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GASB STATEMENT NO. 67 REPORT

FOR THE

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF MISSISSIPPI

PREPARED AS OF JUNE 30, 2019

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October 4, 2019

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 Public Employees' Retirement System of Mississippi in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statement No. 67. The information is presented for the period ending June 30, 2019.

The annual actuarial valuation used as a basis for much of the information presented in this report was performed as of June 30, 2018. The valuation was based on data, provided by the Retirement System staff for active, inactive and retired members along with pertinent financial information.

This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries and has experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the System and on actuarial assumptions that are 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 67.

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The calculation of the liability associated with the benefits described in this report was performed for the purpose of providing reporting and disclosure information that satisfies the requirements of GASB 67 for accounting valuation purposes and may not be appropriate for funding purposes or other types of analysis. Calculations for purposes other than satisfying the requirements of GASB 67 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, FCA, EA, MAAA
Principal and Consulting Actuary

Jonathan T. Craven, ASA, EA, FCA, MAAA
Consulting Actuary

EJK/JTC:mjn

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PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF MISSISSIPPI
PREPARED AS OF JUNE 30, 2019

SECTION I – INTRODUCTION

The Governmental Accounting Standards Board issued Statement No. 67 (GASB 67), "*Financial Reporting For Pension Plans*", in June 2012. This report, prepared as of June 30, 2019 (the Measurement Date), presents information to assist the Public Employees' Retirement System of Mississippi (System) in meeting the requirements of GASB 67. Much of the material provided in this report is based on the data, assumptions and results of the annual actuarial valuation of the Public Employees' Retirement System of Mississippi as of June 30, 2018, with the exception of the actuarial assumptions from the 2019 experience study that were adopted by the Board of Trustees at the August 27, 2019 Board Meeting. The results of the 2018 valuation were detailed in a report dated October 9, 2018.

Subsequent to the June 30, 2018 valuation, the Board adopted new actuarial assumptions based on the experience investigation for the four-year period ending June 30, 2018. The results of this study was presented to the Board in April, 2019 and the Board adopted all of the demographic assumption recommendations (e.g. rates of mortality, retirement and withdrawal) and the wage inflation assumption recommendation from 3.25% to 3.00% at its August, 2019 meeting.

GASB 67 requires a measurement of the Total Pension Liability (TPL) utilizing the Entry Age Normal actuarial funding method. If the valuation date at which the TPL is determined is before the Measurement Date, as is the case here, the TPL must be rolled forward to the Measurement Date. The Net Pension Liability (NPL) is then set equal to the rolled forward TPL minus the System's Fiduciary Net Position (FNP) (basically the market values of assets) as of the Measurement Date. The benefit provisions recognized in the calculation of the TPL are summarized in Schedule B. The development of the roll-forward of the TPL is shown in the table on page 7.

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. The Funding Policy is shown in Schedule D of this report. 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 7.75% as of June 30, 2019 will meet the requirements of GASB 67. The SEIR cross-over test is shown in Schedule E of this report.

The sections that follow provide the results of all the necessary calculations, presented in the order laid out in GASB 67 for note disclosure and Required Supplementary Information (RSI).

SECTION II – FINANCIAL STATEMENT NOTES

The actuarial related information presented herein will follow the order presented in GASB 67. There are other, non-actuarial items required which are not included in this report. Paragraph numbers are provided for ease of reference.

Paragraph 30(a) (4): The data required regarding the membership of the Public Employees' Retirement System of Mississippi were furnished by the System office. The following table summarizes the membership of the System as of the June 30, 2018, the Valuation Date.

Membership

	Number
Inactive Members Or Their Beneficiaries Currently Receiving Benefits	104,973
Inactive Members Entitled To But Not Yet Receiving Benefits	69,341
Active Members	150,687
Total	325,001

Paragraphs 30(a) (5)-(6) and Paragraphs 30 (b)-(f): The information required is to be supplied by the System.

Paragraphs 31(a) (1)-(4): As stated above, the NPL is equal to the TPL minus the FNP. That result as of June 30, 2019 is presented in the following table ($ thousands).

