City of Ypsilanti
Fire and Police Retirement System
65th Annual Actuarial Valuation Report
June 30, 2020

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October 30, 2020

Retirement Board
City of Ypsilanti
Fire and Police Retirement System
Ypsilanti, Michigan

Dear Board Members:

Submitted in this report are the results of the 65th Annual Actuarial Valuation of the City of Ypsilanti Fire and Police Retirement System, which is based on Act No. 345 of the Public Acts of 1937, as amended. The purpose of the valuation is to measure funding progress in relation to the actuarial cost method, and to determine employer contribution rates. Calculations required for compliance with the Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68 were issued in a separate report dated October 16th, 2020. The results of the valuation may not be applicable for other purposes.

The valuation was based upon data, furnished by the City, concerning financial operations and individual retirees, beneficiaries, and members as of the valuation date. Data was checked for year to year consistency, but was not audited by the actuary. We are not responsible for the accuracy or completeness of the information provided by the City.

The actuarial methods and assumptions used in the actuarial valuation are summarized in Section D of this report. This report was prepared using assumptions adopted by the Board. All actuarial assumptions used in this report are reasonable for the purposes of this valuation.

The date of the valuation was June 30, 2020. The findings in this report are based on data and other information through June 30, 2020.

This report should not be relied on for any purpose other than those described above. It was prepared at the request of the Board and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

This report includes risk metrics on page B-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 assumes the continuing ability of the participating employer to make the contributions necessary to fund the System. A determination regarding whether or not the participating employer is actually able to do so is outside our scope of expertise. Consequently, we did not perform such an analysis.

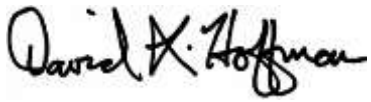
This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

The signing individuals are independent of the plan sponsor.

This report has been prepared by individuals who have substantial experience valuing public employee retirement systems. To the best of our knowledge, this report is complete and accurate and was made in accordance with generally recognized actuarial methods in accordance with standards of practice prescribed by the Actuarial Standards Board and in compliance with the constitution of the State of Michigan.

Jeffrey T. Tebeau and Kevin T. Noelke are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,



David L. Hoffman

Jeffrey T. Tebeau, FSA, EA, MAAA

Kevin T. Noelke, ASA, MAAA

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SECTION A

BASIC FINANCIAL OBJECTIVE AND OPERATION OF THE RETIREMENT SYSTEM

Basic Financial Objective and Operation of the Retirement System

Benefit Promises Made Which Must Be Paid For. A retirement system is an orderly means of handing out, keeping track of, and financing contingent pension promises to a group of employees. As each member of the retirement system acquires a unit of service credit he is, in effect, handed an "IOU" which reads: "The Retirement System promises to pay you one unit of retirement benefits, payments in cash commencing when you retire."

The principal related financial question is: When shall the money required to cover the "IOU" be contributed? This year, when the benefit of the member's service is received? Or, some future year when the "IOU" becomes a cash demand?

The constitution of the State of Michigan is directed to the question:

> "Financial benefits arising on account of service rendered in each fiscal year shall be funded during that year and such funding shall not be used for financing unfunded accrued liabilities."

Section 9(2) of Act 345 is also directed to the question:

> "Sec. 9(2). - - - For the purpose of creating and maintaining a fund for the payment of the pensions and other benefits payable hereunder the said city, village or municipality, subject to the provisions of this act, shall appropriate, at the end of such regular intervals as may be adopted, quarterly, semi-annually, or annually, an amount sufficient to maintain actuarially determined reserves covering pensions payable or which might be payable on account of service performed and to be performed by active members and pensions being paid retired members and beneficiaries - - - -."

This retirement system meets this constitutional requirement by having as its ***financial objective 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 taxpayers.

Section 20(m) of Act 728 of 2002 requires that an annual required contribution shall consist of a current service cost (the normal cost) and a payment for unfunded actuarial liability (both interest and principal). This requirement is consistent with the financial objective stated above.

Basic Financial Objective and Operation of the Retirement System

A by-product of the level percent-of-payroll contribution objective is the accumulation of invested assets for varying periods of time. ***Invested assets are a by-product of level percent-of-payroll contributions, not the objective***. Investment income becomes a major contributor to the retirement system, and the amount is directly related to the amount of contributions and investment performance.

If contributions to the retirement system are less than the preceding amount, the difference, plus investment earnings not realized thereon, will have to be contributed at some later time, or, benefits will have to be reduced, to satisfy the fundamental fiscal equation under which all retirement programs must operate; that is:

B = C + I - E

The aggregate amount of Benefit payments to any group of members and their beneficiaries cannot exceed the sum of:

The aggregate amount of Contributions received on behalf of the group

. . . plus . . .

Investment earnings on contributions received and not required for immediate payment of benefits

. . . minus . . .

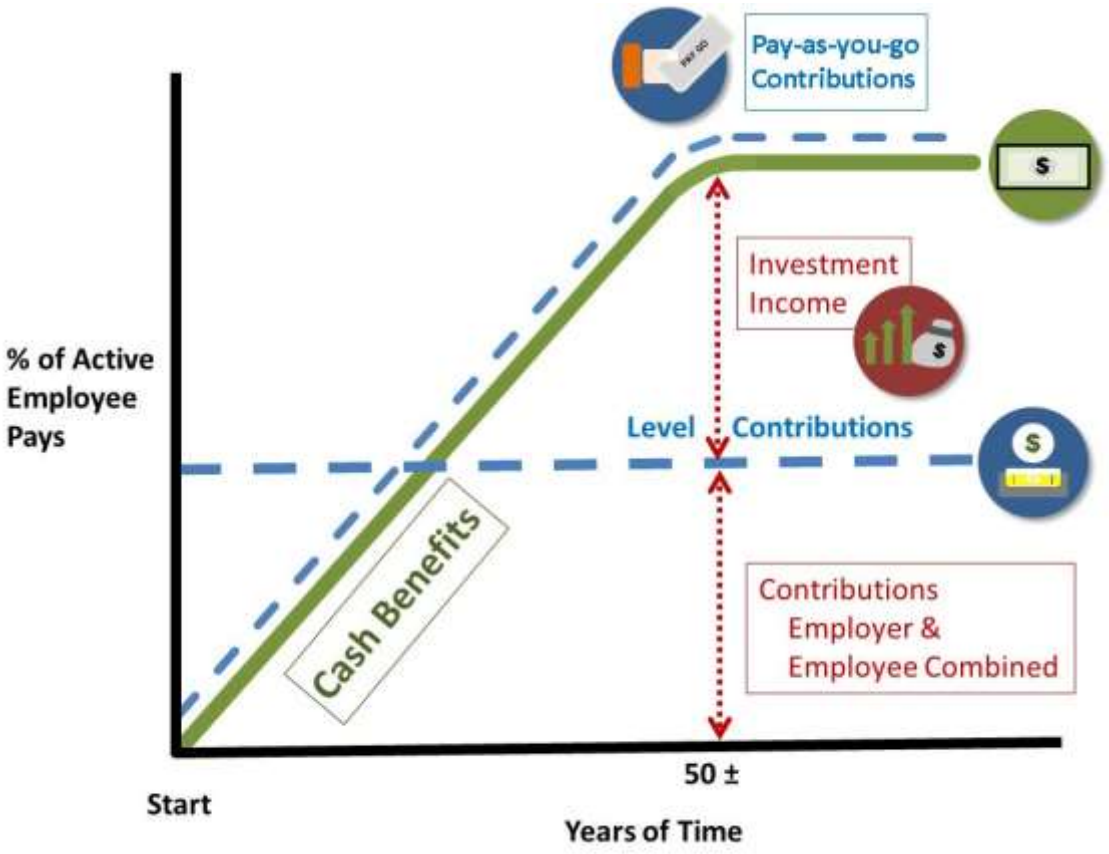
The Expenses of operating the program.

