

Oklahoma City Employee Retirement System

Annual Actuarial Valuation

December 31, 2021



Table of Contents

Section	Page	Item
		Introduction
A		Valuation Results
	1	Funding Objective
	2	Computed Contributions
	3-4	Funding Progress Indicators
	5	Comments
	6	Unfunded Actuarial Accrued Liability
	7	Risk Measures
B		Summary of Benefit Provisions, Assets and Valuation Data
	1-2	Summary of Benefit Provisions
	3-4	Asset Information
	5-7	Retired Lives
	8-10	Active and Inactive Members
	11	Comparative Statement
C		Actuarial Methods, Actuarial Assumptions and Definition of Technical Terms
	1-2	Valuation Process
	3	Actuarial Methods
	4-8	Actuarial Assumptions
	9	Definitions of Technical Terms
	10	Miscellaneous and Technical Assumptions
D	1-2	Supplementary Information
E		Retirement System Experience – Actual vs Expected
	1	Derivation of Experience Gain (Loss)
	2	Service Retirements During the Indicated Plan Years
	3	Withdrawals from Active Membership During the Indicated Plan Years
	4	Number Added to and Removed from Active Membership



June 30, 2022

The Board of Trustees
Oklahoma City Employee Retirement System
Oklahoma City, Oklahoma

Dear Board Members:

The results of the December 31, 2021 annual actuarial valuation of the Oklahoma City Employee Retirement System are presented in this report. The purpose of the valuation is to measure the System's funding progress and to determine the employer contribution for the fiscal year beginning July 1, 2023. This report should not be relied upon for any other purpose. Determinations of financial results, associated with the benefits described in this report, for purposes other than those identified above may be significantly different.

This report 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. Future actuarial measurements may differ significantly from those presented in this report due to such factors as experience differing from that anticipated by actuarial assumptions, changes in plan provisions, actuarial assumptions/methods or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements.

The valuation was based upon the actuarial assumptions and methods adopted by the Board, information, furnished by the Retirement System, concerning Retirement System benefits, compensation, financial transactions, plan provisions, individual members, terminated members, retirees and beneficiaries. Data was checked for internal reasonability and year-to-year consistency, but was not audited by us. As a result, we are unable to assume responsibility for the accuracy or completeness of the information provided.

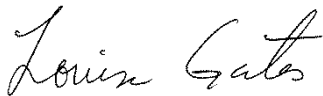
The fiscal year 2024 contribution rate shown in this report was based on the actuarial assumptions and methods shown in Section C of this report. This report includes risk metrics on pages A-4 and D-1 but does not include additional risk metrics such as those that assess the risk of future experience not meeting actuarial assumptions. These additional risk assessments were beyond the scope of this assignment. We encourage a review and assessment of investment and other significant risks that may have a material impact on the plan's financial condition.

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.

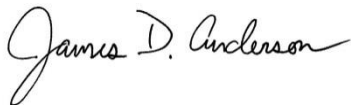
The valuation summarized in this report involves actuarial calculations that require making assumptions about future events. We believe that the assumptions and methods used in this report are reasonable. However other assumptions and methods may also be reasonable and could result in materially different results. Some of the numbers in this report are rounded. The use of rounded numbers for plan liabilities does not imply a lack of precision. In addition, because it is not possible or practical to consider every possible contingency, we may use summary information, estimates or simplifications of calculations to facilitate the modeling of future events.

This report has been prepared by actuaries who have substantial experience in valuing public employee retirement systems. To the best of our knowledge, this report is complete and accurate and the valuation was conducted in accordance with standards of practice prescribed by the Actuarial Standards Board and in compliance with the applicable state statutes. Louise Gates and James D. Anderson are independent of the plan sponsor and are Members of the American Academy of Actuaries (MAAA) who meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. It is our opinion that the actuarial assumptions used for the valuation are reasonable.

Respectfully submitted,
Gabriel, Roeder, Smith & Company



Louise Gates, ASA, FCA, MAAA



James D. Anderson, FSA, EA, FCA, MAAA



SECTION A

VALUATION RESULTS

Funding Objective

The funding objective of the Retirement System is to establish and receive contributions, expressed as percentages 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.

The Retirement System is supported by member contributions, City contributions and investment income from Retirement System assets.

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

- (1) Cover the actuarial present value of benefits allocated to the current year by the actuarial cost method described in Section C (the normal cost); and
- (2) Finance over a period of future years the actuarial present value of benefits not covered by valuation assets and anticipated future normal costs (unfunded actuarial accrued liability).

Computed contribution rates for the fiscal year beginning July 1, 2023 are shown on page A-2.

Computed Contributions Expressed as Percentages of Active Member Payroll

The December 31, 2021 valuation results (contribution rates) shown below will be applied by the City to applicable employee payroll during fiscal year 2024 (the fiscal year beginning July 1, 2023). The total computed contribution rates determined in the current and prior year's valuation are also shown below.

Development of the Employer Contribution Rate

Contributions for	Employer %
Normal Cost	
Service pensions	9.31%
Disability pensions	0.47%
Survivor pensions	
- Death before retirement	0.38%
Termination benefits	
- Deferred service pensions	0.54%
- Refunds of current member contributions	1.26%
Total normal cost	11.96%
Unfunded Actuarial Accrued Liability (UAAL)	
UAAL payment/(credit) ¹	(1.58%)
Total Computed Contribution Rate	10.38%
Member contribution rate	6.00%
City's computed rate	4.38%

Computed Contribution Rates for the Indicated Fiscal Year (FY)

Contributions for	Employer Contribution %	
	FY 2024	FY 2023
Total Normal Cost	11.96%	11.83%
Member Portion	6.00%	6.00%
City Portion	5.96%	5.83%
UAAL Payment ¹	(1.58%)	0.63%
City Contribution	4.38%	6.46%

¹ The unfunded actuarial accrued liability (the UAAL) was amortized as a level percent of active member payroll over a period of 20 years in the 2021 valuation (the fiscal year 2024 contribution) and 21 years in the 2020 valuation (the fiscal year 2023 contribution).