	Fiscal Year Ending June 30, 2019
Total Pension Liability	$45,798,575
Fiduciary Net Position	28,206,602
Net Pension Liability	$17,591,973
Ratio of Fiduciary Net Position to Total Pension Liability	61.59%

Paragraph 31(b) (1)(a)-(f): This paragraph requires information regarding the actuarial assumptions used to measure the TPL. The actuarial assumptions utilized in developing the TPL comply with the Actuarial Standards Board and are outlined in Schedule C. The TPL as of June 30, 2019 was determined by an actuarial valuation prepared as of June 30, 2018. Subsequent to the June 30, 2018 valuation, the Board adopted new actuarial assumptions based on the experience investigation for the four-year period ending June 30, 2018. The following actuarial assumptions are applied to all periods included in the measurement:

Price Inflation	2.75 percent
Salary increases	3.00 – 18.25 percent, including inflation
Investment rate of return	7.75 percent, net of pension plan investment expense, including inflation

Mortality rates were based on 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. Mortality rates will be projected generationally using the MP-2018 projection scale to account for future improvements in life expectancy.

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:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Domestic Equity	27.00%	4.90%
International Equity	22.00	4.75
Global Equity	12.00	5.00
Fixed Income	20.00	1.50
Real Estate	10.00	4.00
Private Equity	8.00	6.25
Cash	1.00	0.25
Total	100.00%	

Discount rate. The discount rate used to measure the total pension liability was 7.75 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 of 9.00 percent and that Employer contributions will be made at the rate set in the Board's Funding Policy. 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.

Paragraph 31(b) (1) (g): This paragraph requires disclosure of the sensitivity of NPL to changes in the discount rate. The following presents the NPL of the System, calculated using the discount rate of 7.75 percent, as well as what the System's NPL would be if it were calculated using a discount rate that is 1-percentage-point lower (6.75 percent) or 1-percentage-point higher (8.75 percent) than the current rate ($ thousands):

	1% Decrease (6.75%)	Current Discount Rate (7.75%)	1% Increase (8.75%)
System's Net Pension Liability	$23,125,258	$17,591,973	$13,024,743

Paragraph 31(c): June 30, 2018 is the actuarial valuation date upon which the TPL is based. An expected TPL is determined as of June 30, 2019 using standard roll forward techniques. The roll forward calculation adds the annual normal cost (also called service cost), subtracts the actual benefit payments and refunds for the plan year and then applies the expected investment rate of return using the SEIR as of June 30, 2018. We apply the roll forward techniques to the liabilities before and after the assumption changes and then compare these amounts as of June 30, 2019 to reflect the assumption gain or loss for the year. These procedures are shown in the following table.

	TPL Roll-forward ($ in thousands)	Before Assumption Changes (1)	After Assumption Changes (2)
(a)	TPL as of June 30, 2018	$44,396,161	$44,607,359
(b)	Interest Rate (SEIR) as of June 30, 2018	7.75%	7.75%
(c)	Entry Age Normal Cost for the period July 1, 2018 - June 30, 2019	696,445	700,233
(d)	Actual Benefit Payments and Refunds for the period July 1, 2018 - June 30, 2019	2,855,439	2,855,439
(e)	Expected TPL as of June 30, 2019 = [(a) x (1+(b))] + (c) - [(d) x (1+(0.5 x (b)))]	$45,567,221	$45,798,575
(f)	Assumption (Gain)/Loss = (e2) – (e1)		$231,354

SECTION III – REQUIRED SUPPLEMENTARY INFORMATION

There are several tables of Required Supplementary Information (RSI) that need to be included in the System's financial statements:

Paragraphs 32(a)-(c): The required tables are provided in Schedule A.

Paragraph 34: In addition the following should be noted regarding the RSI:

Changes of assumptions.

- 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 more closely reflect actual experience.
    - 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 rather than projected with Scale BB to 2016, which was used prior to 2017. 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 more closely reflect actual experience.

- 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 more closely reflect actual experience.
  - Assumed rates of salary increase were adjusted to more closely reflect actual and anticipated experience.
  - 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*
  - 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, 2017 valuation for the June 30, 2019 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	38.4 years
Asset valuation method	5-year smoothed market
Price Inflation	3.00 percent
Salary increase	3.25 percent to 18.50 percent, including inflation
Investment rate of return	7.75 percent, net of pension plan investment expense, including inflation