There are retirement systems designed to defer the bulk of contributions far into the future. Lured by artificially low present contributions, the inevitable consequence of a relentlessly increasing contribution rate -- to a level greatly in excess of the level percent of payroll rate -- is ignored.

This method of financing is prohibited in Michigan by the state constitution.

Computed Contribution Rate Needed to Finance Benefits. From a given schedule of benefits and from the data furnished, the actuary calculates the contribution rate by means of an actuarial valuation - the technique of assigning monetary values to the risks assumed in operating a retirement system.

Basic Financial Objective and Operation of the Retirement System



CASH BENEFITS LINE. This relentlessly increasing line is the fundamental reality of retirement plan financing. It happens each time a new benefit is added for future retirements (and happens regardless of the design for contributing for benefits).

LEVEL CONTRIBUTION LINE. Determining the level contribution line requires detailed assumptions concerning a variety of experiences in future decades, including:

- **Economic Risk Areas**
  - Rates of investment return
  - Rates of pay increase
  - Changes in active member group size
- **Non-Economic Risk Areas**
  - Ages at actual retirement
  - Rates of mortality
  - Rates of withdrawal of active members (turnover)
  - Rates of disability

SECTION B

VALUATION RESULTS

City's Computed Contributions for the Fiscal Year Beginning July 1, 2021

Contributions for	Contributions Expressed as Percents of Annual Pay
Normal Cost	
Age and service pensions	16.65 %
Death-in-Service survivor pensions	0.55
Disability pensions	1.36
Total	18.56 %
Members' Contributions	
Gross contributions@	7.97
Less prospective refunds	1.02
Available for pensions	6.95
City's Normal Cost	11.61
Unfunded Actuarial Accrued Liabilities	
Retirants and beneficiaries*	31.37
Active members*	24.44
Total	55.81
City's Required Employer Contribution for Pensions	67.42 %
City Dollar Contribution#	$2,292,341

@ Weighted average of two rates.

** Financed as a level percent-of-payroll over a closed period of 18 years. Includes the effects of the lag between the valuation date and the contribution period.*

 # Based on projected payroll from the valuation date to the beginning of fiscal year.

Reported Fund Balance

Reserves	Reported Fund Balance June 30, 2020	2019
Reserve for Employees' Contributions	$ -	$ -
Reserve for Employer Contributions	-	-
Reserve for Retired Benefit Payments	24,396,791	24,396,791
Reserve for Undistributed Investment Income	-	-
Total Fund Balance	$ 24,396,791	$ 24,396,791

Valuation assets are equal to reported market value of assets, except that only 20% of the difference between the market-to-market rate of return and the projected rate of return (the 7.00% actuarial assumption from the prior valuation) is recognized each year. Such spreading reduces the fluctuation in the City's computed contribution rate which might otherwise be caused by market value fluctuations. The details of the spreading technique are shown on page C-11. The present method was adopted for the 1993 year. The valuation assets as of June 30, 2020 total $25,680,326.

In financing actuarial accrued liabilities, valuation assets allocated to pensions of $25,680,326 were distributed as follows:

Reserves for	Valuation Assets Applied to Actuarial Accrued Liabilities for: Active Members	Retirants & Beneficiaries	Contingency Reserve	Totals
Employees' Contributions	$ -	$ -	$ -	$ -
Employer Contributions	-	-	-	-
Retired Benefit Payments	(14,973,885)	39,370,676	-	24,396,791
Reserve for Undistributed Investment Income	-	-	-	-
Valuation Asset Adjustment	1,283,535		-	1,283,535
Total	$ (13,690,350)	$ 39,370,676	$ -	$ 25,680,326

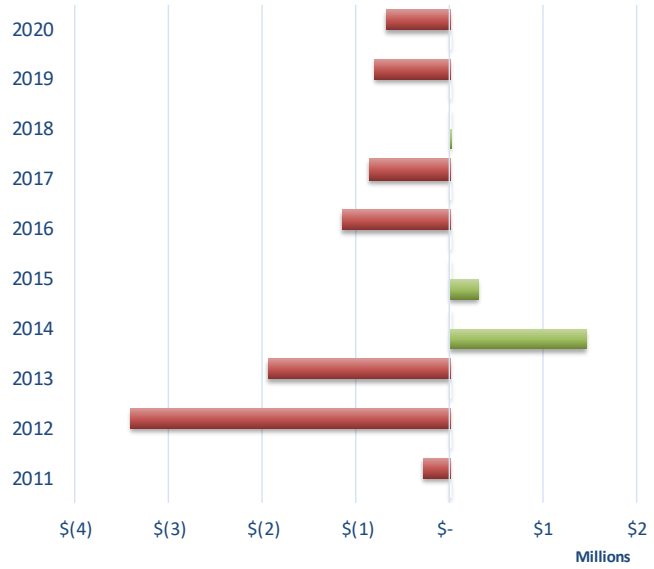
Derivation of Experience Gain (Loss)
Year Ended June 30, 2020

Actual experience will never (except by coincidence) coincide exactly with assumed experience. It is hoped that gains and losses will cancel each other over a period of years, but sizable year-to-year fluctuations are common. Detail on the derivation of the experience gain (loss) is shown below, along with a year-by-year comparative schedule.