Funding Progress Indicators

There is no single all-encompassing indicator to measure a retirement system's funding progress. A traditional measure has been the relationship of valuation assets to actuarial accrued liability - a measure that is influenced by the choice of actuarial cost method. Numeric information using this traditional measure is shown on the following page.

Additional understanding of funding progress can be achieved using the following tests, which compare the System's assets with:

- (1) members' contributions on deposit in the System;
- (2) present value of future benefits to present retired lives; and
- (3) present value of benefits based on service already rendered by active and inactive members.

In a system that has been following the discipline of level percent-of-payroll financing, member contributions on deposit (item 1) and the present value of future benefits to present retired lives (item 2) will be fully covered by present assets (except in rare circumstances). In addition, the present value of benefits based on service already rendered by members (item 3) will be partially covered by the remainder of present assets. The larger the funded portion of item 3, the stronger the condition of the system. Generally, if the system has been using level-percent financing, the funded portion of item 3 will increase over time. A historical comparison of funding progress tests is shown on the following page.

Limitations of the Funding Progress (funded status) Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based on the actuarial accrued liability and the actuarial value of assets. Unless otherwise indicated, with regard to the funded status measurements shown in this report we note the following:

The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.

The measurement is inappropriate for assessing the need for or the amount of future employer contributions.

The measurement would produce a different result if the market value of assets were used instead of the actuarial value of assets, unless the market value of assets is used in the measurement.

Funding Progress Test (Dollar Amounts in Thousands)

Valuation Date	Accrued Liabilities (AL)					Portion of Liabilities Covered by Assets			
	(1) Member Contribs.	(2) Retirants and Beneficiaries	(3) Active & Inactive Members (Employer Financed Portion)	Total AL	Funding Value of Assets	(1)	(2)	(3)	Overall
12/31/02	\$44,368	\$ 128,120	\$ 200,072	\$ 372,560	\$ 375,382	100 %	100 %	101 %	101 %
12/31/03	46,654	136,873	207,496	391,023	374,192	100	100	92	96
12/31/04	48,487	150,664	216,013	415,164	381,495	100	100	84	92
12/31/05	54,239	169,752	212,913	436,904	424,182	100	100	94	97
12/31/06	55,557	187,693	214,297	457,547	476,913	100	100	109	104
12/31/07	60,118	204,470	224,239	488,827	529,876	100	100	118	108
12/31/08	62,128	221,456	235,650	519,234	528,664	100	100	104	102
12/31/09	65,106	237,302	254,019	556,427	529,137	100	100	89	95
12/31/10	64,922	267,120	234,792	566,834	524,731	100	100	82	93
12/31/11	67,324	252,166	214,229	533,719	514,499	100	100	91	96
12/31/12	69,987	257,057	226,544	553,588	547,686	100	100	97	99
12/31/13	72,209	281,206	228,451	581,866	589,527	100	100	103	101
12/31/14	74,142	297,061	236,092	607,295	628,686	100	100	109	104
12/31/15	74,832	320,443	238,710	633,985	665,077	100	100	113	105
12/31/16	76,435	347,246	237,531	661,212	692,359	100	100	113	105
12/31/17	78,265	378,063	240,341	696,669	721,090	100	100	110	104
12/31/18	78,888	399,513	251,840	730,241	727,125	100	100	99	100
12/31/19	78,913	465,314	248,230	792,457	761,919	100	100	88	96
12/31/20	79,623	486,832	264,507	830,962	816,660	100	100	95	98
12/31/21	81,064	512,030	258,091	851,185	878,909	100	100	111	103



Comments

Comment A: There were no benefit changes reported to the actuary in connection with this valuation of the System. The change in contribution requirements since the last valuation of the System is due primarily to the favorable System experience.

Comment B: During the year ended December 31, 2021, the return on System assets was higher than long term expectations. The market value smoothing techniques used in this valuation of the System recognize both past and present investment experience. As a result, the recognized rate of return on assets was 10.71%. Additional information on the investment experience is provided on pages B-3 and B-4 of this report. In addition, lower than projected pay increases among employee members of the System contributed to the favorable plan experience.

Comment C: The investment markets continue to be volatile. The actuarial value of assets (the funding value) used to determine both the funded status and the employer contribution is based on a 4-year smoothed value of assets. This helps to reduce the volatility of the valuation results. The System's funding percent based on the actuarial value of assets was 102.9% as of December 31, 2021 while the funding percent measured on the same basis in last year's report was 98.3%. If the market value of assets was used as the basis for the funded ratio the result would be 114.5% as of December 31, 2021.

Comment D: Each year we prepare an accounting report for the System based on the provisions of GASB Statements No. 67 and No.68. The actuarial information contained in the accounting report is based upon methodologies that comply with accounting standards, a measurement date of June 30th and the asset information of the pension trust at that point in time. Given the differences in the calculation dates and methodology, the information in the GASB report will differ from the actuarial information provided in this report.

Unfunded Actuarial Accrued Liability (Amounts in Thousands of Dollars)

	December 31	
	2021	2020
A. Actuarial present value of future benefits	\$995,055	\$970,639
B. Actuarial present value of future normal costs	143,870	139,676
C. Actuarial accrued liability	851,185	830,963
D. Assets allocated to funding	878,909	816,660
E. Unfunded actuarial accrued liability	(27,724)	14,303
F. Ratio of assets to actuarial accrued liability	103.3%	98.3%

Historical Schedule of City Contribution Rates and the Associated Amortization Periods

Valuation Date	Established City Contribution Rate	
	as a % of	Years to
December 31	Active Member Payroll	Amortize UAL
2007	5.04 %	28.0
2008	6.77	27.0
2009	8.56	26.0
2010	9.49	25.0
2011 *	7.15	30.0
2012	6.44	29.0
2013 ^	5.88	28.0
2014	5.33	27.0
2015 ^	5.28	26.0
2016	5.23	25.0
2017 ^	5.56	24.0
2018	6.89	23.0
2019 ^	7.46	22.0
2020	6.46	21.0
2021	4.38	20.0

* Retirement System amended.

^ Change in Actuarial Assumptions.

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;
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.

