Erie County
Employees' Retirement System

Actuarial Valuation Report
as of January 1, 2024

Prepared by:

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CONTENTS OF REPORT

Highlights

This report presents the results of the actuarial valuation of the Erie County Employees' Retirement System as of January 1, 2024. The purpose of this report is to provide a summary of the actuarial position of the Plan as of January 1, 2024 and the contribution for the 2024 plan year, in accordance with the funding standards of Section 6 of Act 96, 1971 of the Commonwealth of Pennsylvania as amended.

Use of this report for any other purpose may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose.

Actuarially Determined Contribution

The Actuarially Determined Contribution for the plan year ending December 31, 2024 is $8,393,547. See Section 5 for the history of employer contributions.

Funded Status of the Plan

As of January 1, 2024, the ratio of the market value of assets to the actuarial accrued liability is 88%. This percentage compares to 83% on the prior valuation date.

Changes in Plan Provisions

There have been no changes in the plan benefit provisions since the date of the last report. Section 4.1 summarizes the plan provisions used in the valuation.

Changes in Actuarial Assumptions and Methods

The salary scale assumption was modified to reflect the longevity bonus for law enforcement employees. The mortality improvement scale was changed to the 2024 Adjusted Scale MP-2021. There have been no other changes in the actuarial assumptions since the date of the last report. Section 4.4 summarizes the actuarial assumptions and methods used in the valuation.

Actuarial Experience

During 2023, the Plan experienced an actuarial loss due primarily to salary increases greater than anticipated. The Plan also experienced a very slight actuarial loss due to investment yields less than anticipated on an actuarial value basis. The investment yield on an actuarial value basis, net of expenses, was approximately 7.16%. The investment yield on a market value basis, net of expenses, was approximately 12.33%.

Financial and Census Data

The valuation is based on member data and asset information which was provided by the County. The data has been reviewed and determined to be reasonable and consistent with the prior year's information. An audit of the data was beyond the scope of the assignment. The results of this valuation are dependent on the accuracy of the data. Software developed by Winklevoss called Proval was used to calculate liabilities for the valuation.

Section 3 provides a summary of the data used in the valuation.

Certification

In our opinion, this report presents fairly the financial and actuarial position for the Erie County Employees' Retirement System as of January 1, 2024 in accordance with generally accepted actuarial principles, and on the basis of actuarial assumptions and methods which, in the aggregate, are reasonable (taking into account past experience under the Plan and reasonable expectations) and which in combination represent our best estimate of anticipated experience.

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; 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; and changes in plan provisions, applicable law or regulations. An analysis of the potential range of future results is beyond the scope of this valuation.

The undersigned are available to respond to any questions regarding information contained in this report, and to provide explanation or further details as may be needed. Ms. Marzka is a member of the Society of Actuaries and other professional actuarial organizations and meets the "Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion." Please let us know if you have questions or need any additional information.

Cynthia A. Marzka

Cynthia A. Marzka, ASA, EA, FCA Senior Consulting Actuary	05/08/2024 Date
Debra L. Bull Debra L. Bull, QKA, QPA Defined Benefit Plan Manager	05/08/2024 Date

Section 1
Financial Summary

			January 1, 2023	January 1, 2024
1.	Assets			
	(a)	Actuarial Value	$ 312,743,806	$ 324,640,841
	(b)	Market Value	285,653,230	310,113,048
2.	Approximate Yield During Prior Year			
	(a)	Actuarial Value Basis (Net)	5.21%	7.16%
	(b)	Market Value Basis	-11.01%	12.49%
3.	Present Value of Projected Benefits		$ 371,690,434	$ 380,197,372
4.	Actuarial Accrued Liability		$ 344,854,148	$ 353,546,108
5.	Unfunded Actuarial Accrued Liability		$ 32,110,342	$ 28,905,267
6.	Actuarially Determined Contribution			
	(a) Normal Cost		$ 3,462,157	$ 3,401,147
	(b) Payment of UAAL		5,009,121	4,992,400
	(c) Total		$ 8,471,278	$ 8,393,547
7.	Interest Rate		7.25%	7.25%
8.	Number of Members			
	(a)	Active	1,175	1,139
	(b)	Inactive	169	242
	(c)	Terminated Vested	229	241
	(d)	Retirees	913	931
	(e)	Beneficiaries	28	33
	(f)	Total	2,514	2,586
9.	Annual Compensation		$ 55,843,943	$ 56,580,004

Section 2
Summary of Valuation Results

Section 2.1

Assets of the Plan

Below is a statement of changes in plan net assets as well as a list of the total assets by classification, as provided by the County.