(1)	UAAL* at start of year	$ 23,762,128
(2)	Employer Normal cost from last valuation	344,524
(3)	Actual employer contributions	2,026,131
(4)	Interest accrual: [(1) + 1/2 [(2) - (3)]] x .07	1,604,493
(5)	Expected UAAL before changes: (1) + (2) - (3) + (4)	23,685,014
(6)	Change from benefit changes	0
(7)	Change from revised actuarial assumptions/methods	0
(8)	Expected UAAL after changes: (5) + (6) + (7)	23,685,014
(9)	Actual UAAL at end of year	24,353,348
(10)	Gain (loss): (8) - (9)	(668,334)
(11)	Gain (loss) as percent of actuarial accrued liabilities at start of year: $50,153,683	(1.3)%

* *Unfunded Actuarial Accrued Liabilities.*

Gains and Losses - Past 10 Years



Summary Statement of System Resources and Obligations

Present Resources and Expected Future Resources

A.	Present valuation assets:	
	1. Net assets from System financial statements	$24,396,791
	2. Funding value adjustment	1,283,535
	3. Valuation assets	25,680,326
B.	Actuarial present value of expected future employer contributions:	
	1. For normal costs	2,869,016
	2. For unfunded actuarial accrued liability	24,353,348
	3. Total	27,222,364
C.	Actuarial present value of expected future member contributions	2,071,831
D.	Total present and expected future resources	$54,974,521

Actuarial Present Value of Expected Future Benefit Payments

A.	To retirants and beneficiaries	$39,370,676
B.	To vested terminated members	853,289
C.	To present active members:	
	1. Allocated to service rendered prior to valuation date - actuarial accrued liability	9,809,709
	2. Allocated to service likely to be rendered after valuation date	4,940,847
	3. Total	14,750,556
D.	Total actuarial present value of expected future benefit payments	$54,974,521

Comments and Conclusion

Comment A: The overall 2019/2020 actuarial experience was less favorable than expected as reflected by the experience loss shown on page B-3. This experience loss was primarily attributable to investment losses on an actuarial (funding value) basis. Losses were slightly offset by retiree mortality experience.

Comment B: There were no changes in actuarial assumptions, methods or plan provisions for the June 30, 2020 valuation.

Comment C: The System's maturity, funding policy, certain benefit provisions, and a decreasing active population has resulted in a large negative non-investment net cash flow over the last several years. The ratio of non-investment cash flow to assets is an important measure of sustainability. Negative ratios are common and expected for a maturing system, and in the longer term, this ratio may be on the order of approximately -4%. However, this ratio for the System has averaged approximately -9% over the last five years. At the October 15, 2018 meeting, the Board adopted the use of a 20-year amortization period beginning with the June 30, 2018 valuation in order to return the non-investment cash flow to a more sustainable level. The ratio of non-investment cash flow to assets was -6.7% in fiscal year 2020, an improvement from -8.0% in 2019.

Comment D: As of June 30, 2020, the funded ratio is 51.3%. The valuation assets were $25.7 million and the market value of assets was $24.4 million. The difference between valuation assets and the market value of assets, $0.7 million, represents accumulated investment gains and losses scheduled for phased-in recognition in the next four actuarial valuations. As of June 30, 2020, the funded ratio based on the market value of assets is 48.8%.

Comment E: The June 30, 1996 and later actuarial valuations reflect benefit increases for existing retirees who were receiving benefits below the January 1, 1996 estimated Federal and State poverty levels. The contribution rates in the June 30, 2020 report reflect future expected increases in the poverty level. The 2019 poverty level for a two-person household 65 years of age and older (with no dependents) published by the Census Bureau was $15,453.

Comments and Conclusion

Comment F: The table that follows shows our best, rough estimate of computed employer contributions in the next five actuarial valuations, assuming a 7.00% market value return, payroll growth as shown below, and no actuarial gains or losses. The change in the contribution from year to year reflects the phase-in of the accumulated investment losses discussed on the previous page.

Valuation Date	Payroll	Estimated Employer Contribution
June 30, 2020	$3,204,912	67.42%
June 30, 2021	3,301,059	68.08%
June 30, 2022	3,400,091	69.01%
June 30, 2023	3,502,094	69.97%
June 30, 2024	3,607,157	70.46%
June 30, 2025	3,715,372	70.46%

Please remember that these are rough estimates and actual experience can deviate significantly from assumed, even over the near term. These numbers are being provided at the request of the City; our understanding is that they are to be used for advanced preliminary budgeting purposes.

Please note that about 17% of the rates shown above are for normal cost and 83% for payment of Unfunded Actuarial Accrued Liability (UAAL). In dollars for the fiscal year beginning July 1, 2021, this is about $0.39 million for normal cost and $1.90 million for UAAL. If actual future payroll differs significantly from these projected payroll numbers the normal cost dollar amount will change proportionally while the UAAL dollar amount would be unchanged.

Conclusion: The City's contributions (members' contributions are additional) to the City of Ypsilanti Fire and Police Retirement System, for the fiscal year beginning July 1, 2021, have been computed to be 67.42% of active member payroll. This computed contribution meets the requirements of PA 728 of 2002.

Other Observations

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

Given the System's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the System earning 7.00% on the funding value of assets), it is expected that:

(1) The employer normal cost as a percentage of pay will decrease to the level of the current new entrants' (i.e., members hired after July 1, 2012) normal cost as time passes and the entirety of the active population is comprised of members hired after this date;
(2) The unfunded actuarial accrued liabilities will be fully amortized after 18 years (June 30, 2039); and
(3) The funded status of the plan will increase gradually towards a 100% funded ratio.

The computed contribution shown on page B-1 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 and the actuarial value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

(1) The measurement is inappropriate for assessing the sufficiency of System assets to cover the estimated cost of settling the System'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 System'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. The current funded status is 51.3%. Even if the funded status measurement in this report was 100%, it would not be synonymous with no required future contributions. If the funded status were 100%, the System would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).
(3) The measurement would produce a different result if the market value of assets were used instead of the actuarial value of assets.

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued 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 accrued 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 accrued 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;
4. **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued 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 accrued 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.