SECTION B

SUMMARY OF BENEFIT PROVISIONS, ASSETS AND VALUATION DATA

Summary of Benefit Provisions Evaluated or Considered (December 31, 2021)

Regular Retirement (no reduction factor for age)

Eligibility - Pre 3-1-67 hires: Age 60 with 20 years of service; or, any age with 30 years of service.

Post 3-1-67 hires: Age 65 with 5 years of service; or, any age with 25 years of service.

Annual Amount - Normal retirement benefit: 2% of average final compensation for all years and complete months of service, to a maximum of 100% of AFC.

Average Final Compensation (AFC) - Average earned compensation (excluding compensation for unused vacation and sick leave) during highest 36 months of service out of the last 60 consecutive months of service.

Early Retirement (reduction factor for age)

Eligibility - Age 55 with 5 years of service.

Annual Amount - Same as regular retirement amount but reduced 4% for each full year or portion of a year that payments commence prior to age 65 (age 60 if hired prior to 3-1-67).

Deferred Retirement (vested benefit)

Eligibility - 5 years of service. Benefit begins at age 65 (age 60 if hired prior to 3-1-67) or at age 55 on a reduced basis.

Annual Amount - Same as regular retirement based on service and average final compensation at time of termination.

Duty Disability Retirement

Eligibility - No age or service requirements.

Annual Amount - 40% of average final compensation, reduced if degree of disability is less than total disability.

Non-Duty Disability Retirement

Eligibility - Any age with 15 years of service.

Annual Amount - 2% of average final compensation for each full year of service, plus 1/12 of 2% for each full month of service due to a partial year of service to a maximum of 40% of AFC. Amount is reduced if degree of disability is less than total disability.



Summary of Benefit Provisions Evaluated or Considered (December 31, 2021)

Duty Death Before Retirement

Eligibility - No age or service requirements.

Annual Amount - 20% of average final compensation to an eligible spouse. Payments cease upon death. If there is no eligible spouse, accumulated employee contributions are paid to designated beneficiary. For members eligible under age and service conditions, the benefit is the amount the spouse would have received as a joint annuitant under normal or early retirement conditions.

Non-Duty Death Before Retirement

Eligibility - Any age with 15 years of service.

Annual Amount - Same as duty death.

Post-Retirement Adjustments

Pensions may be adjusted annually (in January) for changes in the Consumer Price Index. The maximum adjustment is 2% per year compounded. The first adjustment is made one year following retirement for those age 65 (60 for pre 3-1-67 hires) or those awarded disability allowances. For all others, the first adjustment is made no earlier than 4 years following retirement.

Post-Retirement Death Benefit

Eligibility – Retiree currently collecting pension benefits from the System.

Amount – A one-time payment of \$5,000 payable upon the death of the retiree. This benefit is payable only upon the death of the retiree, and is payable to the designated beneficiary.

Member Contributions

6% of annual pay.

Employer Contributions

7% of annual payroll effective March 2, 2001 – December 31, 2005.

The actuarially determined contribution rate (up to a maximum of 10% of pay) effective January 1, 2006.

Partial Lump Sum Payment Option

Members who are eligible for Regular Retirement may elect this optional form of payment, which allows for cash at retirement of up to \$30,000. Any remaining monthly retirement benefit is reduced actuarially to reflect the payment of cash at retirement.



Asset Information Submitted for Valuation

The net market value of Retirement System assets was reported to be \$978,744,908 as of December 31, 2021. The derivation of the funding value of assets used for the actuarial valuation is shown on the following page.

Revenues and Expenditures – Market Value Basis

	Year Ended December 31,	
	2021	2020
Revenues:		
a. Member contributions	\$ 8,648,560	\$ 8,722,266
b. City contributions	10,350,415	9,020,943
c. Investment income		
1. Interest and dividends	15,765,455	11,747,874
2. Realized & unrealized gain/(loss)	110,041,897	111,110,913
d. Other	199,145	69,180
e. Total revenues	145,005,472	140,671,176
Expenditures:		
a. Refunds of member contributions	1,039,595	1,223,731
b. Benefits paid	42,125,504	41,124,845
c. Administrative expenses	540,945	546,891
d. Investment expenses	2,952,071	3,256,543
e. Other	0	0
f. Total expenditures	46,658,115	46,152,010
Increase (Decrease):		
Total revenues minus total expenditures	\$ 98,347,357	\$ 94,519,166

Reported Market Value of Assets as of December 31, 2021

Cash & Other Assets	\$ 25,192,315
Fixed Income	180,246,157
Equities	658,523,866
Real Estate	117,913,680
Total Assets	981,876,018
Less Accounts Payable/Other	3,131,110
Net Assets	\$978,744,908



Development of Valuation Assets

Year Ended December 31:	2020	2021	2022	2023	2024
A. Funding Value Beginning of Year	\$ 761,919,386	\$ 816,659,750			
B. Market Value End of Year	880,397,551	978,744,908			
C. Market Value Beginning of Year	785,878,385	880,397,551			
D. Non-Investment Net Cash Flow	(24,536,187)	(23,966,979)			
E. Investment Income					
E1. Market Total: B - C - D	119,055,353	122,314,336			
E2. Amount for Immediate Recognition:	52,475,590	56,327,338			
E3. Amount for Phased-In Recognition: E1-E2	66,579,763	65,986,998			
F. Phased-In Recognition of Investment Income					
F1. Current Year: 0.25 x E3	\$ 16,644,941	\$ 16,496,750			
F2. First Prior Year	17,055,959	16,644,941	\$ 16,496,750		
F3. Second Prior Year	(20,308,944)	17,055,959	16,644,941	\$ 16,496,750	
F4. Third Prior Year	13,409,005	(20,308,944)	17,055,959	16,644,941	\$16,496,750
F5. Total	26,800,961	29,888,706	50,197,650	33,141,691	16,496,750
G. Preliminary Funding Value End of Year: A + D + E2 + F5	816,659,750	878,908,815			
H. Corridor Adjustment					
H1. 80% of Market Value	704,318,041	782,995,926			
H2. 120% of Market Value	1,056,477,061	1,174,493,890			
H3. Adjustment to Funding Value	0	0			
I. Final Funding Value End of Year: G + H3	816,659,750	878,908,815			
J. Difference between Market & Funding Value	63,737,801	99,836,093			
K. Net Recognized Rate of Return - Funding Value Basis	10.58%	10.71%			
L. Net Recognized Rate of Return - Market Value Basis	15.39%	14.08%			

