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PERS
of MISSISSIPPI

REPORT OF THE ANNUAL GASB STATEMENT NO. 68

REQUIRED INFORMATION FOR THE EMPLOYERS PARTICIPATING IN THE

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF MISSISSIPPI

PREPARED AS OF JUNE 30, 2021

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

December 1, 2021

Board of Trustees
Public Employees' Retirement System of Mississippi
429 Mississippi Street
Jackson, MS 39201-1005

Ladies and Gentlemen:

Presented in this report is information to assist the employers participating in the Public Employees' Retirement System of Mississippi (PERS) in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statement No. 68 as a result of their participation in PERS. The information is presented for the period ending June 30, 2022.

GASB Statement No. 68 establishes accounting and financial reporting requirements for governmental employers who provide pension benefits to their employees through a trust.

The annual actuarial valuation used as a basis for much of the information presented in this report was performed as of June 30, 2020. The valuation was based upon data, furnished by the Retirement System staff, concerning active, inactive, and retired members along with pertinent financial information.

The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the System, and on actuarial assumptions that are, individually and in the aggregate, internally consistent and reasonably based on the actual experience of the System. In addition, the calculations were completed in compliance with the laws governing the System and, in our opinion, meet the requirements of GASB 68. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

3550 Busbee Pkwy, Suite 250, Kennesaw, GA 30144
Phone (678) 388-1700 • Fax (678) 388-1730
www.CavMacConsulting.com
Offices in Kennesaw, GA • Bellevue, NE

We note that as we are preparing this report, the world is in the midst of a pandemic. We have considered available information, but do not believe that there is yet sufficient data to warrant the modification of any of our assumptions at this time due to the pandemic.

In order to prepare the results in this report we have utilized appropriate actuarial models that were developed for this purpose. These models use assumptions about future contingent events along with recognized actuarial approaches to develop the needed results.

These results are only for financial reporting and may not be appropriate for funding purposes or other types of analysis. Calculations for purposes other than satisfying the requirements of GASB 67 and GASB 68 may produce significantly different results. Future actuarial results may differ significantly from the current results presented in this report due to such factors as changes in plan experience or changes in economic or demographic assumptions.

Respectfully submitted,

Edward J. Koebel

Ben Mobley

Edward J. Koebel, FCA, EA, MAAA	Ben Mobley, ASA, FCA, MAAA
Chief Executive Officer	Consulting Actuary

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Section I – Summary of Principal Results

($ IN THOUSANDS)

	2021
Valuation Date (VD):	June 30, 2020
Measurement Date (MD):	June 30, 2021
Reporting Date (RD):	June 30, 2022
Membership Data:	
Retirees and Survivors	109,881
Terminated Vested Employees	16,436
Inactive Nonvested Members	62,211
Active Members	149,855
Total	338,383
Single Equivalent Interest Rate (SEIR):	
Long-Term Expected Rate of Return	7.55%
Municipal Bond Index Rate	2.13%
Fiscal Year in which Plan's Fiduciary Net Position is projected to be depleted from future benefit payments for current members	N/A
Single Equivalent Interest Rate	7.55%
Net Pension Liability:	
Total Pension Liability (TPL)	$ 49,997,034
Fiduciary Net Position (FNP)	35,216,597
Net Pension Liability (NPL = TPL – FNP)	$ 14,780,437
FNP as a percentage of TPL	70.44%
Collective Pension Expense:	$740,347
Deferred Outflows of Resources:	$ 1,373,686
Deferred Inflows of Resources:	$ 4,451,237

Section II – Introduction For Employers

The Governmental Accounting Standards Board issued Statement No. 68 (GASB 68), "Accounting and Financial Reporting for Pensions", in June 2012. GASB Statement No. 71, "Pension Transition for Contributions Made Subsequent to the Measurement Date", should be applied simultaneously with the provisions of GASB 68. The Public Employees' Retirement System of Mississippi (PERS) is a cost-sharing multiple employer defined benefit pension plan.

This report, prepared as of June 30, 2021 (the Measurement Date), presents information to assist the employers participating in PERS in meeting the requirements of GASB 68 for the fiscal year ending June 30, 2022 (Reporting Date). The material provided in this report is based on the data we received to prepare the annual actuarial valuation of the Public Employees' Retirement System of Mississippi as of June 30, 2020, in conjunction with the assumptions from the most recent experience study prepared as of June 30, 2020. The results of the June 30, 2020 valuation were detailed in a report dated November 30, 2020 and the results of the experience study were detailed in a report dated April 20, 2021.

Two major changes in GASB 68 are the requirements to include a proportionate share of a Net Pension Liability (NPL) and to recognize a proportionate share of a Pension Expense (PE) in the financial statements of each of the participating employers.

Pension Expense includes amounts for service cost (the Normal Cost under Entry Age Normal (EAN) for the year), interest on the Total Pension Liability (TPL), changes in benefit structure, amortization of increases/decreases in liability due to actuarial experience and actuarial assumption changes, and amortization of investment gains/losses. The actuarial experience and assumption change impacts are amortized over the average expected remaining service life of the PERS membership as of the Measurement Date, and investment gains/losses are amortized over five years. The development of the collective PE is shown in Section VI.

The unamortized portions of each year's experience, assumption changes and investment gains/losses are used to develop deferred inflows and outflows, which also must be included on the employer's financial statement. The development of these collective deferrals is presented in Section VII.

Section II – Introduction For Employers

Among the assumptions needed for the liability calculation is a Single Equivalent Interest Rate (SEIR). To determine the SEIR, the FNP must be projected into the future for as long as there are anticipated benefits payable under the plan's provision applicable to the membership and beneficiaries of the System on the Measurement Date. Future contributions were projected to be made in accordance with the Funding Policy adopted by the Board. If the FNP is not projected to be depleted at any point in the future, as the results currently indicate, the long term expected rate of return on plan investments expected to be used to finance the benefit payments may be used as the SEIR.

If, however, at a future measurement date the FNP is projected to be depleted, the SEIR is determined as the single rate that will generate a present value of benefit payments equal to the sum of the present value determined by discounting all projected benefit payments through the date of depletion by the long term expected rate of return, and the present value determined by discounting those benefits after the date of depletion by a 20-year tax-exempt municipal bond (rating AA/Aa or higher) rate. The rate used, if necessary, for this purpose is the monthly average of the Bond Buyers General Obligation 20-year Municipal Bond Index Rate (formerly published monthly by the Board of Governors of the Federal Reserve System). We have determined that the FNP is projected to not be depleted during the projection period and a discount rate of 7.55% as of June 30, 2021 will meet the requirements of GASB 68.

Employers in a cost sharing plan, such as PERS, are required to measure their proportionate share of NPL, PE and deferred outflows/inflows of resources for financial reporting. Although GASB 68 allows multiple bases for determining the proportionate share, PERS has chosen to provide a measure of the relationship between the employer's annual contributions and total, or collective, employer contributions as the basis for determining proportionate share.