SCHEDULE A
REQUIRED SUPPLEMENTARY INFORMATION

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY
GASB 67 Paragraph 32(a)
($ 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				
Interest	2,754,573	2,867,679	3,032,131	3,154,382	3,239,471	3,330,054				
Benefit changes	0	0	0	0	0	0				
Difference between expected and actual experience	257,464	325,351	413,494	(172,476)	21,361	0				
Changes of assumptions	0	1,821,236	(66,606)	24,141	0	231,354				
Benefit payments	(2,099,843)	(2,219,240)	(2,367,709)	(2,477,914)	(2,609,415)	(2,747,397)				
Refunds of contributions	(121,532)	(119,356)	(112,926)	(113,707)	(124,306)	(108,042)				
Net change in total pension liability	1,472,440	3,349,296	1,632,929	1,168,978	1,229,670	1,402,414				
Total pension liability - beginning	35,542,848	37,015,288	40,364,584	41,997,513	43,166,491	44,396,161				
Total pension liability - ending (a)	$37,015,288	$40,364,584	$41,997,513	$43,166,491	$44,396,161	$45,798,575				
Plan net position										
Contributions - employer	$969,674	$996,478	$1,021,261	$1,019,084	$1,018,163	$1,038,108				
Contributions - member	549,528	557,909	572,574	570,066	570,807	580,941				
Net investment income	3,905,728	827,666	130,900	3,436,144	2,385,913	1,701,321				
Benefit payments	(2,099,843)	(2,219,240)	(2,367,709)	(2,477,914)	(2,609,415)	(2,747,397)				
Administrative expense	(12,837)	(13,523)	(15,166)	(17,056)	(16,264)	(16,905)				
Refunds of contributions	(121,532)	(119,356)	(112,926)	(113,707)	(124,306)	(108,042)				
Other	(510)	(497)	(474)	(8,536)	(4,805)	(4,614)				
Net change in plan net position	3,190,208	29,437	(771,540)	2,408,081	1,220,093	443,412				
Plan net position - beginning	21,686,911	24,877,119	24,906,556	24,135,016	26,543,097	27,763,190				
Plan net position - ending (b)	$24,877,119	$24,906,556	$24,135,016	$26,543,097	$27,763,190	$28,206,602				
Net pension liability - ending (a) - (b)	$12,138,169	$15,458,028	$17,862,497	$16,623,394	$16,632,971	$17,591,973				

SCHEDULE OF THE NET PENSION LIABILITY
GASB 67 Paragraph 32(b)
($ 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				
Plan net position	24,877,119	24,906,556	24,135,016	26,543,097	27,763,190	28,206,602				
Net pension liability	$12,138,169	$15,458,028	$17,862,497	$16,623,394	$16,632,971	$17,591,973				
Ratio of plan net position to total pension liability	67.21%	61.70%	57.47%	61.49%	62.54%	61.59%				
Covered payroll	$5,834,687	$5,904,827	$6,022,533	$6,038,229	$5,999,231	$6,144,916				
Net pension liability as a percentage of covered payroll	208.03%	261.79%	296.59%	275.30%	277.25%	286.29%				

SCHEDULE OF EMPLOYER CONTRIBUTIONS
GASB 67 Paragraph 32(c)
($ in Thousands)

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Contractually required employer contribution	$967,824	$944,879	$951,021	$948,549	$930,010	$921,872	$835,321	$735,022	$687,016	$699,824
Actual employer contributions	1,038,108	1,018,163	1,019,084	1,021,261	996,478	969,674	881,847	768,914	723,836	731,544
Annual contribution deficiency (excess)	($70,284)	($73,284)	($68,063)	($72,712)	($66,468)	($47,802)	($46,526)	($33,892)	($36,820)	($31,720)
Covered payroll	$6,144,916	$5,999,231	$6,038,229	$6,022,533	$5,904,827	$5,834,687	$5,823,578	$5,857,789	$5,684,624	$5,763,556
Actual contributions as a percentage of covered payroll	16.89%	16.97%	16.88%	16.96%	16.88%	16.62%	15.14%	13.13%	12.73%	12.69%