Retirant and Beneficiary Data

Valuation Date	No. of Pension Recipients				Total Annual Pensions ⁽¹⁾	% of Payroll	Average Annual Pension	% Incr. in Total Pensions
	Service	Disability	Survivor	Total				
2002	725	65	210	1,000	\$ 11,261,772	13.0 %	\$ 11,262	8.4 %
2003	731	68	207	1,006	11,972,938	14.0	11,902	6.3
2004	773	66	207	1,046	13,038,432	14.7	12,465	8.9
2005	796	67	213	1,076	14,355,655	15.7	13,342	10.1
2006	823	69	221	1,113	15,766,306	16.5	14,166	9.8
2007	854	66	233	1,153	17,117,037	17.2	14,846	8.6
2008	894	59	225	1,178	18,459,873	17.5	15,671	7.8
2009	936	56	226	1,218	19,673,159	17.8	16,152	6.6
2010	995	59	229	1,283	21,945,667	21.3	17,105	11.6
2011	1018	56	225	1,299	22,946,844	21.0	17,665	4.6
2012	1030	55	239	1,324	23,757,916	20.7	17,944	3.5
2013	1062	54	229	1,345	25,047,506	21.0	18,623	5.4
2014	1101	55	224	1,380	26,599,897	21.4	19,275	6.2
2015	1144	55	223	1,422	28,481,665	22.2	20,029	7.1
2016	1,211	57	223	1,491	30,700,847	24.2	20,591	7.8
2017	1,264	51	230	1,545	32,813,000	26.3	21,238	6.9
2018	1,310	51	234	1,595	34,841,973	26.8	21,844	6.2
2019	1,358	50	244	1,652	37,814,210	28.5	22,890	8.5
2020	1,388	49	248	1,685	39,889,650	28.2	23,673	5.5
2021	1,422	45	252	1,719	42,041,925	29.0	24,457	5.4

(1) Annual pension amounts shown above are reported to the actuary by the City and reflect annualized pension payments as of the indicated valuation date.

Pensions Being Paid December 31, 2021 Tabulated by Age of Recipient

Age	Service Pensions		Disability Pensions		Survivor Pensions		Totals	
	No.	Annual Pensions	No.	Annual Pensions	No.	Annual Pensions	No.	Annual Pensions
45 - 49	4	\$ 161,700			1	\$ 13,020	5	\$ 174,720
50 - 54	25	786,060	2	\$ 43,836	9	164,916	36	994,812
55 - 59	107	3,337,092	5	64,308	13	195,024	125	3,596,424
60 - 64	266	7,818,144	10	150,780	20	342,540	296	8,311,464
65 - 69	376	10,274,580	16	221,514	33	612,936	425	11,109,030
70 - 74	284	7,388,988	7	63,780	45	776,823	336	8,229,591
75 - 79	177	4,037,304	2	33,264	41	632,412	220	4,702,980
80 - 84	105	2,181,204	2	16,140	44	718,776	151	2,916,120
85 - 89	49	1,000,452	1	15,168	24	283,416	74	1,299,036
90+	29	472,908			22	234,840	51	707,748
Totals	1,422	\$ 37,458,432	45	\$ 608,790	252	\$3,974,703	1,719	\$42,041,925

Pensions Being Paid December 31, 2021 Tabulated by Year of Retirement

Year of Retirement	No. #	Annual Pensions	
		Total	Average
1975 - 1979	2	\$ 31,512	\$ 15,756
1980 - 1984	7	86,970	12,424
1985	1	15,166	15,166
1986	7	110,074	15,725
1987*	12	241,461	20,122
1988	3	46,452	15,484
1989	5	109,599	21,920
1990	3	53,644	17,881
1991	10	167,642	16,764
1992	7	84,662	12,095
1993	5	44,785	8,957
1994	11	172,013	15,638
1995	15	258,385	17,226
1996	15	240,719	16,048
1997	14	247,072	17,648
1998	14	202,012	14,429
1999	18	251,909	13,995
2000	22	310,229	14,101
2001	46	1,061,072	23,067
2002	45	875,660	19,459
2003	34	771,587	22,694
2004	54	1,173,543	21,732
2005	48	1,126,665	23,472
2006	54	1,345,447	24,916
2007	63	1,388,023	22,032
2008	55	1,227,834	22,324
2009	67	1,667,933	24,895
2010	105	2,707,407	25,785
2011	59	1,459,731	24,741
2012	58	1,276,220	22,004
2013	76	1,902,467	25,032
2014	83	2,110,857	25,432
2015	90	2,605,239	28,947
2016	101	2,636,889	26,108
2017	105	2,470,523	23,529
2018	94	2,271,979	24,170
2019	112	3,494,244	31,199
2020	109	3,128,641	28,703
2021	90	2,665,658	29,618
Totals	1,719	\$42,041,925	\$24,457

* Reflects early retirement incentive program.

Includes surviving spouses of deceased retirees.