The sections that follow provide the results of all the necessary calculations, as well as additional disclosure items needed as Required Supplementary Information (RSI) or for required financial statement footnotes. Amounts are stated at the collective level and employers should apply their proportionate share percentage to obtain their financial reporting information. Employers may also refer to the 2021 PERS Annual Comprehensive Financial Report on the PERS website, www.PERS.ms.gov for collective calculations and note disclosure.

Section III – Membership Data

Data regarding the membership of PERS for use as a basis for the actuarial valuation and the GASB 68 requirements were furnished by the System office. The following table summarizes the membership of the System as of June 30, 2020.

Membership

	Number
Retired Members or Beneficiaries Currently Receiving Benefits	109,881
Inactive Members Assumed Eligible for a Benefit at Retirement Date	16,436
Inactive Members Assumed Not to Receive Service Retirement Benefits	62,211
Active Members	149,855
Total	338,383

Section IV – Notes to Financial Statements

The actuarial assumptions utilized in developing the TPL are outlined in Schedule A. The TPL as of June 30, 2021 was determined by an actuarial valuation prepared as of June 30, 2020, by the new actuarial assumptions adopted by the Board subsequent to the June 30, 2020 valuation based on the experience investigation for the four-year period ending June 30, 2020, and by the investment experience for the fiscal year ending June 30, 2021. The following actuarial assumptions are applied to all periods included in the measurement:

Inflation	2.40 percent
Salary increases	2.65 – 17.90 percent, including inflation
Investment rate of return	7.55 percent, net of pension plan investment expense, including inflation

Mortality rates for service retirees were based on the PubS.H-2010(B) Retiree Table with the following adjustments: For males, 95% of male rates up to age 60, 110% for ages 61 to 75 and 101% for ages above 77. For females, 84% of female rates up to age 72 and 100% for ages above 76. Mortality rates for disability retirees were based on the PubG.H-2010 Disabled Table adjusted 134% for males and 121% for females. Mortality rates for Contingent Annuitants were based on the PubS.H-2010(B) Contingent Annuitant Table, adjusted 97% for males and 110% for females. Mortality rates will be projected generationally using the MP-2020 projection scale to account for future improvements in life expectancy.

The actuarial assumptions used for the purposes of determining the TPL were based on the results of an actuarial experience study for the period July 1, 2016 to June 30, 2020. The experience report is dated April 20, 2021.

The long-term expected rate of return on pension plan investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected nominal returns, net of pension plan investment expense and the assumed rate of inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The most recent target asset allocation and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

Section IV – Notes to Financial Statements

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Domestic Equity	27.00%	4.60%
International Equity	22.00	4.50
Global Equity	12.00	4.80
Fixed Income	20.00	(0.25)
Real Estate	10.00	3.75
Private Equity	8.00	6.00
Cash Equivalents	1.00	(1.00)
Total	100.00%	

Discount Rate - The discount rate used to measure the total pension liability was 7.55 percent. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate (9.00 percent) and that employer contributions will be made at the current contribution rate (17.40 percent). Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Plan Description - PERS is a defined benefit cost-sharing plan administered by the PERS System that provides retirement benefits to all eligible employees. Membership in PERS is a condition of employment granted upon hiring for qualifying employees including officials of the State of Mississippi (the State), state universities, community and junior colleges, and teachers and employees of the public school districts, and other public employees whose employers have elected to participate. For those persons employed by political subdivisions and instrumentalities of the State, membership is contingent upon approval of the entity's participation in PERS by the System's Board of Trustees. Members and employers are statutorily required to contribute certain percentages of salaries and wages as specified by the Board of Trustees. Current rates are 17.40 percent for employers and 9.00 percent for members. PERS employers contributed $1,169.7 million and members contributed $594.9 million for fiscal year 2021.

Section IV – Notes to Financial Statements

A member who terminates employment from all covered employers and who is not eligible to receive monthly retirement benefits may request a full refund of his or her accumulated member contributions plus interest. Upon withdrawal of contributions, a member forfeits service credit represented by those contributions. Participating members who are vested and retire at or after age 60 or those who retire regardless of age with at least 30 years of creditable service (25 years of creditable service for employees who became members of PERS before July 1, 2011) are entitled, upon application, to an annual retirement allowance payable monthly for life in an amount equal to 2.0 percent of their average compensation for each year of creditable service up to and including 30 years (25 years for those who became members of PERS before July 1, 2011), plus 2.5 percent for each additional year of creditable service with an actuarial reduction in the benefit for each year of creditable service below 30 years or the number of years in age that the member is below 65, whichever is less. Average compensation is the average of the employee's earnings during the four highest compensated years of creditable service. A member may elect a reduced retirement allowance payable for life with the provision that, after death, a beneficiary receives benefits for life or for a specified number of years. Benefits vest upon completion of eight years of membership service (four years of membership service for those who became members of PERS before July 1, 2007). PERS also provides certain death and disability benefits. In the event of death prior to retirement of any member whose spouse and/or children are not entitled to a retirement allowance, the deceased member's accumulated contributions and interest are paid to the designated beneficiary.

A Cost-of-Living Adjustment (COLA) payment is made to eligible retirees and beneficiaries. The COLA is equal to 3.0 percent of the annual retirement allowance for each full fiscal year of retirement up to the year in which the retired member reaches age 60 (55 for those who became members of PERS before July 1, 2011), with 3.0 percent compounded for each fiscal year thereafter.

Plan provisions and the Board of Trustees' authority to determine contribution rates are established by Miss. Code Ann. § 25-11-1 et seq., (1972, as amended) and may be amended only by the Mississippi Legislature. The PERS plan financial report is included in the Annual Comprehensive Financial Report of the Public Employees' Retirement System available at www.PERS.ms.gov.

Section V – Collective Net Pension Liability

As stated previously, the NPL is equal to the TPL minus the FNP. That result as of June 30, 2021 is presented in the table below, along with additional required figures ($ thousands). Note that the following tables are stated at the collective level and require adjustment to reflect individual employer's information.

	June 30, 2021
Total Pension Liability	$49,997,034
Fiduciary Net Position	35,216,597
Net Pension Liability	$14,780,437
Ratio of Fiduciary Net Position to Total Pension Liability	70.44%
Covered payroll	$6,246,077
Net Pension Liability as a percentage of covered payroll	236.64%

In addition to the results in the table above, the sensitivity of the NPL to changes in the discount rate must be disclosed. The following presents the NPL of PERS, calculated using the discount rate of 7.55 percent, as well as what the PERS NPL would be if it were calculated using a discount rate that is 1-percentage-point lower (6.55 percent) or 1-percentage-point higher (8.55 percent) than the current rate ($ thousands):

	1% Decrease (6.55%)	Current Discount Rate (7.55%)	1% Increase (8.55%)
System's Net Pension Liability	$20,932,564	$14,780,437	$9,710,595

Section V – Collective Net Pension Liability

The following table details the changes in the NPL from the beginning to the end of the measurement year.