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, 2019, 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 over the 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
2/1/53	6/30/58	2.50%	$6,000	4.00%	$4,800*
7/1/58	6/30/60	2.50	9,000	4.00	7,800*
7/1/60	6/30/66	2.50	15,000	4.00	13,800*
7/1/66	6/30/68	3.00	15,000	4.50	13,800*
7/1/68	3/31/71	4.50	15,000	4.50	15,000
4/1/71	6/30/73	4.50	35,000	4.50	35,000
7/1/73	6/30/76	5.85	35,000	5.00	35,000
7/1/76	6/30/77	7.00	35,000	5.00	35,000
7/1/77	6/30/78	7.50	35,000	5.50	35,000
7/1/78	6/30/80	8.00	35,000	5.50	35,000
7/1/80	6/30/81	8.00	53,000	5.50	53,000
7/1/81	12/31/83	8.75	53,000	6.00	53,000
1/1/84	6/30/88	8.75	63,000	6.00	63,000
7/1/88	6/30/89	8.75	75,600	6.00	75,600
7/1/89	12/31/89	8.75	75,600	6.50	75,600
1/1/90	6/30/91	9.75	75,600	6.50	75,600
7/1/91	6/30/92	9.75	75,600	7.25	75,600
7/1/92	6/30/02	9.75	125,000	7.25	125,000
7/1/02	6/30/05	9.75	150,000	7.25	150,000
7/1/05	6/30/06	10.75	150,000	7.25	150,000
7/1/06	6/30/07	11.30	150,000	7.25	150,000
7/1/07	6/30/08	11.85	150,000	7.25	150,000
7/1/08	6/30/09	11.85	230,000	7.25	230,000
7/1/09	6/30/10	12.00	245,000	7.25	245,000
7/1/10	6/30/11	12.00	245,000	9.00	245,000
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

*From February 1, 1953 through June 30, 1968 the first $100 in monthly earnings or $1,200 in annual earnings were not covered earnings for the employee.

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.

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 C

STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

INTEREST RATE: 7.75% per annum, compounded annually (net of investment expense only). The expected return on assets consists of 2.75% price inflation and 5.00% 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					
	Withdrawal and Vesting*		Death**		Disability	
Age	Male	Female	Male	Female	Male	Female
20	26.50%	32.50%	0.0483%	0.0126%	0.010%	0.009%
25	18.50	18.50	0.0567	0.0189	0.012	0.011
30	11.75	12.00	0.0630	0.0259	0.017	0.014
35	8.50	8.75	0.0714	0.0350	0.036	0.017
40	6.75	7.00	0.0893	0.0483	0.110	0.070
45	6.25	6.00	0.1218	0.0665	0.230	0.140
50	6.25	6.00	0.1764	0.0917	0.290	0.220
55	6.25	6.00	0.2594	0.1274	0.500	0.380
60	6.25	6.00	0.3980	0.1757	0.530	0.410
65	6.25	6.00	0.6353	0.2429	0.200	0.150
70	6.25	6.00	1.1655	0.4739	0.200	0.150
74	6.25	6.00	1.8942	0.8092	0.200	0.150

	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		22.50%		18.00%
50		15.00		13.00
55		18.25		19.00
60	10.50%	19.50	13.25%	22.25
62	20.75	32.00	19.00	37.50
65	25.00	29.50	29.25	42.50
70	20.00	25.00	24.00	25.50
75	100.00	100.00	100.00	100.00

* For all ages, rates of 33.5% for 1st year of employment and 24.0% for 2nd year.
**Base Rates
*** For Tier 4 members, 30 years of service.

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

Service	Merit & Seniority	Annual Rates of Base (Economy)	Increase Next Year
0	15.25%	3.00%	18.25%
1	5.25	3.00	8.25
2	2.75	3.00	5.75
3	1.75	3.00	4.75
4	1.25	3.00	4.25
5-7	0.75	3.00	3.75
8-27	0.25	3.00	3.25
28 and Over	0.00	3.00	3.00

DEATH AFTER RETIREMENT: The mortality table, for post-retirement mortality, used in evaluating allowances to be paid is 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 PubT.H-2010 Disabled Retiree Table is used for disabled retirees with the following adjustments - 137% of male rates at all ages and 115% of female rates at all ages. Projection scale MP-2018 will be used to project future improvements in life expectancy generationally.

PAYROLL GROWTH: 3.00% per annum, compounded annually.

ADMINISTRATIVE EXPENSES: 0.25% of payroll.

TIMING OF DECREMENTS AND PAY INCREASES: Middle of Year.

ACTIVE MEMBER DISABILITY ASSUMPTION: 9% of active member disabilities are assumed to be in the line of duty and 91% of active member disabilities are assume to not be in the line of duty.

ACTIVE MEMBER DEATH ASSUMPTION: 6% of active deaths are assumed to be in the line of duty and 94% 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: 3.00%

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.

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 7.75%). 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 D

FUNDING POLICY OF THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF MISSISSIPPI

The purpose of the funding policy is to state the overall funding goals and objectives for the Public Employees' Retirement System of Mississippi (PERS), and to document both the metrics that will be used to measure progress toward achieving those goals, and the methods and assumptions employed to develop the metrics.