System Members Included in Valuation Comparative Schedule

Valuation Date Dec. 31	Number of		Annual Payroll ⁽¹⁾	Active Member Averages			Ratio of Active to Retired Members	% Increase/ (Decrease) in Avg Pay
	Active Members	Inactive Members		Age	Service	Pay		
2001	2,454	49	\$83,862	44.0 yrs.	11.4 yrs.	\$34,174	2.6	4.2 %
2002	2,374	55	86,428	44.5	11.7	36,406	2.4	6.5
2003	2,290	61	85,666	45.2	12.3	37,409	2.3	2.8
2004	2,302	54	88,866	45.2	12.3	38,604	2.2	3.2
2005	2,312	58	91,641	45.5	12.3	39,637	2.1	2.7
2006	2,353	62	95,504	45.5	12.1	40,588	2.1	2.4
2007	2,380	66	99,574	45.5	12.0	41,838	2.1	3.1
2008	2,422	71	105,566	45.8	11.9	43,586	2.1	4.2
2009	2,380	73	110,408	46.3	12.3	46,390	2.0	6.4
2010	2,304	81	102,915	46.4	12.3	44,668	1.8	(3.7)
2011	2,398	75	109,293	46.3	12.1	45,577	1.8	2.0
2012	2,459	83	114,933	46.4	12.0	46,740	1.9	2.6
2013	2,487	82	119,457	46.4	11.9	48,032	1.8	2.8
2014	2,500	82	124,142	46.5	11.9	49,657	1.8	3.4
2015	2,586	89	128,499	46.5	11.3	49,690	1.8	0.1
2016	2,506	108	127,017	46.6	11.6	50,685	1.7	2.0
2017	2,425	120	124,681	46.8	11.8	51,415	1.6	1.4
2018	2,457	140	130,172	46.7	11.5	52,980	1.5	3.0
2019	2,470	151	132,753	46.5	11.2	53,746	1.5	1.4
2020	2,420	152	141,577	46.6	11.3	58,503	1.4	8.9
2021	2,450	156	144,960	46.7	11.0	59,167	1.4	1.1

⁽¹⁾ In thousands of dollars.

Inactive Members - December 31, 2021
Eligible for Deferred Pensions
Tabulated by Age

<u>Age</u>	<u>No.</u>	<u>Estimated Annual Allowances</u>
Under 40	31	\$ 198,353
40	5	32,018
41	3	24,527
42	6	62,135
43	7	85,911
44	6	63,305
45	6	71,487
46	2	27,653
47	7	59,562
48	6	57,343
49	6	78,081
50	9	96,538
51	7	61,750
52	4	77,746
53	6	51,152
54	2	43,824
55	4	59,608
56	6	87,350
57	7	71,238
58	6	90,795
59	5	46,389
60 & Over	15	188,604
Totals	156	\$1,635,369

Active Members as of December 31, 2021 by Age and Years of Service

Age	Years of Service on Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
Under 20	2							2	\$ 115,769
20-24	58							58	2,508,810
25-29	135	19						154	6,515,289
30-34	147	82	20					249	12,138,258
35-39	125	71	57	22				275	14,959,854
40-44	116	73	71	31	22			313	17,737,834
45-49	90	69	50	61	48	6	1	325	21,094,647
50-54	79	57	57	38	49	31	11	322	20,642,769
55-59	69	50	49	39	62	37	48	354	22,769,465
60	12	12	8	6	14	6	15	73	4,698,199
61	14	5	6	6	7	3	13	54	3,717,063
62	7	9	8	5	7	6	11	53	3,405,408
63	7	12	7	4	10	9	4	53	3,348,904
64	8	5	7	5	2	2	8	37	2,457,146
65	3	6	5	6	5		8	33	2,514,766
66	1	4	7	5	4	2	7	30	2,043,737
67		4	1	2	2		3	12	790,921
68	3	3	4		1	1	4	16	1,055,449
69	2		2	1	1	2	3	11	734,048
70		1		1			1	3	210,700
71	1	3		1	2	1		8	517,835
72			2	1		1	2	6	402,927
73		1						1	18,542
74	1			1				2	187,815
75				1				1	51,432
76			1				1	2	182,285
77		1						1	62,790
79+	1			1				2	77,014
Totals	881	487	362	237	236	107	140	2,450	\$ 144,959,676

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

Group Averages:

Age: 46.7 years
Service: 11.0 years
Annual Pay: \$59,167



Schedule of Retirees and Beneficiaries Added to and Removed from Rolls Comparative Statement

Year Ended Dec. 31	Added to Rolls ⁽²⁾		Removed from Rolls		Rolls End of Year			% Incr. in Benefits
	No.	Annual Benefits ⁽¹⁾	No.	Annual Benefits	No.	Annual Benefits	Avg. Annual Benefits	
2012	74	\$1,467,021	49	\$ 655,949	1,324	\$ 23,757,916	\$ 17,944	3.5 %
2013	86	2,215,300	65	925,710	1,345	25,047,506	18,623	5.4
2014	95	2,483,415	60	931,024	1,380	26,599,897	19,275	6.2
2015	102	2,868,873	60	987,105	1,422	28,481,665	20,029	7.1
2016	108	2,856,572	39	637,390	1,491	30,700,847	20,591	7.8
2017	107	2,944,277	53	832,124	1,545	32,813,000	21,238	6.9
2018	99	2,833,483	49	804,510	1,595	34,841,973	21,844	6.2
2019	118	4,150,809	61	1,178,572	1,652	37,814,210	22,890	8.5
2020	115	3,809,199	82	1,733,759	1,685	39,889,650	23,673	5.5
2021	100	3,210,370	66	1,058,095	1,719	42,041,925	24,457	5.4

(1) Includes post retirement cost-of-living adjustments.

(2) Includes reported data corrections.

SECTION C

ACTUARIAL METHODS, ACTUARIAL ASSUMPTIONS AND DEFINITION OF TECHNICAL TERMS

The Actuarial Valuation Process

The **actuarial valuation** is the mathematical process by which actuarial present values and contribution rates are determined. The flow of activity constituting the valuation may be summarized as follows:

- A. **Census data**, furnished by plan administrator, including:
 - Retired lives now receiving benefits
 - Former employees with vested benefits not yet payable
 - Active employees