ERIE COUNTY EMPLOYEES' RETIREMENT SYSTEM		
CHANGES IN PLAN NET ASSETS FOR THE 2023 AND 2022 CALENDAR YEARS		
Additions		
	2023 Total	**2022 Total**
Contributions		
County	$ 8,471,278	$ 6,954,686
Plan Members	4,734,260	4,634,409
Total Contributions	13,205,538	11,589,095
Investment Income		
Net Appreciation/Depreciation in Fair Value of Investments	24,033,688	(38,121,344)
Interest	2,216,869	1,458,349
Dividends	4,966,636	4,334,456
Realized Capital Gains	3,757,986	(3,721,248)
Loss Recovery	42,726	19,563
Securities Lending	0	0
Less Investment Expense	431,250	542,028
Net Investment Income	34,586,655	(36,572,252)
Total Additions	47,792,193	(24,983,157)
Deductions		
Benefits	22,346,307	21,052,177
Refunds of Contributions	742,814	760,043
Administrative Expense	243,254	244,421
Total Deductions	23,332,375	22,056,641
Net Increase	24,459,818	(47,039,798)
Net Assets Held in Trust for Pension Benefits		
Beginning of Year	285,653,230	332,693,028
End of Year	$ 310,113,048	$ 285,653,230

ERIE COUNTY EMPLOYEES' RETIREMENT PLAN

PLAN ASSETS AS OF DECEMBER 31, 2023 AND 2022

Assets		
	2023	**2022**
Cash and Short-Term Investments	$ 2,832,299	$ 3,598,795
Receivables	1,044	40
Investments, at fair value		
U.S. Government Obligations	$ 40,458,705	$ 30,572,874
Domestic Corporate Bonds	21,990,820	16,503,832
Domestic Common Stocks	38,602,839	40,357,125
Mutual Funds- Fixed	32,350,648	28,053,185
Mutual Funds - Equity	118,953,024	105,060,800
Exchange-Traded Funds	4,068,208	5,474,208
Private Equity	28,826,188	25,290,783
Property Trust	20,725,938	29,454,522
Master Limited Partnership	0	0
Other Fixed Income	746,014	866,004
Accrued Income	557,321	421,062
Total Investments	$ 307,279,705	$ 282,054,395
Total Assets	$ 310,113,048	$ 285,653,230
Liabilities		
Refunds Payable and Other	0	0
Net Assets Held In Trust For Pension Benefits		
	$ 310,113,048	$ 285,653,230

Section 2.2

Approximate Rate of Return

APPROXIMATE RATE OF RETURN FOR 2023 PLAN YEAR (MARKET VALUE)	
1.) Market Value as of December 31, 2022	$ 285,653,230
2.) Contributions Received During Year	13,205,538
3.) Benefits and Expenses Paid During Year	23,763,625
4.) Market Value as of December 31, 2023	310,113,048
5.) Non-Investment Increment: (2) – (3)	(10,558,087)
6.) Investment Increment: (4) – (1) – (5)	35,017,905
7.) Time Weighted Value of Assets: (1) + .5(5)	280,374,187
8.) Approximate Rate of Return for 2023: (6) / (7)	12.49%

HISTORY OF RATE OF RETURNS	
Plan Year	**Rate of Return**
2022	-11.01%
2021	13.50%
2020	11.10%
2019	18.35%
2018	-5.19%
2017	14.09%
2016	8.75%
2015	0.63%
2014	6.50%
2013	19.85%

