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**Report of the Actuary
on the Valuation of the
Georgia Firefighters' Pension Fund**

Prepared as of June 30, 2018





Cavanaugh Macdonald

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October 25, 2018

Mr. Morgan Wurst
Executive Director
Georgia Firefighters' Pension Fund
2171 East View Parkway
Conyers, GA 30013-5756

Dear Mr. Wurst:

Enclosed are 20 bound copies and one unbound copy of the "Report of the Actuary on the Valuation of the Georgia Firefighters' Pension Fund" prepared as of June 30, 2018.

Sincerely,

Edward J. Koebel, EA, FCA, MAAA
Principal and Consulting Actuary

Ben D. Mobley, ASA, FCA, MAAA
Senior Actuary

EJK/BDM:ld

Enclosures

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October 25, 2018

Board of Trustees
Georgia Firefighters' Pension Fund
2171 East View Parkway
Conyers, GA 30013-5756

Dear Members of the Board:

We are pleased to submit herewith the results of the annual actuarial valuation of the Georgia Firefighters' Pension Fund ("Fund") prepared as of June 30, 2018. The purpose of this report is to provide a summary of the funded status of the Fund as of June 30, 2018 and to recommend actuarially determined employer contributions. The information needed for this Fund under the Governmental Accounting Standards Board Statements No. 67 and 68 will be provided in a separate report. However, for informational purposes only, we have also provided accounting disclosure information in Section VI of the report. While not verifying the data at source, the actuary performed tests for consistency and reasonability.

On the basis of the valuation, the actuarially determined contribution is \$29,732,350 for the fiscal year ending June 30, 2019. These contributions are sufficient to meet the minimum funding requirements under Title 47, Chapter 7 of the Official Code of Georgia.

The promised benefits of the Fund are included in the actuarially calculated contributions which are developed using the entry age cost method. A five-year smoothed market value of plan assets was used for the actuarial value of assets. In accordance with the funding policy adopted by the Board, the Transitional Unfunded Actuarial Accrued Liability (UAAL) as of June 30, 2014 is being amortized as a level dollar with a closed period. Gains and losses in subsequent years are amortized within a closed 30 year period from the valuation it is established. The assumptions recommended by the actuary and adopted by the Board are reasonably related to the experience under the Fund and to reasonable expectations of anticipated experience under the Fund.

There have been no changes in the actuarial assumptions since the previous valuation. Two 1.0% Cost-of-Living Adjustments (COLA) were granted to retired members and beneficiaries and to the benefit rate of future retirees effective as of January 1, 2018 and July 1, 2018.

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 funds, 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 Fund and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the Fund.

The employer contributions to the Fund are based on premium tax revenues. Assuming that the actuarially determined employer contributions to the Fund are made from year to year in the future at the amount recommended on the basis of the successive actuarial valuations, the continued sufficiency of the retirement fund to provide the benefits called for under the Fund may be safely anticipated.



Board of Trustees
October 25, 2018
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Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

This actuarial valuation was performed to determine the adequacy of statutory contributions to fund the plan. The asset values used to determine unfunded liabilities and funded ratios are not market values but less volatile market related values. A smoothing technique is applied to market values to determine the market related values. The unfunded liability amounts and funded ratios using the market value of assets would be different. The interest rate used for determining liabilities is based on the expected return on assets. Therefore, liability amounts in this report cannot be used to assess a settlement of the obligation.

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, in the aggregate, internally consistent and reasonably based on the actual experience of the system.

We trust that the report will meet the approval of the Board and will furnish the desired information concerning the financial condition of the Fund.

Respectfully submitted,

A handwritten signature in blue ink that reads 'Edward J. Koebel'.

Edward J. Koebel, EA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in blue ink that reads 'Ben Mobley'.

Ben D. Mobley, ASA, FCA, MAAA
Senior Actuary

EJK/BDM:ld



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Section I – Summary of Principal Results

**GEORGIA FIREFIGHTERS' PENSION FUND
REPORT OF THE ACTUARY
ON THE VALUATION
PREPARED AS OF JUNE 30, 2018**

1. For convenience of reference, the principal results of the current and preceding valuations are summarized below.

Valuation Date	June 30, 2018	June 30, 2017
Active members:		
Number	13,483	13,322
Retired members and beneficiaries:		
Number	5,595	5,299
Annual allowances	\$ 49,657,018	\$ 45,716,689
Number of terminated vested members	331	238
Assets:		
Market Value	\$ 894,870,607	\$ 843,413,792
Actuarial Value	875,918,340	827,606,701
Unfunded Actuarial Accrued Liability	\$ 190,005,949	\$ 179,598,134
Blended Amortization Period	26.3 years	27.0 years
Actuarial Value Funded Ratio	82.2%	82.2%
Market Value Funded Ratio	84.0%	83.7%
Fiscal Year Ending	June 30, 2019	June 30, 2018
Actuarially Determined Contribution (ADC):		
Employer Normal Cost	\$ 15,181,997	\$ 14,600,891
Accrued Liability	<u>14,550,353</u>	<u>13,589,808</u>
Total	\$ 29,732,350	\$ 28,190,699



Section I – Summary of Principal Results

2. The major benefit and contribution provisions of the Fund as reflected in the valuation are summarized in Schedule F. Two 1.0% Cost-of-Living Adjustments (COLA) were granted to retired members and beneficiaries and to the benefit rate for future retirees effective as of January 1, 2018 and July 1, 2018. This increased the actuarial accrued liability by approximately \$20.6 million.
3. Schedule D of this report outlines the full set of actuarial assumptions and methods used in the valuation. No changes have been made since the previous valuation.
4. The entry age actuarial cost method was used to prepare the valuation. Schedule E contains a brief description of the actuarial cost method.
5. Comments on the valuation results as of June 30, 2018 are given in Section IV and further discussion of the contributions is set out in Section V.
6. As shown in the Summary of Principal Results, the funded ratio is the ratio of actuarial value of assets to the accrued liability and is different based on market value of assets. The funded ratio is an indication of progress in funding the promised benefits. Since the ratio is less than 100%, there is a need for additional contributions toward payment of the unfunded accrued liability. In addition, this funded ratio does not have any relationship to measuring sufficiency if the plan had to settle its liabilities.