- B. + **Benefit provisions**, furnished by plan administrator

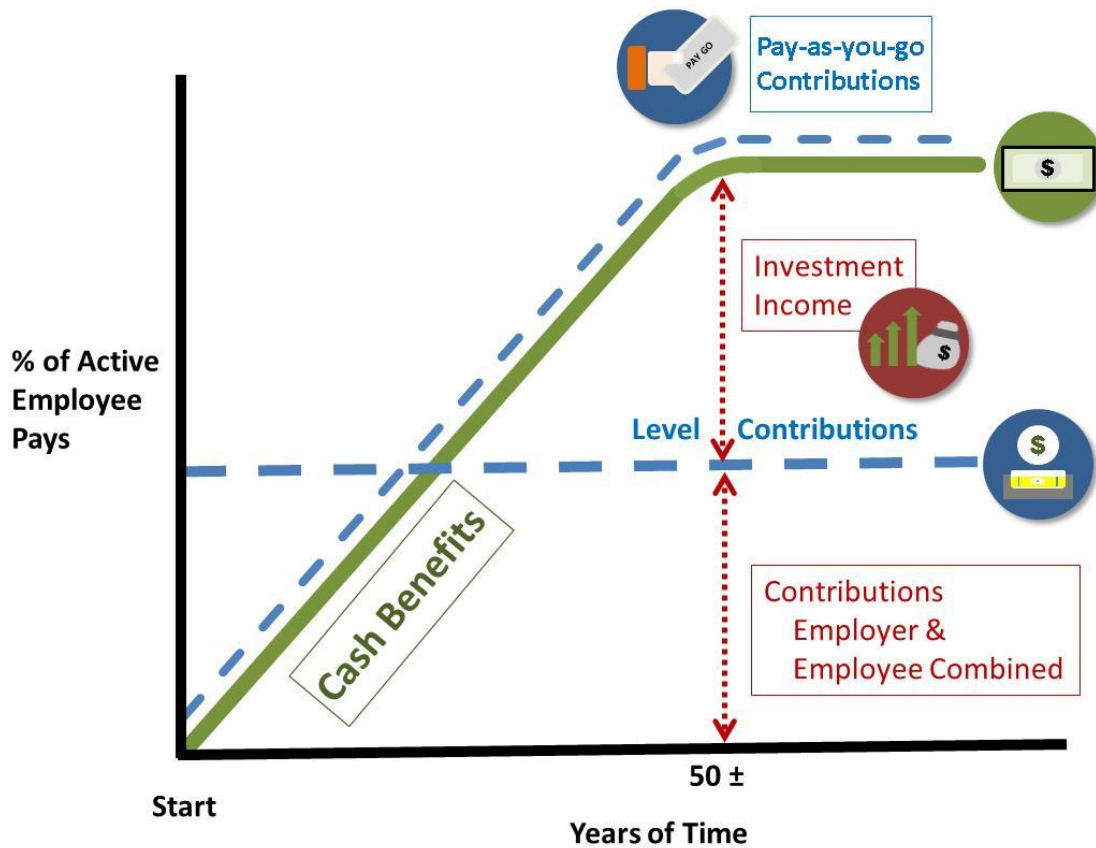
- C. + **Asset data** (cash & investments), furnished by plan administrator

- D. + **Assumptions concerning future experience** in various risk areas

- E. + The **funding method** for employer contributions (the long-term, planned pattern for employer contributions)

- F. + **Mathematically combining the assumptions, the funding method and the data**

- G. = Determination of:
 - Plan Financial Position and/or
 - New Employer Contribution Rate



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

Actuarial Methods

Actuarial Cost Method

The actuarial cost method is a procedure for allocating the actuarial present value of pension plan benefits and expenses to time periods. The method used for the 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, payable from the date of employment to the date of retirement, are sufficient to accumulate the value of the member's pension at time of retirement; and
- (ii) Each annual normal cost is a constant percentage of the member's year by year projected 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 compensation between the entry age of the member and the assumed 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. Deducting System assets from the actuarial accrued liability determines the unfunded actuarial accrued liability (UAAL).

Actuarial Value of Assets

The funding value of assets recognizes assumed investment income fully each year. Differences between actual and assumed investment income are phased-in over a closed 4-year period. During periods when investment performance exceeds the assumed rate, funding value of assets will tend to be lower than market value (also known as fair value). During periods when investment performance is less than the assumed rate, funding value of assets will tend to be greater than market value. The funding value of assets is unbiased with respect to market value. At any time, it may be either greater or less than market value. If assumed rates are exactly realized for 4 consecutive years, it will become equal to market value. The funding value of assets is not permitted to deviate from the market value of assets by more than 20%.

Financing of the UAAL

The UAAL (or full funding surplus if assets exceed accrued liabilities) is amortized by level (principal and interest combined) percent of payroll contributions over a reasonable period of future years. For amortization purposes, it is assumed that the payroll upon which the UAAL contributions are collected will increase each year by 3.00%.

Actuarial Assumptions

Funding objective contribution requirements and actuarial present values are calculated by applying actuarial assumptions to the benefit provisions and people information of the System, using the actuarial cost method described on page C-3.

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

- (i) long-term rates of investment return to be generated by the assets of the System
- (ii) patterns of pay increases to members
- (iii) rates of mortality among members and retired lives
- (iv) rates of withdrawal of active members
- (v) rates of disability among active members
- (vi) the age patterns of actual retirements

In a valuation, the monetary effect of each assumption projected is for as long as a present covered person or potential beneficiary survives, a period of time which can be as long as a century. The actual experience of the System will not coincide exactly with assumed experience. From time to time one or more of the assumptions are modified to reflect experience trends (but not random or temporary year to year fluctuations).

The actuarial assumptions used in this valuation of the System were based upon the results of an experience study covering the period January 1, 2014 through December 31, 2018 as provided in our report dated January 20, 2020. The actuarial assumptions represent estimates of future experience.

Actuarial Assumptions

Investment Return (net of expenses)

The rate of investment return assumed in the valuation was 7.00% per year, compounded annually net of investment and administrative expenses. The assumed real rate of return over wage inflation is 4.00% per year. This assumption was first used in the December 31, 2019 valuation.

Wage Inflation

The wage inflation rate used in this valuation was 3.00% per year. The wage inflation rate is defined to be the portion of total pay increases for an individual that are due to macroeconomic forces including productivity, price inflation, and labor market conditions. The wage inflation rate does not include pay changes rated to individual merit and seniority increases. This assumption was first used in the December 31, 2019 valuation.

Salary Increase Rates

These assumptions are used to project current pays to those which will determine average final compensation.

Sample Years of Service	Annual Rate of Merit and Longevity
1	3.50 %
2	3.50
3	3.50
4	3.50
5	3.50
6	3.50
7	3.50
8	3.50
9	3.50
10	3.50
11	3.50
12	3.50
13	3.50
14	3.00
15+	0.00

The active member population is assumed to remain constant. For purposes of financing the unfunded liabilities, total payroll is assumed to grow at a rate of 3.00% per year.