The employer contribution rate for PERS will be set based on the metrics, assumptions and methods outlined in Section II and III of this policy.

Section I - Funding Goals and Objectives

The objective in requiring employer and employee contributions to PERS is to accumulate sufficient assets during a member's active employment to fully finance the benefits the member will receive in retirement. In meeting this objective, PERS will strive to meet the following goals:

- Preservation of the defined benefit structure for providing lifetime benefits to the PERS membership,
- Contribution rate stability as a percentage of payroll (Fixed Contribution Rate – FCR),
- Maintain an increasing trend in the funded ratio over the projection period with an ultimate goal of being 100% funded,
- Require clear reporting and risk analysis of the metrics by the actuary as outlined in Section II of this policy using a "Signal Light" approach to assist the Board in determining whether increases or decreases are needed in the employer contribution rate, and
- Ensure benefit improvements are funded through increases in contribution requirements in accordance with Article 14, S 272A, of the Mississippi Constitution.

Section II – Metrics

To track progress in achieving the outlined funding goals and objectives and to assist the Board in making a determination whether an increase or decrease in the employer contribution rate for PERS should be considered, certain metrics will be measured annually in conjunction with information provided in the actuarial valuation and projection report. As part of the annual valuation and projection reports, each metric will be calculated and assigned a "Signal Light" with the following definitions:

Status	Definition
Green	Plan passes metric and PERS' funding goals and objectives are achieved
Yellow	Plan passes metric but a warning is issued that negative experience may lead to failing status
Red	Plan fails metric and PERS must consider contribution increases

SCHEDULE D

If any one of the metrics are in the Red Signal Light status in conjunction with the annual valuation report (presented in October) and the projection report (presented in December), the actuary will determine and recommend to the Board an employer contribution rate increase to consider that is sufficient enough to get all three metrics back into the Green Signal Light status. The employer contribution rate increase would be effective for the July 1st, 18 months following the completion of the projection report (e.g. if the projection report in 2019 deems an increase to be considered, then it would be effective for July 1, 2021).

The following metrics will be measured:

- Funded Ratio – defined as the actuarial value of assets divided by the actuarial accrued liability. One of the funding goals is to have an increasing funded ratio over the projection period with an ultimate goal of having a 100% funded ratio. The Board sets the Signal Light definition as follows:

Status	Definition
Green	Funded Ratio above 80% in 2047
Yellow	Funded Ratio between 65% and 80% in 2047
Red	Funded Ratio below 65% in 2047

- Cash flow as a percentage of assets – defined as the difference between total contributions coming into the trust and the benefit payments made to retirees and beneficiaries going out of the trust as a percentage of beginning year market value of assets. Over the projection period, this percentage will fluctuate from year to year so for Signal Light testing, the net cash flow percentage over the entire projection period will be tested. The Board sets the Signal Light definition as follows:

Status	Definition
Green	Net Cash Flow Percentage above negative 6.00% (-6.00%) during the projection period
Yellow	Net Cash Flow Percentage between negative 6.00% (-6.00%) and negative 7.75% (-7.75%) during the projection period
Red	Net Cash Flow Percentage below negative 7.75% (-7.75%) during the projection period

SCHEDULE D

- Actuarially Determined Contribution (ADC) – defined as the contribution requirement determined by the actuary using a contribution allocation procedure based on the principal elements disclosed in Section III of this funding policy:

   1. Actuarial Cost Method
   2. Asset Smoothing Method
   3. Amortization Method

   The calculation of the ADC will be determined during the actuarial valuation and not during the projection report. The ratio of the ADC to the fixed contribution rate (ADC/FCR) as set by this Funding Policy will be tested. The Board sets the Signal Light definition as follows:

Status	Definition
Green	ADC ratio at or below 100% of fixed contribution rate at valuation date
Yellow	ADC ratio between 100% and 110% of fixed contribution rate at valuation date
Red	ADC ratio above 110% of fixed contribution rate at valuation date

Section III – Assumptions and Methods

Each year, the actuary will perform an actuarial valuation and projection report for funding purposes. During the process, the actuary shall calculate all the metrics listed in Section II of this Funding Policy and PERS' Signal Light status for each metric. The following three major components of a funding valuation will be used:

- **Actuarial Cost Method** – This component determines the attribution method upon which the cost/liability of the retirement benefits are allocated to a given period, defining the normal cost or annual accrual rate associated with projected benefits. The Entry Age Normal Cost Method (EAN) is to be used for determination of the normal cost rate and the actuarial accrued liability for purposes of calculating the Actuarial Determined Contribution (ADC).

