West Palm Beach Firefighters Pension Fund

Actuarial Valuation Report

September 30, 2021

Outline of Contents
Report of September 30, 2021 Actuarial Valuation

800.521.0498 | P: 248.799.9000 | www.grsconsulting.com

April 20, 2022

Board of Trustees
West Palm Beach Firefighters Pension Fund
West Palm Beach, Florida

The results of the September 30, 2021 Annual Actuarial Valuation of the West Palm Beach Pension Fund are presented in this report.

This report was prepared at the request of the Board and is intended for use by the Pension Fund and those designated or approved by the Board. This report may be provided to parties other than the Pension Fund only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The purposes of the valuation are to measure the Fund's funding progress and to determine the employer contribution rate for the fiscal year beginning October 1, 2022. Information required by Statement Nos. 67 and 68 of the Governmental Accounting Standards Board (GASB) are provided in separate reports. This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results, associated with the benefits described in this report, for purposes other than those identified above may be significantly different.

The contribution amount in this report is determined using the actuarial assumptions and methods disclosed in Section C of this report. This report includes risk metrics on page A-10 but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed by GRS.

The findings in this report are based on data and other information through September 30, 2021. The valuation was based upon information furnished by the City, concerning Pension Fund benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal reasonability and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the City.

This report was prepared using assumptions and methods adopted by the Board. All actuarial assumptions and methods used in this report are reasonable for the purposes of this valuation. Additional information about the actuarial assumptions and methods is included in Section C of this report.

This report was prepared using our proprietary valuation model and related software, which, in our professional judgment, has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of the West Palm Beach Firefighters Pension Fund as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

Brad Lee Armstrong, Jeffrey T. Tebeau and Kevin T. Noelke are Members of the American Academy of Actuaries (MAAA) and meet the Academy's Qualification Standards to render the actuarial opinions contained herein. Our statement by the Enrolled Actuary is contained in Section A. The signing actuaries are independent of the plan sponsor.

Gabriel, Roeder, Smith & Company will be pleased to review this valuation and report with the Pension Advisory Board and to answer any questions pertaining to the valuation.

Respectfully submitted,
Gabriel, Roeder, Smith & Company

Brad Lee Armstrong, ASA, EA, FCA, MAAA

Jeffrey T. Tebeau, FSA, EA, FCA, MAAA

Kevin T. Noelke, ASA, FCA, MAAA

BLA/JTT/KTN:rl

SECTION A

VALUATION RESULTS, COMMENTARY AND STATEMENT BY ENROLLED ACTUARY, ACTUARIAL EXPERIENCE AND ACCRUED LIABILITIES

Funding Objective

The funding objective for the defined benefit provisions of the Pension Fund is to establish and receive contributions, expressed as percents of active member payroll, which will remain approximately level from year-to-year and will not have to be increased for future generations of citizens in the absence of benefit changes. This objective is stated in the Pension Fund special act and meets the requirements of Part VII, Chapter 112, Florida Statutes and Chapter 175, Florida Statutes.

Contribution Rates

The defined benefit provisions of the Pension Fund are supported by member contributions, City contributions and a proportionate allocation of investment earnings on Fund assets and non-allocated Chapter 175 receipts during the fiscal year ending September 30, 2021. The Share Accounts are supported by allocated Chapter 175 receipts and a proportionate allotment of investment earnings on Fund Assets. Chapter 175 receipts during the fiscal year ending September 30, 2021 were 100% allocated to the Share Accounts.

Contributions which satisfy the funding objective are determined by the annual actuarial valuation and are sufficient to:

(1) Cover the actuarial costs allocated to the current year (the normal cost) by the actuarial cost methods described in Section C; and

(2) Finance over a period of future years the actuarial costs not covered by present assets and anticipated future normal costs (Unfunded Actuarial Accrued Liability).

Contribution requirements for the Fund year beginning October 1, 2022 are shown on pages A-2 and A-3. It is anticipated that the contribution will be paid to the Fund during the Plan and Fiscal Year beginning October 1, 2022.

Contributions to Finance Defined Benefits of the Pension Fund for the Plan Year Beginning October 1, 2022 to be Contributed During the Fiscal Year Beginning October 1, 2022

Contributions for	Contributions Expressed as Percents of Payroll
Normal Cost	
Service pensions	17.48 %
Disability pensions	0.96
Survivor pensions	
Pre-retirement	0.48
Post-retirement	1.30
Termination benefits	
Deferred service pensions	0.64
Refunds of member contributions	0.73
Total Normal Cost	21.59
Unfunded Actuarial Accrued Liability	
Retired members and beneficiaries	0.00
Active and vested terminated members	23.33
Total Unfunded Actuarial Accrued Liability	23.33
Administrative Expenses (net of charges to share, DROP, and SPD accounts)	0.52
Total Calculated Contribution Requirement	45.44 %
Adjustments to Calculated Contribution Requirement	
Temporary funding credit	0.00
FS112.64(5) Compliance	0.25
Total adjustments	0.25
Total Adjusted Contribution Requirement	45.69 %
Member portion	13.10 %
Chapter 175 portion	-
City portion	32.59 %

Unfunded Actuarial Accrued Liability is financed as level percents of member payroll. Please refer to page A-12 for a schedule of financing periods.

FS 112.64 requires City contributions to be deposited not less frequently than quarterly. Member contributions, which are in addition to the City contributions, must be deposited immediately after each pay period. FS 175.131 requires that Chapter 175 monies be deposited within 5 days of receipt.

Procedures for determining dollar contribution amounts are shown on page A-3.
Historical contribution amounts for prior fiscal years are shown on page A-14.

Determining Dollar Contributions

We recommend the following procedure.

Contribute $7,720,574 (see note below). This amount is derived from the City portion of the contribution rate on page A-2. The valuation payroll on page B-17 was increased by a factor of 1.062126 ($1.041^{1.5}$) to reflect projected payroll growth to the beginning of the fiscal year during which the contribution will be made. The projection factor is consistent with that used to calculate the actuarial liability.

NOTE: The above contribution amounts were calculated on the basis of contributions being made in a manner which is financially equivalent to making one-quarter of the contribution at the mid-point of each calendar quarter. If contributions are made on a later schedule, interest should be added at the rate of 0.60% (0.0060) for each month of delay. If 100% of the City's contribution is made on an earlier schedule, the City's contribution requirement may be reduced. For an October 1, 2022 contribution date, the City's contribution requirement is $7,446,383.

Funding Progress Indicators

There is no single all-encompassing measure of funding progress and current funded status.

A traditional measure has been the relationship of the funding value of assets to Unfunded Actuarial Accrued Liability, a measure that is influenced by the choice of actuarial cost method. This relationship is shown on page A-13.

We believe additional understanding of funding progress and status can be achieved using the following measures which are less dependent on the actuarial cost method.

Indicator (1) The actuarial gains or losses realized in the operation of the Pension Fund. Gains and losses are expected to cancel each other over an economic cycle but sizable year-to-year fluctuations are common. Further details on the derivation of the gain (loss) are shown on page A-11.

Indicator (2) The ratio of funding value of assets to the actuarial present value of credited projected benefits allocated in the proportion credited service is to projected total service. The ratio is expected to increase over time but the basic trend may be interrupted by benefit improvements.

Indicator (3) The ratio of the unfunded actuarial present value of credited projected benefits to active member payroll. In a soundly financed pension fund, the amount of the unfunded actuarial present value of credited projected benefits will be controlled and prevented from increasing in the absence of benefit improvements. However, in an inflationary environment it is seldom practical to impose this control on dollar amounts which are depreciating in value. The ratio is a relative index of condition where inflation is present in both items. The ratio is expected to decrease over time but the basic trend may be interrupted by benefit improvements.

Funding Progress Indicators - Historical Schedule

($ Amounts in Thousands)

Valuation Date September 30	Indicator 1 Gain (Loss)	Indicator 2 Funding Value of Assets*	Indicator 2 APVCPB	Indicator 2 Funded Ratio	Indicator 3 Unfunded APVCPB	Indicator 3 Member Payroll	Indicator 3 Ratio to Payroll
2002 (a)	$ (6,678)	$ 64,825	$ 76,983	84.2 %	$ 12,158	$ 9,267	131.2 %
2003 (a)	(4,448)	64,294	98,335	65.4	34,041	9,502	358.3
2004	(3,618)	60,400	99,473	60.7	39,074	10,971	356.1
2005	(1,811)	63,960	105,922	60.4	41,962	11,438	366.9
2006	771	70,903	113,205	62.6	42,302	12,437	340.1
2007	11,083	86,980	122,816	70.8	35,836	13,349	268.5
2008	(6,486)	87,376	127,703	68.4	40,327	15,561	259.2
2009	(12,211)	84,637	137,156	61.7	52,520	16,599	316.4
2010	(8,101)	80,221	142,151	56.4	61,930	15,993	387.2
2011 (a)	(8,513)	75,319	147,772	51.0	72,453	15,185	477.1
2012 (a)	(511)	78,235	152,747	51.2	74,513	14,365	518.7
2013 (a)	2,187	83,708	160,001	52.3	76,292	14,899	512.1
2014 (a)	(99)	88,200	164,161	53.7	75,961	15,363	494.4
2015	1,948	96,658	170,373	56.7	73,715	16,145	456.6
2016 (a)	(3,455)	99,358	181,004	54.9	81,647	16,635	490.8
2017	792	105,130	186,862	56.3	81,732	17,540	466.0
2018 (a)	346	114,681	202,331	56.7	87,650	19,317	453.7
2019 (a)	3,924	126,325	204,732	61.7	78,407	19,891	394.2
2020	1,670	138,655	213,015	65.1	74,360	21,135	351.8
2021	**41,108**	**186,080**	**232,839**	**79.9**	**46,759**	**22,304**	**209.6**

(a) After changes in benefit provisions and/or actuarial assumptions and/or actuarial cost method.

** Market Value for 9/30/2007 and 9/30/2021 valuations. All figures exclude Share and DROP accounts.*

APVCPB represents Actuarial Present Value of Credited Projected Benefits excluding Share and DROP accounts.

Comments

Comment A: The Pension Fund received $1,487,932 during the fiscal year ended September 30, 2021 as the Pension Fund's allocation of 2020 monies (received August of 2021) under Chapter 175, Florida Statutes. As of September 30, 2021, there were 359 members with Share Account balances totaling $49,146,368. This includes amounts that are not yet allocated but have already been received.

Comment B: The activities of the Pension Fund and its members generated an experience gain of $41,108,343. The net gain was mostly the result of recognized investment gains of $37.5 million (on the Funding Value of Assets), as well as lower than expected salary increases and gains on fixed interest credit elections. Gains were slightly offset by lower retiree mortality than expected and higher benefits at retirement than expected. The approximate net Market Value of Assets rate of return was 33.8% and the Funding Value of Assets rate of return was 34.6%. The assets and liabilities associated with DROP and Share Accounts on deposit with the Pension Fund are marked to market. Please refer to pages B-6, B-11, B-12, B-18, C-5, and C-6 for additional experience information.

Comment C: The Funding Value of Assets was set equal to the market value (see page B-6). This was necessary to recognize the accumulated gains for purposes of determining the Supplemental Pension Distribution amounts. In addition, an Employer Contribution Reserve of $10 million was established to moderate the City's contribution requirements in the case of near term substantial losses. GRS and the Board's legal counsel are working on updating the Board's Funding Policy due to the establishment of the Reserve this year.

FS 112.64(5) requires that amortization of the Unfunded Actuarial Accrued Liability be accelerated in periods where the trailing 10-year average annual payroll growth is less than the 4.1% assumption. Since the 10-year average annual payroll growth from 2011 to 2021 was 3.9%, this increased the City's contribution requirement by 0.31% compared to 2.59% last year, when the 10-year average annual payroll growth from 2010-2020 was 2.8%.