Price Inflation

The price inflation assumption used in this valuation was 2.25% per year.



Actuarial Assumptions

Mortality rates are used to measure the probabilities of a member dying before retirement and the probability of each benefit payment being made. The mortality tables are described below along with sample statistics. These tables were first used in the December, 31, 2019 valuation.

Healthy Male Retirees: RP-2014 Blue Collar Healthy Annuitant Male table scaled by 95%, with future mortality improvements projected to 2025 using scale MP-2016.

Healthy Female Retirees: RP-2014 Blue Collar Healthy Annuitant Female table scaled by 90%, with future mortality improvements projected to 2025 using scale MP-2016.

Disabled Male Retirees: RP-2014 Blue Collar Healthy Annuitant Male table scaled by 95%, with future mortality improvements projected to 2025 using scale MP-2016, set forward 5 years.

Disabled Female Retirees: RP-2014 Blue Collar Healthy Annuitant Female table scaled by 90%, with future mortality improvements projected to 2025 using scale MP-2016, set forward 5 years.

Male Active Members: RP-2014 Blue Collar Employee Male table, with future mortality improvements projected to 2025 using scale MP-2016.

Female Active Members: RP-2014 Blue Collar Employee Female table, with future mortality improvements projected to 2025 using scale MP-2016.

Sample Ages	Healthy Pre-Retirement		Healthy Post-Retirement		Disabled Retirement	
	Future Life Expectancy (Years)		Future Life Expectancy (Years)		Future Life Expectancy (Years)	
	Men	Women	Men	Women	Men	Women
50	33.77	39.04	32.87	36.37	28.49	31.84
55	29.14	34.29	28.48	31.83	24.24	27.40
60	24.68	29.61	24.25	27.40	20.19	23.12
65	20.49	25.03	20.23	23.13	16.41	19.07
70	16.62	20.57	16.46	19.06	12.97	15.29
75	13.05	16.28	12.99	15.24	9.90	11.84
80	9.78	12.20	9.87	11.77	7.26	8.81

Actuarial Assumptions

Rates of retirement are used to measure the probabilities of an eligible member retiring during the next year, and are summarized below. These rates were first used for the December 31, 2019 valuation.

Age of Member	Percent of Eligible Members Retiring During Next Year	Years of Service	Percent Retiring
55	4%	25	15%
56	4	26	9
57	4	27	9
58	4	28	9
59	5	29	9
60	5	30	9
61	6	31	9
62	6	32	9
63	6	33	9
64	6	34	9
65	40	35	9
66	25	36	9
67	25	37	9
68	25	38	9
69	25	39	9
70	25	40	9
71	25	41	9
72	25	42	9
73	25	43	9
74	25	44	9
75	100	45	100

The service-based retirement rates were applied to those members first eligible to retire under "25 and out." The age-based retirement rates were applied to members retiring under '65/5' or the Plan's early retirement condition.

A plan member hired on or after March 1, 1967 is eligible for regular retirement upon attaining age 65 and completing 5 or more years of service and is eligible for early retirement upon attainment of age 55 with completion of 5 or more years of service.

A plan member hired on or after March 1, 1967 is eligible for regular retirement after completing 25 or more years of service regardless of age.

Actuarial Assumptions

Rates of Separation from Active Membership

This assumption measures the probabilities of a member terminating employment. These rates do not apply to members who are eligible to retire. These rates were first used for the December 31, 2019 valuation.

Sample Ages	Years of Service*	% of Active Members Separating within Next Year
ALL	0	27.70%
	1	14.30
	2	6.70
	3	6.30
	4	4.60
25	5 & Over	13.30
30		11.40
35		9.03
40		6.65
45		4.56
50		2.85
55		1.90
60		1.90

* Completed years of service

Rates of Disability

This assumption measures the probabilities of a member becoming disabled.

Age of Member	% of Active Members During Next Year	
	Males	Females
25	0.08%	0.06%
30	0.09	0.07
35	0.11	0.09
40	0.14	0.13
45	0.21	0.19
50	0.62	0.57
55	0.97	0.86
60	1.10	0.96

Definitions of Technical Terms

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

Actuarial Assumptions. Estimates of future 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, turnover 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.

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

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

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of Retirement System benefits between future normal cost and actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

Actuarial Gain (Loss). The difference between actual experience and actuarial assumption anticipated experience during the period between two actuarial valuation dates.

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.

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

Normal Cost. The actuarial present value of retirement system benefits allocated to the current year by the actuarial cost method.

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

The existence of an unfunded actuarial accrued liability is not in itself bad, any more than a mortgage on a house is bad. The unfunded actuarial accrued liability does not represent a debt that is payable today. What is important is the ability to amortize the unfunded actuarial accrued liability and the trend in its amount (after due allowance for devaluation of the dollar).

Miscellaneous and Technical Assumptions

Marriage Assumption:	80% of the population is assumed to be married for purposes of death in service benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.
Pay Increase Timing:	Beginning of year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
Decrement Timing:	All decrements were 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.
Normal Form of Benefit:	The assumed normal form of benefit is the straight life form.
Expenses:	Assumed investment return is net of administrative and investment expenses.
Non-forfeiture Assumption:	All vested terminated members who terminate close to retirement were assumed to elect a deferred retirement while those terminating with less service were assumed to elect a refund of their contributions in lieu of deferred retirement benefits.
Incidence of Contributions	Contributions are assumed to be received continuously throughout the year.
Disability	It was assumed that 25% of disabilities during active employment were duty related and 75% were not.
Death in Service	It was assumed that 25% of deaths during active employment were duty related and 75% were not.