Section 2.3

Actuarial Value of Assets

The asset valuation method is the "smoothed market value (with phase-in)" method, using a smoothing period of 5 years, as described in paragraph 3.16 of IRS Revenue Procedure 2000-40. When fully phased in, the actuarial value of assets will equal the market value of assets with gains subtracted or losses added at the rate described below:

a. 4/5 of the prior year's gain or loss
b. 3/5 of the second preceding year's gain or loss
c. 2/5 of the third preceding year's gain or loss
d. 1/5 of the fourth preceding year's gain or loss

The gain or loss for a year is determined by calculating the difference between the expected value of assets for the year and the market value of assets at the valuation date. The expected value of assets for the year is market value of assets at the prior-year valuation date brought forward with interest at the valuation interest rate to the current valuation date, plus contributions minus benefit disbursements (benefits and expenses), all adjusted with interest at the valuation rate to the current valuation date. If the expected value is less than the market value, the difference is a gain. If the expected value is greater than the market value, there is a loss.

In the first year, the actuarial value of assets is equal to the market value of assets. In subsequent years, the smoothed value is calculated as described above, except that the only gains or losses recognized are those occurring in the year of the change and later. In general, the actuarial value of assets must fall between 80% and 120% of the market value of assets.

Actuarial Value of Assets

Calculation of Asset (Gain) or Loss for the Year

	Expected Value
Market Value at Beginning of Year	$ 285,653,230
Interest Expected Using Valuation Assumption	20,709,859
Plus Actual Contributions	13,205,538
Minus Actual Distributions	(23,763,625)
Interest Expected on Contributions and Distributions	(407,603)
Expected Value at End of Year	$ 295,397,399
Market Value at End of Year	310,113,048
(Gain) or Loss for Year	$ (14,715,649)

Computation of Adjustment

Year	(Gain) or Loss	Adjustment Percent	Adjustment Amount
2023	(14,715,649)	.80	(11,772,519)
2022	59,744,337	.60	35,846,602
2021	(18,564,360)	.40	(7,425,744)
2020	(10,602,731)	.20	(2,120,546)
2019	(26,625,932)	.00	0
Total Adjustment			$ 14,527,793

Determination of Actuarial Value of Assets

Market Value of Assets	$ 310,113,048
Adjustment	14,527,793
Actuarial Value of Assets	$ 324,640,841

In general, the Actuarial Value of Assets must fall between 80% and 120% of the Market Value of Assets.

Lower Limit (80% of Fair Market Value)	$ 248,090,438
Actuarial Value of Assets	$ 324,640,841
Upper Limit (120% of Fair Market Value)	$ 372,135,658

Section 2.4

Allocation of Assets

This Section shows the allocation of the assets among the Plan's reserve accounts (see Section 2.8 for Determination of Reserve Balances) and the Plan's liabilities as of January 1, 2024. The liabilities were determined from the actuarial valuation of the Plan based upon the data submitted by the County.

ASSETS	
Members' Annuity Reserve Account	$ 52,921,785
County Annuity Reserve Account	10,132,542
Retired Members' Reserve Account	202,620,736
Unrealized Appreciation in Assets	44,437,985
Total Assets, (Market Value) of the Erie County Employees' Retirement System	$ 310,113,048
LIABILITIES	
Actuarial Present Value of:	
Accumulated Plan Benefits	
Vested	$ 56,216,507
Nonvested	1,618,172
Future Benefit Accruals	56,388,423
Terminated Vested Benefits	10,431,749
Retired Benefits	202,620,736
Member Accumulated Deductions	52,921,785
Total Liabilities of the Erie County Employees' Retirement System	$ 380,197,372