CHANGES IN THE NET PENSION LIABILITY
($ in Thousands)

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances at June 30, 2020	$47,186,232	$27,827,394	$19,358,838
Changes for the year:			
Service cost	719,623		719,623
Interest	3,536,951		3,536,951
Benefit changes	0		0
Difference between expected and actual experience	181,270		181,270
Change in Assumptions	1,469,257		1,469,257
Contributions - employer		1,169,679	(1,169,679)
Contributions - employee		594,876	(594,876)
Net investment income		8,736,632	(8,736,632)
Benefit payments, including refunds of employee contributions	(3,096,299)	(3,096,299)	0
Administrative expense		(15,691)	15,691
Other changes	0	6	(6)
Net changes	2,810,802	7,389,203	(4,578,401)
Balances at June 30, 2021	$49,997,034	$35,216,597	$14,780,437

Section VI – Collective Pension Expense

As noted earlier, the collective Pension Expense (PE) consists of a number of different items. GASB 68 refers to the first as Service Cost which is the Normal Cost using the Entry Age Normal (EAN) actuarial funding method. The second item is interest on the beginning of year TPL and the cash flow during the year at the 7.75% rate of return in effect as of the previous Measurement Date.

The next three items refer to any change that occurred in the TPL under EAN due to benefit changes, actual experience, or assumptions. Benefit changes, which are reflected immediately in PE can be positive, if there is a benefit improvement for existing PERS members, or negative if there is a benefit reduction. For the year ended June 30, 2021, there were no benefit changes to be recognized.

The next item to be recognized is the portion of current year changes in TPL due to Plan experience. The portion to recognize in the current year is determined by spreading the total change over the remaining service life of the entire PERS membership. For the year ended June 30, 2021, the remaining service life is 3.88.

The last item under changes in TPL is changes in actuarial assumptions. There were changes in assumptions since the last Measurement Date based on an actuarial experience study for the period July 1, 2016 to June 30, 2020. The change in TPL due to changes in actuarial assumptions is spread over the remaining service life of the entire PERS membership just like Plan experience in the prior paragraph.

Member contributions for the year and projected earnings on the FNP, again at the rate used to calculate the liabilities are subtracted from the amount determined thus far. One–fifth of current period differences between actual and projected earnings on the FNP are recognized in the pension expense.

The current year portions of previously determined experience, assumption, and earnings amounts, recognized as deferred outflows and inflows (see Section VII) are included next. Finally, administrative expenses and other miscellaneous items are included.

The calculation of the Collective Pension Expense for the year ended June 30, 2021 is shown in the following table.

Section VI – Collective Pension Expense

Collective Pension Expense
For the Year Ended June 30, 2021
($ in Thousands)

Service Cost	$719,623
Interest on the total pension liability	3,536,951
Current-period benefit changes	0
Expensed portion of current-period difference between expected and actual experience in the total pension liability	46,719
Expensed portion of current-period changes of assumptions	378,674
Member contributions	(594,876)
Projected earnings on plan investments	(2,104,410)
Expensed portion of current-period differences between actual and projected earnings on plan investments	(1,326,444)
Administrative expense	15,691
Other	(6)
Recognition of beginning deferred outflows of resources as pension expense	127,779
Recognition of beginning deferred inflows of resources as pension expense	(59,354)
Collective Pension Expense	$740,347

Section VII – Collective Deferred Outflows/Inflows

Since certain expense items are amortized over closed periods each year, the deferred portions of these items must be tracked annually. If the amounts serve to reduce pension expense they are labeled deferred inflows. If they will increase pension expense they are labeled deferred outflows. As noted in the previous section, the amortization of these amounts is accomplished on a level dollar basis, with no interest included in the deferred amounts. Experience gains/losses and the impact of changes in actuarial assumptions, if any, are amortized over the average remaining service life of the active and inactive PERS members at the beginning of the fiscal year. Investment gains and losses are amortized over a fixed five-year period.

The table below provides a summary of the collective deferred outflows and inflows (in thousands) as of June 30, 2021 (Measurement Date).

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$236,339	$0
Changes of assumptions	1,137,347	0
Net difference between projected and actual earnings on plan investments	0	4,451,237
Employer contributions subsequent to the measurement date	See note	0
Total	$1,373,686	$4,451,237

Note: The deferred outflow of resources reported by an employer should include contributions made by the employer during its fiscal year that will be reflected in the net pension liability in the next measurement period.

Amortization periods for fiscal year 2022 are 3.88 for the average expected remaining service life of members and 5.0 years for investment gains/losses.

PERS will provide current year collective information. In order to properly report PE and deferred outflows/inflows of resources in future years, it will be necessary for employers to maintain schedules for amortizing deferred amounts.

Section VII – Collective Deferred Outflows/Inflows

Amounts reported as deferred outflows of resources related to pensions resulting from employer contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability in the year ended June 30, 2022 (Reporting Date). Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense.

Collective Deferred Outflows and Inflows between Expected and Actual Experience ($ in thousands)

Year	Experience Losses (a)	Experience Gains (b)	Amounts Recognized in Pension Expense through 2021 (c)	Balances as of June 30, 2022 (Reporting Date): Deferred Outflows (a) - (c)	Balances as of June 30, 2022 (Reporting Date): Deferred Inflows (b) - (c)
2021	$181,270	$0	$46,719	$134,551	$0
2020	224,426	0	122,638	101,788	0
2019	0	0	0	0	0
2018	21,361	0	21,361	0	0
Total				$236,339	$0

Collective Deferred Outflows and Inflows for Differences from Assumption Changes ($ in thousands)

Year	Assumption Losses (a)	Assumption Gains (b)	Amounts Recognized in Pension Expense through 2021 (c)	Balances as of June 30, 2022 (Reporting Date): Deferred Outflows (a) - (c)	Balances as of June 30, 2022 (Reporting Date): Deferred Inflows (b) - (c)
2021	$1,469,257	$0	$378,674	$1,090,583	$0
2020	0	0	0	0	0
2019	231,354	0	184,590	46,764	0
2018	0	0	0	0	0
Total				$1,137,347	$0

Section VII – Collective Deferred Outflows/Inflows

Collective Deferred Outflows and Inflows for Differences in Investment Experience ($ in thousands)					
				Balances as of June 30, 2022 (Reporting Date)	
Year	**Investment Losses (a)**	**Investment Gains (b)**	**Amounts Recognized in Pension Expense through 2021 (c)**	**Deferred Outflows (a) - (c)**	**Deferred Inflows (b) - (c)**
2021	$0	$6,632,222	$1,326,444	$0	$5,305,778
2020	1,281,176	0	512,470	768,706	0
2019	401,582	0	240,948	160,634	0
2018	0	373,999	299,200	0	74,799
2017	0	1,605,517	1,605,517	0	0
Total				$929,340	$5,380,577
Net difference between projected and actual earnings on investments					$4,451,237