SECTION D

SUPPLEMENTARY INFORMATION

Supplementary Information

Schedule of Funding Progress

(Dollar Amounts in Thousands)

Actuarial Valuation Date December 31,	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b)-(a)	Funded Ratio (a)/(b)	Active Member Covered Payroll (c)	UAAL as a Percentage of Active Member Covered Payroll ((b-a)/c)
2011 *#	\$514,499	\$533,719	\$ 19,220	96.4 %	\$ 109,293	17.6 %
2012	547,686	553,588	5,902	98.9	114,933	5.1
2013 #	589,527	581,866	(7,661)	101.3	119,457	(6.4)
2014	628,686	607,295	(21,391)	103.5	124,142	(17.2)
2015 #	665,077	633,985	(31,092)	104.9	128,499	(24.2)
2016	692,359	661,212	(31,147)	104.7	127,017	(24.5)
2017 #	721,090	696,669	(24,421)	103.5	124,681	(19.6)
2018	727,125	730,242	3,117	99.6	130,172	2.4
2019 #	761,919	792,457	30,538	96.1	132,753	23.0
2020	816,660	830,963	14,303	98.3	141,577	10.1
2021	878,909	851,185	(27,724)	103.3	144,960	(19.1)

Changes in methods and assumptions.

* Plan provision changes.

Analysis of the dollar amounts of the actuarial value of assets, actuarial accrued liability, or actuarial accrued liability in isolation can be misleading. Expressing the actuarial value of assets as a percentage of the actuarial accrued liability 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 unfunded actuarial accrued liability and annual covered payroll are both affected by inflation. Expressing the unfunded actuarial accrued liability 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.

Supplementary Information

Summary of Actuarial Methods and Assumptions

Valuation Date	December 31, 2021
Actuarial Cost Method	Individual Entry Age
Amortization Method	Level Percent of payroll
Amortization Period	20 years closed
Asset Valuation Method	4-year smoothed market
Actuarial Assumptions:	
Investment Rate of Return*	7.00%
Projected Salary Increases*	3.00% - 6.50%
*Includes Wage Inflation	3.00%
Cost-of-Living Adjustments	Up to 2.0% per year

SECTION E

RETIREMENT SYSTEM EXPERIENCE ACTUAL VS EXPECTED

Derivation of Experience Gain (Loss) Calendar Years 2017 - 2021

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 historic comparison.

	Amounts Shown are Expressed in Thousands of Dollars				
	2021	2020	2019	2018	2017
(1) UAAL* at start of year	\$ 14,303	\$ 30,538	\$ 3,117	\$ (24,421)	\$ (31,147)
(2) Normal cost	17,149	16,720	16,899	16,558	15,735
(3) Actual member and employer contributions	18,999	17,743	15,374	14,241	15,095
(4) Interest accrual on (1), (2) and (3)	936	2,102	275	(1,652)	(2,281)
(5) Expected UAAL before changes: (1) + (2) - (3) + (4)	13,389	31,617	4,917	(23,756)	(32,788)
(6) Increase due to benefit/assumption changes	0	0	34,315	0	15,886
(7) Increase due to revised actuarial methods	0	0	0	0	0
(8) Expected UAAL after changes: (5) + (6) + (7)	13,389	31,617	39,232	(23,756)	(16,902)
(9) Actual UAAL at end of year	(27,724)	14,303	30,538	3,117	(24,421)
(10) Gain (loss): (8) - (9)	41,113	17,314	8,694	(26,873)	7,519

* *Unfunded actuarial accrued liability (UAAL).*

Service Retirements During the Indicated Plan Years

Age Group	Number Retiring in the Indicated Year *		
	2021	2020	2019
40-44			
45-49	1	1	2
50-54	1	2	5
55-59	13	17	20
60	6	5	
61	4	1	4
62	11	7	15
63	5	3	7
64	5	4	2
65	9	8	11
66	4	13	5
67	3	9	5
68	4	4	3
69	2	1	5
70 & Over	4	7	8
Total	72	82	92
Expected	80.7	78.0	107.8

* Excludes members who retired and died in the same year.

The chart above shows actual versus expected retirements from City employment and does not include retirements from deferred status, death-in-service, or disability retirements.

Withdrawals from Active Membership During the Indicated Plan Years

Age Groups	Completed Years of Service	Number Terminating During the Indicated Year		
		2021	2020	2019
	0	33	45	59
	1	38	25	20
	2	37	13	16
	3	20	6	13
	4	4	7	4
Sub-Total Non-Vested Terminations		132	96	112

Vested Terminations - Contribution Refunds

Under 30	5 & Over	3	0	1
30-34		4	4	5
35-39		3	2	5
40-44		5	3	6
45-49		3	3	1
50-54		5	5	4
55-59		2	2	2
60 & Over		2	3	2
Sub-Total		27	22	26
Other Vested Terminations		21	17	19
Total Actual Terminations		180	135	157
Expected No. of Terminations		141.1	160.4	146.6

Number Added to and Removed from Active Membership Actual & Expected

Valuation Date December 31	Number Added During Year		Terminations During Year								Active Members End of Year
			Retirement		Disabled		Died-In Service		Other Withdrawal		
	A	E	A	E	A	E	A	E	A*	E	
2007	206	179	64	93.4	1	3.0	5	3.9	109	148.9	2,380
2008	220	178	68	94.7	0	2.8	0	4.0	110	149.5	2,422
2009	138	180	67	106.8	1	2.6	2	4.0	110	159.2	2,380
2010	137	213	91	106.7	4	2.5	4	4.1	114	132.6	2,304
2011	257	163	48	111.6	1	2.4	3	4.2	111	124.0	2,398
2012	242	181	45	116.1	1	2.5	3	4.4	132	146.0	2,459
2013	221	193	66	130.0	2	2.4	4	4.6	121	154.9	2,487
2014	223	210	74	97.9	3	2.4	2	3.2	131	136.0	2,500
2015	312	226	79	99.6	2	2.4	2	3.3	143	137.6	2,586
2016	172	252	85	97.6	1	2.5	1	3.3	165	142.2	2,506
2017	198	279	77	101.3	0	2.3	2	3.3	200	137.1	2,425
2018	296	264	79	101.9	1	2.1	5	3.3	179	129.5	2,457
2019	276	263	93	107.8	2	2.1	3	3.3	165	146.6	2,470
2020	187	237	83	78.0	1	2.0	4	2.9	149	160.4	2,420
2021	294	264	72	80.7	0	2.1	3	2.8	189	141.1	2,450
2017-2021	1,251	1,307	404	469.7	4	10.6	17	15.6	882	714.7	

*Includes leaves of absence

A: Actual experience

E: Expected experience based on actuarial assumptions