- **Asset Valuation Method** – This component dictates the method by which the asset value, used in the determination of the Unfunded Actuarial Accrued Liability (UAAL) and Funded Ratio, is determined. The asset valuation method to be used shall be a five-year smoothed market value of assets. The difference between the actual market value investment returns and the expected market investment returns is recognized equally over a five-year period.

- **Amortization Method** – This component prescribes, in terms of duration and pattern, the systematic manner in which the difference between the accrued liability and the actuarial value of assets is reduced. For purposes of calculating the ADC metric, the following amortization method assumptions are used**:**

SCHEDULE D

1. Once established for any component of the UAAL, the amortization period for that component will be closed and will decrease by one year annually.
2. The amortization payment will be determined on a level percentage of pay basis.
3. The length of the amortization periods will be as follows:
    a. Existing UAAL on June 30, 2018 – 30 years.
    b. Annual future actuarial experience gains and losses, assumption changes or benefit enhancements or reductions – 25 years from the date of the valuation.
4. If any future annual actuarial valuation indicates that PERS has a negative UAAL, the ADC shall be set equal to the Normal Cost.

- **Actuarial Assumptions** – The actuarial assumptions are used to develop the annual and projected actuarial metrics, as well as the ADC rates. The actuarial assumptions are derived and proposed by the actuary and adopted by the PERS' Board in conformity with the *Actuarial Standards of Practice*. The actuarial assumptions for this funding policy were developed using the experience for the four-year period ending June 30, 2016 (State of Mississippi Retirement Systems Experience Investigation for the Four-Year Period Ending June 30, 2016). The long-term investment return assumption adopted by the PERS' Board in conjunction with the Experience Investigation is 7.75%.

Section IV – Governance Policy/Process

Below is a list of specific actuarial and funding related studies, the frequency at which they should be commissioned by the Board and additional responsibilities related to each:

- **Actuarial Valuation (performed annually in October)** – The Board is responsible for the review of PERS' annual actuarial valuation report, which provides the annual funded ratio and the calculation of the ADC.

- **Projection Report (performed annually in December)** – The Board is responsible for the review of PERS' 30-year projection report, which will include the actuarial metrics and Signal Light status for each metric over a 30-year period.

- **Experience Analysis (performed every two years on a rolling four year basis and presented in April)** – The Board is responsible for ensuring that an experience analysis is performed as prescribed, review of the results of the study, and approving the actuarial assumptions and methodologies to be used for all actuarial purposes relating to the defined benefit pension plan.

- **Actuarial Audit (performed at least every five years)** – The Board is responsible for the review of an audit report performed by a new actuarial firm to provide a critique of the reasonableness of the actuarial methods and assumptions in use and the resulting actuarially computed liabilities and contribution rates.

- **Funding Policy Review (performed at least annually)** – The Board is responsible for the periodic review of this policy, but at least annually following the Projection Report and biennially following the Experience Analysis.

SCHEDULE D

Section V - Glossary of Funding Policy Terms

- **Actuarial Accrued Liability (AAL):** The AAL is the value at a particular point in time of all past normal costs. This is the amount of assets the plan would have today if the current plan provisions, actuarial assumptions, and participant data had always been in effect, contributions equal to the normal cost had been made, and all actuarial assumptions had been met.
- **Actuarial Cost Method:** The actuarial cost method allocates a portion of the total cost (present value of benefits) to each year of service, both past service and future service.
- **Actuarial Determined Contribution (ADC):** The potential payment to the plan as determined by the actuary using a contribution allocation procedure which, if contributed consistently and combined with investment earnings, would be sufficient to pay promised benefits in full over the long-term. The ADC may or may not be the amount actually paid by the plan sponsor or other contributing entity.
- **Asset Values**:
  - **Actuarial Value of Assets (AVA):** The AVA is the market value of assets less the deferred investment gains or losses not yet recognized by the asset smoothing method.
  - **Market Value of Assets (MVA):** The MVA is the fair value of assets of the plan as reported in the plan's audited financial statements.
- **Entry Age Normal Actuarial Cost Method (EAN):** The EAN actuarial cost method is a funding method that calculates the normal cost as a level percentage of pay or level dollar amount over the working lifetime of the plan's members.
- **Funded Ratio:** The funded ratio is the ratio of the plan assets to the plan's actuarial accrued liabilities.
  - **Actuarial Value Funded Ratio:** is the ratio of the AVA to the AAL.
- **Normal Cost**: The normal cost is the cost allocated under the actuarial cost method to each year of active member service.
- **Present Value of Benefits (PVB) or total cost:** The PVB is the value at a particular point in time of all projected future benefit payments for current plan members. The future benefit payments and the value of those payments are determined using actuarial assumptions regarding future events. Examples of these assumptions are estimates of retirement and termination patterns, salary increases, investment returns, etc.
- **Surplus:** A surplus refers to the positive difference, if any, between the AVA and the AAL.
- **Unfunded Actuarial Accrued Liability (UAAL):** The UAAL is the portion of the AAL that is not currently covered by the AVA. It is the positive difference between the AAL and the AVA.
- **Valuation Date:** The valuation date is the annual date upon which an actuarial valuation is performed; meaning that the trust assets and liabilities of the plan are valued as of that date. PERS' annual valuation date is June 30th.

