking O.C.G.A § 47-21-5 into account, the employer cost for an ORP member for fiscal year 2018 would have been at least $9,605, not the $4,620 calculated by USG. By fiscal year 2019, this will increase to at least $11,185.

Appendix A: Objectives, Scope, and Methodology

Objectives

This report examines Georgia's Employees' Retirement System's (ERS) New Plan and Georgia State Employees' Pension and Savings Plan (GSEPS), Teachers Retirement System (TRS), and the Optional Retirement Plan (ORP). Specifically, our examination set out to determine the following:

1. To what extent did creating the Georgia State Employees' Pension and Savings Plan (GSEPS) impact the financial viability of ERS?
2. Is GSEPS a competitive retirement plan that provides for an adequate retirement?
3. To what extent would possible reforms increase the financial viability of TRS while maintaining it as a defined benefit plan?
4. How does the ORP compare to similar retirement plans at other higher education institutions?

Scope

This special examination generally covered activity related to the creation of GSEPS, possible reforms to TRS, and ORP that occurred from fiscal year 1990 to current, with consideration of earlier or later periods when relevant. Information used in this report was obtained by reviewing relevant laws, rules, and regulations; interviewing officials at ERS, TRS, USG, and Georgia's Office of Attorney General; analyzing data provided by ERS, TRS, and USG; analyzing data from the National Association of State Retirement Administrators (NASRA); analyzing data from other state and local government retirement plans; analyzing data from the Urban Institute's pension plan database; and prior audit work.

DOAA obtained GSEPS data on active and former members who have left within the past nine years. This consisted of data from the defined benefit system and the 401(k) accounts. Together, this included data on employee start and end dates, employee 401(k) contributions, account balances, vesting statuses, and refund amounts. We assessed the data used for this examination and determined the data used were sufficiently reliable for our analyses.

DOAA obtained TRS data on active and former members who have left within the past five years. This included data on employee start and end dates, contributions, membership service credit, cost-of-living adjustments (COLAs), and refund amounts. We assessed the data used for this examination and determined the data used were sufficiently reliable for our analyses.

DOAA obtained state retirement plan data from the Urban Institute, including key plan attributes, benefit structure, and plan type. We independently verified the data using plan documents and state code from other states and updated the dataset as needed.

DOAA engaged the Terry Group, an independent actuary, to conduct actuarial analyses using the complete TRS census file and the annual valuation reports for both TRS and ERS.

Methodology

To determine the extent to which GSEPS impacted the financial viability of ERS, we hired an independent actuary, The Terry Group, to provide an actuarial analysis on the impact the creation of GSEPS had on both the funded status and employer contributions to ERS. This analysis was conducted by comparing the current status of the pension fund to an alternative scenario where all active GSEPS members were instead members of the New Plan. The Terry Group calibrated their valuation system to match the results of the ERS fiscal year 2017 valuation report and relied on the assumptions and plan provisions outlined in that report. The base year of 2009 was calibrated to the fiscal year 2009 valuation report. Each subsequent year's population headcount and total salary was compared to the respective valuation report. These projections provided an estimated liability, normal cost, and benefit payments for GSEPS members for 2009 to 2017 under the GSEPS and the New Plan benefit design.

To determine how GSEPS compares to other retirement plans, and the adequacy of the retirement benefit, we complied and analyzed data on other state retirement plans, beginning with a data set created by the Urban Institute and updated from current information obtained from other states' retirement plan documents and legislation. We also compiled and analyzed retirement benefits from 12 Georgia local governments through collection of plan documents and interviews with local government staff. We created a number of scenarios to analyze the adequacy of the GSEPS retirement plan based on plan documents and a range of investment return assumptions. We compared benefits and adequacy to other public retirement plans.

To determine the impact of possible reforms on the financial viability of TRS, we complied and analyzed data on retirees who have retired from TRS within the last five years, or who have accepted refunds from TRS within the last five years. Also, we compiled and analyzed data from other teacher retirement plans, including contribution rates, benefit formulas, vesting periods, and COLAs, and compared these findings to TRS. We also reviewed work conducted by NASRA on common reforms made to teacher retirement systems.

In addition, an independent actuary, the Terry Group, provided an actuarial analysis on the impact of possible reform scenarios. The actuary used census data, plan provisions, and valuation assumptions to forecast the valuation liability for future years. The actuary projected new hires at the rate necessary to replace those assumed to decrement. The profile for new hires was estimated using the age, service, and salary distribution of new participants who joined during the prior year.

To determine how ORP compares to similar retirement plans at other higher education institutions, we compiled and analyzed data from like plans in other states in the southeast, large state universities and university systems, and large private universities. We also reviewed comparison studies conducted by, or on behalf of, USG. We compared the contribution rates and vesting schedules of the plans to ORP.

This special examination was not conducted in accordance with generally accepted government auditing standards (GAGAS) given the timeframe in which the report was needed. However, it was conducted in accordance with Performance Audit Division policies and procedures for non-GAGAS engagements. These policies and procedures require that we plan and perform the engagement to obtain sufficient, appropriate evidence to provide a reasonable basis for the information reported and that data limitations be identified for the reader.

It should be noted the State Auditor is a member of the Board of Trustees of the Teachers Retirement System of Georgia and of the Board of Trustees of the Employees' Retirement System of Georgia. The Performance Audit Division answered the questions as posed by the Committee and followed its standard policies and procedures which address how a special examination is to be conducted.

Appendix B: Pre-funding of TRS COLA

Any changes to the TRS COLA benefit must consider the concept of pre-funding. Some consider TRS' COLAs to be pre-funded, meaning TRS has set the required contribution rates at levels to fund the actuarially anticipated cost of the COLAs. However, "pre-funded" can have different meanings, depending on perspective. The difference in perspective lies in how each treats the impact of investment losses and assumption changes after a contribution is made.

Actuarial perspective

To a pension actuary, the phrase "pre-funded" typically refers to a benefit that is accounted for in the annual normal costs, accrued liabilities and annual employer contributions. Given that the annual employer contribution is related to the normal costs and unfunded liability, it would stand to reason that from a purely pension actuarial perspective TRS's COLA is pre-funded.

Layman perspective

From a layman's perspective, one could conclude that the COLA is pre-funded to the extent that assets exist today to provide for the promised benefit. If a plan is 100% funded (or better), this perspective might say that all benefits in a plan (e.g., regular benefits, COLAs) are pre-funded. The TRS plan reported that it was over 100% funded as of June 30, 2001 – so this line of thought would say that the plan was pre-funded at this time. Conversely, TRS reported a funded status of 74% as of June 30, 2017. From a layman's perspective, this may be interpreted to mean that 74% of the benefits are pre-funded, and the remaining 26% of the benefits are not pre-funded.

The independent actuary engagement for this review projects about 24% of the overall liability of the plan is for COLAs that are assumed in the future but have not yet been paid, and 11% of the overall liability is attributable to the present value of past COLAs granted to retirees. The remaining 65% of the overall liability is the present value of the initial benefits payable at retirement.

	Original Base Benefit	COLA to Valuation Date	Future COLA
$ Millions Liability Attributable to	$62,699	$10,380	$23,367
% of Valuation Liability	65%	11%	24%

The Performance Audit Division was established in 1971 to conduct in-depth reviews of state-funded programs. Our reviews determine if programs are meeting goals and objectives; measure program results and effectiveness; identify alternate methods to meet goals; evaluate efficiency of resource allocation; assess compliance with laws and regulations; and provide credible management information to decision makers. For more information, contact us at (404)656-2180 or visit our website at www.audits.ga.gov.