Comparative Statement

Valuation Date June 30,	Fiscal Year	Actuarial Accrued Liabilities & Reserves	Valuation Assets	% Funded	Unfunded Actuarial Accrued Liabilities & Reserves			City's Contribution Rate		
					Dollars	Amortiz. Period	% of Payroll	Percent	Dollars Computed	Dollars Actual
1996	97-98	$ 23,778,940	$ 24,612,528	103.5 %	$ (833,588)	30	-	14.15 %	$ 707,556	$ 526,000
1997	98-99	24,914,577	25,839,088	103.7	(924,511)	30	-	14.14	748,246	595,000
1998	99-00	25,708,661	27,766,480	108.0	(2,057,819)	30	-	12.83	742,909	595,000
1999	00-01	27,010,112	30,351,193	112.4	(3,341,081)	30	-	11.35	720,531	595,000
2000	01-02	26,204,216	32,718,398	124.9	(6,514,182)	10	-	0.00 *	0	595,000
2001	02-03	26,933,083	34,479,264	128.0	(7,546,181)	10	-	0.00	0	0
2002	03-04	27,899,273	34,970,658	125.3	(7,071,385)	10	-	0.00	0	0
2003	04-05	29,020,485	33,916,996	116.9	(4,896,511)	10	-	0.00	0	0
2004	05-06	31,251,133	32,569,762	104.2	(1,318,629)	10	-	11.78 #	500,602	500,602
2005	06-07	32,774,898	31,180,708	95.1	1,594,190	30	-	16.54	730,106	730,106
2006	07-08	34,980,132	30,843,790	88.2	4,136,342	30	-	21.57 #	941,417	941,417
2007	08-09	36,211,916	32,056,915	88.5	4,155,001	30	-	21.91 #	946,937	946,937
2008	09-10	37,869,913	32,934,094	87.0	4,935,819	30	128 %	23.07 #	968,212	968,212
2009	10-11	39,453,312	32,472,100	82.3	6,981,212	30	179	25.64 #	1,089,013	1,018,284
2010	11-12	42,135,741	31,649,135	75.1	10,486,606	30	264	27.91 #*	1,199,984	1,120,305
2011	12-13	42,667,144	31,577,876	74.0	11,089,268	30	285	29.03	1,222,085	1,222,085
2012	13-14	43,258,880	28,530,067	66.0	14,728,813	30	432	36.51	1,347,529	1,358,167
2013#	14-15	44,583,788	27,649,572	62.0	16,934,216	30	531	40.47	1,395,423	1,395,423
2014	15-16	44,603,145	29,180,299	65.4	15,422,846	30	448	37.39	1,302,223	1,240,657
2015*	16-17	46,444,833	29,723,626	64.0	16,721,207	29	507	40.66	1,350,449	1,355,989
2016	17-18	46,501,105	28,410,750	61.1	18,090,355	28	570	44.24	1,466,260	1,466,261
2017	18-19	46,764,617	27,584,751	59.0	19,179,866	27	674	49.31	1,517,319	1,517,865
2018*	19-20	49,735,186	27,472,343	55.2	22,262,843	20	797	68.34	2,026,129	**2,026,131**
2019*	20-21	50,153,683	26,391,555	52.6	23,762,128	19	749	65.09	2,190,001	
2020	**21-22**	**50,033,674**	**25,680,326**	**51.3**	**24,353,348**	**18**	**760**	**67.42**	**2,292,341**	

** Revised actuarial assumptions.*

 # Retirement System was amended.

The Ratio of Valuation Assets to AAL is a traditional measure of a system's funding progress. Except in years when the system is amended or actuarial assumptions are revised, this ratio is expected to increase gradually toward 100%.

The Ratio of UAAL to Valuation Payroll is another relative index of condition. Unfunded actuarial accrued liabilities represent debt, while active member payroll represents the system's capacity to collect contributions to pay toward debt. The lower the ratio, the greater the financial strength - and vice versa.

Risk Measures

($ in thousands)

Actuarial Valuation Date (6/30)	(1) Actuarial 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) RetLiab / AAL (6)/(2)	(8) AAL / Payroll (2) / (4)	(9) Assets / Payroll (1) / (4)	(10) UAAL / Payroll (3) / (4)	(11) Non-Invest. Cash Flow (NICF)	(12) NICF / Assets (11)/(1)	(13) Market Rate of Return	(14) 5-year Trailing Average
2014	$29,180	$44,603	$15,423	$3,440	65.4%	$29,575	66.3%	1,296.6%	848.3%	448.3%	$ (1,445)	(5.0)%	18.0%	11.9%
2015*	29,724	46,445	16,721	3,299	64.0%	30,858	66.4%	1,407.9%	901.0%	506.9%	(2,136)	(7.2)%	3.1%	9.9%
2016	28,411	46,501	18,090	3,174	61.1%	30,230	65.0%	1,464.9%	895.0%	569.9%	(2,950)	(10.4)%	(1.1)%	5.8%
2017	27,585	46,765	19,180	2,845	59.0%	34,056	72.8%	1,643.8%	969.6%	674.2%	(3,021)	(11.0)%	9.9%	8.2%
2018*	27,472	49,735	22,263	2,795	55.2%	36,744	73.9%	1,779.7%	983.1%	796.6%	(2,074)	(7.5)%	7.9%	7.4%
2019*	26,392	50,154	23,762	3,171	52.6%	37,438	74.6%	1,581.4%	832.2%	749.3%	(2,121)	(8.0)%	3.4%	4.6%
2020	25,680	50,034	24,353	3,205	51.3%	39,371	78.7%	1,561.2%	801.3%	759.9%	(1,722)	(6.7)%	3.2%	4.4%

** Revised actuarial assumptions.*

(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 accrued liabilities 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) and (9). The ratio of liabilities and assets to payroll gives an indication of both maturity and volatility. Many systems have ratios between 500% and 700%. Ratios significantly above that range may indicate difficulty in supporting the benefit level as a level % of payroll.

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

(11) and (12). The ratio of Non-Investment Cash Flow to assets is an important measure of sustainability. Negative ratios are common and expected for a maturing system. In the longer term, this ratio should be on the order of approximately -4%. A ratio that is significantly more negative than that for an extended period could be a leading indicator of potential exhaustion of assets.

(13) and (14). 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 actuarial estimation method and will differ modestly from figures reported by the investment consultant.

SECTION C

SUMMARY OF BENEFIT PROVISIONS AND VALUATION DATA

Brief Summary of Act 345 Benefit Provisions
(June 30, 2020)

Eligibility	Amount
Service Retirement	
20 or more years of service, 25 years for Fire Chief, regardless of age or age 60 regardless of service.	Straight life pension equals 3.0% of 3-year Average Final Compensation (AFC) times first 25 years of service plus 1% of AFC times years of service in excess of 25 years for both IAFF and police. For COAM members hired before July 1, 2012, future accrual will be 3.0% of AFC times first 25 years of service accrued prior to July 1, 2012 or after July 1, 2014 plus 2.25% of AFC times first 25 years of service accrued between July 1, 2012 and July 1, 2014 plus 1.0% of AFC times years of service in excess of 25 years.
25 or more years of service regardless of age for Fire members hired after July 1, 2009.	Straight life pension equals 2.5% of AFC times years of service, with a 75% maximum.
25 or more years of service regardless of age for POAM/COAM members hired after July 1, 2009.	Straight life pension equals 2.0% of AFC times years of service.
Members hired after July 1, 2012.	Same as members hired after July 1, 2009, except there is no annuity withdrawal option.
Deferred Retirement	
10 or more years of service.	Computed as service retirement but based upon service, AFC and benefit in effect at termination. Benefit begins at date retirement would have occurred had member remained in employment.
Death After Retirement Survivor's Pension	
Payable to a surviving spouse, if any, upon the death of a retired member who was receiving a straight life pension which was effective July 1, 1975 or later.	Spouse's pension equals 60% of the straight life pension the deceased retirant was receiving.
Non-Duty Death-in-Service Survivor's Pension	
Payable to a surviving spouse, if any, upon the death of a member with 10 or more years of service.	Accrued straight life pension actuarially reduced in accordance with an Option I election.