SCHEDULE E

SEIR CROSS-OVER TEST
Projection of Contributions

Plan Year Beginning June 30	Projected Covered Employee Payroll: Payroll for Current Employees (a)	Payroll for Future Employees (b)	Total Employee Payroll (c)	Projected Contributions: Employee Contribution Rate (d)	Employer Normal Cost Contribution Rate (e)	Employer UAAL Contribution Rate (f)	Contributions from Current Employees (g) = (a) x (d)	Employer Contributions for Current Employees (h) = (a) x [(e) + (f)]	Contributions Related to Payroll of Future Employees (i) = (b) x (f)	Total Contributions (j) = (g) + (h) + (i)	Plan Year Ending June 30
2018	$6,309,396,248	$0	$6,309,396,248	9.00%	1.45%	14.30%	$567,845,662	$993,729,909	$0	$1,561,575,571	2019
2019	5,775,050,975	723,627,160	6,498,678,135	9.00	1.55	15.85	519,754,588	1,004,858,870	114,694,905	1,639,308,363	2020
2020	5,348,692,803	1,344,945,677	6,693,638,480	9.00	1.55	15.85	481,382,352	930,672,548	213,173,890	1,625,228,790	2021
2021	4,963,371,376	1,931,076,258	6,894,447,634	9.00	1.55	15.85	446,703,424	863,626,619	306,075,587	1,616,405,630	2022
2022	4,599,814,343	2,501,466,720	7,101,281,063	9.00	1.55	15.85	413,983,291	800,367,696	396,482,475	1,610,833,462	2023
2023	4,254,222,575	3,060,096,920	7,314,319,495	9.00	1.55	15.85	382,880,032	740,234,728	485,025,362	1,608,140,122	2024
2024	3,927,071,221	3,606,677,859	7,533,749,080	9.00	1.55	15.85	353,436,410	683,310,392	571,658,441	1,608,405,243	2025
2025	3,612,765,424	4,146,996,128	7,759,761,552	9.00	1.55	15.85	325,148,888	628,621,184	657,298,886	1,611,068,958	2026
2026	3,311,733,188	4,680,821,211	7,992,554,399	9.00	1.55	15.85	298,055,987	576,241,575	741,910,162	1,616,207,724	2027
2027	3,029,321,011	5,203,010,020	8,232,331,031	9.00	1.55	15.85	272,638,891	527,101,856	824,677,088	1,624,417,835	2028
2032	1,872,227,864	7,671,300,071	9,543,527,935	9.00	1.55	15.85	168,500,508	325,767,648	1,215,901,061	1,710,169,217	2033
2037	1,045,723,149	10,017,841,363	11,063,564,512	9.00	1.55	15.85	94,115,083	181,955,828	1,587,827,856	1,863,898,767	2038
2042	566,396,986	12,259,306,522	12,825,703,508	9.00	1.55	15.85	50,975,729	98,553,076	1,943,100,084	2,092,628,889	2043
2047	239,686,111	14,628,819,451	14,868,505,562	9.00	1.55	15.85	21,571,750	41,705,383	2,318,667,883	2,381,945,016	2048
2052	62,042,498	17,174,630,523	17,236,673,021	9.00	1.55	15.85	5,583,825	10,795,395	2,722,178,938	2,738,558,158	2053
2057	11,939,584	19,970,088,577	19,982,028,161	9.00	1.55	0.00	1,074,563	185,064	0	1,259,627	2058
2062	1,927,317	23,162,719,882	23,164,647,199	9.00	1.55	0.00	173,459	29,873	0	203,332	2063
2067	214,086	26,853,960,852	26,854,174,938	9.00	1.55	0.00	19,268	3,318	0	22,586	2068
2072	3,931	31,131,344,861	31,131,348,792	9.00	1.55	0.00	354	61	0	415	2073
2077	0	36,089,765,553	36,089,765,553	9.00	1.55	0.00	0	0	0	0	2078
2082	0	41,837,929,553	41,837,929,553	9.00	1.55	0.00	0	0	0	0	2083
2087	0	48,501,627,053	48,501,627,053	9.00	1.55	0.00	0	0	0	0	2088
2092	0	56,226,678,804	56,226,678,804	9.00	1.55	0.00	0	0	0	0	2093
2097	0	65,182,131,021	65,182,131,021	9.00	1.55	0.00	0	0	0	0	2098
2102	0	75,563,954,601	75,563,954,601	9.00	1.55	0.00	0	0	0	0	2103