Section VII – Collective Deferred Outflows/Inflows

Amortization of Collective Deferrals ($ in thousands)

Fiscal Year End	Reporting Year End	2016 Investment Loss Amount Recognized	2016 Investment Loss EOY Balance	2017 Investment Gain Amount Recognized	2017 Investment Gain EOY Balance	2017 Experience Gain Amount Recognized	2017 Experience Gain EOY Balance	2017 Assumption Changes Loss Amount Recognized	2017 Assumption Changes Loss EOY Balance
6/30/2020	6/30/2021	($352,876)	$0	$321,103	$321,105	$18,936	$0	($2,649)	$0
6/30/2021	6/30/2022	0	0	321,105	0	0	0	0	0
6/30/2022	6/30/2023	0	0	0	0	0	0	0	0
6/30/2023	6/30/2024	0	0	0	0	0	0	0	0
6/30/2024	6/30/2025	0	0	0	0	0	0	0	0
6/30/2025	6/30/2026	0	0	0	0	0	0	0	0
6/30/2026	6/30/2027	0	0	0	0	0	0	0	0

Amortization of Collective Deferrals ($ in thousands)

Fiscal Year End	Reporting Year End	2018 Investment Gain Amount Recognized	2018 Investment Gain EOY Balance	2018 Experience loss Amount Recognized	2018 Experience loss EOY Balance	2019 Investment Loss Amount Recognized	2019 Investment Loss EOY Balance	2019 Assumption Changes Loss Amount Recognized	2019 Assumption Changes Loss EOY Balance
6/30/2020	6/30/2021	$74,800	$149,599	($5,477)	($4,930)	($80,316)	($240,950)	($61,530)	($108,294)
6/30/2021	6/30/2022	74,800	74,799	(4,930)	0	(80,316)	(160,634)	(61,530)	(46,764)
6/30/2022	6/30/2023	74,799	0	0	0	(80,316)	(80,318)	(46,764)	0
6/30/2023	6/30/2024	0	0	0	0	(80,318)	0	0	0
6/30/2024	6/30/2025	0	0	0	0	0	0	0	0
6/30/2025	6/30/2026	0	0	0	0	0	0	0	0
6/30/2026	6/30/2027	0	0	0	0	0	0	0	0

Section VII – Collective Deferred Outflows/Inflows

Amortization of Collective Deferrals ($ in thousands)														
		2020 Investment Loss		2020 Experience Loss		2021 Investment Gain		2021 Assumption Changes Loss		2021 Experience Loss		Total Deferrals	
Fiscal Year End	Reporting Year End	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance
6/30/2020	6/30/2021	($256,235)	($1,024,941)	($61,319)	($163,107)	$0	$0	$0	$0	$0	$0	($405,563)	($1,071,518)
6/30/2021	6/30/2022	(256,235)	(768,706)	(61,319)	(101,788)	1,326,444	5,305,778	(378,674)	(1,090,583)	(46,719)	(134,551)	$832,626	$3,077,551
6/30/2022	6/30/2023	(256,235)	(512,471)	(61,319)	(40,469)	1,326,444	3,979,334	(378,674)	(711,909)	(46,719)	(87,832)	$531,216	$2,546,335
6/30/2023	6/30/2024	(256,235)	(256,236)	(40,469)	0	1,326,444	2,652,890	(378,674)	(333,235)	(46,719)	(41,113)	$524,029	$2,022,306
6/30/2024	6/30/2025	(256,236)	0	0	0	1,326,444	1,326,446	(333,235)	0	(41,113)	0	$695,860	$1,326,446
6/30/2025	6/30/2026	0	0	0	0	1,326,446	0	0	0	0	0	$1,326,446	$0
6/30/2026	6/30/2027	0	0	0	0	0	0	0	0	0	0	$0	$0

Section VIII – Required Supplementary Information

There are several tables of Required Supplementary Information (RSI) that need to be included in the System's financial statements. They are provided in Schedule C. In addition, the following should be noted regarding the RSI.

Changes of assumptions.

- 2021
  - The expectation of retired life mortality was changed to the PubS.H-2010(B) Retiree Table with the following adjustments:
    - For males, 95% of male rates up to age 60, 110% for ages 61 to 75, and 101% for ages above 77.
    - For females, 84% of female rates up to age 72, 100% for ages above 76.
    - Projection scale MP-2020 will be used to project future improvements in life expectancy generationally.
  - The expectation of disabled mortality was changed to PubG.H-2010 Disabled Table for disabled retirees with the following adjustments:
    - For males, 134% of male rates at all ages.
    - For females, 121% of female rates at all ages.
    - Projection scale MP-2020 will be used to project future improvements in life expectancy generationally.
  - The expectation of contingent annuitant mortality was based on the PubS.H-2010(B) Contingent Annuitant Table with the following adjustments:
    - For males, 97% of male rates at all ages.
    - For females, 110% of female rates at all ages.
    - Projection scale MP-2020 will be used to project future improvements in life expectancy generationally.
  - The price inflation assumption was reduced from 2.75% to 2.40%.
  - The wage inflation assumption was reduced from 3.00% to 2.65%.
  - The investment rate of return assumption was changed from 7.75% to 7.55%.
  - The assumed load for administrative expenses was increased from 0.25% to 0.28% of payroll.
  - Withdrawal rates, pre-retirement mortality rates, disability rates and service retirement rates were also adjusted to reflect actual experience more closely.
  - The percentage of active member disabilities assumed to be in the line of duty was increased from 9% to 12%.
  - The percentage of active member deaths assumed to be in in the line of duty was decrease from 6% to 4%.

- 2019
  - The expectation of retired life mortality was changed to the PubS.H-2010(B) Retiree Table with the following adjustments:
    - For males, 112% of male rates from ages 18 to 75 scaled down to 105% for ages 80 to 119.
    - For females, 85% of the female rates from ages 18 to 65 scaled up to 102% for ages 75 to 119.
    - Projection scale MP-2018 will be used to project future improvements in life expectancy generationally.
  - The expectation of disabled mortality was changed to PubT.H-2010 Disabled Retiree Table for disabled retirees with the following adjustments:
    - For males, 137% of male rates at all ages.
    - For females, 115% of female rates at all ages.
    - Projection scale MP-2018 will be used to project future improvements in life expectancy generationally.
  - The price inflation assumption was reduced from 3.00% to 2.75%.
  - The wage inflation assumption was reduced from 3.25% to 3.00%.
  - Withdrawal rates, pre-retirement mortality rates, and service retirement rates were also adjusted to reflect actual experience more closely.
  - The percentage of active member disabilities assumed to be in the line of duty was increased from 7% to 9%.
- 2017
  - The expectation of retired life mortality was changed to the RP-2014 Healthy Annuitant Blue Collar Mortality Table projected with Scale BB to 2022. Small adjustments were also made to the Mortality Table for disabled lives.
  - The wage inflation assumption was reduced from 3.75% to 3.25%.
  - Withdrawal rates, pre-retirement mortality rates, disability rates and service retirement rates were also adjusted to reflect actual experience more closely.
  - The percentage of active member disabilities assumed to be in the line of duty was increased from 6% to 7%.
- 2016
  - The assumed rate of interest credited to employee contributions was changed from 3.50% to 2.00%.