Brief Summary of Act 345 Benefit Provisions (June 30, 2020)

Eligibility	Amount
Duty Death-in-Service Survivor's Pension	
Payable upon the expiration of worker's compensation to the survivors of a member who died in the line of duty.	
Non-Duty Disability	
Payable upon the total and permanent disability of a member with 5 or more years of service.	To age 55: 1.5% of AFC times years of service. At age 55: Same as Service Retirement Pension.
Duty Disability	
Payable upon the total and permanent disability of a member in the line of duty.	To age 55: 50% of AFC. At age 55: Same as Service Retirement Pension with service credit from date of disability to age 55.
Post-Retirement Benefit Increases	
Retirees who are receiving benefits below the estimated poverty levels for a two person household 65 years of age and older (with no dependents) as measured by the Census Bureau have their benefits increased annually up to the poverty level. The increase does not apply to retirees that retired based on a vested deferred retirement.	
Member Contributions	
	10% of pay (Fire Chief: 5%). 5% of pay for COAM/POAM hired after July 1, 2009.

Brief Summary of Act 345 Benefit Provisions
(June 30, 2020)

Eligibility	Amount
DROP (Deferred Retirement Option Plan)	
Participation is open to any member who has reached the age and service conditions for unreduced retirement.	A regular retirement benefit is computed for the member as of his DROP election date based upon Final Average Compensation (FAC) and service credit as of this date. Monthly payments equal to 100% of the computed monthly benefit are deposited into the DROP Reserve Account (DRA) on behalf of the member. Interest is credited monthly to this balance in the DRA at the rate of 4%, compounded annually. Employer contributions will continue while the member participates in the DROP. Employer contributions are not deposited in the DRA. Member contributions shall cease as of the member's DROP election date. The member may remain in the DROP for up to five years and then must terminate employment. The member's monthly benefit at retirement will be the original monthly payment determined at the DROP election date. The member has the option at that time to receive the DRA balance as a lump-sum, as a roll-over or leave the accumulated balance in the Plan.

Retirees and Beneficiaries Added to and Removed from Rolls
Comparative Statement

Year Ended June 30,	Added to Rolls			Removed from Rolls		Rolls End of Year				% Incr. in Annual Pensions	Average Pension	Present Value of Pensions
	No.	Annual Pensions	Post-Ret. Increases	No.	Annual Pensions	No.	Active Per Retired	Annual Pensions Dollars	Annual Pensions % of Pay			
1985	2	$ 50,137			$ 368	42	1.6	$ 409,718	19.9 %	13.8 %	$ 9,755	$ 4,542,985
1990	3	42,779	$ 40,405	2	16,742	67	1.0	933,398	39.4	7.7	13,931	10,159,853
1995	7	138,032		1	25,434	85	0.8	1,284,091	41.6	9.6	15,107	14,427,739
2000	6	180,781	2,591	4	55,996	93	0.7	1,625,761	43.6	8.5	17,481	16,749,097
2001	2	20,819	13,725	4	40,320	91	0.7	1,619,985	42.5	(0.4)	17,802	16,575,035
2002	3	53,805	2,446	3	43,160	91	0.7	1,633,076	42.3	0.8	17,946	16,589,766
2003			12,136	1	16,549	90	0.7	1,628,663	40.7	(0.3)	18,096	16,279,677
2004	2	24,041	2,533	3	33,849	89	0.7	1,621,388	41.7	(0.4)	18,218	16,177,858
2005	2	70,098	5,147	4	43,496	87	0.7	1,653,137	40.9	2.0	19,002	16,648,815
2006	1	75,314	12,483			88	0.7	1,740,934	43.6	5.3	19,783	17,361,798
2007	6	195,338	1,390	1	21,610	93	0.6	1,916,052	48.4	10.1	20,603	19,207,107
2008	9	213,336	(6,350)	1	15,816	101	0.5	2,107,222	54.8	10.0	20,864	21,167,561
2009	2	91,683	4,166	4	56,198	99	0.5	2,146,873	55.2	1.9	21,686	21,685,046
2010	1	29,237	5,248	1	48,732	99	0.5	2,132,626	58.8	1.2	21,542	21,714,152
2011	3	79,359	(366)			102	0.5	2,211,619	63.6	5.0	21,683	22,522,725
2012	6	299,010	2,997			108	0.3	2,513,626	99.1	13.7	23,274	25,926,503
2013	5	238,831	6,432			113	0.3	2,758,889	103.7	9.8	24,415	28,423,655
2014	4	147,302	3,384	4	57,876	113	0.4	2,851,699	91.7	3.4	25,236	29,574,818
2015	1	35,122	6,063	2	27,678	112	0.4	2,865,206	104.6	0.5	25,582	30,858,067
2016			2,572	3	51,690	109	0.3	2,816,089	127.2	(1.7)	25,836	30,230,322
2017	9	351,263	185	1	24,954	117	0.3	3,142,583	164.8	11.6	26,860	34,055,842
2018	4	119,802	3,375	2	34,418	119	0.3	3,231,343	159.7	2.8	27,154	36,744,061
2019	5	147,065	3,194	6	91,836	118	0.3	3,289,766	130.9	1.8	27,879	37,437,534
2020	**5**	**243,668**	**23,956**	**5**	**75,234**	**118**	**0.4**	**3,482,157**	**122.7**	**5.8**	**29,510**	**39,370,676**

Note: DROP participants are not included in these totals. There were four (4) members participating in the DROP as of June 30, 2020 with annual benefits of $195,428.

Retirees and Beneficiaries June 30, 2020
Tabulated by Type of Pensions Being Paid

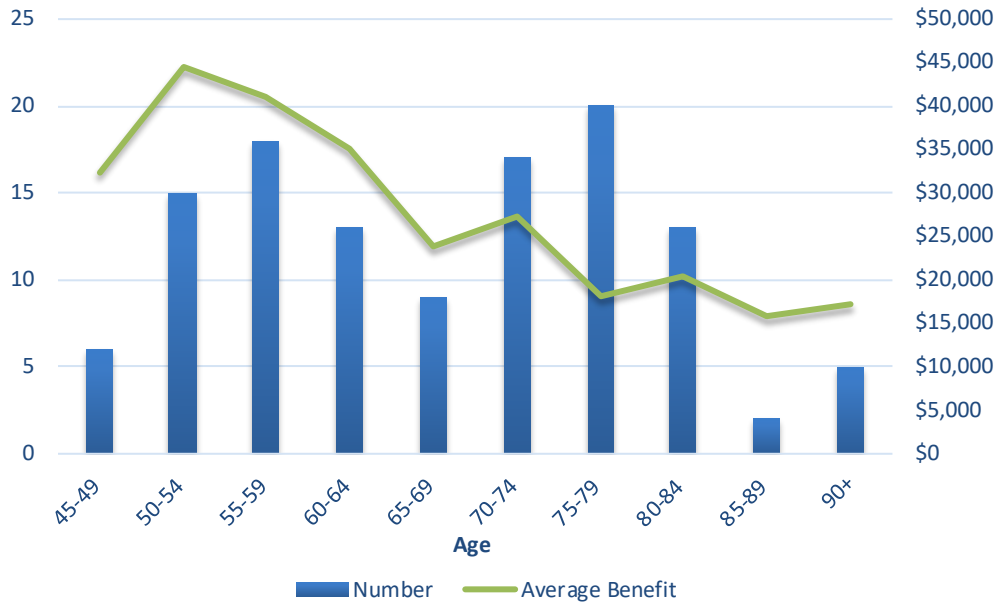
Type of Pensions Being Paid	Number	Annual Pensions
Age and Service Pension		
Regular pension - benefit terminating upon death of retirant	19	$ 488,238
Regular pension - automatic 60% joint and survivor benefit	75	2,504,325
Option 1 pension - joint and survivor benefit	4	120,181
Option 2 pension - modified joint and survivor benefit	1	58,084
Pension being paid survivor beneficiary of deceased age and service retirant	12	195,321
Total age and service pensions	111	3,366,149
Casualty Pensions		
Duty disability pension	5	85,652
Survivor of former disabled retirant	1	15,178
Duty death	1	15,178
Total casualty pensions	7	116,008
Total Pensions Being Paid	**118**	**$ 3,482,157**