Projection of Fiduciary Net Position (FNP)

Plan Year Beginning June 30	Projected Beginning FNP (a)	Projected Total Contributions (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending FNP (f) = (a) + (b) – (c) – (d) + (e)	Plan Year Ending June 30
2018	$27,763,190,000	$1,561,575,571	$2,881,724,090	$15,773,491	$2,100,846,153	$28,528,114,143	2019
2019	28,528,114,143	1,639,308,363	2,995,232,700	14,437,627	2,158,818,126	29,316,570,305	2020
2020	29,316,570,305	1,625,228,790	3,111,892,880	13,371,732	2,214,992,375	30,031,526,858	2021
2021	30,031,526,858	1,616,405,630	3,229,113,362	12,408,428	2,265,645,081	30,672,055,779	2022
2022	30,672,055,779	1,610,833,462	3,344,712,889	11,499,536	2,310,712,841	31,237,389,657	2023
2023	31,237,389,657	1,608,140,122	3,451,346,559	10,635,556	2,350,401,696	31,733,949,360	2024
2024	31,733,949,360	1,608,405,243	3,557,620,283	9,817,678	2,384,884,988	32,159,801,630	2025
2025	32,159,801,630	1,611,068,958	3,554,452,682	9,031,914	2,418,140,166	32,625,526,158	2026
2026	32,625,526,158	1,616,207,724	3,661,592,349	8,279,333	2,450,383,650	33,022,245,850	2027
2027	33,022,245,850	1,624,417,835	3,766,920,924	7,573,303	2,477,463,153	33,349,632,611	2028
2032	34,019,781,697	1,710,169,217	4,221,602,933	4,680,570	2,540,852,868	34,044,520,279	2033
2037	33,750,594,407	1,863,898,767	4,496,365,409	2,614,308	2,515,466,910	33,630,980,367	2038
2042	33,425,414,827	2,092,628,889	4,489,155,759	1,415,992	2,499,283,137	33,526,755,102	2043
2047	35,039,849,111	2,381,945,016	4,274,126,693	599,215	2,643,611,575	35,790,679,794	2048
2052	41,008,814,492	2,738,558,158	3,867,611,118	155,106	3,135,242,757	43,014,849,183	2053
2057	41,192,389,214	1,259,627	3,298,418,121	29,849	3,067,028,067	40,962,228,938	2058
2062	41,279,566,135	203,332	2,653,396,544	4,818	3,098,273,281	41,724,641,386	2063
2067	45,338,283,586	22,586	2,006,060,231	535	3,437,433,415	46,769,678,821	2068
2072	55,084,368,367	415	1,399,248,316	10	4,215,829,384	57,900,949,840	2073
2077	72,743,496,418	0	878,942,353	0	5,604,197,454	77,468,751,519	2078
2082	101,280,907,315	0	481,590,069	0	7,830,956,904	108,630,274,150	2083
2087	144,829,725,538	0	220,871,246	0	11,215,904,664	155,824,758,956	2088
2092	209,375,668,974	0	80,419,658	0	16,223,556,229	225,518,805,545	2093
2097	303,769,551,066	0	21,897,654	0	23,541,307,506	327,288,960,918	2098
2102	441,112,339,615	0	4,646,720	0	34,186,029,619	475,293,722,514	2103