Section II – Membership Data

1. Data regarding the membership of the Fund for use as a basis of the valuation were furnished by staff. The valuation included 13,483 active members, which is an increase from last year's active count of approximately 1.2%.
2. The following table shows the number of retired members and beneficiaries as of June 30, 2018 together with the amount of their annual retirement benefits payable under the Fund as of that date.

**THE NUMBER AND ANNUAL BENEFITS OF
RETIRED MEMBERS AND BENEFICIARIES
AS OF JUNE 30, 2018**

GROUP	NUMBER*	ANNUAL RETIREMENT BENEFITS
Service Retirements	5,084	\$ 45,609,459
Disability Retirements	26	196,635
Beneficiaries of Deceased Members	<u>485</u>	<u>3,850,924</u>
Total	5,595	\$ 49,657,018

* In addition, there are 331 terminated members entitled to deferred vested benefits and 2,358 inactive members due a refund of their employee contributions.

3. Table 1 of Schedule I shows the status reconciliation since the last valuation. Table 2 of Schedule I shows the distribution by age and years of membership service of the number of active members included in the valuation. Table 3 of Schedule I shows the number and annual benefits of retired members and beneficiaries included in the valuation, distributed by age.



Section III – Assets

1. As of June 30, 2018, the total market value of assets amounted to \$894,870,607, as reported by staff. The estimated net investment return, on a market value basis, for the plan year was 7.28%. Schedule C shows the receipts and disbursements of the Fund for the year preceding the valuation date and a reconciliation of the Fund balances at market value.
2. The actuarial-related actuarial value of assets using a five-year smoothing technique of investment gains and losses is \$875,918,340. The estimated investment return for the plan year ending June 30, 2018 on an actuarial value of assets basis was 7.68%, which can be compared to the investment return assumed for the period of 6.00%. Schedule B shows the development of the actuarial value of assets as of June 30, 2018.



Section IV – Comments on Valuation

1. Schedule A of this report contains the valuation balance sheet which shows the present and prospective assets and liabilities of the Fund as of June 30, 2018. The valuation was prepared in accordance with the actuarial assumptions set forth in Schedule D and the actuarial cost method which is described in Schedule E.
2. The valuation balance sheet shows that the Fund has total prospective liabilities of \$1,212,379,396 of which \$589,769,706 is for the prospective benefits payable on account of present retired members, beneficiaries of deceased members, terminated members entitled to deferred benefits, and inactive members entitled to a refund of their employee contributions, and \$622,609,690 is for the prospective benefits payable on account of present active members. Against these liabilities, the Fund has a total present actuarial value of assets of \$875,918,340 as of June 30, 2018. The difference of \$336,461,056 between the total liabilities and the total present assets represents the present value of future contributions.
3. The contributions to the Fund consist of normal contributions and accrued liability contributions. The valuation indicates that normal contributions of \$19,226,897 are required to provide the currently accruing benefits of the Fund. Of this amount, \$4,044,900 is expected to be paid by the members and the remaining \$15,181,997 is required by the Fund.
4. Prospective normal contributions have a present value of \$146,455,107. When this amount is subtracted from \$336,461,056 which is the present value of the future contributions to be made, there remains \$190,005,949 as the amount of unfunded accrued liability contributions.
5. The funding policy adopted by the Board, as shown in Schedule G, provides that the unfunded actuarial accrued liability as of June 30, 2014 (Transitional UAAL) will be amortized as a level dollar amount over a closed 30-year period. In each subsequent valuation all benefit changes, assumption and method changes and experience gains and/or losses that have occurred since the previous valuation will determine a New Incremental UAAL. Each New Incremental UAAL will be amortized as a level dollar amount over a closed 30-year period from the date it is established.



Section IV – Comments on Valuation

6. The funding policy also states that the required contribution amount determined in an actuarial valuation will be sufficient to satisfy the normal cost of the Fund and amortize the UAAL as a level dollar amount over a period not to exceed 30 years (for the UAAL as of the June 30, 2014 valuation and for each successive year of gains and losses incurred following the June 30, 2014 valuation).
7. We have determined that an accrued liability contribution amount of \$14,550,353 will comply with the Board's funding policy.
8. The following table shows the components of the total UAAL and the derivation of the UAAL contribution rate in accordance with the funding policy:

TOTAL UAAL AND UAAL CONTRIBUTION RATE

	<u>Initial Amount</u>	<u>UAAL as of June 30, 2018</u>	<u>Amortization Period (years)</u>	<u>Amortization Payment (6.00%)</u>
Transitional	\$168,678,888	\$159,518,108	26	\$12,267,636
New Incremental 6/30/2015	20,214,603	19,400,580	27	1,468,569
New Incremental 6/30/2016	10,801,257	10,519,811	28	784,700
New Incremental 6/30/2017	(12,816,398)	(12,654,285)	29	(931,097)
New Incremental 6/30/2018	<u>13,221,735</u>	<u>13,221,735</u>	30	<u>960,545</u>
Total UAAL		\$190,005,949		\$14,550,353
Blended Amortization Period				26.3 years

9. Overall, there was a \$13.2 million loss in the UAAL for the 2018 valuation. This was largely due to the \$20.6 million increase in liability due to the two 1.0% COLA increases to all members that were granted on January 1, 2018 and July 1, 2018. The benefit changes were partially offset by a \$8.6 million gain from the investment return on an actuarial value basis for the year being greater than expected (7.68% vs. 6.00%). In addition, there were small gains and losses in liabilities due to mortality, retirement and termination actual versus expected experience.