Note: DROP participants are not included in these totals. There were four (4) members participating in the DROP as of June 30, 2020 with annual benefits of $195,428.

Retirees and Beneficiaries - By Attained Ages
June 30, 2020

Attained Ages	Number	Annual Pensions
45 - 49	6	$ 193,618
50 - 54	15	667,726
55 - 59	18	737,869
60 - 64	13	456,964
65 - 69	9	215,719
70 - 74	17	465,141
75 - 79	20	360,587
80 - 84	13	266,759
85 - 89	2	31,602
90 - 94	3	55,816
95 - 99	2	30,356
Totals	**118**	**$ 3,482,157**

Note: DROP participants are not included in these totals. There were four (4) members participating in the DROP as of June 30, 2020 with annual benefits of $195,428.



DROP Members - By Attained Ages
June 30, 2020

Attained Ages	No.	Annual Pensions
45 - 49	2	$ 96,834
55 - 59	2	98,594
Totals	**4**	**$ 195,428**

Inactive Vested Members - By Attained Ages
June 30, 2020

Attained Ages	No.	Estimated Annual Pensions
38	2	$ 60,214
39	1	26,244
Totals	**3**	**$ 86,458**

Active Members in Valuation - Comparative Schedule

Year Ended June 30,	Number Added During Year		Terminations During Year										End of Year No.	Valuation Payroll	Group Averages			
			Normal Retirement		Disability Retirement		Died-in-Service		Withdrawals									
									Vested	Other	Total				Pay	% Incr.	Age	Service
	A	E	A	E	A	E	A	E	A	A	A	E						
2001	4	3	0	1.7	0	0.2	0	0.0	0	3	3	2.3	67	$3,813,904	$56,924	0.8 %	37.9 yrs.	9.4 yrs.
2002	5	9	1	0.8	0	0.3	0	0.0	0	8	8	2.3	63	3,858,409	61,245	7.6	37.6	10.2
2003	2	3	0	0.5	0	0.1	0	0.0	0	3	3	1.9	62	4,003,846	64,578	5.4	38.7	11.3
2004	2	3	2	1.8	0	0.2	0	0.0	1	0	1	1.7	61	3,891,478	63,795	(1.2)	39.0	11.9
2005	3	5	2	1.2	0	0.2	0	0.0	0	3	3	1.6	59	4,042,199	68,512	7.4	39.5	12.5
2006	5	5	1	2.9	0	0.2	1	0.0	0	3	3	1.3	59	3,996,679	67,740	(1.1)	39.3	12.6
2007	8	7	3	4.3	0	0.2	1	0.0	0	3	3	2.3	60	3,957,733	65,962	(2.6)	37.3	10.9
2008	3	8	4	2.8	0	0.2	0	0.0	0	4	4	1.9	55	3,843,177	69,876	5.9	37.7	11.6
2009	2	3	1	2.8	0	0.2	0	0.0	0	2	2	1.9	54	3,889,397	72,026	3.1	38.8	12.3
2010	0	1	0	5.1	0	0.2	0	0.0	0	1	1	0.4	53	3,975,109	75,002	7.3	42.7	13.6
2011	2	1	1	5.1	0	0.2	0	0.0	0	3	3	0.4	51	3,892,132	76,316	1.8	41.3	14.9
2012	2	9	6	4.3	0	0.1	0	0.0	0	3	3	0.8	44	3,412,398	77,555	1.6	41.6	14.8
2013	1	6	5	1.4	0	0.1	0	0.0	1	0	1	1.1	39	3,187,910	81,741	5.4	41.1	14.4
2014	13	5	3	2.0	0	0.1	0	0.0	0	2	2	0.9	47	3,440,058	73,193	(10.5)	38.8	11.5
2015	6	5	1	1.3	0	0.1	0	0.0	1	3	4	2.8	48	3,298,809	68,725	(6.1)	38.8	11.3
2016	6	7	0	1.3	0	0.1	0	0.0	2	5	7	2.3	47	3,174,402	67,540	(1.7)	40.1	11.8
2017	2	8	5	0.6	0	0.1	0	0.0	0	3	3	2.3	41	2,844,954	69,389	2.7	39.5	11.0
2018	2	4	2	0.0	0	0.1	0	0.0	0	2	2	1.7	39	2,794,588	71,656	3.3	39.4	10.8
2019	18	9	2	0.0	0	0.1	0	0.0	1	6	7	1.9	48	3,171,434	66,072	(7.8)	36.3	8.0
2020	**8**	**7**	**4**	**0.5**	**0**	**0.1**	**0**	**0.0**	**0**	**3**	**3**	**3.9**	**49**	**3,204,912**	**65,406**	**(1.0)**	**34.9**	**6.9**

A = Actual number of persons.

E = Expected number of persons.

Note: Actual counts, valuation payroll and group averages include DROP participants.