- 2015
  - The expectation of retired life mortality was changed to the RP-2014 Healthy Annuitant Blue Collar Table projected to 2016 using Scale BB rather than the RP-2000 Mortality Table, which was used prior to 2015.
  - The expectation of disabled mortality was changed to the RP-2014 Disabled Retiree Table, rather than the RP-2000 Disabled Mortality Table, which was used prior to 2015.
  - Withdrawal rates, pre-retirement mortality rates, disability rates and service retirement rates were also adjusted to reflect actual experience more closely.
  - Assumed rates of salary increase were adjusted to reflect actual and anticipated experience more closely.
  - The price inflation and investment rate of return assumptions were changed from 3.50% to 3.00% and 8.00% to 7.75%, respectively.

Changes in benefit provisions

- 2016
  - Effective July 1, 2016, the interest rate on employee contributions shall be calculated based on the money market rate as published by the Wall Street Journal on December 31 of each preceding year with a minimum rate of one percent and a maximum rate of five percent.

Method and assumptions used in calculations of actuarially determined contributions. The actuarially determined contribution rates in the schedule of employer contributions are calculated as of June 30, two years prior to the end of the fiscal year in which contributions are reported (June 30, 2019 valuation for the June 30, 2021 fiscal year end). The following actuarial methods and assumptions were used to determine the most recent contribution rate reported in that schedule:

Actuarial cost method	Entry age
Amortization method	Level percentage of payroll, open
Remaining amortization period	28.8 years
Asset valuation method	5-year smoothed market
Price Inflation	2.75 percent
Salary increase	3.00 percent to 18.25 percent, including inflation
Investment rate of return	7.75 percent, net of pension plan investment expense, including inflation

Schedule A – Statement of Actuarial Assumptions and Methods

INTEREST RATE: 7.55% per annum, compounded annually (net of investment expense only). The expected return on assets consists of 2.40% price inflation and 5.15% real rate of return.

SEPARATIONS FROM ACTIVE SERVICE: Representative values of the assumed rates of separation from active service are as follows:

	Annual Rates of			
	Death*		Disability	
Age	Male	Female	Male	Female
20	0.0483%	0.0126%	0.006%	0.006%
25	0.0567	0.0189	0.011	0.011
30	0.0630	0.0259	0.016	0.016
35	0.0714	0.0350	0.020	0.020
40	0.0893	0.0483	0.090	0.050
45	0.1218	0.0665	0.170	0.100
50	0.1764	0.0917	0.260	0.170
55	0.2594	0.1274	0.370	0.290
60	0.3980	0.1757	0.310	0.250
65	0.6353	0.2429	0.280	0.220
70	1.1655	0.4739	0.200	0.150
75	2.1389	0.9247	0.200	0.150
79	3.4755	1.5785	0.200	0.150

* Adjusted Base Rates

AGE	Annual Rates of Withdrawal* Years of Service											
	0		5		10		15		20		24	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
20	40.00%	45.00%	13.00%	14.00%								
25	34.50	37.00	13.00	12.50	9.00%	9.00%						
30	34.00	35.00	12.00	12.50	6.50	6.50	5.00%	5.00%				
35	33.75	30.00	12.00	12.00	6.50	6.25	4.00	4.25	4.00%	3.50%		
40	33.50	28.00	9.50	9.50	6.00	6.00	4.00	4.25	4.00	3.50	4.00%	3.50%
45	32.00	27.50	9.50	9.50	5.50	5.75	4.00	4.25	4.00	3.50	4.00	3.50
50	28.00	27.50	9.50	9.50	5.50	5.75	4.00	4.25	4.00	3.50	4.00	3.50
55	25.00	25.00	9.50	9.50	5.50	5.75	4.00	4.25	4.00	3.50	4.00	3.50
60	25.00	25.00	9.50	9.50	5.50	5.75	4.00	4.25	4.00	3.50	4.00	3.50

*Rates stop at eligibility for retirement. For Tier 4, rates at 24 years of service are extended out to 29 years of service.

Annual Rates of Service Retirements				
	Male		Female	
Age	Under 25 Years of Service*	25 Years of Service and Over*	Under 25 Years of Service*	25 Years of Service and Over*
45		25.00%		21.00%
50		19.00		14.50
55		18.00		19.75
60	11.25%	19.00	13.25%	21.50
62	21.00	29.00	18.75	34.00
65	25.50	32.00	30.00	42.25
70	19.50	26.00	23.00	30.00
75	22.00	24.00	21.50	25.00
80	100.00	100.00	100.00	100.00

*For Tier 4 members, 30 years of service.

SALARY INCREASES: Representative values of the assumed annual rates of salary increases are as follows:

		Annual Rates of	
Service	Merit & Seniority	Base (Economy)	Increase Next Year
0	15.25%	2.65%	17.90%
1	5.25	2.65	7.90
2	2.75	2.65	5.40
3	1.75	2.65	4.40
4	1.25	2.65	3.90
5-7	0.75	2.65	3.40
8-27	0.25	2.65	2.90
28 and Over	0.00	2.65	2.65

DEATH AFTER RETIREMENT:

*Service Retirees**

Membership Table	Adjustment to Rates	Projection Scale
PubS.H-2010(B) Retiree	Male: 95% up to age 60, 110% for ages 61 to 75, and 101% for ages above 77 Female: 84% up to age 72, 100% for ages above 76	MP-2020

*Contingent Annuitants**

Membership Table	Adjustment to Rates	Projection Scale
PubS.H-2010(B) Contingent Annuitant	Male: 97% for all ages Female: 110% for all ages	MP-2020

*Disabled Retirees**

Membership Table	Adjustment to Rates	Projection Scale
PubG.H-2010 Disabled	Male: 134% for all ages Female: 121% for all ages	MP-2020

* Please note that none of the recommended tables have any setbacks or setforwards.