Section V – Contributions Payable

1. The required employer contributions consist of a normal contribution and an accrued liability contribution as determined by actuarial valuation.
2. The normal contribution is calculated as the annual level dollar amount which, if applied for 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. On the basis of the valuation, the employer normal contribution is determined to be \$15,181,997.
3. The accrued liability contribution on the basis of the Board's funding policy is \$14,550,353.
4. Therefore, the total required contribution is \$29,732,350.
5. The following table summarizes the employer contributions which were determined by the June 30, 2018 valuation and are recommended for use for fiscal year ending June 30, 2019.

**ACTUARIALLY DETERMINED CONTRIBUTIONS (ADC)
FOR FISCAL YEAR ENDING JUNE 30, 2019**

	CONTRIBUTION
Employer Normal Cost	\$15,181,997
Accrued Liability	<u>14,550,353</u>
Total	\$29,732,350



Section VI – Accounting Information

Governmental Accounting Standards Board (GASB) has issued Statements No. 67 and 68 which replaced Statements No. 25 and 27 for plan years beginning after June 15, 2013. The information required under the new GASB Statements will be issued in separate reports. The following information is provided for informational purposes only.

1. The following is a distribution of the number of employees by type of membership, as follows:

NUMBER OF ACTIVE AND RETIRED PARTICIPANTS AS OF JUNE 30, 2018

GROUP	NUMBER
Retired participants and beneficiaries currently receiving benefits	5,595
Terminated participants and beneficiaries entitled to benefits but not yet receiving benefits	2,689
Active Participants	<u>13,483</u>
Total	21,767

2. Another such item is the schedule of funding progress as shown below.

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)
6/30/2014	\$675,420,989	\$844,099,877	\$168,678,888	80.0%
6/30/2015#	736,894,306	923,834,927	186,940,621	79.8%
6/30/2016	774,933,733	970,155,843	195,222,110	79.9%
6/30/2017	827,606,701	1,007,204,835	179,598,134	82.2%
6/30/2018	875,918,340	1,065,924,289	190,005,949	82.2%

This is not a pay-related plan, so payroll related information has not been shown.

Reflects changes in assumptions.



Section VI – Accounting Information

3. The following shows the schedule of employer contributions. Contributions from tax revenue on insurance premiums in protected areas collected by the State continue to exceed what is actuarially determined based on the Board's funding policy.

<u>Year Ending</u>	<u>Actuarially Determined Contribution</u>	<u>Percentage Contributed</u>
June 30, 2013	\$ 29,994,798	96%
June 30, 2014	28,955,864	104%
June 30, 2015	26,215,027	120%
June 30, 2016	28,030,287	117%
June 30, 2017	28,987,131	118%
June 30, 2018	28,190,699	127%
June 30, 2019	29,732,350	N/A

4. Additional information as of June 30, 2018 follows:

Valuation date	6/30/2018
Actuarial cost method	Entry age normal
Amortization period	Level dollar closed
Blended amortization period	26.3 years
Asset valuation method	Five-year smoothed market value with 15% corridor
Actuarial assumptions:	
Investment rate of return (includes inflation)	6.00%
Projected salary increases (includes inflation)	N/A
Cost-of-living adjustments	N/A



Schedule A – Valuation Balance Sheet

The present and prospective assets and liabilities of the Fund as of June 30, 2018:

<u>ACTUARIAL LIABILITIES</u>		
(1)	Present value of prospective benefits payable on account of present retired members, beneficiaries of deceased members, and terminated members entitled to deferred benefits	\$589,769,706
(2)	Present value of prospective benefits payable on account of present active members	<u>\$622,609,690</u>
(3)	Total Actuarial Liabilities	<u>\$1,212,379,396</u>
<u>PRESENT AND PROSPECTIVE ASSETS</u>		
(4)	Actuarial value of assets	\$875,918,340
(5)	Present value of total future contributions: (3) – (4)	\$336,461,056
(6)	Present value of future normal contributions	\$146,455,107
(7)	Unfunded accrued liability contributions: (5) – (6)	<u>\$190,005,949</u>
(8)	Total Present and Prospective Assets	<u>\$1,212,379,396</u>