Active Members June 30, 2020
by Attained Age and Years of Service

Attained 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	2							2	$ 97,648
25-29	12	1						13	675,146
30-34	8	2						10	554,057
35-39	4	3	5					12	852,104
40-44	2		2	1				5	416,531
45-49					2			2	159,996
50-54				1				1	83,516
Totals	**28**	**6**	**7**	**2**	**2**			**45**	**$ 2,838,998**
DROP								**4**	**365,914**
Totals								**49**	**$ 3,204,912**

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

Group Averages:

Age: 34.9 years
Service: 6.9 years
Annual Pay: $65,406

Derivation of Valuation Assets
Market Value with 20% Recognition of the Difference Between the Market Rate of Return and the Projected Rate of Return

	2017	2018	2019	2020	2021	2022	2023	2024
Beginning of Year:								
(1) Market Value	$27,133,341	$26,659,246	$26,601,763	$25,338,143				
(2) Valuation Assets	28,410,750	27,584,751	27,472,343	26,391,555				
End of Year:								
(3) Market Value	26,659,246	26,601,763	25,338,143	24,396,791				
(4) Net Additions to Assets, Excluding Investment Income and Expenses	(3,021,473)	(2,074,090)	(2,121,478)	(1,722,050)				
(5) Total Investment Income: =(3)-(1)-(4)	2,547,378	2,016,607	857,858	780,698				
(6) Projected Rate of Return	7.50%	7.50%	7.00%	7.00%				
(7) Projected Investment Income: =(6)x[(2)+.5x(4)]	2,017,501	1,991,078	1,848,812	1,787,137				
(8) Investment Income In Excess of Projected Income	529,877	25,529	(990,954)	(1,006,439)				
(9) Excess Investment Income Recognized This Year (5-year recognition)								
(9a) From This Year	105,975	5,106	(198,191)	(201,288)				
(9b) From One Year Ago	(487,918)	105,975	5,106	(198,191)	$ (201,288)			
(9c) From Two Years Ago	(233,095)	(487,918)	105,975	5,106	(198,191)	$ (201,288)		
(9d) From Three Years Ago	580,536	(233,095)	(487,918)	105,975	5,106	(198,191)	$ (201,288)	
(9e) From Four Years Ago	212,475	580,536	(233,094)	(487,918)	105,977	5,105	(198,190)	$ (201,287)
(10) Change in Valuation Assets: =(4)+(7)+9[a..e]	(825,999)	(112,408)	(1,080,788)	(711,229)				
End of Year:								
(3) Market Value	26,659,246	26,601,763	25,338,143	24,396,791				
(11) Valuation Assets: = (2) + (10)	27,584,751	27,472,343	26,391,555	25,680,326				
Rate of Return:								
Market Value	9.9%	7.9%	3.4%	3.2%				
Valuation Assets	8.2%	7.4%	3.9%	4.0%				

Summary of Current Asset Information Furnished for Valuation

Balance Sheet as of June 30, 2020

Current Assets (Market Value)		Reserve for	
Cash & Equivalent	$ 2,023,025	Employees' Contributions	$ -
Accruals & Receivables	-	Employer Contributions	-
Common Stock & Stock Mutual Funds	16,847,263	Retired Benefit Payments	24,396,791
Fixed Income	7,323,725	Undistributed Income	-
Real Estate & Other	110,681		
Total Current Assets	26,304,694		
Less Accounts Payable	1,907,903		
Total Net Assets	$ 24,396,791	Total Reserves	$ 24,396,791

Receipts and Disbursements

	2019-2020	2018-2019
Balance - July 1,	$ 25,338,143	$ 26,601,763
Receipts:		
Employees' Contributions	218,505	200,724
Employer Contributions	2,026,131	1,517,865
Investment Income	960,614	1,017,613
Disbursements:		
Benefit Payments *	3,785,299	3,749,197
Refund of Member Contributions	178,280	90,870
Expenses	179,916	159,755
Other - Audit Ajdustment	3,107	0
Balance June 30,	$ 24,396,791	$ 25,338,143
Ratio of investment income (net of expenses and health insurance premiums) to mean assets balance.	3.2%	3.4%

* *Including payments made to DROP accounts for members currently in the DROP.*

SECTION D

SUMMARY OF ACTUARIAL COST METHOD AND ASSUMPTIONS

Actuarial Cost Method

Normal cost and the allocation of benefit values between service rendered before and after the valuation date was determined using the individual entry age actuarial cost method having the following characteristics:

(i) The annual normal costs for each individual active member, payable from the date of hire to the date of retirement, are sufficient to accumulate the actuarial present value of the member's benefit at the time of retirement; and

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

Financing of Unfunded Actuarial Accrued Liabilities. Unfunded actuarial accrued liabilities (the portion of total liabilities not covered by present assets or expected future normal cost contributions) were amortized by level (principal and interest combined) percent-of-payroll contributions over a closed period of 18 years. This UAAL payment reflects payments expected to be made between the valuation date and the date contributions determined by this report are scheduled to begin. The UAAL is rolled-forward to the contribution period by reflecting accrued interest, normal cost, and contributions during the period in between the valuation date and the contribution period. The expected UAAL as of July 1, 2021 is $24,358,403.

Actuarial Assumptions Used for the Valuations

The actuary calculates the contribution requirements and benefit values of the System by applying actuarial assumptions to the benefit provisions and people information furnished, using the actuarial cost method described on the previous page.

The principal areas of financial risk which require assumptions about future experiences are:

(i) Long-term rates of investment return to be generated by the assets of the Fund.
(ii) Patterns of pay increases to members.
(iii) Rates of mortality among members, retirees and beneficiaries.
(iv) Rates of withdrawal of active members (without entitlement to a retirement benefit).
(v) Rates of disability among members.
(vi) The age patterns of actual retirement.

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

Actual experience of the System will not coincide exactly with assumed experience, regardless of the wisdom of the assumptions, or the skill of the actuary and the precision of the many calculations made. Each valuation provides a complete recalculation of assumed future experience and considers all past differences between assumed and actual experience. The result is a continual series of adjustments (usually small) to the computed contribution rate.

From time-to-time it becomes appropriate to modify one or more of the assumptions, to reflect experience trends (but not random year to year fluctuations). The assumptions are established by the Board after consulting with the actuary. Most demographic assumptions were updated for the June 30, 2018 valuation based on experience during the period from June 30, 2010 to June 30, 2017. The mortality tables were updated for the June 30, 2019 valuation. The reasonableness of the economic assumptions is based upon capital market expectations provided by various investment consultants and other sources such as the Social Security Trustees report. All actuarial assumptions are based on future expectations, not market measures.

Valuation Assumptions

The rate of investment return (regular interest), net of expenses, used in making the valuation was 7.00% per annum, compounded annually. This rate consists of a real rate of return (over wages) of 4.00% per year plus a long-term rate of wage inflation of 3.00% per year. Experience over the last five years has been as illustrated below:

	Year Ended June 30,					5-Year
	2020	2019	2018	2017	2016	Average
1) Gross investment return	4.7 %	4.5 %	8.0 %	8.8 %	6.4 %	6.5 %
Less: expenses	0.7	0.6	0.6	0.6	0.6	0.6
2) Net nominal rate of return#	4.0	3.9	7.4	8.2	5.8	5.9
3) Increase in CPI	0.6	1.6	2.9	1.6	1.0	1.6
4) Average salary increase	(1.0)	(7.8)	3.3	2.7	(1.7)	(0.9)
5) Real return:						
- funding purposes	5.0	11.7	4.1	5.5	7.5	6.8
- assumption	4.0	4.0	3.5	3.5	3.5	3.7

 # The nominal rate of return was computed using the approximate formula: i = I divided by 1/2 (A+B-I), where I is realized investment income net of expenses, A is the beginning of year asset value and B is the end of year asset value.

Price inflation, 2.50% per year.