Section 2.5

Development of Unfunded Actuarial Accrued Liability

	January 1, 2023	January 1, 2024
1. Actuarial Accrued Liability		
a. Active Members	$84,145,387	$87,571,838
b. Inactive Members		
Retirees/Beneficiaries	$191,507,655	$193,617,234
Retiree Cost of Living	9,493,495	9,003,502
Terminated Vested	9,356,030	10,431,749
Total Inactive Liability	$210,357,180	$213,052,485
c. Member Accumulated Deductions	$50,351,581	$52,921,785
d. Total Actuarial Accrued Liability	$344,854,148	$353,546,108
2. Actuarial Value of Assets	$312,743,806	$324,640,841
3. Unfunded Actuarial Accrued Liability (UAAL)	$32,110,342	$28,905,267

4. Change in Unfunded Actuarial Accrued Liability	Change
a. Contributions	($8,471,278)
b. Benefits Accumulated	$3,462,157
c. Decrease in Discount Period	$1,964,839
d. Administrative Expenses	$243,254
e. Plan Asset Experience	$267,323
f. Plan Liability Experience	$1,276,149
g. Actuarial Assumptions	($1,947,519)
h. Actuarial Methods	$0
i. Plan Amendments	$0
j. Net Change	($3,205,075)

Section 2.6

Development of Actuarially Determined Contribution

Normal Cost

Normal Cost	$3,401,147
Employer Normal Cost Rate (% of Pay)	6.12%

Amortization of Unfunded Actuarial Accrued Liability

Source	Initial Liability	Effective Date	1/1/2024 Remaining Period	1/1/2024 Outstanding Balance	Amortization Payment
Initial Liability	$ 14,061,142	1/1/2015	2	$ 3,433,388	$ 1,776,748
Actuarial Gain	(473,814)	1/1/2016	2	(127,599)	(66,032)
Actuarial Gain	(550,668)	1/1/2017	3	(207,570)	(74,086)
Actuarial Gain	(2,786,442)	1/1/2018	4	(1,352,954)	(374,534)
Assump. Change	2,233,873	1/1/2018	4	1,084,660	300,261
Actuarial Loss	5,927,536	1/1/2019	10	4,590,282	616,434
Assump. Change	5,873,578	1/1/2019	10	4,548,494	610,823
Actuarial Loss	4,626,633	1/1/2020	11	3,821,810	481,147
Retiree COLA	619,944	1/1/2021	7	477,037	83,253
Actuarial Gain	(1,370,008)	1/1/2021	12	(1,197,662)	(142,474)
Retiree COLA	7,415,564	1/1/2022	8	6,316,279	995,845
Actuarial Gain	(6,484,237)	1/1/2022	13	(5,959,665)	(674,328)
Actuarial Loss	9,863,934	1/1/2023	14	9,478,899	1,025,800
Assump. Change	4,329,668	1/1/2023	14	4,160,661	450,264
Actuarial Loss	1,786,726	1/1/2024	15	1,786,726	185,811
Assump. Change	(1,947,519)	1/1/2024	15	(1,947,519)	(202,532)
Total				$ 28,905,267	$ 4,992,400

Total Actuarially Determined Contribution for 2024	**$8,393,547**
Expected 2024 Payroll	$55,614,429
Percentage of Expected Payroll	15.09%

Section 2.7

Notes to Sections 2.4 and 2.8

The following are notes to Sections 2.4 and 2.8:

Members' Annuity Reserve Account:	The balance of \$52,921,785 in this account is the total of the contributions deducted from the salaries of the active and terminated vested members of the retirement system and the IRC 414(h)(2) pickup contributions together with the interest additions as of January 1, 2024. Since these accumulations represent the present value as of January 1, 2024 of future benefits, the reserve balance and liability are identical.
County Annuity Reserve Account:	The balance of \$54,570,527 in this account as of January 1, 2024 and the amounts expected to be credited in the future, plus investment earnings thereon, represent the reserves set aside for the payment of the county's share of the retirement allowances. When a County Annuity is scheduled to commence for a particular member, sufficient monies are transferred from the County Annuity Reserve Account to the Retired Members' Reserve Account to provide for such County Annuities actually entered upon.
Retired Members Reserve Account:	This is the account out of which monthly retirement allowances including cost-of-living increases and death benefits are paid. The assets allocated to this reserve account as of January 1, 2024 amount to \$202,620,736. The corresponding liability for those annuitants on the roll is identical.