Comment D: The plan provisions allow retired members and spousal beneficiaries to leave Share and BackDROP accounts (and grandfathered DROP accounts) on deposit with the Pension Fund Trust until a distribution is requested or in amounts sufficient to meet the Federal Required Minimum Distribution requirements. Collectively, these accounts make up almost half of the assets of the Pension Fund. For members who were eligible for retirement on or before May 13, 2012 or who had a calculated BackDROP date of October 1, 2011 or earlier, their account balances earn interest at the net return on plan assets or 8.25% net of investment and administrative expenses.

For other members, their account balances earn interest at the net return on plan assets or the trailing 12-month gross return with a 0% floor and an 8% maximum applied as a level quarterly equivalent less investment and administrative expenses. If everyone elects net return on plan assets, there is no impact on the remainder of the liabilities of the Pension Fund. Conversely, if everyone elects the alternate "fixed" rates, the expected return of these collective accounts is currently at or below the 7.5% assumed net return on plan assets since the assets subject to the floor and maximum are skewed towards 5-6% annual interest credits.

Comments, Conclusion and Statement by Enrolled Actuary

The 8.25% interest credits were part of a Memorandum of Understanding (MOU) when 8.25% was the assumed net return on plan assets. The Board has subsequently reduced the assumed net return on plan assets first to 8% and then to 7.5%. However, since the MOU was not tied to the assumed net return on plan assets and has never been revised, the MOU still contains 8.25% interest credits for a significant portion of the current retiree population.

The Board recognizes this inconsistency as well as an analogous use of 8.25% for the Supplemental Plan Distribution which was also derived from the prior 8.25% assumption. The Board and its actuary will continue to monitor the expected impact of these provisions collectively with regard to the liability exposure to the Pension Fund.

Comment E: Member data is received from the Pension Fund's administrator and compared with prior year's data and benefit calculations for general consistency. Any questions resulting from the review are provided to the administrator and resolved. Any data adjustments needed as a result of this process are made manually by GRS, based on instructions provided by the administrator.

Risks to Future Employer Contribution Requirements: There are ongoing risks to future employer contribution requirements to which the Retirement System is exposed, such as:

- Actual and Assumed Investment Rate of Return
- Actual and Assumed Mortality Rates
- Amortization Policy
- F.S. 112.64(5) Compliance Regarding Payroll Growth

Conclusion: It is the actuary's opinion that the required contribution rate determined by the most recent actuarial valuation is sufficient to meet the Fund's funding objective, presuming continued timely receipt of required contributions.

Statement by Enrolled Actuary: This actuarial valuation and/or cost determination was prepared and completed by me or under my direct supervision, and I acknowledge responsibility for the results. To the best of my knowledge, the results are complete and accurate, and in my opinion, the techniques and assumptions used are reasonable and meet the requirements and intent of Part VII, Chapter 112, Florida Statutes. There is no benefit or expense to be provided by the plan and/or paid from the plan's assets for which liabilities or current costs have not been established or otherwise taken into account in the valuation. All known events or trends, which may require a material increase in plan costs or required contribution rates, have been taken into account in the valuation.

Brad Lee Armstrong, ASA, EA, FCA, MAAA, [20-5614]

April 20, 2022

Date

Other Observations

General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Contributions and Funded Status

Given the Fund's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the Pension Fund earning 7.50% on the Market Value of Assets), it is expected that:

1. The employer normal cost is sufficient to cover the cost of benefits accruing each year;
2. The Unfunded Actuarial Accrued Liabilities (UAAL) will continue to be fully amortized; and
3. The funded status of the Pension Fund will increase to a 100% funded ratio.

The computed contribution shown on page A-2 may be considered as a minimum contribution rate that complies with the Board's funding policy. The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.

Limitations of Funded Status Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based upon the Actuarial Accrued Liability (AAL) and the Funding Value of Assets (FVA). Unless otherwise indicated, with regard to any funded status measurements presented in this report:

1. The measurement is inappropriate for assessing the sufficiency of Pension Fund assets to cover the estimated cost of settling the Pension Fund's benefit obligations; for example, transferring the liability to an unrelated third party in a market value type transaction.

2. The measurement is dependent upon the Actuarial Cost Method which, in combination with the Pension Fund's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement in this report of 100% is not synonymous with no required future contributions. Even though the funded status is over 100%, the Pension Fund would still require future normal cost contributions (i.e., contributions to cover the cost of active membership accruing an additional year of service credit).

3. The measurement would produce a different result if the Market Value of Assets (MVA) were used instead of the FVA, unless the MVA is used in the measurement.

Risk Measures - Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the actuarial liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the actuarial liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements 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 due to changing conditions; 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 System's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. **Investment Risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability Mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the actuarial liability and assets and consequently altering the funded status and contribution requirements;
3. **Contribution Risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base. The continuing ability of the plan sponsor to make the contributions necessary to fund the plan is outside our scope of expertise and was not performed by GRS;
4. **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future actuarial liability and contributions differing from expected;
5. **Longevity Risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
6. **Other Demographic Risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future actuarial liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise, if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

Risk Measures

($ Amounts in Thousands)

Actuarial Valuation Date (9/30)	(1) Funding Value of Assets	(2) Actuarial Accrued Liability (AAL)	(3) Unfunded AAL (UAAL) (2) - (1)	(4) Payroll	(5) Funded Ratio (1) / (2)	(6) Retiree Liabilities (RetLiab)	(7) AAL (RetLiab) (6)/(2)	(8) UAAL / Payroll (3) / (4)	(9) Non-Invest. Cash Flow (NICF)	(10) NICF / Assets (9)/(1)	(11) Market Rate of Return	(12) 5-Year Trailing Average
2017	$ 202,063	$ 283,795	$ 81,732	$ 17,540	71.2%	$ 200,235	70.6%	466.0%	$ (5,079)	(2.5)%	16.8%	N/A
2018 *	217,071	304,722	87,651	19,317	71.2%	209,065	68.6%	453.8%	(3,634)	(1.7)%	14.8%	10.1%
2019 *	232,630	311,037	78,407	19,891	74.8%	209,562	67.4%	394.2%	(3,046)	(1.3)%	1.8%	8.2%
2020	251,434	325,795	74,361	21,135	77.2%	213,977	65.7%	351.8%	(2,049)	(0.8)%	9.5%	10.6%
2021	308,153	354,912	46,759	22,304	86.8%	226,340	63.8%	209.6%	(3,258)	(1.1)%	33.8%	14.9%

** After changes in benefit provisions and/or experience assumptions and/or actuarial cost methods.*

(5). The funded ratio is the most widely known measure of a plan's financial strength, but the trend in the funded ratio is much more important than the absolute ratio. The funded ratio should trend to 100%. As it approaches 100%, it is important to re-evaluate the level of investment risk in the portfolio and potentially to re-evaluate the assumed rate of return.

(6) and (7). The ratio of retiree liabilities to total AAL gives an indication of the maturity of the system. As the ratio increases, cash flow needs increase, and the liquidity needs of the portfolio change. A ratio on the order of 50% indicates a maturing system.

(8). The ratio of unfunded AAL to payroll gives an indication of the plan sponsor's ability to actually pay off the unfunded AAL. A ratio above approximately 300% or 400% may indicate difficulty in discharging the unfunded AAL within a reasonable time frame.

(9) and (10). Positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means benefits and expenses exceed contributions, and existing funds may be used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

(11) and (12). Investment return is probably the largest single risk that most systems face. The year-by-year return and the five-year geometric average both give an indication of the reasonableness of the system's assumed return. Of course, past performance is not a guarantee of future results. Market rate shown is based on an actuarial estimation method and will differ modestly from figures reported by the investment consultant.

Experience Gain (Loss) from All Sources
Year Ended September 30, 2021

		2021
Derivation		
(1) UAAL at start of year	$	74,360,102
(2) Employer normal cost and admin. expenses for year		1,895,771
(3) Employer contribution		9,405,758
(4) Interest accrued .075 x [(1) + 1/2 [(2)-(3)]]		5,295,383
(5) Expected UAAL before changes [(1) + (2) - (3) + (4)]		72,145,498
(6) Effect of method changes, acctg. & timing differences		10,000,000
(7) Effect of assumption changes		0
(8) Effect of benefit changes		0
(9) Addition to supplemental pension reserve		5,721,782
(10) Expected UAAL after changes (5) + (6) + (7) + (8) + (9)		87,867,280
(11) Actual UAAL		46,758,937
(12) Gain/(Loss) (10) - (11)	$	41,108,343
(13) Gain/(Loss) as a percent of beginning of year AAL as shown on page D-3		12.62%

UAAL represents Unfunded Actuarial Accrued Liability.
AAL represents Actuarial Accrued Liability.

Item (6) is for the establishment of an Employer Contribution Reserve to be used in accordance with guidance, limits, and Board direction as provided in the Board's Funding Policy.

Sources and Financing of Unfunded Actuarial Accrued Liability (UAAL)

Source of UAAL	UAAL Initial Amount	Current Amount	Initial Financing Period	Remaining Financing Period	Amortization Factor	Payment	% of Payroll Contribution	FS112.64(5) Compliance
Changes from experience deviations								
9/30/1998	$ (876,133)	$ (457,479)	20 yrs.	7 yrs.	6.268466	$ (72,981)	(0.31)%	(0.31)%
9/30/1999	(3,024,303)	(1,760,710)	20	7	6.268466	(280,884)	(1.19)%	(1.19)%
9/30/2000	(542,220)	(343,195)	20	7	6.268466	(54,749)	(0.23)%	(0.23)%
9/30/2001	2,320,747	1,567,381	20	7	6.268466	250,042	1.06 %	1.06 %
9/30/2002	6,678,036	4,720,383	20	7	6.268466	753,036	3.18 %	3.20 %
9/30/2003	4,448,432	3,253,949	20	7	6.268466	519,098	2.19 %	2.21 %
9/30/2004	3,618,268	2,714,043	20	7	6.268466	432,968	1.83 %	1.84 %
9/30/2005	1,811,354	1,382,610	20	7	6.268466	220,566	0.93 %	0.94 %
9/30/2006	(771,090)	(595,107)	20	7	6.268466	(94,937)	(0.40)%	(0.40)%
9/30/2007	(11,083,147)	(8,601,591)	20	7	6.268466	(1,372,200)	(5.79)%	(5.83)%
9/30/2008	6,485,847	4,968,092	20	7	6.268466	792,553	3.35 %	3.37 %
9/30/2009	12,210,700	14,779,980	20 *	20	14.753774	1,001,776	4.23 %	4.30 %
9/30/2010	8,101,481	9,583,128	20 *	20	14.753774	649,537	2.74 %	2.79 %
9/30/2011	8,513,417	9,820,496	20 *	20	14.753774	665,626	2.81 %	2.86 %
9/30/2012	511,196	574,284	20 *	20	14.753774	38,925	0.16 %	0.17 %
9/30/2013	(2,186,974)	(2,426,657)	20 *	20	14.753774	(164,477)	(0.69)%	(0.71)%
9/30/2014	99,066	116,162	27	20	14.753774	7,873	0.03 %	0.03 %
9/30/2015	(1,947,551)	(2,088,366)	26	20	14.753774	(141,548)	(0.60)%	(0.61)%
9/30/2016	3,454,769	3,651,219	25	20	14.753774	247,477	1.04 %	1.06 %
9/30/2017	(792,444)	(814,071)	24	20	14.753774	(55,177)	(0.23)%	(0.24)%
9/30/2018	(346,240)	(348,454)	23	20	14.753774	(23,618)	(0.10)%	(0.10)%
9/30/2019	(3,923,612)	(3,903,546)	22	20	14.753774	(264,580)	(1.12)%	(1.14)%
9/30/2020	(1,669,529)	(1,665,507)	21	20	14.753774	(112,887)	(0.48)%	(0.48)%
9/30/2021	(41,108,343)	(41,108,343)	20	20	14.753774	(2,786,293)	(11.76)%	(11.96)%
Changes from actuarial assumption revisions (30-year initial financing period)								
9/30/1993	$ (691,431)	$ (242,062)	30 yrs.	2 yrs.	1.937077	$ (124,962)	(0.53)%	(0.53)%
9/30/1994	511,964	260,789	30	3	2.859913	91,188	0.38 %	0.39 %
9/30/1997	501,997	436,706	30	6	5.456958	80,027	0.34 %	0.34 %
9/30/1998	(6,621,895)	(6,334,520)	30	7	6.268466	(1,010,538)	(4.27)%	(4.29)%
9/30/2001	88,446	94,789	30	10	8.552215	11,084	0.05 %	0.05 %
9/30/2011	1,015,468	1,209,182	30	20	14.753774	81,957	0.35 %	0.35 %
9/30/2013	3,828,214	4,362,998	30	22	15.772346	276,623	1.17 %	1.19 %
9/30/2016	4,993,314	5,493,605	30	25	17.182549	319,720	1.35 %	1.38 %
9/30/2018	6,349,393	6,616,207	30	27	18.049916	366,551	1.55 %	1.58 %
9/30/2019	(4,357,939)	(4,461,573)	30	28	18.463134	(241,648)	(1.02)%	(1.04)%
9/30/2021	10,000,000	10,000,000	10	10	8.552215	1,169,288	4.94 %	4.98 %
Changes from amendments (30-year initial financing period)								
9/30/1993	$ 3,147,864	$ 1,102,030	30 yrs.	2 yrs.	1.937077	$ 568,914	2.40 %	2.41 %
9/30/1998	5,753,990	5,504,280	30	7	6.268466	878,090	3.71 %	3.73 %
9/30/2001	1,419,746	1,616,729	30	10	8.552215	189,042	0.80 %	0.81 %
9/30/2002	(41,435)	(48,582)	30	11	9.265827	(5,243)	(0.02)%	(0.02)%
9/30/2003	17,127,231	20,502,544	30	12	9.956869	2,059,136	8.69 %	8.79 %
9/30/2012	556,777	645,816	30	21	15.271243	42,290	0.18 %	0.18 %
Changes from supplemental pension distribution reserve (20-year initial financing period)#								
9/30/2007	1,777,759	1,259,516	20	6	5.456958	230,809	0.97 %	0.98 %
9/30/2021	5,721,782	5,721,782	20	20	14.753774	387,818	1.64 %	1.67 %
		$ 46,758,937				**$ 5,525,292**	**23.33%**	**23.58%**