Schedule B – Development of the Actuarial Value of Assets

	<u>07/01/2017 to 6/30/2018</u>
(1) Actuarial Value Beginning of Year	\$ 827,606,701
(2) Market Value End of Year	\$ 894,870,607
(3) Market Value Beginning of Year	\$ 843,413,792
(4) Cash Flow	
(a) Contributions	\$ 40,074,598
(b) Benefit Payments	(47,255,725)
(c) Refund of Contributions	(953,506)
(d) Administrative Expenses	(1,484,270)
(e) Investment Expenses	<u>(5,055,029)</u>
(f) Net: (4)(a) + (4)(b) + (4)(c) + (4)(d) + (4)(e)	\$ (14,673,932)
(5) Investment Income	
(a) Market Total: (2) – (3) – (4)(f)	\$ 66,130,747
(b) Assumed Rate	6.00%
(c) Amount for Immediate Recognition: [(1) x (5)(b)] + [(4)(a) + (4)(b) + (4)(c) + (4)(d)] x (5)(b) x 0.5] – (4)(e)	\$ 50,164,610
(d) Amount for Phased-In Recognition: (5)(a) – (5)(c)	\$ 15,966,137
(6) Phased-In Recognition of Investment Income	
(a) Current Year: 0.20*(5)(d)	\$ 3,193,227
(b) First Prior Year	8,842,651
(c) Second Prior Year	(7,113,488)
(d) Third Prior Year	(6,339,882)
(e) Fourth Prior Year	<u>14,238,454</u>
(f) Total Recognized Investment Gain	\$ 12,820,962
(7) Actuarial Value End of Year: (1) + (4)(f) + (5)(c) + (6)(f)	\$ 875,918,340
(8) Actuarial Value Rate of Return	7.68%



Schedule C – Reconciliation of the Market Value of Assets

	For the year ending:	
	<u>June 30, 2017</u>	<u>June 30, 2018</u>
Market Value Beginning of Year	\$ 766,677,306	\$ 843,413,792
Additions:		
Member Dues	\$ 4,288,738	\$ 4,359,344
Tax Revenue	34,152,048	35,715,254
Other	40	0
Total Contributions	<u>38,440,826</u>	<u>40,074,598</u>
Net Investment Earnings	<u>85,058,108</u>	<u>61,075,718</u>
Total	\$ 123,498,934	\$ 101,150,316
Disbursements:		
Benefit Payments	\$ (44,301,102)	\$ (47,255,725)
Refunds	(1,120,704)	(953,506)
Administration Expense	<u>(1,340,642)</u>	<u>(1,484,270)</u>
Total	\$ (46,762,448)	\$ (49,693,501)
Change in Net Assets	\$ 76,736,486	\$ 51,456,815
Market Value End of Year	\$ 843,413,792	\$ 894,870,607
Net Investment Rate of Return	11.15%	7.28%



Schedule D – Outline of Actuarial Assumptions and Methods

INVESTMENT RETURN: 6.00% compounded annually

PRICE INFLATION: 2.75%

SEPARATIONS FROM ACTIVE SERVICE: For death rates, the RP-2000 Employee Mortality Table projected to 2025 with Projection Scale BB was used. Representative values of the assumed annual rates of separation from active service are as follows:

<u>Age</u>	<u>Annual Rate of</u>			
	<u>Withdrawal</u>		<u>Death</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
20	7.00%	10.00%	0.032%	0.018%
25	5.50	8.50	0.035	0.019
30	5.00	8.50	0.041	0.025
35	4.00	8.50	0.072	0.044
40	3.25	6.00	0.100	0.066
45	3.25	5.00	0.140	0.104
50	3.25	5.00	0.198	0.156
55	4.50	6.00	0.281	0.223

RETIREMENT: Members who have worked at least 15 years are assumed to retire at the following rates:

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
50	15.0%	58	18.0%
51	10.0	59	18.0
52	10.0	60	22.0
53	10.0	61	25.0
54	25.0	62	22.0
55	25.0	63	24.0
56	20.0	64	40.0
57	18.0	65	100.0



Schedule D – Outline of Actuarial Assumptions and Methods

DEATHS AFTER RETIREMENT: The RP-2000 Blue Collar Mortality Table projected to 2025 with projection scale BB set forward 1 year for males and set forward 4 years for females is used for the period after retirement and for dependent beneficiaries. For current disability retirees, mortality rates are based on the RP-2000 Disabled Mortality Table projected to 2025 with projection scale BB set forward 5 years for males and set forward 3 years for females, however there are no longer any disability benefits included in the plan.

PERCENT MARRIED: 80% of active members are assumed to be married with the male three years older than his spouse.

ACTUARIAL VALUE OF ASSETS METHOD: Actuarial value, as developed in Schedule B. At July 1, 1997, the Actuarial Value of Assets was set to 85% of the July 1, 1997 market value. Each year the expected return is determined based on the investment return assumption applied to actuarial value. This expected return reflects the timing of contributions and benefit payments during the year. This return is compared to the actual return for the year based on market value. The difference is considered a gain or loss and is amortized over five years.

VALUATION METHOD: Entry age actuarial cost method. See Schedule E for a brief description of this method.

DUES: Expected dues are number of dues paying members times the annual dues rate.



Schedule E – Actuarial Cost Method

1. The valuation is prepared on the projected benefit basis, under which the present value, at the interest rate assumed to be earned in the future (currently 6.00%), of each member's expected benefits at retirement or death is determined, based on age, service and sex. The calculations take into account the probability of a member's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his terminating with a service, disability or survivor's benefit. The present value of the expected benefits payable on account of the active members is added to the present value of the expected future payments to retired members and beneficiaries to obtain the present value of all expected benefits payable from the Fund on account of the present group of members and beneficiaries.
2. The employer contributions required to support the benefits of the Fund are determined following a level funding approach, and consist of a normal contribution and an accrued liability contribution.
3. The normal contribution is determined using the entry age actuarial cost method. Under this method, a calculation is made to determine the level dollar which, if applied for the average 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.
4. The unfunded accrued liability is determined by subtracting the present value of prospective employer normal contributions and member contributions, together with the current actuarial value of assets held, from the present value of expected benefits to be paid from the Fund.