Section 2.8

Determination of Reserve Balances

	Members Annuity Reserve Account	County Annuity Reserve Account	Retired Members Reserve Account	TOTAL
Balance 1/1/2023	$ 50,351,581	$ 13,896,202	$ 201,001,150	$ 265,248,933
Member Contributions	4,714,587	19,673	0	4,734,260
County Contributions	0	8,471,278	0	8,471,278
Net Investment Income	0	10,984,217	0	10,984,217
Miscellaneous Income	0	0	0	0
Active Death Refunds	0	0	0	0
Member Contributions Refunded	(742,814)	0	(1,084,730)	(1,827,544)
Pension Payments	0	0	(20,530,783)	(20,530,783)
Death Benefits	0	0	(730,794)	(730,794)
Retiree and Death Benefit Transfers	(3,414,675)	(7,412,884)	10,827,559	0
Cost-of-Living Funding Requirement	0	0	0	0
Administrative Expenses	0	(243,254)	0	(243,254)
Investment Expenses	0	(431,250)	0	(431,250)
Balance Before Interest	50,908,679	25,283,982	189,482,402	265,675,063
Interest Allocated in 2023	2,013,106	(16,168,135)	14,155,029	0
Balance Before Actuarial Adjustments	52,921,785	9,115,847	203,637,431	265,675,063
Actuarial Adjustments	0	1,016,695	(1,016,695)	0
Ending Balance on 1/1/2024	52,921,785	10,132,542	202,620,736	265,675,063
Unrealized Appreciation		44,437,985		44,437,985
Assets (Market Value) 1/1/2024	$ 52,921,785	$ 54,570,527	$ 202,620,736	$ 310,113,048

Section 3
Plan Demographics

Section 3.1

Membership History

Below is a ten-year history of the Retirement System's membership.

ACTIVE MEMBERS AND VESTED TERMINATED MEMBERS				RETIRED MEMBERS AND BENEFICIARIES		
January 1	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
2024	561	819	1,380	340	624	964
2023	567	837	1,404	334	607	941
2022	589	848	1,437	307	591	898
2021	588	826	1,414	299	571	870
2020	577	783	1,360	290	553	843
2019	573	787	1360	272	524	796
2018	570	792	1,362	267	488	755
2017	560	774	1,334	254	480	734
2016	537	762	1,299	254	452	706
2015	537	770	1,307	243	413	656

Section 3.2

Changes in Plan Membership from January 1, 2023 to January 1, 2024

Shown below are the changes that occurred in plan members during the prior plan year.

	Active	Terminated Vested	Terminated Nonvested	Retired	Benef.	Total
Members at Prior Valuation Date	1,175	229	169	913	28	2,514
New Members	183	-	-	-	-	183
Rehires	9	(3)	(5)	(1)	-	-
Terminated Without Vesting	(147)	-	147	-	-	-
Terminated Vested	(43)	43	-	-	-	
Became Inactive	-	-	-	-	-	-
Retired	(38)	(11)	-	49	-	-
Deaths	-	-	-	(29)	(1)	(30)
Payments Begin to Beneficiary	-	-	-	-	6	6
Payments Begin Due To Domestic Relations Order	-	-	-	-	-	-
Distributions	-	(15)	(69)	(1)	-	(85)
Data Correction	-	(2)	-	-	-	(2)
Members at Current Valuation Date	1,139	241	242	931	33	2,586

Section 3.3

Age, Service and Average Salary of the Active Members as of January 1, 2024

FULL YEARS OF SERVICE TO JANUARY 1, 2024									
Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30+**	**Total**	**Average Salary**
0-24	60	1	0	0	0	0	0	61	35,783
25-29	105	14	0	0	0	0	0	119	40,064
30-34	83	74	5	0	0	0	0	162	47,009
35-39	73	34	25	5	0	0	0	137	48,782
40-44	29	29	28	35	5	0	0	126	50,856
45-49	32	24	13	28	19	3	0	119	53,819
50-54	33	25	17	29	26	28	6	164	56,578
55-59	19	18	16	28	18	9	12	120	54,940
60-64	15	11	12	14	14	9	13	88	51,276
65 +	7	4	5	7	10	4	6	43	49,647
Total	456	234	121	146	92	53	37	1,139	49,675