Representative values of the assumed rates of death after retirement are as follows:

	Rates of Death After Retirement*					
	Service Retirees		Contingent Annuitants		Disabled Retirees	
AGE	Male	Female	Male	Female	Male	Female
45	0.2983%	0.0983%	0.7692%	0.5104%	1.4660%	1.1919%
50	0.4190%	0.1638%	0.8837%	0.6556%	2.2780%	1.7956%
55	0.5197%	0.2738%	1.0156%	0.7843%	2.9855%	2.1078%
60	0.7771%	0.4578%	1.2397%	1.0131%	3.6475%	2.4684%
65	1.3211%	0.7652%	1.6286%	1.4157%	4.5426%	2.9730%
70	2.1758%	1.2785%	2.4153%	1.9998%	5.8129%	3.8127%
75	3.8566%	2.3659%	3.7209%	3.0052%	7.6661%	5.2683%
80	6.2640%	4.2530%	5.7734%	4.7289%	10.8125%	7.7779%
85	11.0605%	7.3240%	9.2228%	7.8562%	15.7785%	11.9947%
90	17.6902%	12.6470%	14.6577%	13.4530%	22.7224%	17.5353%

*Adjusted Base Rates

Schedule A – Statement of Actuarial Assumptions and Methods

PAYROLL GROWTH: 2.65% per annum, compounded annually.

ADMINISTRATIVE EXPENSES: 0.28% of payroll.

TIMING OF DECREMENTS AND PAY INCREASES: Middle of Year.

ACTIVE MEMBER DISABILITY ASSUMPTION: 12% of active member disabilities are assumed to be in the line of duty and 88% of active member disabilities are assumed to not be in the line of duty.

ACTIVE MEMBER DEATH ASSUMPTION: 4% of active deaths are assumed to be in the line of duty and 96% of active member deaths are assumed to not be in the line of duty.

ACTIVE MEMBER WITHDRAWAL ASSUMPTION: 60% of vested participants who terminate before retirement elect to receive a deferred benefit upon attaining the eligibility requirements for retirement. They are assumed to commence their benefit at age 60 for Tiers 1, 2 and 3 and age 62 for Tier 4. The remaining 40% elect to withdraw their contributions.

FINAL AVERAGE COMPENSATION: 0.25% load on the final average compensation produced by our valuation software.

MARRIAGE ASSUMPTION: 85% married with the husband three years older than his wife.

UNUSED SICK LEAVE: Assumed 0.50 years at retirement.

MILITARY SERVICE: Assumed that participants will have on average 0.25 years of military service at retirement.

MAXIMUM COVERED EARNINGS ASSUMPTION GROWTH: 2.65%

AGE-LIMITED DISABILITY DECREMENTS: Assumed to turn off at age 60.

DEFERRED VESTEDS: Deferred vested benefits are assumed to commence at age 60 for Tiers 1, 2 and 3 and at age 65 for Tier 4.

ASSUMED INTEREST RATE ON EMPLOYEE CONTRIBUTIONS: 2.00%.

ASSET VALUATION METHOD: Market value of assets.

Schedule A – Statement of Actuarial Assumptions and Methods

VALUATION METHOD: The valuation is prepared on the projected benefit basis, which is used to determine the present value of each member's expected benefit payable at retirement, disability or death. The calculations are based on the member's age, years of service, sex, compensation, expected future salary increases, and an assumed future interest earnings rate (currently 7.55%). The calculations consider the probability of a member's death or termination of employment prior to becoming eligible for a benefit and the probability of the member terminating with a service, disability, or survivor's benefit. The present value of the expected benefits payable to active members is added to the present value of the expected future payments to current benefit recipients to obtain the present value of all expected benefits payable to the present group of members and survivors.

The employer contributions required to support the benefits of PERS are determined following a level funding approach and consist of a normal contribution and an accrued liability contribution.

The normal contribution is determined using the "entry age normal" method. Under this method, a calculation is made for pension benefits to determine the uniform and constant percentage rate of employer contribution which, if applied to the compensation of the average new member during the entire period of his anticipated covered service, would be required in addition to the contributions of the member to meet the cost of all benefits payable on his behalf.

The unfunded actuarial accrued liability is determined by subtracting the current assets and the present value of prospective employer normal contributions and member contributions from the present value of expected benefits to be paid from the PERS. The accrued liability contribution amortizes the balance of the unfunded actuarial accrued liability over a period of years from the valuation date.

Schedule B – Summary of Main Benefit and Contribution Provisions

The following summary presents the main benefit and contribution provisions of the System in effect June 30, 2021, as interpreted in preparing the actuarial valuation.

DEFINITIONS

Average Compensation — Average annual covered earnings of an employee during the four highest years of service. To determine your four highest years, PERS considers these scenarios:

- Four highest fiscal years of earned compensation;
- Four highest calendar years of earned compensation;
- Combination of four highest fiscal and calendar years of earned compensation that do not overlap; or
- Final 48 months of earned compensation prior to termination of employment.

Covered Earnings — Gross salary not in excess of the maximum amount on which contributions were required.

Fiscal Year — Year commencing on July 1 and ending June 30.

Credited Service — Service while a contributing member plus additional service as described below.

Unused Sick and Vacation Leave — Service credit is provided at no charge to members for unused sick and vacation time that has accrued at the time of retirement. A payment of up to 240 hours of leave may be used in the Average Compensation definition.

Additional Service — Additional service credit may be granted for service prior to February 1, 1953, active duty military service, out-of-state service, professional leave and non-covered and retroactive service

The maximum covered earnings for employers and employees for the past ten years are as follows:

EMPLOYER AND EMPLOYEE RATES OF CONTRIBUTION AND MAXIMUM COVERED EARNINGS

Fiscal Date From	Fiscal Date To	Employer Rate	Maximum Covered Earnings	Employee Rate	Maximum Covered Earnings
7/1/11	12/31/11	12.00	245,000	9.00	245,000
1/1/12	6/30/12	12.93	245,000	9.00	245,000
7/1/12	6/30/13	14.26	250,000	9.00	250,000
7/1/13	6/30/14	15.75	255,000	9.00	255,000
7/1/14	6/30/15	15.75	260,000	9.00	260,000
7/1/15	6/30/17	15.75	265,000	9.00	265,000
7/1/17	6/30/18	15.75	270,000	9.00	270,000
7/1/18	6/30/19	15.75	275,000	9.00	275,000
7/1/19	6/30/20	17.40	280,000	9.00	280,000
7/1/20	6/30/21	17.40	285,000	9.00	285,000

BENEFITS

Superannuation Retirement

Condition for Retirement

A retirement allowance is paid upon the request of any member who retires and has attained age 60 and completed at least eight years (4 years if hired prior to July 1, 2011) of membership service.

A retirement allowance may also be paid upon the completion of 25 years of creditable service for members hired prior to July 1, 2011 or upon the completion of 30 years of creditable service for members hired on or after July 1, 2011.