Schedule F – Summary of Principal Plan Provisions

Current Plan Provisions: The plan provisions and contribution revenue are established under Chapter 7 of Title 47 of the Official Code of Georgia. The Chapter has established a five-member Board of Trustees to administer the Fund. The Georgia Legislature has sole authority to change plan provisions, except that the Fund's Trustees may approve ad hoc cost-of-living adjustments each six months not exceeding 1½% per increase. The Georgia Legislature also determines sources of revenues to the Fund from the State and from Members. Employers are not required to make contributions to this fund.

Effective Date: 1955

Most Recent Amendment Effective Date: July 1, 2018.

Type of Plan: A defined benefit, public employee retirement system funded by Member contributions and tax revenues on insurance premiums in protected areas.

Eligibility: Any person employed as a firefighter or enrolled as a volunteer firefighter making required monthly dues. Members of Peace Officers' Annuity and Benefit Fund are excluded. Regular employees of the fund are eligible.

Credited Service: All service as a Member of the fund rendered while a firefighter or volunteer firefighter excluding years for volunteer firefighters who do not meet attendance, meeting or drill requirements and excluding any leave of absence time. The Board may calculate Credited Service on a monthly basis.



Schedule F – Summary of Principal Plan Provisions

Normal Retirement Date: Full benefits paid at age 55 with at least 25 years of service. Reduced benefits paid if Member has at least 15 years of service.

Early Retirement Date: Age 50 with at least 15 years of service.

Retirement Benefit at Normal Retirement Date: A monthly retirement income increased 2% for each complete year of service over 25. If credited service is less than 25, the \$922 per month is reduced by the ratio of credited service divided by 25 years. The \$922 benefit is derived as follows:

	<u>Change</u>	<u>Total Benefit</u>
Benefit under Code Sec. 47-7-102(3) effective 7/1/1990	= \$570	\$570
6% Increase to offset State Income Tax under Code Sec. 47-1-30	= 34	604
3% COLA adjustment on 8/1/1993	= 18	622
1½% COLA adjustment on 1/1/1994	= 9	631
1½% COLA adjustment on 7/1/1994	= 9	640
1½% COLA adjustment on 1/1/1995	= 10	650
1½% COLA adjustment on 7/1/1995	= 10	660
1½% COLA adjustment on 1/1/1996	= 10	670
1½% COLA adjustment on 7/1/1996	= 10	680
1½% COLA adjustment on 1/1/1997	= 10	690
1½% COLA adjustment on 7/1/1997	= 10	700
1½% COLA adjustment on 7/1/1998	= 10	710
1½% COLA adjustment on 7/1/1999	= 11	721
1½% COLA adjustment on 1/1/2000	= 11	732
1½% COLA adjustment on 7/1/2000	= 11	743
1½% COLA adjustment on 7/1/2001	= 11	754
1½% COLA adjustment on 7/1/2003	= 11	765
1½% COLA adjustment on 1/1/2004	= 11	776
1½% COLA adjustment on 7/1/2004	= 12	788
1½% COLA adjustment on 1/1/2005	= 12	800
1½% COLA adjustment on 7/1/2005	= 12	812
1½% COLA adjustment on 1/1/2006	= 12	824
1½% COLA adjustment on 7/1/2006	= 12	836
1½% COLA adjustment on 1/1/2007	= 13	849
1½% COLA adjustment on 7/1/2007	= 13	862
1½% COLA adjustment on 1/1/2008	= 13	875
¾% COLA adjustment on 7/1/2008	= 7	882
1½% COLA adjustment on 7/1/2016	= 13	895
1% COLA adjustment on 7/1/2017	= 9	904
1% COLA adjustment on 1/1/2018	= 9	913
1% COLA adjustment on 7/1/2018	= 9	922
Total benefit amount		\$922



Schedule F – Summary of Principal Plan Provisions

Retirement Benefit at Early Retirement Date: For retirement between ages 50 and 55, the benefit is reduced by 6% for each year which early retirement precedes age 55.

Disability: There is no longer a disability benefit.

Vesting: After completion of 15 years of service, a participant is 100% vested. If termination occurs prior to vesting, total member contributions are refunded, less 5%.

Vesting Benefit: The accrued benefit deferred to a minimum age 50.

Death Benefits: Prior to vesting, death benefit equals \$5,000.00. After vesting, the death benefit is as prescribed by the Code. A Member with 15 years of creditable service has coverage for his or her spouse in the event the Member dies prior to commencing benefits. The coverage percentage is 100% of what the Member would have received under a joint and 100% survivor option and is payable when the Member would have become age 55. If the Member is not married, his or her beneficiary will receive benefits under the ten year certain option. The Member's benefit is not reduced to reflect the cost of this option (other than the normal reduction for a joint and survivor annuity).

Member Contributions (Dues): \$25 per month. If Member terminates after 25 years of service but is not age 55, dues cease.



Schedule F – Summary of Principal Plan Provisions

Normal Form of Payment: Life annuity.

Optional Forms of Payment: After retirement, the following options are available in exchange for an actuarial reduction in the Member's benefit.

- A. Joint and Survivor Option at 100%, 75%, 66²/₃%, or 50 percent continuation
- B. Ten Years Certain and Life Option

If a Joint and Survivor is elected and the spouse predeceases or divorces the Member, the benefit is increased (or "pops-up") to the amount that would have been payable if the Joint and Survivor Option had not been elected. There is no charge to the Member for the pop-up provision.