** While the original amortization period was 20 years, the Special Act was amended to allow active management of the amortization bases, effective with the 9/30/2014 valuation.*

 # Supplemental pension distributions are essentially gains related to short-term investment performance that are allocated to retired members. As such, these are being amortized over the same period as experience deviations occurring during the same year in order to avoid creating additional City contribution rate volatility and maintain a consistent amortization policy.

Unfunded Actuarial Accrued Liability (UAAL)

	September 30, 2021	September 30, 2020
A. Actuarial present value of future benefits including share accounts and reserves	**$ 403,908,305**	$ 371,993,898
B. Actuarial present value of future normal costs	**48,996,379**	46,199,370
C. Actuarial accrued liability including reserves	**354,911,926**	325,794,528
D. Funding value of assets*	**308,152,989**	251,434,426
E. Unfunded actuarial accrued liability	**$ 46,758,937**	$ 74,360,102
F. Funded ratio	**86.8%**	**77.2%**

* *Includes Share Account assets and DROP Account balances.*

Unfunded Actuarial Accrued Liability (UAAL) is not a good measure of the Pension Fund's status because the amount is dependent upon the actuarial cost method (please refer to pages A-8 and C-1). The funding progress indicators on page A-5 are less dependent on the actuarial cost method and are a better guide to funded status and funding progress.

Recommended and Actual Contributions for Defined Benefits
Historical Schedule

Fiscal Year	Valuation Date September 30	City Dollar Contributions		Recommended City Percent-of-Payroll Contribution Rates
		Recommended	Actual	
03/04 (a)	2002	$ 2,554,681	$ 1,599,404 *	25.44 %
04/05 (a)	2003	3,091,367	3,091,367	26.13
05/06	2004	3,281,799	3,281,799	29.91
06/07	2005	3,688,219	3,688,219	30.96
07/08	2006	3,967,730	3,967,730	30.63
08/09	2007	3,773,358	3,773,358	27.14
09/10	2008	4,393,701	4,393,701	27.11
10/11	2009	5,378,277	5,378,277	31.11
11/12	2010	6,156,287	6,156,287	36.96
12/13 (a)	2011	7,047,552	7,170,117 *	44.56
13/14 (a)	2012	7,568,397	7,623,161 *	48.97
14/15 (a)	2013	6,963,530 #	7,530,174 *	43.44
15/16 (a)	2014	7,130,564 #	7,665,074 *	44.83
16/17	2015	7,277,740	7,043,581 *	43.54
17/18 (a)	2016	8,526,593	8,057,319 *	49.51
18/19	2017	9,065,383	9,065,383	49.92
19/20 (a)	2018	9,737,863	9,737,863	49.21
20/21 (a)	2019	9,405,758	**9,405,758**	46.16
21/22	2020	8,854,999		40.90
22/23	**2021**	**7,741,131**		**33.88**
22/23 (a)	**2021**	**7,446,383**		**32.59**

(a) *After changes in benefit provisions and/or actuarial assumptions and/or actuarial cost methods.*

* *Chapter 175 money was used on a temporary basis to meet the Recommended City Dollar Contribution requirement.*

\# *Revised per actuarial impact statement.*

Notes to Historical Contributions Schedule

9/30/2001 Valuation: Included a change in the asset valuation method as of October 1, 2000 from market value to a 4-year smoothed market value.

9/30/2002 Valuation: The member contribution rate for pensions was changed from 8.85% to 9.85%. Removed Share Accounts from smoothed market value.

9/30/2003 Valuation: The normal retirement eligibility was revised to include age 55 with 10 years of service and 26 years regardless of age with a 4.0% benefit multiplier to a maximum of 92% of two-year final average salary, duty death before retirement was changed to 66.67% of the greater of the member's highest 12-month salary or top step Firefighter pay. The member contribution rate for pensions will increase to 18.2% of salary effective October 1, 2004, to 18.7% of salary effective January 1, 2005, and to 19.2% of salary effective January 1, 2006. A BackDROP plan was added at age 53 with 18 or more years of service, age 58 with 13 or more years of service, or 26 years of service regardless of age. The City reimbursement for investment expenses was removed from the contribution requirement. Removed DROP Accounts from smoothed market value.

9/30/2011 Valuation: The mortality tables for males and females were changed to RP-2000.

9/30/2012 Valuation: The Special Act was amended, which included reducing the multiplier from 4.0% to 3.0%, reducing member contributions from 19.2% to 13.1%, and using Chapter 175 monies for funding in FYE 2012 and FYE 2013. Also included was a change in the final average salary period from two years to three years and a reduction in the rate of return on share and BackDROP accounts for members not eligible for normal retirement as of May 13, 2012 or not eligible to BackDROP before October 1, 2011.

9/30/2013 Valuation: Interest rates, wage inflation rates, mortality tables and disability rates were changed to align with the recommendations from the experience study submitted September 23, 2013. The City shall use the calendar 2014 Chapter 175 monies for funding defined benefits in lieu of share accounts.

9/30/2014 Valuation: The Special Act was amended to allow the active management of the amortization bases. Certain amortization bases from experience deviations (gains and losses) and from supplemental pension distributions were combined.

9/30/2016 Valuation: The mortality tables were changed to the Florida Retirement System (FRS) mortality tables, as mandated by HB 1309.

9/30/2018 Valuation: Economic and demographic (excluding mortality) assumptions were updated in accordance with the October 1, 2012 – September 30, 2017 Experience Study dated May 31, 2018.

9/30/2019 Valuation: The mortality tables were changed to the Florida Retirement System (FRS) mortality tables based upon the July 1, 2019 FRS Actuarial Valuation. Please see page C-7 for further details regarding these tables.

9/30/2021 Valuation: The Funding Value of Assets was set equal to the market value of assets. Future investment gains and losses with still be recognized over 4-year periods. The Board created an Employer Contribution Reserve and set aside $10 million to help mitigate future contribution volatility.

Actuarial Balance Sheet - September 30, 2021
Present Resources and Expected Future Resources

A. Funding Value of Assets	
Funding value of assets	$ 186,080,290
Share Accounts	49,146,368
DROP Accounts	72,926,331
Total Assets	308,152,989
B. Actuarial Present Value of Expected Future Contributions:	
1. For normal costs	19,168,971
2. For UAAL	46,758,937
3. Total	65,927,908
C. Actuarial Present Value of Expected Future Member Contributions	29,827,408
D. Total Present and Expected Future Resources	$ 403,908,305

Actuarial Present Value of Expected Future Benefit Payments and Reserves

A. To Retirees and Beneficiaries		$ 122,068,701
B. To Vested Terminated Members		1,539,058
C. To Present Active Members:		
1. Allocated to service rendered prior to valuation date		93,509,686
2. Allocated to service likely to be rendered after valuation date		48,996,379
3. Total		142,506,065
D. Total Actuarial Present Value of Expected Future Benefit Payments		266,113,824
E. Reserves:	Share Accounts	49,146,368
	Supp. Pension Dist. - 13th/14th checks	5,721,782
	DROP/BackDROP	72,926,331
	Employer Contribution Reserve	10,000,000
		137,794,481
F. Total Actuarial Present Value of Expected Future Benefit Payments and Reserves		$ 403,908,305

SECTION B

SUMMARY OF BENEFIT PROVISIONS, SUPPLEMENTAL PENSION DISTRIBUTION AND DATA

Summary of Benefit Provisions
(September 30, 2021)

Normal Retirement:

Eligibility - Age 50 with 15 or more years of service, age 55 with 10 or more years of service, or 26 years of service regardless of age.

Amount of Pension - The monthly normal retirement pension is calculated based upon the sum of amount (a) and amount (b) below to a maximum of 92% of final average salary. However, in all cases, a participant will be entitled to at least 2.75% per year of credited service to a maximum of 100% of final average salary.

Amount (a) equals:
Effective on and after May 13, 2012, the benefit is equal to 3% of final average salary times credited service for all years of credited service earned on and after May 13, 2012;
Amount (b) equals:
Effective before May 13, 2012, the benefit is equal to 4% of final average salary times credited service earned before May 13, 2012.

Type of Final Average Salary: The average of the salary paid a member in the three (3) best years of employment preceding retirement for all active members who retire on and after May 13, 2012 who are not eligible for retirement as of May 13, 2012, or members who do not have a calculated BackDROP date of October 1, 2011 or earlier. The average of the salary paid a member in the two (2) best years of employment, paid in and prior to the 23rd year of credited service for retirements before May 13, 2012, for members who are eligible for normal retirement as of May 13, 2012, or members who have a calculated BackDROP date of October 1, 2011 or earlier. Salary excludes overtime and lump sum payments for accumulated leave.

Termination Before Normal Retirement:

A participant not eligible for normal retirement who terminates with 10 or more years of service may elect to receive benefits at any time after reaching age 50. The participant's early retirement benefit would be calculated in the same manner as a normal retirement benefit, actuarially reduced to take into account the earlier commencement. The reduction shall not exceed 3% for each year the participant's age precedes their normal retirement age.

A participant terminating before completing 10 years of service will receive a refund of his or her participant contributions and forfeit his or her Share Account. No further benefit will be payable from the Fund.

Deferred Vested Retirement:

Eligibility - 10 years of service.

Amount of Pension - Computed as a normal retirement pension. Benefit payable upon application on or after age 50. Reduced 3% per year for service less than 15.