The mortality table used to measure post-retirement mortality was the Public Sector 2010 Public Safety ("PubS-2010") Healthy Retiree mortality table for males and females with fully generation projection using MP-2018. The provision for future mortality improvement is the MP-2018 projection scale. This table was first used for the June 30, 2019 valuation. This assumption is used to measure the probabilities of members dying before retirement and the probabilities of each benefit payment being made after retirement.

For pre-retirement mortality, the PubS-2010 Employee mortality table for males and females with fully generational projection using MP-2018. Fifty percent of pre-retirement deaths were assumed to be duty related. The PubS-2010 Disabled Retiree mortality table with fully generational projection using MP-2018 is used for current disability retirees and for projecting disability costs.

These assumptions were updated for the June 30, 2019 valuation.

PubS-2010 Generational Mortality Tables				
Sample Ages in 2020*	Value of $1 Monthly for Life		Future Life Expectancy (Years)	
	Men	Women	Men	Women
55	147.63	150.54	30.64	32.61
60	137.80	141.80	25.74	27.70
65	125.84	131.06	21.12	23.05
70	111.57	117.85	16.83	18.63
75	95.00	102.18	12.91	14.54
80	76.99	84.93	9.48	10.93

** Based on ages in 2020. Future years will reflect improvements in life expectancy.*

Valuation Assumptions

Sample Rates of Separation (Excluding Deaths and Disability) from Active Employment Before Retirement are as follows:

Sample Ages	Years of Service	% of Active Members Separating within Next Year	
		Police	Fire
ALL	0	25.00 %	8.00 %
	1	25.00	6.00
	2	15.00	5.00
	3	12.50	4.00
	4	8.75	3.00
25	5 & Over	6.50	2.50
30		5.46	2.50
35		3.25	1.40
40		1.30	0.60
45		0.65	0.50
50		0.65	0.50
55		0.65	0.50
60		0.65	0.50

These rates were updated for the June 30, 2018 valuation.

Sample Rates of Salary Increases are as follows:

Sample Ages	Percent Increase in Salary During Next Year	
	Base	Merit and Seniority
20	3.00 %	1.00 %
25	3.00	1.00
30	3.00	0.70
35	3.00	0.50
40	3.00	0.30
45	3.00	0.10
50	3.00	0.10
55	3.00	0.10
60	3.00	0.00

Service at Beginning of Year	Additional Service Based Merit & Seniority Portion of Annual Increases
1	4.50 %
2	4.00
3	3.50
4	3.00

If the number of active members remains constant, then the total active member payroll will increase 3.00% annually, the base portion of the individual salary increase assumptions. This increasing payroll was recognized in amortizing unfunded actuarial accrued liabilities.

These assumptions were updated for the June 30, 2018 valuation.

Valuation Assumptions

Sample rates of becoming disabled are as follows:

Sample Ages	Percent Becoming Disabled within Next Year	
	Men	Women
20	0.08 %	0.03 %
25	0.10	0.05
30	0.10	0.08
35	0.16	0.14
40	0.22	0.20
45	0.34	0.30
50	0.56	0.48

It is assumed that 90% of disabilities are duty related. These rates were first used for the June 30, 2018 valuation.

Probabilities of retirement for members eligible to retire were:

Active Members Retiring within Next Year						
Years of Service	20 and Out Eligibility		25 and Out Eligibility		Retirement Ages	Fire Chief
	Police	Fire	Police	Fire		
20	30 %	10 %			45	20 %
21	20	15			46	20
22	30	15			47	20
23	30	15			48	20
24	40	50			49	20
25	60	50	70 %	70 %	50	20
26	60	50	50	20	51	15
27	60	50	50	20	52	10
28	60	50	50	20	53	10
29	60	50	50	20	54	10
30	100	100	100	100	55	10
					56	10
					57	10
					58	10
					59	20
					60	100

A member was assumed to be eligible for retirement after attaining age 40 with 20 or more years of service (age 45 with 25 or more years of service for Fire Chief, 25 or more years of service for new hires as of July 1, 2009 for Fire and Police) or after attaining age 60 with 10 or more years of service.

These rates were updated for the June 30, 2018 valuation.

Miscellaneous and Technical Assumptions
June 30, 2020

Marriage Assumption:	90% of members are assumed to be married for purposes of death-in-service benefits. 85% of members are assumed to be married at retirement.
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 directly from the experience study, 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 turnover decrements do not operate during retirement eligibility.
Normal Form of Benefit:	The assumed normal form of benefit is 60% Joint and Survivor.
Loads:	Retirement Present Values were loaded by 10% for Police members hired prior to July 1, 2012 and Fire members hired prior to July 1, 2009 to account for the subsidized annuity withdrawal provision. Active liabilities were loaded 0.5% to account for future increases in the poverty level, which is assumed to increase 2.5% per year.
Incidence of Contributions:	Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.
Data:	Census data was provided by the City. Deferred members benefits are estimated based on payroll in prior valuations.

Glossary

Actuarial Accrued Liability. The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability."

Accrued Service. The service credited under the plan which was rendered before the date of the actuarial valuation.

Actuarial Assumptions. Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turn-over and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate 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 plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

Actuarial Equivalent. A single amount or series of amounts of equal value to another single amount or series of amounts, computed on the basis of the rate(s) of interest and mortality tables used by the plan.

Actuarial Present Value. The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Amortization. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

Experience Gain (Loss). A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

Normal Cost. The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

Plan Termination Liability. The actuarial present value of future plan benefits based on the assumption that there will be no further accruals for the future service and salary. The termination liability will generally be less than the liabilities computed on a "going-concern" basis and is not normally determined in a routine actuarial valuation.

Reserve Account. An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

Glossary

Unfunded Actuarial Accrued Liability. The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability."

Valuation Assets. The value of current plan assets recognized for valuation purposes. Generally based on market value, adjusted to eliminate some of the market value fluctuation.

APPENDIX

SUMMARY ANNUAL REPORT INFORMATION

Summary Annual Report Information
June 30, 2020

Membership	
Active members (includes DROP members)	49
Retirees/beneficiaries	118
Deferred vested members	3
System membership status	Open
Benefits	
Average annual retirement allowance	$ 29,510
Total annual retirement allowance	$ 3,482,157
Contributions	
Valuation payroll (Includes DROP members)	$ 3,204,912
Employer's normal cost (% of payroll)	11.61%
Employer's total contributions (% of payroll)	67.42%
Member contributions (weighted average)	6.95%
Assumptions	
Assumed rate of investment return	7.00%
Assumed rate of long-term wage inflation	3.00%
Smoothing method for funding value of assets	5-year smoothed market
Amortization method	Level percent, closed
Amortization period	18 years
Actuarial cost method	Individual Entry Age
Funded Ratio	51.3%

The Retirement Board has confirmed that the Fire and Police Retirement System provides for the payment of the required employer contribution and the employer contributions made during the year ending June 30, 2020 represent the required employer contribution.