Reduction: Benefits can be reduced if funds are insufficient.

Postemployment Healthcare Benefits: None.

Cost-of-Living Allowance (COLA): There is no automatic provision. The Board of Trustees can make ad hoc increases up to 1 ½% every six months.



Schedule G – Board Funding Policy

The purpose of this Funding Policy is to state the overall objectives for the Georgia Firefighters' Pension Fund (Plan), the benchmarks that will be used to measure progress in achieving those goals, and the methods and assumptions that will be employed to develop the benchmarks. It is the intent of the Board that the Funding Policy outlined herein will remain unchanged until the objectives below are met.

I. Funding Objectives

The goal in requiring state and member contributions to the Plan is to accumulate sufficient assets during a member's employment to fully finance the benefits the member is expected to receive throughout retirement. In meeting this objective, the Plan will strive to meet the following funding objectives:

- To maintain a stable or increasing funded ratio (ratio of actuarial value of assets to actuarial accrued liabilities) that reflects a trend of improved actuarial condition. The long-term objective is to obtain a 100% funded ratio over a reasonable period of future years.
- To maintain adequate asset levels to finance the benefits promised to members and monitor the future demand for liquidity.
- If required contribution amounts are larger than actual contributions or the funding ratio falls below 80%, than any benefit improvements should be funded through increases in contribution amounts.

II. Measures of Funding Progress

To track progress in achieving the Plan's funding objectives, the following measures will be determined annually as of the actuarial valuation date (with due recognition that a single year's results may not be indicative of long-term trends):

- **Funded ratio** – The funded ratio, defined as the actuarial value of assets divided by the actuarial accrued liability, should increase over time, before adjustments for changes in benefits, actuarial methods, and/or actuarial adjustments.
- **Unfunded Actuarial Accrued Liability (UAAL)**
 - **Transitional UAAL** – The UAAL established as of the initial valuation date for which this funding policy is adopted shall be known as the Transitional UAAL.
 - **New Incremental UAAL** – Each subsequent valuation will produce a New Incremental UAAL consisting of all benefit changes, assumption and method changes and experience gains and/or losses that have occurred since the previous valuations.
- **UAAL Amortization Period**
 - The transitional UAAL will be amortized over a closed 30 year period beginning on the initial valuation date for which this funding policy is adopted.
 - Each New Incremental UAAL shall be amortized over a closed 30 year period beginning with the year it is incurred.
 - The amortization of UAAL will be developed using the level dollar methodology.



Schedule G – Board Funding Policy

- **Contributions**

- Contributions to the Plan will continue to come from tax revenues on insurance premiums in protected areas collected by the state.
- In each valuation, the actuary will calculate a minimum required annual contribution amount based on the methods and assumptions outlined in this funding policy. The required state contribution amount will be determined as the summation of the employer normal cost, the amortization amount for the Transitional UAAL and the individual amortization amount for each of the New Incremental UAAL bases.
- In no event shall the required contribution amount be less than the employer normal cost.
- The valuation methodology, including the amortization of the Unfunded Actuarial Accrued Liability (UAAL), would be expected to maintain reasonably stable contribution amounts.

III. Methods and Assumptions

The annual actuarial valuations providing the measures to assess funding progress will utilize the actuarial methods and assumptions last adopted by the Board based upon the advice and recommendations of the actuary. These include the following primary methods and assumptions:

- The actuarial cost method used to develop the benchmarks will be the Entry Age Normal (EAN) actuarial cost method.
- The long-term annual investment rate of return assumption will be 6.00% net of investment expenses.
- The actuarial value of assets will be determined by recognizing the annual differences between actual and expected market value of assets over a five-year period.

The minimum required contribution amounts determined in an annual actuarial valuation will be at least sufficient to satisfy the annual normal cost of the Plan and amortize the UAAL as a level dollar amount over a period not to exceed 30 years. However, in no event, shall the contribution amount be less than the employer normal cost.

The actuary shall conduct an investigation into the Plan's experience at least every six years and utilize the results of the investigation to form the basis for recommended assumptions and methods. Any changes to the recommended assumptions and methods that are approved by the Board will be reflected in this Policy.

IV. Funding Policy Progress

The Board will periodically have actuarial projections of the valuation results performed to assess the current and expected future progress towards the overall funding goals of the Plan. These periodic projections will provide the expected valuation results over at least a 30-year period. The projected measures of funding progress and the recent historical trend provided in valuations will provide important information for the Board's assessment of the Plan's funding progress.