Summary of Benefit Provisions
(September 30, 2021)

Duty Disability Retirement:

Eligibility - Total and permanent disability, incurred in the line of duty, which precludes the performance of duties as a Firefighter. No age or service requirements.

Amount of Pension - The greater of 65% of final average salary at time of retirement and accrued normal retirement pension.

Non-Duty Disability Retirement:

Eligibility - Total and permanent disability, incurred after 5 or more years of service, which precludes the performance of duties as a Firefighter.

Amount of Pension - Accrued normal retirement pension. Minimum pension is 25% of final average salary if service is 10 or more years.

Duty Death Before Retirement:

Eligibility - Death attributable to performance of duty. No age or service requirements.

Amount of Pension - 66.67% of the greater of the member's highest 12 months' salary or top step Firefighter pay.

Non-Duty Death Before Retirement:

Eligibility - Death while employed by the department after 5 or more years of service.

Amount of Pension - To the widow(er) - 2/3 of the accrued normal retirement pension. If no eligible widow(er), unmarried children under age 18 receive equal shares of the widow(er)'s benefits. If no eligible widow(er) or children, dependent parents receive equal shares.

Automatic Death Benefit After Retirement:

To the eligible widow - 3/4 of the retired member's pension at time of death. Payable until remarriage or death. If no eligible widow(er), unmarried children under 18 receive 20% of the widow(er)'s pension (equal shares if 6 or more children). If no eligible widow(er) or children, dependent parents receive equal shares. If none of the preceding apply and death occurs within 10 years of retirement, payment of pension is continued to designated beneficiary for balance of 10-year period. Optional forms of payment are available on an "equivalent actuarial value" basis to the 10-year certain and life form of payment.

Summary of Benefit Provisions
(September 30, 2021)

Post-Retirement Supplemental Payments: The Board of Trustees may make a supplemental distribution each April 1 from net accumulated investment and other experience gains from pre-10/1/98 formula Plan B pension recipients, to the extent of investment earnings in excess of 7% (to a 2% excess) plus one-half of 10/1/98 formula investment earnings in excess of 9%, if any, applied to the actuarial present value of pensions being paid to pre-10/1/1998 formula Plan B retired members and beneficiaries. Post-9/30/1998 formula Plan B pension recipients receive a distribution for earnings in excess of 8.25% (to a 0.75% excess) plus one-half of investment earnings in excess of 9%, if any.

Member Contributions: 13.1% of salary.

Premium Tax Monies: Property insurance premium tax monies collected by the State and distributed pursuant to Chapter 175 (Fire), Florida Statutes.

City Contributions: Actuarially determined amounts which together with member contributions are sufficient to cover the requirements of the funding objective stated on page A-1.

Chapter 175 Share Accounts: Effective October 1, 1988, separate accounts were established for each member of the Pension Fund. These accounts are not vested until the member accrues 10 years of service. The accounts are funded by premium tax monies and are credited with net investment earnings until vested. Once vested, members and retirees make an annual election to receive net investment earnings, or the Fund fixed rate after deduction of expenses, or the limited Fund fixed rate after deduction of expenses, depending on whether the member was eligible for retirement on or before May 13, 2012 or has a calculated BackDROP date of October 1, 2011 or earlier. The plan provisions allow retired members and spousal beneficiaries to leave Shares on deposit with the Pension Fund Trust until a distribution is requested or in amounts sufficient to meet the Federal Required Minimum Distribution requirements.

Backwards Deferred Retirement Option Plan (BackDROP):

Eligibility - Age 53 with 18 or more years of service, age 58 with 13 or more years of service, or 26 years of service regardless of age.

Amount of Pension - Computed as if the member had chosen to terminate on a date up to 5 years prior, using credited service and final average salary at the date chosen. In addition to the pension, there will be a lump sum payment. For retirements after May 13, 2012, the interest rate shall be 4%, less expenses, compounded annually for the period of BackDROP.

Member Contributions - Continue throughout entire period of employment.

Post-Employment - The plan provisions allow retired members and spousal beneficiaries to leave BackDROP accounts (and grandfathered DROP accounts) on deposit with the Pension Fund Trust until a distribution is requested or in amounts sufficient to meet the Federal Required Minimum Distribution requirements.

Accounting Information Submitted for Valuation

Market Value Revenues and Expenditures

	Year Ended	
	9/30/2021	9/30/2020
Revenues:		
a. Member contributions	$ 3,727,898	$ 4,144,354
b. City contributions	9,405,758	9,737,863
c. Chapter 175	1,487,932	1,357,926
d. Investment income		
1. Interest and dividends	7,136,673	5,991,583
2. Net appreciation	53,240,223	15,394,187
3. Other	9,266	14,987
e. Total revenues	75,007,750	36,640,900
Expenditures:		
a. Refunds of member contributions	165,829	59,635
b. Pensions paid	15,123,120	15,498,847
c. Share accounts paid	2,389,502	1,533,279
d. Supplemental pension distribution	-	-
e. Administrative expenses	201,049	196,920
f. Investment expenses	1,205,945	996,469
g. Total expenditures	19,085,445	18,285,150
Reserve Increase:		
Total revenues minus total expenditures	$ 55,922,305	$ 18,355,750
Prior Period Adjustment	1	0

Accounting Information Submitted for Valuation

Summary of Assets

	Market Value	
	9/30/2021	9/30/2020
Cash	$ 2,413,423	$ 2,013,690
Payables	(2,837,472)	(1,237,179)
Receivables	1,220,616	1,762,389
Prepaid Expenses	7,903	3,211
Domestic and International Fixed Income	83,539,348	66,342,768
Equities and Mutual Funds	186,711,211	152,952,653
Real Estate Investments	29,825,761	26,183,972
Temporary Investments	7,106,386	4,036,093
Accrued Invest. Income	165,813	173,086
Total Assets	**$308,152,989**	**$252,230,683**

Derivation of Funding Value of Assets
Market Value with 25% Recognition of Excess Investment Income

	2020	2021	2022	2023	2024
Beginning of Year Values					
(1) Market Value	$233,874,933	$252,230,683			
Market Value net of Share/DROP Accounts	127,569,610	139,450,994			
(2) Funding Value	232,629,906	251,434,426			
Funding Value net of Share/DROP Accounts	126,324,583	138,654,737			
End of Year					
(3) Market Value	139,450,994	186,080,290			
(4) Net Addition to Assets EE + ER conts - Ben Pmts - Refunds (Excl. Inv. Income, Ch.175 and DROP Additions)	(258,905)	(479,042)			
(5) Total Net Investment Income =(3)-(1)-(4)	12,140,289	47,108,338			
(6) Projected Net Rate of Return	7.50%	7.50%			
(7) Projected Investment Income =(6) x [(2)+0.5 x (4)]	9,464,635	10,381,141			
(8) Investment Income in Excess of Projected	2,675,654	36,727,197			
Excess Investment Income Recognized					
(9a) From Current Year = .25 x (9)	668,914	9,181,799			
(9b) From One Year Prior	(1,586,768)	668,914			
(9c) From Two Years Prior	1,963,053	(1,586,768)			
(9d) From Three Years Prior	2,079,225	1,963,052			
(9e) Adjustment, if any, to Recognize Market Value		27,296,457			
(9f) Total Cap. Val. Change Recogn. = (9a)+(9b)+(9c)+(9d)+(9e)	3,124,424	37,523,454	-	-	-
(10) Increase(Decr.) in Funding Value = (4) + (7) + (9f)	12,330,154	47,425,553			
End of Year					
(11) Market Value	$252,230,683	$308,152,989			
(12) Funding Value	251,434,426	308,152,989			
(13) Rate of Return on Funding Value	10.0%	34.6%			
(14) Rate of Return on Market Value of Assets Available for Funding	9.5%	33.8%			
(15) Ratio of Funding Value to Market Value	100%	100%			

The derivation of Valuation Assets recognizes projected investment income (line 7) fully each year. Differences between total and projected investment income (line 8) are phased-in over a closed four-year period. During periods when investment performance exceeds the projected rate, Funding Value of Assets will tend to be less than Market Value. During periods when investment performance is less than the assumed rate, Funding Value of Assets will be greater than Market Value. The Valuation Assets are unbiased with respect to Market Value. At any time, it may be either greater or less than Market Value. If actual and projected rates of investment income are exactly equal for three consecutive years, Valuation Assets will be equal to Market Value.

Calculation of Supplemental Pension Distribution Amount - Sec. 17(5)(d) as of September 30, 2021

Factor (i):	Actuarial present value of future payments to 56 pension recipients on 9/30/21 using 7% interest set by Special Act		$ 9,796,429
Factor (ii):	(a)	Net rate of investment return 10/1/20 through 9/30/21 calculated by actuary	23.60%
	(b)	Lesser of (a) and 8.25%	8.25%

Preliminary Distribution Amount (prior to experience gain limitation):

Factor (i) x [(Factor (ii)(b) - 7%) > 0)]	122,455

Amount Available for Distribution:

(a)	Unamortized Balances of Accumulated net experience gains (page B-10)	6,981,298
(b)	Unamortized Balances of Accumulated distributions@ (page B-10)	1,259,516
(c)	Accumulated net gains less accumulated distributions [(a) - (b)] > 0	5,721,782
(d)	Amount available for distribution#	122,455

Total amount available for distribution as % of Factor (i) 1.25%

*@ This amount does **not** include the supplemental pension distribution, if any, for the current year.*

 # The lesser of the preliminary distribution amount and accumulated net gains less accumulated distributions.

Calculation of Supplemental Pension Distribution Amount - Sec. 17(5)(d) as of September 30, 2021

Factor (i):	Actuarial present value of future payments to 206 pension recipients on 9/30/2021 using 7% interest set by Special Act	$127,411,096
Factor (ii):	(a) Net rate of investment return 10/1/2020 through 9/30/2021 calculated by actuary	23.60%
	(b) Lesser of (a) and 9%	9.00%
Preliminary Distribution Amount (prior to experience gain limitation):	Factor (i) x [(Factor (ii) - 8.25%) > 0)]	955,583

Amount Available for Distribution:

(a)	Unamortized Balances of Accumulated net experience gains (page B-10)	6,981,298
(b)	Unamortized Balances of Accumulated distributions@ (page B-10)	1,259,516
(c)	Accumulated net gains less accumulated distributions [(a) - (b)] > 0	5,721,782
(d)	Amount available for distribution#	955,583

Total amount available for distribution as % of Factor (i) 0.75%

*@ This amount does **not** include the supplemental pension distribution, if any, for the current year.*

 # The lesser of the preliminary distribution amount less expenses and accumulated net gains less accumulated distributions.

Calculation of Supplemental Pension Distribution Amount – Sec. 17(5)(d) as of September 30, 2021

Factor (i):	Actuarial present value of future payments to 206 pension recipients on 9/30/2021 using 7% interest set by Special Act		$127,411,096
Factor (ii):	(a)	Net rate of investment return 10/1/2020 through 9/30/2021 calculated by actuary	23.60%
	(b)	Excess of (a) over 9%, if positive, otherwise zero	14.60%
	(c)	1/2 of (b)	7.30%

Preliminary Distribution Amount (prior to experience gain limitation):

Factor (i) x [(Factor (ii) > 0)]	9,301,010

Amount Available for Distribution:

(a) Unamortized Balances of Accumulated net experience gains (page B-10)	6,981,298
(b) Unamortized Balances of Accumulated distributions@ (page B-10)	1,259,516
(c) Accumulated net gains less accumulated distributions [(a) - (b)] > 0	5,721,782
(d) Amount available for distribution#	4,643,744

Total amount available for distribution as % of Factor (i) 3.64%

*@ This amount does **not** include the supplemental pension distribution, if any, for the current year.*

 # The lesser of the preliminary distribution amount and accumulated net gains less accumulated distributions, including any supplemental pension distributions for the current year determined on pages B-7 and B-8 of this report.