AVERAGE AGE: **43.9**

AVERAGE SERVICE: **10.3**

SECTION 4
BASIS OF VALUATION

Section 4.1

Summary of Plan Provisions

Effective Date:	The effective date of this plan is January 1, 1942.
Administration:	Retirement Board as designated in Act 96 of 1971, the County Pension Law.
Eligibility for Plan Membership:	An Employee shall be eligible to become a member immediately upon becoming an Employee. Part-time Employees may not be covered depending on hours.
Employee Contributions:	Each member of the retirement system must contribute 5% of his salary. Currently, Employee contributions will be credited with 4.0% interest. The amount of Employee contributions and rate of interest may be changed from time to time at the direction of the Retirement Board. Employee contributions have been picked-up or pre-tax since January 1, 1983. Voluntary contributions, up to another 10% of pay, are allowed.
Compensation:	Total pay received as a county Employee excluding refunds for expenses, contingency and accountable expense allowances and excluding severance payments or payments for unused vacation or sick leave.
Final "Average" Salary:	The average of the member's annual compensation received for the three years which produce the highest such average.
Credited Service:	Credit is provided for each year, month and day of your service during membership. Non-intervening military service (up to 5 years) may be purchased.

Section 4.2

Benefit Formula and Retirement Dates

Normal Retirement:

Eligibility: Retirement occurs at age 60 or at age 55 if the member has completed 20 years of service.

Pension: A monthly pension equal to (a) and (b), as follows:

(a) 1.667% of 1/12th of Final "Average" Salary multiplied by years of credited service,

-- PLUS --

(b) a monthly annuity based on the actuarial equivalent of the member's accumulated contributions with credited interest.

Early Retirement:

Eligibility:

Voluntary: Upon completion of 20 years of service

Involuntary: Upon completion of 8 years of service.

Pension:

(a) a monthly pension equal to the actuarial equivalent of the benefits calculated based on the plan formula,

-- PLUS --

(b) a monthly annuity based on the actuarial equivalent of the member's accumulated contributions with credited interest.

Postponed Retirement:

A member may work past normal retirement age and continue to accrue pension credits.

Vesting: One Hundred Percent (100%) upon completion of five years of credited service. A member who terminates employment after five years of credited service will receive a deferred annuity commencing at age 60 (or at age 55 if the member has at least 20 years of service at termination). The deferred benefit shall be calculated using the normal retirement pension formula but based on credited service, final average salary and accumulated contributions at termination.

If a member terminates employment prior to entitlement to Plan benefits, he will receive his accumulated contributions with interest.

Disability Retirement: ***Eligibility:*** Total and permanent disability prior to super-annuation (Normal Retirement) age and after completion of five years of credited service.

Pension: A total monthly pension commencing on the last day of the month following disability retirement equal to 25% of the 1/12th of Final Average Salary at time of retirement. Such total monthly pension shall include the monthly disability that is actuarially equivalent to the member's accumulated contributions at retirement.

Death Benefits: (a) Pre-Retirement. If a member dies after having attained age 60 <u>or</u> having completed ten years of credited service, his beneficiary will receive a lump sum equal to the actuarially determined present value of the benefits calculated in based on the member's Final Average Salary and credited service at time of death plus the member's accumulated contributions with interest at time of death.

(a) Post-Retirement. Upon the death of a terminated or retired member, his beneficiary will receive survivor benefits, if any, in accordance with the form under which benefits were being paid to the member. In any event, the total amount of benefits paid to the deceased member and beneficiary must, at least, equal the member's accumulated contributions with interest.

Section 4.3

Benefit Options and Miscellaneous

Normal Form of Pension: Benefits are payable in the form of a life annuity, that is for the member's lifetime only, except that benefits shall never be less than the Employee contribution account plus interest.