Schedule H – Amortization of UAAL

2014 TRANSITIONAL UAAL

Valuation Date	Amortization Period	Balance of Transitional UAAL	Annual Amortization Payment
6/30/2014	30	\$168,678,888	\$12,916,998
6/30/2015	29	166,726,018	12,267,636
6/30/2016	28	164,461,943	12,267,636
6/30/2017	27	162,062,023	12,267,636
6/30/2018	26	159,518,108	12,267,636
6/30/2019	25	156,821,558	12,267,636
6/30/2020	24	153,963,215	12,267,636
6/30/2021	23	150,933,372	12,267,636
6/30/2022	22	147,721,738	12,267,636
6/30/2023	21	144,317,406	12,267,636
6/30/2024	20	140,708,814	12,267,636
6/30/2025	19	136,883,707	12,267,636
6/30/2026	18	132,829,093	12,267,636
6/30/2027	17	128,531,203	12,267,636
6/30/2028	16	123,975,439	12,267,636
6/30/2029	15	119,146,329	12,267,636
6/30/2030	14	114,027,473	12,267,636
6/30/2031	13	108,601,485	12,267,636
6/30/2032	12	102,849,938	12,267,636
6/30/2033	11	96,753,298	12,267,636
6/30/2034	10	90,290,860	12,267,636
6/30/2035	9	83,440,676	12,267,636
6/30/2036	8	76,179,481	12,267,636
6/30/2037	7	68,482,614	12,267,636
6/30/2038	6	60,323,935	12,267,636
6/30/2039	5	51,675,735	12,267,636
6/30/2040	4	42,508,643	12,267,636
6/30/2041	3	32,791,526	12,267,636
6/30/2042	2	22,491,382	12,267,636
6/30/2043	1	11,573,229	12,267,623
6/30/2044	0	0	0



Schedule H – Amortization of UAAL

2015 INCREMENTAL UAAL

Valuation Date	Amortization Period	Balance of New Incremental UAAL (6/30/2015)	Annual Amortization Payment
6/30/2015	30	\$20,214,603	\$1,468,569
6/30/2016	29	19,958,910	1,468,569
6/30/2017	28	19,687,876	1,468,569
6/30/2018	27	19,400,580	1,468,569
6/30/2019	26	19,096,046	1,468,569
6/30/2020	25	18,773,240	1,468,569
6/30/2021	24	18,431,065	1,468,569
6/30/2022	23	18,068,360	1,468,569
6/30/2023	22	17,683,893	1,468,569
6/30/2024	21	17,276,358	1,468,569
6/30/2025	20	16,844,370	1,468,569
6/30/2026	19	16,386,463	1,468,569
6/30/2027	18	15,901,082	1,468,569
6/30/2028	17	15,386,578	1,468,569
6/30/2029	16	14,841,204	1,468,569
6/30/2030	15	14,263,107	1,468,569
6/30/2031	14	13,650,324	1,468,569
6/30/2032	13	13,000,774	1,468,569
6/30/2033	12	12,312,251	1,468,569
6/30/2034	11	11,582,417	1,468,569
6/30/2035	10	10,808,793	1,468,569
6/30/2036	9	9,988,752	1,468,569
6/30/2037	8	9,119,508	1,468,569
6/30/2038	7	8,198,109	1,468,569
6/30/2039	6	7,221,427	1,468,569
6/30/2040	5	6,186,144	1,468,569
6/30/2041	4	5,088,744	1,468,569
6/30/2042	3	3,925,500	1,468,569
6/30/2043	2	2,692,461	1,468,569
6/30/2044	1	1,385,440	1,468,566
6/30/2045	0	0	0



Schedule H – Amortization of UAAL

2016 INCREMENTAL UAAL

Valuation Date	Amortization Period	Balance of New Incremental UAAL (6/30/2016)	Annual Amortization Payment
6/30/2016	30	\$10,801,257	\$784,700
6/30/2017	29	10,664,633	784,700
6/30/2018	28	10,519,811	784,700
6/30/2019	27	10,366,300	784,700
6/30/2020	26	10,203,578	784,700
6/30/2021	25	10,031,093	784,700
6/30/2022	24	9,848,259	784,700
6/30/2023	23	9,654,455	784,700
6/30/2024	22	9,449,022	784,700
6/30/2025	21	9,231,263	784,700
6/30/2026	20	9,000,439	784,700
6/30/2027	19	8,755,765	784,700
6/30/2028	18	8,496,411	784,700
6/30/2029	17	8,221,496	784,700
6/30/2030	16	7,930,086	784,700
6/30/2031	15	7,621,191	784,700
6/30/2032	14	7,293,762	784,700
6/30/2033	13	6,946,688	784,700
6/30/2034	12	6,578,789	784,700
6/30/2035	11	6,188,816	784,700
6/30/2036	10	5,775,445	784,700
6/30/2037	9	5,337,272	784,700
6/30/2038	8	4,872,808	784,700
6/30/2039	7	4,380,476	784,700
6/30/2040	6	3,858,605	784,700
6/30/2041	5	3,305,421	784,700
6/30/2042	4	2,719,046	784,700
6/30/2043	3	2,097,489	784,700
6/30/2044	2	1,438,638	784,700
6/30/2045	1	740,256	784,671
6/30/2046	0	0	0



Schedule H – Amortization of UAAL

2017 INCREMENTAL UAAL

Valuation Date	Amortization Period	Balance of New Incremental UAAL (6/30/2017)	Annual Amortization Payment
6/30/2017	30	(\$12,816,398)	(\$931,097)
6/30/2018	29	(12,654,285)	(931,097)
6/30/2019	28	(12,482,445)	(931,097)
6/30/2020	27	(12,300,295)	(931,097)
6/30/2021	26	(12,107,216)	(931,097)
6/30/2022	25	(11,902,552)	(931,097)
6/30/2023	24	(11,685,608)	(931,097)
6/30/2024	23	(11,455,647)	(931,097)
6/30/2025	22	(11,211,889)	(931,097)
6/30/2026	21	(10,953,505)	(931,097)
6/30/2027	20	(10,679,618)	(931,097)
6/30/2028	19	(10,389,298)	(931,097)
6/30/2029	18	(10,081,559)	(931,097)
6/30/2030	17	(9,755,356)	(931,097)
6/30/2031	16	(9,409,580)	(931,097)
6/30/2032	15	(9,043,058)	(931,097)
6/30/2033	14	(8,654,544)	(931,097)
6/30/2034	13	(8,242,720)	(931,097)
6/30/2035	12	(7,806,186)	(931,097)
6/30/2036	11	(7,343,460)	(931,097)
6/30/2037	10	(6,852,971)	(931,097)
6/30/2038	9	(6,333,052)	(931,097)
6/30/2039	8	(5,781,938)	(931,097)
6/30/2040	7	(5,197,757)	(931,097)
6/30/2041	6	(4,578,525)	(931,097)
6/30/2042	5	(3,922,140)	(931,097)
6/30/2043	4	(3,226,371)	(931,097)
6/30/2044	3	(2,488,856)	(931,097)
6/30/2045	2	(1,707,090)	(931,097)
6/30/2026	1	(878,418)	(931,123)
6/30/2047	0	0	0