Supplemental Pension Distribution
Accumulated Gain (Loss) Limitation

Year Ended September 30	Experience Gain (Loss)* For Year	Experience Gain (Loss)* Unamortized Balance	Addition to Supplemental Pension Distribution Reserve For Year	Addition to Supplemental Pension Distribution Reserve Unamortized Balance	Net Unamortized Balance
1997	$ 7,514,099	$ 14,333,751	$ 2,310,175	$ 6,624,578	$ 7,709,173
1998	876,133	15,568,947	511,631	7,131,677	8,437,270
1999	3,024,303	18,688,128	1,145,095	8,250,740	10,437,388
2000	542,220	19,305,723	1,149,756	9,354,181	9,951,542
2001	(2,320,747)	17,020,817	-	9,280,561	7,740,256
2002	(6,678,036)	10,347,696	-	9,209,938	1,137,758
2003	(4,448,432)	5,539,331	-	9,087,523	(2,712,364)
2004	(3,618,268)	1,753,740	-	8,906,599	(7,152,859)
2005	(1,811,354)	(631,018)	-	8,659,465	(9,290,483)
2006	771,090	462,189	-	8,546,402	(8,084,213)
2007	11,083,147	9,950,624	1,777,759	9,950,624	-
2008	(6,485,847)	2,860,771	-	9,555,959	(6,695,188)
2009	(12,210,700)	(10,082,098)	-	9,061,963	(19,144,061)
2010	(8,101,481)	(19,712,976)	-	8,786,278	(28,499,254)
2011	(8,513,417)	(30,134,674)	-	8,388,117	(38,522,790)
2012	(511,196)	(32,792,714)	-	7,777,078	(40,569,792)
2013	2,186,974	(32,307,282)	-	6,860,697	(39,167,979)
2014	(99,066)	(34,618,797)	-	5,616,784	(40,235,582)
2015	1,947,551	(39,984,330)	-	4,328,873	(44,313,203)
2016	(3,454,769)	(41,145,729)	-	3,083,697	(44,229,425)
2017	792,444	(41,186,813)	-	2,763,525	(43,950,338)
2018	346,240	(41,309,677)	-	2,286,622	(43,596,298)
2019	3,923,612	(37,312,303)	-	1,786,503	(39,098,806)
2020	1,669,529	(34,891,405)	-	1,420,861	(36,312,266)
2021	**41,108,343**	**6,981,298**	**5,721,782**	**6,981,298 @**	**(0)**
Projected					**0**

* *All sources.*

@ *This amount is composed of $1,259,516 for unamortized balances of prior supplemental distributions and $5,721,782 for the current year supplemental pension distribution.*

Reconciliation of the DROP Reserve Account Balances

	10/1/2020 - 9/30/2021	10/1/2019 - 9/30/2020
A. End of Year Account Balances as reported by Administrator	$72,926,331	$69,624,241
B. Beginning of Year DROP Reserve as reported by Administrator	69,624,241	66,368,818
C. Disbursements	3,795,218	4,446,961
D. Net Additions (A - B + C)	7,097,308	7,702,384
E. Net Rate of Investment Return calculated by Actuary	23.6%	8.7%
F. Investment Earnings (B + D / 2) x E	n/a	n/a
G. End of Year DROP Reserve (A + F)	$72,926,331	$69,624,241

Retired Member and Beneficiary Data
Historical Schedule

Year Ended 9/30	Added No.	Added Annual Pensions*	Removed No.	Removed Annual Pensions	Net Increase No.	Net Increase Annual Pensions	End of Year No.	End of Year Annual Pensions	Expected Removals No.	Expected Removals Annual Pensions
1997	5	$ 166,849	1	$ 7,718	-	$ 159,131	118 &	$ 2,086,899	2.3	$ 28,521
1998	7	226,697	1	8,725	6	217,972	124 &	2,291,043	2.5	32,380
1999	2	20,475	4	51,747	(2)	(31,272)	122 &	2,259,771	2.8	36,286
2000	7	277,284	-	-	7	277,284	129 &	2,537,055	2.9	38,194
2001	6	302,842	7	81,316	(1)	221,526	128 &	2,758,581	3.3	41,832
2002	12	583,622	7	58,426	5	525,196	133 &	3,283,777	3.1	44,397
2003	10	568,299	1	21,253	9	547,046	142 &	3,830,823	3.4	50,992
2004	1	136,407	1	9,563	-	126,844	142 &	3,957,667	4.4	69,151
2005	9	385,965	7	101,446	2	284,519	144 &	4,242,186	4.8	77,814
2006	10	461,685	5	62,479	5	399,206	149 ^	4,641,392	5.1	83,892
2007	13	833,031	3	64,649	10	768,382	159 ^	5,409,774	5.2	91,903
2008	7	269,896	6	146,860	1	123,036	160 ^	5,532,810	5.5	96,200
2009	12	664,969	7	165,444	5	499,525	165 ^	6,032,335	5.8	102,007
2010	8	537,257	5	40,467	3	496,790	168 ^	6,529,125	6.0	107,739
2011	15	816,030	8	126,785	7	689,245	175 ^	7,218,370	6.0	115,717
2012	9	677,735	8	140,724	1	537,011	176 ^	7,755,381	5.8	121,268
2013	15	1,041,803	3	40,577	12	1,001,226	188 ^	8,756,607	5.4	109,911
2014	11	873,189	5	105,423	6	767,766	194 ^	9,524,373	5.5	114,966
2015	6	427,601	1	18,882	5	408,719	199 ^	9,933,092	5.8	126,141
2016	15	1,262,846	5	177,125	10	1,085,721	209 ^	11,018,813	6.2	137,964
2017	4	178,279	4	197,610	-	(19,331)	209 ^	10,999,482	5.0	151,384
2018	2	95,555	2	7,885	-	87,670	209 ^	11,087,152	5.3	157,720
2019	4	225,480	6	70,342	(2)	155,138	207 ^	11,242,290	5.5	168,695
2020	3	163,176	3	25,014	-	138,162	207 ^	11,380,452	5.5	176,892
2021	**4**	**319,262**	**5**	**92,509**	**(1)**	**226,753**	**206 ^**	**11,607,205**	**6.3**	**206,361**
Expected for 2022									**6.3**	**219,559**

* *Includes post-retirement cost-of-living adjustments for Plan A members.*

& *Count does not include QDRO alternate payee.*

^ *Count includes QDRO alternate payee.*

Age and Service Retired Members

Valuation Year	All Age and Service Retired Members				New Age and Service Retired Members Year Ended September 30			
		Averages			Averages			
	No.	Attained Age	Retirement Age	Annual Pension	No.	Retirement Age	Service	Annual Pension
2007	102	63.4 yrs.	50.8 yrs.	$42,456	11	51.7 yrs.	26.3 yrs.	$69,423
2008	102	63.5	50.5	43,426	3	50.3	27.1	61,149
2009	105	63.4	51.0	45,956	7	53.6	26.7	72,522
2010	109	63.1	51.2	48,961	6	52.5	24.0	86,555
2011	113	62.7	51.2	52,940	8	50.6	25.4	65,921
2012	114	61.9	51.2	56,779	7	52.2	27.3	76,394
2013	126	61.3	51.3	58,873	14	52.0	23.4	69,848
2014	133	61.6	51.3	61,503	9	51.7	27.8	91,720
2015	137	62.5	51.7	62,298	5	52.4	22.5	74,760
2016	147	62.2	51.5	64,233	13	53.0	23.0	85,215
2017	147	63.0	51.4	64,335	1	50.0	15.8	53,226
2018	149	63.9	51.5	64,555	2	52.7	18.7	47,778
2019	151	64.6	51.5	64,601	3	53.3	20.3	74,504
2020	153	65.0	51.6	65,435	2	51.2	24.6	74,665
2021	**153**	**65.6**	**51.6**	**66,253**	**4**	**52.6**	**26.3**	**79,815**

Retired Members and Beneficiaries Historical Comparison

Valuation Date September 30	% Incr. in Annual Pensions	No. of Active Per Retired	Annual Pension as % of Active Payroll	Average Pension
2007	16.6 %	1.2	40.5 %	$ 34,024
2008	4.5	1.3	36.3	35,129
2009	9.0	1.2	36.3	36,560
2010	8.2	1.1	40.8	38,864
2011	10.6	1.0	47.5	41,248
2012	7.4	1.0	54.0	44,065
2013	12.9	1.0	58.8	46,578
2014	8.8	1.0	62.0	49,095
2015	4.3	1.0	61.5	49,915
2016	10.9	1.0	66.2	52,722
2017	(0.2)	1.0	62.7	52,629
2018	0.8	1.1	57.4	53,049
2019	1.4	1.1	56.5	54,311
2020	1.2	1.1	53.8	54,978
2021	**2.0**	**1.3**	**52.0**	**56,346**

Retired Member and Beneficiary Data as of September 30, 2021 by Type of Benefits Being Paid

Type of Benefits Being Paid	No.	Annual Pensions	Average	Actuarial Value of Pensions
Age and Service Pensions				
Life Only - Plan B	2	$ 47,668	$ 23,834	$ 391,374
Automatic Survivor - Plan B	151	10,089,016	66,815	108,750,008
Surviving Benef. - Plan B	24	655,466	27,311	5,764,184
Total - Plan B	177	10,792,150	60,973	114,905,566
Death-In-Service Pensions				
Total - Plan B	2	45,572	22,786	381,751
Duty Disability Pensions				
Life Only - Plan B	1	18,905	18,905	160,105
Automatic Survivor - Plan B	15	515,442	34,363	4,580,531
Surviving Benef. - Plan B	3	68,723	22,908	461,374
Total - Plan B	19	603,070	31,741	5,202,010
Non-Duty Disability Pensions				
Life Only - Plan B	1	5,537	5,537	19,069
Automatic Survivor - Plan B	5	149,741	29,948	1,476,157
Surviving Benef. - Plan B	2	11,135	5,568	84,148
Total - Plan B	8	166,413	20,802	1,579,374
Total Pensions Being Paid				
Plan B**	**206**	**11,607,205**	**56,346**	**122,068,701**
Total	**206**	**$11,607,205**	**$ 56,346**	**$122,068,701**

** *Plan B - Hired after April 30, 1959. All Plan A members and beneficiaries are deceased.*

Retired Member and Beneficiary Data as of September 30, 2021 by Attained Ages

Attained Ages	Age and Service Retired Members		Disability Retired Members		Surviving Beneficiaries		Totals	
	No.	Annual Pensions	No.	Annual Pensions	No.	Annual Pensions	No.	Annual Pensions
45 - 49	1	$ 75,995	1	$ 53,801	1	$ 54,508	3	$ 184,304
50 - 54	8	685,059	1	63,934	1	23,232	10	772,225
55 - 59	34	2,610,391	4	169,872			38	2,780,263
60 - 64	44	3,364,546	4	107,360	2	116,242	50	3,588,148
65 - 69	31	1,973,874	1	29,143	3	118,298	35	2,121,315
70	5	274,422					5	274,422
71					2	46,399	2	46,399
72	2	136,061	2	51,081	3	115,163	7	302,305
73	4	238,527			1	43,047	5	281,574
74	5	183,733	1	26,457	2	20,253	8	230,443
75	3	108,330	2	57,816	1	17,709	6	183,855
77	1	57,583			2	33,304	3	90,887
78	1	22,530	1	31,938			2	54,468
79	1	25,543			2	52,506	3	78,049
80	1	44,408			1	22,165	2	66,573
81	2	73,148			1	5,918	3	79,066
82	2	52,048	1	22,567			3	74,615
83	2	73,770	1	29,697	1	28,758	4	132,225
85	1	18,567			2	25,326	3	43,893
86	1	35,909	1	33,330			2	69,239
87	1	21,656			1	11,698	2	33,354
88	1	14,741			1	12,717	2	27,458
89	1	28,756	1	5,537	1	4,621	3	38,914
90			1	7,092			1	7,092
92	1	17,087					1	17,087
93					1	8,346	1	8,346
94					2	20,686	2	20,686
Totals	**153**	**$10,136,684**	**22**	**$689,625**	**31**	**$780,896**	**206**	**$11,607,205**