Amount of Allowance

The annual retirement allowance payable to a member who retires is equal to:

1. A member's annuity which is the actuarial equivalent of the member's accumulated contributions at the time of his or her retirement, plus
2. For a member hired prior to July 1, 2011, an employer's annuity which, together with the member's annuity, is equal to 2% of his or her average compensation for each of the first 25 years of creditable service plus 2-1/2% for each year of creditable service over 25 years.
3. For a member hired on or after July 1, 2011, an employer's annuity which, together with the member's annuity, is equal to 2% of his or her average compensation for each of the first 30 years of creditable service plus 2-1/2% for each year of creditable service over 30 years. There will be an actuarial reduction for each year of creditable service below 30 or for each year of age below age 65, whichever is less.

For members hired prior to July 1, 2011, the minimum allowance is $120 for each year of creditable service.

Early Retirement

Condition for Retirement

For members hired on or after July 1, 2011, an actuarially reduced retirement allowance is paid upon the request of any member who retires with less than 30 years of creditable service.

Amount of Allowance

The annual actuarially reduced retirement allowance is equal to the benefit in the section above reduced for each year of creditable service below 30 or for each year in age below age 65, whichever is less.

Deferred Vested

Condition for Termination

Any member who withdraws from service prior to his or her attainment of age 60 and who has completed at least eight years (4 years if hired prior to July 1, 2007) of membership service is entitled to receive, in lieu of a refund of his or her accumulated contributions, a retirement allowance.

Amount of Allowance

The annual retirement allowance payable to a member who terminates as a deferred vested payable at age 60 is equal to:

1. A member's annuity which is the actuarial equivalent of the member's accumulated contributions at the time of his or her retirement, plus
2. For a member hired prior to July 1, 2011, an employer's annuity which, together with the member's annuity, is equal to 2% of his or her average compensation for each of the first 25 years of creditable service plus 2-1/2% for each year of creditable service over 25 years.
3. For a member hired on or after July 1, 2011, an employer's annuity which, together with the member's annuity, is equal to 2% of his or her average compensation for each of the first 30 years of creditable service plus 2-1/2% for each year of creditable service over 30 years. There will be an actuarial reduction for each year of creditable service below 30 or for each year of age below age 65, whichever is less.

For members hired prior to July 1, 2011, the minimum allowance is $120 for each year of creditable service.

Disability Retirement

Condition for Retirement

A retirement allowance is paid to a member who is totally and permanently disabled, as determined by the Board of Trustees, and has accumulated eight or more years* of membership service.

* four years for those who entered the system before July 1, 2007

Amount of Allowance

For those who were active members prior to July 1, 1992, and did not elect the benefit structure outlined below, the annual disability retirement allowance payable is equal to a superannuation retirement allowance if the member has attained age 60, otherwise it is equal to a superannuation retirement allowance calculated as follows:

1. A member's annuity equal to the actuarial equivalent of his or her accumulated contributions at the time of retirement, plus

2. An employer's annuity equal to the amount that would have been payable had the member continued in service to age 60.

For those who become active members after June 30, 1992, and for those who were active members prior to July 1, 1992, who so elected, the following benefits are payable:

1. A temporary allowance equal to the greater of (a) 40% of average compensation plus 10% for each dependent child up to a maximum of 2, or (b) the member's accrued allowance. This temporary allowance is paid for a period of time based on the member's age at disability, as follows:

Age at Disability	Duration
60 and earlier	to age 65
61	to age 66
62	to age 66
63	to age 67
64	to age 67
65	to age 68
66	to age 68
67	to age 69
68	to age 70
69 and later	one year

For members hired prior to July 1, 2011, the minimum allowance is $120 per year of creditable service.

2. A deferred allowance commencing when the temporary allowance ceases equal to the greater of (a) the allowance the member would have received based on service to the termination age of the temporary allowance, but not more than 40% of average compensation, or (b) the member's accrued allowance.

For members hired prior to July 1, 2011, the minimum allowance is $120 per year of creditable service.

Effective July 1, 2004, a temporary benefit can be paid out of a member's accumulated contribution balance while the member is awaiting a determination for eligibility for disability benefits. Future disability payments, if any, would be offset by advanced payments made from the member's accumulated contributions.

Accidental Disability Retirement

Condition for Retirement	A retirement allowance is paid to a member who is totally and permanently disabled in the line of performance of duty.
Amount of Allowance	The annual accidental disability retirement allowance is equal to the allowance payable on disability retirement but not less than 50% of average compensation. There is no minimum benefit.

Accidental Death Benefit

Condition for Benefit	A retirement allowance is paid to a spouse and/or dependent children upon the death of an active member in the line of performance of duty.
Amount of Allowance	The annual retirement allowance is equal to 50% of average compensation payable to the spouse and 25% of average compensation payable to one dependent child or 50% to two or more children until age 19 (23 if a full time student). There is no minimum benefit.

Ordinary Death Benefit

Condition for Benefit	Upon the death of a member who has completed at least eight years* of membership service, a benefit is payable, in lieu of a refund of the member's accumulated contributions, to his or her spouse, if said spouse has been married to the member for not less than one year. *four years for those who entered the system before July 1, 2007.

Schedule B – Summary of Main Benefit and Contribution Provisions

Amount of Allowance	The annual retirement allowance payable to the lawful spouse of a vested member who dies is equal to the greater of (i) the allowance that would have been payable had the member retired and elected Option 2, reduced by an actuarially determined factor based on the number of years the member lacked in qualifying for unreduced retirement benefits, or (ii) a lifetime benefit equal to 20% of the deceased member's average compensation, but not less than $50 per month. In addition, a benefit is payable to dependent children until age 19 (23 if a full time student). The benefit is equal to the greater of 10% of average compensation or $50 per month for each dependent child up to 3.
Return of Contributions	Upon the withdrawal of a member without a retirement benefit, his or her contributions are returned to him or her, together with accumulated regular interest thereon. Upon the death of a member before retirement, his or her contributions, together with the full accumulated regular interest thereon, are paid to his or her designated beneficiary, if any, otherwise, to his or her estate provided no other survivor benefits are payable. Effective July 1, 2016, the interest rate on employee contributions shall be calculated based on the money market rate as published by the Wall Street Journal on December 31 of each preceding year with a minimum rate of one percent and a maximum rate of five percent.
Normal Form of Benefit	The normal form of benefit (modified cash refund) is an allowance payable during the life of the member with the provision that upon his or her death the excess of his or her total contributions at the time of retirement over the total retirement annuity paid to him or her will be paid to his or her designated beneficiary.
Optional Benefits	A member upon retirement may elect to receive his or her allowance in one of the following forms which are computed to be actuarially equivalent to the applicable retirement allowance. Option 1. Reduced allowance with the provision that if the pensioner dies before he receives the value of the member's annuity as it was at the time of retirement, the balance shall be paid to his or her beneficiary.

Option 2. Upon his or her death, his or her reduced retirement allowance shall be continued throughout the life of, and paid to, his or her beneficiary.