Schedule H – Amortization of UAAL

2018 INCREMENTAL UAAL

Valuation Date	Amortization Period	Balance of New Incremental UAAL (6/30/2018)	Annual Amortization Payment
6/30/2018	30	13,221,735	960,545
6/30/2019	29	13,054,494	960,545
6/30/2020	28	12,877,219	960,545
6/30/2021	27	12,689,307	960,545
6/30/2022	26	12,490,120	960,545
6/30/2023	25	12,278,982	960,545
6/30/2024	24	12,055,176	960,545
6/30/2025	23	11,817,942	960,545
6/30/2026	22	11,566,474	960,545
6/30/2027	21	11,299,917	960,545
6/30/2028	20	11,017,367	960,545
6/30/2029	19	10,717,864	960,545
6/30/2030	18	10,400,391	960,545
6/30/2031	17	10,063,869	960,545
6/30/2032	16	9,707,156	960,545
6/30/2033	15	9,329,040	960,545
6/30/2034	14	8,928,237	960,545
6/30/2035	13	8,503,386	960,545
6/30/2036	12	8,053,044	960,545
6/30/2037	11	7,575,682	960,545
6/30/2038	10	7,069,678	960,545
6/30/2039	9	6,533,314	960,545
6/30/2040	8	5,964,768	960,545
6/30/2041	7	5,362,109	960,545
6/30/2042	6	4,723,291	960,545
6/30/2043	5	4,046,143	960,545
6/30/2044	4	3,328,367	960,545
6/30/2045	3	2,567,524	960,545
6/30/2046	2	1,761,030	960,545
6/30/2047	1	906,147	960,516
6/30/2048	0	0	0



Schedule I – Tables of Membership Data

TABLE 1
RECONCILIATION OF DATA

	<u>Actives</u>	<u>Retirees</u>	<u>Beneficiaries</u>	<u>Vested Terms</u>	<u>Total</u>
1. Headcounts as of June 30, 2017	13,322	4,829	470	238	18,859
2. Change in status during the period:					
a. Death with no Beneficiary	(17)	(53)	(17)		(87)
b. Death with Beneficiary	(2)	(28)	33	(3)	
c. Retired	(320)	357		(37)	
d. Terminated Vested	(79)			79	
e. Terminated Not Vested	(417)				(417)
f. Refund	(213)			(1)	(214)
g. Benefit Suspended/Expired		(1)	(1)		(2)
3. New member due to:					
a. New Hire	1,104				1,104
b. Rehire	105	(4)		(5)	96
c. Adjustment		10		60	70
4. Headcounts as of June 30, 2018	13,483	5,110	485	331	19,409

In addition, there are 2,358 inactive members entitled to their refund of employee contributions.



Schedule I – Tables of Membership Data

TABLE 2
DISTRIBUTION OF ACTIVE MEMBERS BY AGE AND SERVICE GROUPS
AS OF JUNE 30, 2018

Attained Age	Completed Years of Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	≥ 35	
Under 25	362	517	11							890
25 to 29	313	967	431	24						1,735
30 to 34	200	727	668	537	9					2,141
35 to 39	111	423	555	670	247	7				2,013
40 to 44	50	256	383	538	523	193	2			1,945
45 to 49	51	155	288	426	595	430	145	3		2,093
50 to 54	18	80	162	258	378	340	238	121	6	1,601
55 to 59	10	41	78	131	148	131	73	71	36	719
60 to 64	4	13	23	66	54	35	19	16	25	255
65 to 69	5	6	13	15	11	1	1		9	61
70 & up	2	4	9	11		1			3	30
Total Count	1,126	3,189	2,621	2,676	1,965	1,138	478	211	79	13,483



Schedule I – Tables of Membership Data

TABLE 3
NUMBER OF RETIRED MEMBERS AND BENEFICIARIES
AND THEIR BENEFITS BY AGE

<u>Attained Age</u>	<u>Number of Members</u>	<u>Total Annual Benefits</u>	<u>Average Annual Benefit</u>
Under 50	21	\$ 181,533	\$ 8,644
50 – 54	416	3,181,282	7,647
55 – 59	1,098	9,635,201	8,775
60 – 64	1,338	11,961,993	8,940
65 – 69	1,151	10,437,115	9,068
70 – 74	778	7,048,907	9,060
75 – 79	435	4,000,751	9,197
80 – 84	186	1,702,690	9,154
85 – 89	121	1,082,898	8,950
90 and Over	<u>51</u>	<u>424,648</u>	<u>8,326</u>
Total	5,595	\$ 49,657,018	\$ 8,875