Vested Terminated Members as of September 30, 2021 by Attained Ages

Attained Ages	No.	Estimated Annual Benefits
35 - 39	1	$ 37,634
40 - 44	3	215,337
Totals	**4**	**$252,971**

Active and Vested Terminated Members Included in Valuation (Excludes DROP Members from 1992 to 2007)

Valuation Date	Active Members				Vested Term.		Valuation		Average				
September 30	Original	New	Total		Member		Payroll		Age		Service		Pay
1992	0	166	166		0		$ 6,463,561		36.8	yrs.	11.4	yrs.	$ 38,937
1993	0	162	162		0		6,469,092		37.1		11.9		39,933
1994	0	156	156		0		6,368,040		37.6		12.6		40,821
1995	0	165	165		0		6,963,979		37.8		12.6		42,206
1996	0	164	164		1		7,247,647		38.3		13.0		44,193
1997	0	162	162		4		7,278,110		38.8		13.3		44,927
1998	0	168	168		6		7,707,449		38.4		12.6		45,878
1999	0	165	165		6		8,270,820		39.4		13.6		50,126
2000	0	166	166		6		8,976,384		39.5		13.6		54,075
2001	0	162	162		6		9,284,064		40.1		14.3		57,309
2002	0	156	156		7		9,267,039		39.9		13.9		59,404
2003	0	153	153		6		9,501,560		40.0		14.1		62,102
2004	0	180	180	*	7		10,971,158	*	38.6		12.6		60,951
2005	0	178	178		7		11,438,025		39.6		12.9		64,259
2006	0	188	188		7		12,437,425		39.0		12.1		66,157
2007	0	198	198		6		13,349,148		37.8		10.7		67,420
2008	0	212	212		5		15,560,957		37.7		10.7		73,401
2009	0	202	202		6		16,598,870		38.2		11.2		82,173
2010	0	193	193		7		15,992,718		38.7		11.7		82,864
2011	0	183	183		6		15,185,478		39.3		12.3		82,981
2012	0	171	171		6		14,365,314		39.9		12.8		84,008
2013	0	181	181		5		14,898,950		38.8		11.2		82,315
2014	0	190	190		6		15,363,247		38.3		10.0		80,859
2015	0	195	195		2		16,144,923		38.5		10.2		82,794
2016	0	202	202		1		16,634,526		37.6		9.2		82,349
2017	0	208	208		0		17,540,397		38.1		9.8		84,329
2018	0	226	226		0		19,316,946		38.0		9.9		85,473
2019	0	228	228		0		19,890,980		38.5		10.5		87,241
2020	0	230	230		1		21,134,568		39.1		11.1		91,889
2021	**0**	**258**	**258**		**4**		**22,304,329**		**38.3**		**10.2**		**86,451**

* *Includes 23 replacement lives for those members who BackDROPed. In addition, there is one member in the DROP with a payroll of approximately $120,000.*

Number Added to and Removed from Active Membership

Year Ended September 30	Number Added During Year		Terminations During Year								Active End of Year
			Normal/Early Retirement		Disability Retirement		Died-in-Service		Members Withdrawal		
	A	E	A	E	A	E	A	E	A	E	
2007	24	14	11	5.2	1	0.8	0	0.2	2	4.7	198
2008	20	6	3	4.4	0	0.7	0	0.2	3	5.5	212
2009	1	11	7	1.9	1	0.8	0	0.3	3	5.8	202
2010	0	9	6	2.7	0	0.8	0	0.3	3	4.4	193
2011	0	10	7	2.2	0	0.9	0	0.3	3	3.4	183
2012	1	13	7	7.7	1	0.8	0	0.2	5	2.6	171
2013	25	15	11	11.4	0	0.8	0	0.2	4	2.2	181
2014	21	12	9	11.6	0	0.5	0	0.2	3	3.8	190
2015	11	6	3	1.6	1	0.6	0	0.2	2	4.6	195
2016	22	15	13	5.0	0	0.6	0	0.2	2	4.5	202
2017	13	7	0	0.0	0	0.6	0	0.2	7	5.4	208
2018	22	4	2	0.0	0	0.6	0	0.2	2	4.9	226
2019	7	5	3	1.5	0	0.6	0	0.2	2	4.9	228
2020	7	5	2	2.2	0	0.4	0	0.2	3	4.5	230
2021	**41**	**13**	**4**	**3.3**	**0**	**0.4**	**0**	**0.2**	**9**	**4.0**	**258**
5-Yr. Totals	90	34	11	7.0	0	2.6	0	1.0	23	23.7	
Expected for 2022				4.2		0.4		0.2		6.5	

A Represents actual number.
E Represents expected number.

Active Members
as of September 30, 2021
by Near Age and Years of Service

Near Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24	11							11	$ 562,470
25-29	31	8						39	2,283,059
30-34	26	15	2					43	2,940,695
35-39	10	28	17	7				62	5,270,797
40-44	4	6	5	17	1			33	3,279,850
45-49	1	4	6	14	3	1		29	3,155,640
50-54		1	1	14	8	6		30	3,539,834
55-59			1	1	4	2		8	889,458
61		1		1				2	242,400
62		1						1	140,126
Totals	**83**	**64**	**32**	**54**	**16**	**9**		**258**	**$22,304,329**

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 38.3 yrs.

Service: 10.2 yrs.

Annual Pay: $86,451

SECTION C

ACTUARIAL COST METHOD, ACTUARIAL ASSUMPTIONS AND DEFINITIONS OF TECHNICAL TERMS

Actuarial Cost Method

The actuarial cost method is a procedure for allocating the actuarial present value of benefits and expenses to time periods. The method used for your valuation is known as the individual entry-age actuarial cost method, and has the following characteristics:

(i) The annual normal costs for each individual active member are sufficient to accumulate the value of the member's pension at time of retirement.

(ii) Each annual normal cost is a constant percentage of the member's year by year projected pensionable compensation.

The entry-age actuarial cost method allocates the actuarial present value of each member's projected benefits on a level basis over the member's pensionable compensation between the entry age of the member and the assumed active status exit ages.

The portion of the actuarial present value allocated to the valuation year is called the normal cost. The portion of the actuarial present value not provided for by the actuarial present value of future normal costs is called the Actuarial Accrued Liability (AAL). Deducting accrued assets from the AAL determines the Unfunded Actuarial Accrued Liability (UAAL). The UAAL was financed as a level percent of member payroll. Please refer to page A-12 and C-2 for a schedule of financing periods.

The characteristics of this method of financing the UAAL are shown on page C-2.

Active member payroll was assumed to increase 4.10% a year effective for valuations on and after September 30, 2018 for the purpose of determining the level percent contributions, except to the extent needed for FS 112.64(5) compliance. This assumption is consistent with the base rate of increase in salaries used to calculate actuarial present values.

Level Percent of Active Member Payroll Amortization of Unfunded Actuarial Accrued Liability* (Amortization Schedule $ Amounts in Thousands)

Year	Payroll		Unfunded		Contribution	
	Inflated Dollars	Constant Dollars	Inflated Dollars	Constant Dollars	Inflated Dollars	Constant Dollars
2021	$ 22,304	$22,304	$31,037	$31,037	$ 3,968	$ 3,968
2022	23,219	22,304	29,167	28,018	4,131	3,968
2023	24,171	22,304	26,984	24,901	3,819	3,524
2024	25,162	22,304	24,968	22,132	3,873	3,433
2025	26,193	22,304	22,743	19,367	4,032	3,433
2030	32,022	22,304	10,169	7,083	3,104	2,162
2035	39,147	22,304	2,952	1,682	(161)	(92)
2040	47,858	22,304	5,307	2,473	(197)	(92)
2045	58,507	22,304	1,196	456	1,166	445
2048	66,002	22,304	(704)	(238)	(715)	(242)
2049	68,708	22,304	0	0	0	0

*	$ -	over 30 years	$ -	over 15 years
	-	over 29 years	-	over 14 years
	(4,461,573)	over 28 years	-	over 13 years
	6,616,207	over 27 years	20,502,544	over 12 years
	-	over 26 years	(48,582)	over 11 years
	5,493,605	over 25 years	1,711,518	over 10 years
	-	over 24 years	-	over 9 years
	-	over 23 years	-	over 8 years
	4,362,998	over 22 years	6,018,135	over 7 years
	645,816	over 21 years	1,696,222	over 6 years
	(12,620,492)	over 20 years	-	over 5 years
	-	over 19 years	-	over 4 years
	-	over 18 years	260,789	over 3 years
	-	over 17 years	859,969	over 2 years
	-	over 16 years	-	over 1 year

* *Level percent-of-payroll financing of unfunded actuarial accrued liabilities treats each generation of taxpayers equally during the financing period. The alternative, level-dollar financing, produces declining percent-of-payroll contributions and places a greater relative burden on current taxpayers.*

The annual rate of increase in member payroll used to compute the level percent-of-payroll contribution is the same rate of payroll growth used to compute actuarial liabilities and costs. It reflects across-the-board salary increases not group size increases.

If future payroll growth is less than the assumed rate due to smaller than projected salary increases, the percent-of-payroll contribution rate for unfunded actuarial accrued liabilities will tend to decline.

Actuarial Assumptions Used for the Valuation

Financial objective contribution requirements and actuarial present values are calculated by applying estimates of future plan activities (actuarial assumptions) to the benefit provisions and people information of the Pension Fund, using the actuarial cost method described on page C-1.

The principal areas of risk which require actuarial assumptions of future plan activities are:

(i) long-term rates of investment return to be generated by the assets of the Pension Fund

(ii) patterns of pay increases to active members

(iii) rates of mortality among members, retired members and beneficiaries

(iv) rates of withdrawal of active members

(v) rates of disability among active members

(vi) the age patterns of actual retirements

In making a valuation, the monetary effect of each activity is calculated for as long as a present covered person survives - - - a period of time which can be as long as a century.

Actual activities of the Pension Fund will not coincide exactly with estimated activities due to their nature. Each valuation provides a complete recalculation of estimated future activities and takes into account the effect of differences between estimated and actual activities to date. The result is a continual series of adjustments (usually small) to the computed contribution rate. From time-to-time one or more of the estimates are modified to reflect experience trends (but not random or temporary year-to-year fluctuations).

Actuarial assumptions are established by the Board after consulting with the actuary. The rationale for the assumptions is described in the October 1, 2012 through September 30, 2017 Experience Study Report. All actuarial assumptions are based on future expectations, not market measures.

Actuarial Assumptions Used for the Valuation

The actuarial assumptions regarding the INFLATION rate, REAL INVESTMENT RETURN and SALARY INCREASE rates became effective September 30, 2018. These assumptions are used, in combination with the other estimates, to (i) determine the present value of amounts expected to be paid in the future and (ii) establish rates of contribution which are expected to remain relatively level as a percent of active member payroll. The interest rate used in making the valuation was 7.50% per year, compounded yearly. It is composed of inflation and real investment return.