Option 3. Upon his or her death, 50% of his or her reduced retirement allowance shall be continued throughout the life of, and paid to, a designated beneficiary and the other 50% of his or her reduced retirement allowance to some other designated beneficiary.

Option 4. Upon his or her death, 75% of his or her reduced retirement allowance shall be continued throughout the life of, and paid to, a designated beneficiary.

Option 4A. Upon his or her death, 50% of his or her reduced retirement allowance shall be continued throughout the life of, and paid to, a designated beneficiary.

Option 4B. A reduced retirement allowance shall be continued throughout the life of the pensioner, but with the further guarantee of payment to the pensioner or his or her beneficiary for a specified number of years certain.

Option 4C. A member may elect any option with the added provision that the member shall receive, so far as possible, the same total amount annually (considering both PERS and Social Security benefits) before and after the earliest age at which the member becomes eligible for a Social Security benefit. This option was only available to those who retired prior to July 1, 2004.

A member who elects Option 2, Option 4, or Option 4A at retirement may revert to the normal form of benefit if the designated beneficiary predeceases the retired member or if the retired member divorces the designated beneficiary. A member who elects the normal form of benefit or Option 1 at retirement may select Option 2, Option 4, or Option 4A to provide beneficiary protection to a new spouse if married after retirement.

A member hired prior to July 1, 2011 and who has at least 28 years of creditable service* or a member hired on or after July 1, 2011 who has at least 33 years of creditable service can select a partial lump-sum option at retirement. Under this option, the retiree has the option of taking a partial lump-sum distribution equal to 12, 24, or 36 times the base maximum monthly benefit. With each lump-sum amount, the base maximum monthly benefit will be actuarially reduced.

A member selecting the partial lump-sum option may also select any of the regular options except Option 1, the prorated single-life annuity, and Option 4-C, the Social Security leveling provision. The benefit is then calculated using the new reduced maximum benefit as a starting point in applying the appropriate option factors for the reduction.

* or at least age 63 with four years of membership service for those who entered the system before July 1, 2007.

Post-Retirement Adjustments In Allowances

The allowances of retired members are adjusted annually by an amount equal to (a) 3% of the annual retirement allowance for each full fiscal year of retirement prior to the year in which the member reaches age 55*, plus (b) 3% compounded for each year thereafter beginning with the fiscal year in which the member turns age 55*.

*Age 60 for members hired on or after July 1, 2011

A prorated portion of the annual adjustment will be paid to the member, beneficiary, or estate of any member or beneficiary who is receiving the annual adjustment in a lump sum, but whose benefits are terminated between July 1 and December 1.

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY
($ in Thousands)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability										
Service Cost	$681,778	$673,626	$734,545	$754,552	$702,559	$696,445	$712,354	$719,623		
Interest	2,754,573	2,867,679	3,032,131	3,154,382	3,239,471	3,330,054	3,433,801	3,536,951		
Benefit changes	0	0	0	0	0	0	0	0		
Difference between expected and actual experience	257,464	325,351	413,494	(172,476)	21,361	0	224,426	181,270		
Changes of assumptions	0	1,821,236	(66,606)	24,141	0	231,354	0	1,469,257		
Benefit payments	(2,099,843)	(2,219,240)	(2,367,709)	(2,477,914)	(2,609,415)	(2,747,397)	(2,878,073)	(2,995,255)		
Refunds of contributions	(121,532)	(119,356)	(112,926)	(113,707)	(124,306)	(108,042)	(104,851)	(101,044)		
Net change in total pension liability	1,472,440	3,349,296	1,632,929	1,168,978	1,229,670	1,402,414	1,387,657	2,810,802		
Total pension liability - beginning	35,542,848	37,015,288	40,364,584	41,997,513	43,166,491	44,396,161	45,798,575	47,186,232		
Total pension liability - ending (a)	$37,015,288	$40,364,584	$41,997,513	$43,166,491	$44,396,161	$45,798,575	$47,186,232	$49,997,034		
Plan net position										
Contributions - employer	$969,674	$996,478	$1,021,261	$1,019,084	$1,018,163	$1,038,108	$1,171,805	$1,169,679		
Contributions - member	549,528	557,909	572,574	570,066	570,807	580,941	594,711	594,876		
Net investment income	3,905,728	827,666	130,900	3,436,144	2,385,913	1,701,321	856,935	8,736,632		
Benefit payments	(2,099,843)	(2,219,240)	(2,367,709)	(2,477,914)	(2,609,415)	(2,747,397)	(2,878,073)	(2,995,255)		
Administrative expense	(12,837)	(13,523)	(15,166)	(17,056)	(16,264)	(16,905)	(19,757)	(15,691)		
Refunds of contributions	(121,532)	(119,356)	(112,926)	(113,707)	(124,306)	(108,042)	(104,851)	(101,044)		
Other	(510)	(497)	(474)	(8,536)	(4,805)	(4,614)	22	6		
Net change in plan net position	3,190,208	29,437	(771,540)	2,408,081	1,220,093	443,412	(379,208)	7,389,203		
Plan net position - beginning	21,686,911	24,877,119	24,906,556	24,135,016	26,543,097	27,763,190	28,206,602	27,827,394		
Plan net position - ending (b)	$24,877,119	$24,906,556	$24,135,016	$26,543,097	$27,763,190	$28,206,602	$27,827,394	$35,216,597		
Net pension liability - ending (a) - (b)	$12,138,169	$15,458,028	$17,862,497	$16,623,394	$16,632,971	$17,591,973	$19,358,838	$14,780,437		

Schedule C – Required Supplementary Information

SCHEDULE OF THE NET PENSION LIABILITY
($ in Thousands)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability	$37,015,288	$40,364,584	$41,997,513	$43,166,491	$44,396,161	$45,798,575	$47,186,232	$49,997,034		
Plan net position	24,877,119	24,906,556	24,135,016	26,543,097	27,763,190	28,206,602	27,827,394	35,216,597		
Net pension liability	$12,138,169	$15,458,028	$17,862,497	$16,623,394	$16,632,971	$17,591,973	$19,358,838	$14,780,437		
Ratio of plan net position to total pension liability	67.21%	61.70%	57.47%	61.49%	62.54%	61.59%	58.97%	70.44%		
Covered payroll	$5,834,687	$5,904,827	$6,022,533	$6,038,229	$5,999,231	$6,144,916	$6,287,441	$6,246,077		
Net pension liability as a percentage of covered payroll	208.03%	261.79%	296.59%	275.30%	277.25%	286.29%	307.90%	236.64%		

Employers apply their proportionate share percentage to amounts.

SCHEDULE OF EMPLOYER CONTRIBUTIONS
(Template)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Actuarially Determined Employer Contribution										
Actual employer contributions										
Annual contribution deficiency (excess)										
Covered payroll										
Actual contributions as a percentage of covered-employee payroll										
Proportionate share percentage										