INFLATION. 2.60% per annum, compounded annually. This is the rate at which growth in the supply of money and credit is estimated to exceed growth in the supply of goods and services. It may be thought of as the rate of depreciation of the purchasing power of the dollar. There are a number of indices for measuring the inflation rate. The recent inflation rate, as measured by the Consumer Price Index, has been:

	Year Ended September 30					Average
	2021	2020	2019	2018	2017	for Period
Actual	**5.39%**	1.37%	1.71%	2.28%	2.23%	2.59%
Assumed	**2.60%**	2.60%	2.60%	2.75%	3.00%	2.71%

REAL INVESTMENT RETURN. 4.90% per annum, compounded annually. This is the rate of return assumed to be produced by investing a pool of assets in an inflation free environment. Recent real investment return on the funding value of assets (internal rate of return) has been:

	Year Ended September 30					Average	
	2021	2020	2019	2018	2017	3-Year	5-Year
Expected Rate of Return	**7.50%**	7.50%	7.50%	8.00%	8.00%	7.50%	7.70%
Net Rate of Return	**34.61%**	9.98%	10.16%	10.31%	9.36%	17.71%	14.49%
less inflation rate	**5.39%**	1.37%	1.71%	2.28%	2.23%	2.81%	2.59%
Net Real Rate of Return	**29.22%**	8.61%	8.45%	8.03%	7.13%	14.90%	11.91%
Projected Real Rate	**4.90%**	4.90%	4.90%	5.25%	5.00%	4.90%	4.99%

The total investment return rate was computed using the approximate formula *i = I divided by 1/2 (A + B - I),* where I is actual ordinary investment income plus market value adjustments, A is the beginning of year funding value, and B is the end of year funding value.

Actuarial Assumptions Used for the Valuation

The preceding investment return rates reflect the particular characteristics of this pension fund and should not be used to measure an investment advisor's performance or for comparison with other pension funds. Such use will usually mislead.

SALARY INCREASES. Employee salaries are assumed to increase between the date of hire and date of retirement. Salary increases occur in recognition of (i) individual merit and seniority, (ii) inflation related depreciation of the purchasing power of salaries, and (iii) competition from other employers for personnel.

A schedule of assumed rates of increase in individual salaries is as follows:

Attributable to:	Annual Rates of Salary Increase by Years of Service		
	0-10	11-22	23+
Merit & Seniority	0.50%	0.25%	0.00%
General Increase in Wage Level Due to:			
Inflation	2.60	2.60	2.60
Other factors	1.50	1.50	1.50
Total	4.6%	4.35%	4.10%

The valuation is based on a constant group size and total payroll increasing at the rate of the general increase in wage levels due to inflation and other factors, which in this case is 4.10% a year.

Actuarial Assumptions Used for the Valuation

A schedule of recent salary change experience, as measured by average reported pay, follows:

	Year Ended September 30					Average		
	2021	2020	2019	2018	2017	3-Year	5-Year	10-Year
% Change : Actual [1]	**1.4%**	6.7%	3.7%	5.5%	4.6%	3.9%	4.4%	4.5%
Assumed [1]	**4.4%**	4.4%	4.4%	5.3%	5.4%	4.4%	4.8%	5.3%
% Change in Total Payroll [2]	**5.5%**	6.3%	3.0%	10.1%	5.4%	4.9%	6.0%	3.9%

[1] *Excluding terminations and new members.*
[2] *Including pays of members electing DROP participation but still working prior to 2008.*

In order to achieve the financial objective of a contribution rate which remains level as a percent of payroll, the net rate of investment return must exceed the rate of average increase in salaries by an amount equal to the target real investment return rate. The following schedule illustrates the recent history of the relationship between net rate of investment return and average pay changes.

	Year Ended September 30					Average	
	2021	2020	2019	2018	2017	3-Year	5-Year
Rate of Investment Return (net of inv. expenses)	**34.6%**	10.0%	10.2%	10.3%	9.4%	17.7%	14.5%
Rate of Change in Average Pay	**1.4%**	6.7%	3.7%	5.5%	4.6%	3.9%	4.4%
Difference: Actual	**33.2%**	3.3%	6.5%	4.8%	4.8%	13.8%	10.1%
Target	**4.90%**	4.90%	4.90%	5.25%	5.00%	4.90%	4.99%

Actuarial Assumptions Used for the Valuation

MORTALITY TABLE. For healthy participants during employment, PUB-2010 Headcount Weighted Safety Employee Female Mortality Table and Safety Below Median Employee Male Mortality Table, both set-forward 1 year, with fully generational mortality improvements projected to each future decrement date with Scale MP-2018. For healthy participants post-employment, PUB-2010 Headcount Weighted Safety Healthy Retiree Female Mortality Table and Safety Below Median Healthy Retiree Male Mortality Table, both set-forward 1 year, with fully generational mortality improvements projected to each future decrement date with Scale MP-2018. Sample values follow:

Pub-2010 Fully Generational Mortality Tables

Sample Ages in 2021	Value of $1 Monthly for Life		Future Life Expectancy (Years)	
	Men	Women	Men	Women
50	$142.07	$147.49	32.46	36.29
55	134.61	140.87	27.68	31.26
60	125.10	132.68	23.10	26.47
65	113.79	122.71	18.83	21.96
70	99.89	110.43	14.82	17.70
75	84.04	95.82	11.22	13.78
80	67.19	79.63	8.14	10.31

For disabled participants, 80% PUB-2010 Headcount Weighted General Disabled Retiree Mortality Table/ 20% PUB-2010 Headcount Weighted Safety Disabled Retiree Mortality Table, separate rates for males and females.

The margin for future mortality improvements is included in projection scales. No deaths were assumed to be duty related.

Actuarial Assumptions Used for the Valuation

Rates of withdrawal from active membership. The rates do not apply to members eligible to retire and do not include separation on account of death or disability. This assumption measures the probabilities of members remaining in employment.

The rates were first used for the September 30, 1977 valuation and last affirmed for the September 30, 2018 valuation and beyond.

Sample Ages	Years of Service	Percent Separating Within Next Year
ALL	0	10.0 %
	1	7.0
	2	5.0
	3	4.0
	4	3.5
25	5 & Over	3.5
30		2.9
35		1.5
40		0.6
45		0.5
50		0.5
55		0.5
60		0.5

Vested members who terminate with a benefit worth less than 100% of their own accumulated contributions were presumed to elect a refund of accumulated contributions and forfeit their vested benefit.

Rates of disability (first used September 30, 2018) are represented by the following table:

Sample Ages	Percent Becoming Disabled Within Next Year	
	Male	Female
20	0.05 %	0.02 %
25	0.07	0.04
30	0.07	0.06
35	0.11	0.10
40	0.16	0.14
45	0.24	0.21
50	0.39	0.34
55	0.69	0.58

The mortality table was set forward ten years from the age at disability for projecting disability costs. 66 ⅔% of disability retirements were assumed to be duty related.

Actuarial Assumptions Used for the Valuation

Rates of Retirement. These rates are used to measure the probabilities of eligible members retiring during the next year. These rates became effective with the September 30, 2018 valuation.

Retirement Age or Service	Percent Retiring	
	50 & 15 or 55 & 10	BackDROP after 10/1/2011 or NR after 5/13/2012
50/26	30 %	30 %
51/27	20	20
52/28	15	20
53/29	15	20
54/30	15	100
55	15	
56	15	
57	15	
58	20	
59	30	
60	100	

Asset Valuation. Assets were included in the valuation using a four-year smoothed market value since the September 30, 2001 valuation and affirmed for the September 30, 2018 valuation and beyond, with the exception of the September 30, 2007 and September 30, 2021 valuations where assets were marked to market.

Administrative Expenses. Administrative expenses are included in the contribution requirement.

Investment Expenses. Investment expenses are offset against gross investment income.

Active Member Group Size. The valuation was based on a constant active member group size. This is unchanged from previous valuations.

Marriage Proportion. 85 percent of active members were assumed to be married. In each case the male was assumed to be three years older than the female.

Cost-of-Living Increases. Due to the unlikely event of the net unamortized balance shown on page B-10 being paid off during these participants' lifetime, there is no implied COLA for prior Plan B pension recipients as of September 30, 2020 who were hired before April 1, 1987.

Salary. The actuarial valuation includes all amounts included in final average salary for benefit purposes.

Summary of Assumptions Used
September 30, 2021

Pensions in an Inflationary Environment

Value of $1,000/month Retirement Benefit to an Individual who Retires at Age 50 in an Environment of 2.60% Inflation

Age	Value
50	$1,000
51	975
52	950
53	926
54	903
55	880
60	774
65	680
70	598
75	526
80	463
85	407

The life expectancy of a 50-year-old male retiree is age 82. The life expectancy for a 50-year-old female retiree is age 86. Half of the people will outlive their life expectancy. The effects of even moderate amounts of inflation can be significant for those who live to an advanced age.

Summary of Assumptions Used
September 30, 2021
Miscellaneous and Technical Assumptions

Pay Increase Timing:	Beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Benefit Service:	Exact fractional service is used to determine the amount of benefit payable.
Decrement Relativity:	Decrement rates are used without adjustment for multiple decrement table effects.
Decrement Operation:	Disability and mortality decrements do not operate during the first 5 years of service. Disability and withdrawal do not operate during retirement eligibility.
Normal Form of Benefit:	The assumed normal form of benefit is the 75% joint and survivor form for married members and 10-year certain and life for unmarried members.
Loads:	No loads were used.
Incidence of Contributions:	Contributions are assumed to be received during the fiscal year following the current year based upon the computed percent-of-payroll shown in this report, and the actual payroll payable at the time contributions are made.
Data Adjustments:	For one new deferred member, benefits were estimated based on the benefit provisions in effect, salary history, and assumed continuous service from hire date.

Definitions of Technical Terms

Accrued Service. Service credited under the fund which was rendered before the date of the actuarial valuation.

Actuarial Accrued Liability. The difference between the actuarial present value of future benefit payments and the actuarial present value of future normal costs. Also referred to as "accrued liability" or "past service liability."

Actuarial Assumptions. Estimates of expected future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement estimates (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic estimates (salary increases and investment income) consist of the underlying rates in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future benefit payments" between future normal cost and Actuarial Accrued Liability. Sometimes referred to as the "actuarial valuation cost method."

Actuarial Equivalent. A single amount or series of amounts of equal actuarial present value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.

Actuarial Present Value. The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest, and by probabilities of payment. Also referred to as "present value."

Amortization. Paying off an interest-discounted amount with periodic payments of interest and principal -- as opposed to paying off with lump sum payment.

Experience Gain (Loss). The difference between actual actuarial costs and assumed actuarial costs -- during the period between two valuation dates.

Funding Value of Assets. Also referred to as actuarial value of assets, smoothed market value of assets, or valuation assets.

Valuation assets recognize assumed investment return fully each year. Differences between actual and assumed investment return are phased-in over a closed four-year period. During periods when investment performance exceeds the assumed rate, valuation assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, valuation assets will tend to be greater than market value. If assumed rates are exactly realized for three consecutive years, valuation assets will become equal to market value.

Definitions of Technical Terms

Normal Cost. The actuarial cost allocated to the current year by the actuarial cost method. Sometimes referred to as "current service cost."

Unfunded Actuarial Accrued Liability. The difference between Actuarial Accrued Liability and the funding value of fund assets. Sometimes referred to as "unfunded past service liability", "unfunded accrued liability" or "unfunded supplemental present value."

Most pension funds have Unfunded Actuarial Accrued Liability. It increases each time new benefits are added and each time an experience loss is realized.

The existence of Unfunded Actuarial Accrued Liability is not in itself bad, any more than a mortgage on a house is bad. Unfunded Actuarial Accrued Liability does not represent a debt that is payable today. What is important is the ability to control the amount of Unfunded Actuarial Accrued Liability and the trend in its amount (after due allowance for devaluation of the dollar).

SECTION D

ADDITIONAL DISCLOSURES

GASB Statements No. 67 and No. 68 are the accounting standards which replaced GASB Statements No. 25 and No. 27. GASB Statement No. 67 is first effective for fiscal year 2014 and GASB Statement No. 68 is first effective for fiscal year 2015. A separate GASB Statements No. 67 and No. 68 report has been issued outside of this report. This section contains historical GASB Statements No. 25 and No. 27 reporting information for prior fiscal years and illustrative information for fiscal year 2015 and after.

Actuarial Accrued Liability

The Actuarial Accrued Liability (AAL) is a measure intended to help users assess (i) a pension fund's funded status on a going-concern basis, and (ii) progress being made toward accumulating the assets needed to pay benefits as due. Allocation of the actuarial present value of projected benefits between past and future service was based on service using the individual entry-age actuarial cost method. Assumptions, including projected pay increases, were the same as used to determine the Fund's level percent-of-payroll annual required contribution between entry-age and assumed exit age. Entry-age was established by subtracting credited service from current age on the valuation date.

The entry age AAL was determined as part of an actuarial valuation of the plan as of September 30, 2021. Significant actuarial assumptions used in determining the entry age AAL include (a) a rate of return on the investment of present and future assets of 7.50% per year compounded annually, (b) projected salary increases of 4.10% per year compounded annually, attributable to inflation and other causes, (c) additional projected salary increases of 0.50% to 0.00% per year, depending on service, attributable to seniority/merit, and (d) the assumption that benefits will not increase after retirement except to the extent provided by the supplemental pension distribution.

As of September 30, 2021, the Unfunded Actuarial Accrued Liability (UAAL) was $46,758,937 determined as follows:

Actuarial Accrued Liability:	
Active participants (111 vested and 147 non-vested)	$ 93,509,686
Retired participants and beneficiaries currently receiving benefits (206)	122,068,701
Supplemental reserve	5,721,782
Vested terminated participants not yet receiving benefits (4)	1,539,058
Chapter 175 Share Accounts	49,146,368
DROP Accounts/BackDROP	72,926,331
Fixed Interest Reserve	10,000,000
Total Actuarial Accrued Liability	354,911,926
Funding Value of Assets (market value was $308,152,989)	308,152,989
Unfunded Actuarial Accrued Liability	$ 46,758,937

During the year ended September 30, 2021, the plan experienced a net change of $29,117,398 in the Actuarial Accrued Liability. Of this change, $5,990,920 was attributable to changes in Share Accounts, $3,302,090 was due to changes in DROP accounts, $5,721,782 was attributable to changes in the supplemental pension distribution reserve, and $0 was due to changes in actuarial assumptions.

Contributions Required and Contributions Made

The City's funding policy provides for periodic employer contributions at actuarially determined rates that, expressed as percentages of covered payroll, are designed to accumulate sufficient assets to pay benefits when due. The normal cost and Actuarial Accrued Liability (AAL) are determined using an entry-age actuarial cost method. Unfunded Actuarial Accrued Liability (UAAL) is being amortized as a level percent-of-payroll over closed periods ranging from 1-28 years. The weighted average remaining period is 13.2 years.

During the year ended September 30, 2021, contributions totaling $14,621,588 – $10,893,690 employer and $3,727,898 employee -- were made in accordance with contribution requirements determined by an actuarial valuation of the Fund as of September 30, 2019. The employer contributions consisted of $1,895,771 for normal cost and expenses and $7,509,987 for amortization of the UAAL and $1,487,932 for share accounts (from calendar year 2020 Chapter 175 receipts). Employer contributions into the Fund represented 48.8% of covered payroll.

Schedule of Employer Contributions

Fiscal Year 10-1/9-30	Valuation Date 9/30	Annual Required Contribution	Percentage Contributed
2006-07	2005	$ 3,688,219	100 %
2007-08	2006	3,967,730	100
2008-09	2007	3,773,358	100
2009-10	2008	4,393,701	100
2010-11	2009 *	5,378,277	100
2011-12	2010 *	6,156,287	100
2012-13	2011	7,047,552	102
2013-14	2012	7,568,397	101
2014-15	2013	6,963,530	108
2015-16	2014	7,130,564	107
2016-17	2015	7,277,740	100
2017-18	2016 *	8,526,593	100
2018-19	2017 *	9,065,383	100
2019-20	2018	9,737,863	100
2020-21	**2019**	**9,405,758**	**100**

** After changes in benefit provisions and/or actuarial assumptions.*

Supplementary Information
Schedule of Funding Progress

($ Amounts in Thousands)

Actuarial Valuation Date	Funding Value of Assets# (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (b)-(a)	Funded Ratio (a)/(b)	Active Participant Covered Payroll (c)	Unfunded AAL as a Percentage of Active Participant Covered Payroll ((b-a)/c)
2006	$ 104,777	$ 147,079	$ 42,302	71.2 %	$ 12,437	340.1 %
2007	129,145	164,981	35,836	78.3	13,349	268.4
2008	129,938	170,265	40,327	76.3	15,561	259.2
2009	131,398	183,917	52,519	71.4	16,599	316.4
2010	132,695	194,625	61,930	68.2	15,993	387.2
2011 *	131,374	203,827	72,453	64.5	15,185	477.1
2012 *	141,981	216,494	74,513	65.6	14,365	518.7
2013 *	154,542	230,835	76,293	66.9	14,899	512.1
2014 *	167,501	243,593	75,961	68.7	15,363	494.4
2015	178,823	252,538	73,715	70.8	16,145	456.6
2016	190,526	272,173	81,647	70.0	16,635	490.8
2017	202,063	283,795	81,732	71.2	17,540	466.0
2018 *	217,071	304,722	87,651	71.2	19,317	453.8
2019 *	232,630	311,037	78,407	74.8	19,891	394.2
2020	251,434	325,795	74,361	77.2	21,135	351.8
2021	**308,153**	**354,912**	**46,759**	**86.8**	**22,304**	**209.6**

* *After changes in benefit provisions and/or actuarial assumptions.*
\# *Market value prior to 9/30/2001 valuation.*

Analysis of the dollar amounts of the funding value of assets, Actuarial Accrued Liability (AAL), or Unfunded Actuarial Accrued Liability (UAAL) in isolation can be misleading. Expressing the funding value of assets as a percentage of the AAL provides one indication of the system's funded status on a going-concern basis. Analysis of this percentage over time indicates whether the system is becoming financially stronger or weaker. Generally, the greater this percentage, the stronger the plan. The UAAL and annual covered payroll are both affected by inflation. Expressing the UAAL as a percentage of covered payroll approximately adjusts for the effects of inflation and aids analysis of the progress being made in accumulating sufficient assets to pay benefits when due. Generally, the smaller this percentage, the stronger the plan.

SECTION E

STATE DATA SUMMARY

Summary of Valuation Results in State Format – ($ Amounts in Thousands)

			September 30, 2021	September 30, 2020
(a)	Participant Data			
	(i) Active participants	- number	258	230
		- annual payroll	$ 22,304	$ 21,135
	(ii) Retired members & beneficiaries (excl. disability)			
		- number	184	185
		- annualized benefit payroll	$ 10,918	$ 10,691
	(iii) Disabled members & beneficiaries			
		- number	22	22
		- annualized benefit payroll	$ 690	$ 690
	(iv) Terminated vested members			
		- number	4	1
		- annualized benefit payroll	$ 253	$ 38
(b)	Assets			
	(i) Funding value		$ 308,153	$ 251,434
	(ii) Market value		308,153	252,231
(c)	Actuarial Liabilities			
	(i) Actuarial present value of active member benefits:			
		service retirement	$ 125,319	$ 121,781
		termination benefits - pensions	2,624	2,589
		disability retirement	3,418	3,372
		survivor benefits (pre-retirement)	1,923	1,896
		survivor benefits (post-retirement)	8,637	8,411
		termination benefits - refunds	585	477
		share accounts	49,146	43,155
		fixed interest reserve	10,000	0
		Total	201,652	181,681
	(ii) Actuarial present value of terminated vested member benefits		1,539	174
	(iii) Actuarial present value of retired member & beneficiary:			
		total service retirement & survivors	114,906	113,207
		disability & death-in-service retirement	7,163	7,308
		distribution reserve	5,722	0
		DROP reserve/BackDROP	72,926	69,624
		Total	200,717	190,139
	(iv) Total actuarial present value of future benefit payments		403,908	371,994
	(v) Payables		none	none
	(vi) Actuarial accrued liability (including $49,146 and $43,155 in share accounts)		354,912	325,795
	(vii) Unfunded actuarial accrued liability [(1)]		46,759	74,360

[(1)] *Please refer to page A-10 for requested detail.*

Summary of Valuation Results in State Format – ($ Amounts in Thousands) (Continued)

	September 30, 2021	September 30, 2020
(d) Actuarial Present Value of Accrued Benefits (calculated in accordance with FASB Statement No. 35)		
(i) Vested accrued benefits		
Retired members and beneficiaries		
- pensions	$ 194,995	$ 190,139
- distribution reserves	5,722	0
Terminated members	1,539	174
Active members (includes non-forfeitable accum. Member contributions of $29,827 and $28,159)	80,094	77,641
Active member share accounts	49,146	43,155
Total	$ 331,496	$ 311,109
(ii) Non-vested accrued benefits	7,117	5,604
(iii) Total actuarial p.v. of accrued benefits	$ 338,613	$ 316,714
(iv) Actuarial p.v. of accrued benefits at begin. of year	$ 316,714	$ 302,533
(v) Changes attributable to:		
Amendments	$ 0	$ 0
Assumption change	0	0
Operation of decrements	31,466	29,739
Benefit payments	(15,289)	(15,558)
Other (Changes in Reserves)	5,722	0
(vi) Net change	21,899	14,181
(vii) Actuarial p.v. of accr. benefits at end of year	$ 338,613	$ 316,714
(e) Plan costs for fiscal year beginning October 1, 2022 and October 1, 2021 (EANC)		
(i) Normal costs		
Service pensions	17.48%	17.45%
Disability pensions	0.96%	0.96%
Survivor pensions (post-retirement)	0.48%	0.48%
Survivor pensions (pre-retirement)	1.30%	1.31%
Deferred service pensions	0.64%	0.63%
Refunds of member contributions	0.73%	0.73%
Total normal cost	21.59%	21.56%
(ii) Payment to amortize unf'd act. accr. liab.	23.33%	29.34%
(iii) Administrative expenses	0.52%	0.51%
(iv) FS112.64(5) Requirement/Temporary Funding Credits	0.25%	2.59%
(v) Amount to be paid by participants	13.10%	13.10%
(vi) Chapter 175 portion	0.00%	0.00%
(vii) Expected plan sponsor contribution		
% of payroll	32.59%	40.90%
dollars	$ 7,721	$ 9,181

Summary of Valuation Results in State Format – ($ Amounts in Thousands) (Concluded)

			September 30, 2021	September 30, 2020
(f)	Past Contributions (fiscal year ending 9/30/21 & 20)			
	(i) Required minimum:	Plan sponsor	$ 9,406	$ 9,738
		Members	2,870	2,752
		Total	12,276	12,490
	(ii) Actual:	Plan sponsor	9,406	9,738
		Members	2,870	2,752
		Total	$ 12,276	$ 12,490
(g)	Net Experience Gain (Loss)		$ 41,108	$ 1,670
(h)	Other Disclosures			
	(i) Present value of active member future salaries			
	from attained age		$ 227,690	$ 214,957
	from entry age		not applicable to individual EANC method	
	(ii) Present value of active member future contribs.			
	from attained age		$ 29,827	$ 28,159
	from entry age		not applicable to individual EANC method	

Reconciliation of Membership, DROP and Share Accounts for the Plan Year Ended September 30, 2021

	Active Members	Vested Terminated Members	Pension Recipients			
			Active DROP	Service Retired	Disability Retired	All Beneficiaries
No. at Start of Year	230	1	0	151	22	34
Increase (Decrease) From						
Service Retirement	(4)			4		
Disability Retirement						
Deaths				(2)		
Surviving Beneficiary						(3)
Other Pension Terminations	(1)					
Vested Terminations	(3)	3				
Non-Vested Terminations	(5)					
New Entrants/Rehires	41					
No. at End of Year	**258**	**4**	**0**	**153**	**22**	**31**

	DROP Accounts	Share Accounts
Beginning of Year Balance	$ 69,624,241	$ 43,155,448
Additions	1,485,831	1,920,019
Distributions	(3,795,218)	(2,389,502)
Earnings	5,611,477	6,460,403
Adjustments	0	0
End of Year Balance	**$ 72,926,331**	**$ 49,146,368**