Optional Retirement: A member may elect to receive the actuarial benefits equivalent of his retirement benefits as a full cash refund annuity or a reduced joint and survivor pension payable for the remainder of his life, with either 100% or 50% of the member's pension continuing after death to the designated beneficiary. A member may also elect to receive, in one payment, the full amount of his accumulated deductions and continue to receive the annuity provided by the county.

Cost-of-Living: The cost-of-living increase shall be reviewed at least once in every three years by the Retirement Board. The Board has granted cost-of-living increases in the past as follows:

PERCENTAGE CHANGE IN C.P.I.	EFFECTIVE DATE OF INCREASE
50 %	1/1/98
50 %	1/1/99
50 %	1/1/00
50 %	1/1/01
50 %	1/1/02
50 %	1/1/03
50 %	1/1/04
50 %	1/1/05
50 %	1/1/06
50 %	1/1/07
50 %	1/1/08
100%	1/1/17
100%	1/1/21
100%	1/1/22

Section 4.4

Actuarial Basis

Method for Contributions

Contributions required to fund the plan benefits are determined according to the entry age normal cost method. Under this method, the normal cost for each active member is the annual amount required from entry age to assumed retirement age to fund his actuarial present value of projected benefits. The actuarial accrued liability is the actuarial present value of projected benefits for all members minus the actuarial present value of future normal costs. The excess of the actuarial accrued liability over the actuarial value of assets is the unfunded actuarial accrued liability.

Method for Accrued Benefits

The actuarial present value of accumulated plan benefits is a measure of plan benefits that have been earned to date. This is not only a valuation of retirement benefits, but also of deferred vested, death, and disability benefits. Earnings and service for benefit purposes expected to be earned after the valuation date are excluded from this value.

The actuarial assumptions used to determine this value are identical to those used for the funding purposes.

Method of Asset Valuation

The asset valuation method is the "smoothed market value (with phase-in)" method, using a smoothing period of 5 years, as described in paragraph 3.16 of IRS Revenue Procedure 2000-40. When fully phased in, the actuarial value of assets will equal the market value of assets with gains subtracted or losses added at the rate described below:

a. 4/5 of the prior year's gain or loss
b. 3/5 of the second preceding year's gain or loss
c. 2/5 of the third preceding year's gain or loss
d. 1/5 of the fourth preceding year's gain or loss

The gain or loss for a year is determined by calculating the difference between the expected value of assets for the year and the market value of assets at the valuation date. The expected value of assets for the year is market value of assets at the prior-year valuation date brought forward with interest at the valuation interest rate to the current valuation date, plus contributions minus benefit disbursements (benefits and expenses), all adjusted with interest at the valuation rate to the current valuation date. If the expected value is less than the market value, the difference is a gain. If the expected value is greater than the market value, there is a loss.

In the first year, the actuarial value of assets is equal to the market value of assets. In subsequent years, the smoothed value is calculated as described above. In general, the actuarial value of assets must fall between 80% and 120% of the market value of assets.

Data

The valuation results are based upon member census and financial data provided by the plan sponsor. The data was tested for reasonableness and consistency with the prior valuation.

Actuarial Assumptions

The following actuarial assumptions were employed in the determination of the liabilities and annual contributions of the plan as developed in accordance with the funding methods described in this report.

1. Mortality Table: Society of Actuaries 2010 Public Mortality Tables, specifically PubG-2010(B).

   Mortality Improvement Scale: 2024 Adjusted Scale MP-2021

2. Interest will be earned at the rate of 7.25% per year.

3. Salary projection assumed to equal the following:

Year	Percent Increase
2024 & after	3.0%

3. Longevity bonus for law enforcement employees after the completion of 4 years of service: 0.25% for each year of service beyond 4 years.

4. Withdrawal prior to retirement is assumed to occur in accordance with Crocker Sarason Straight Table T-7.

5. No disability prior to retirement is assumed.

6. Retirement is assumed to occur in accordance to the following rates:

Age	Percent Retiring
55-59	2%
60	5%
61-64	10%
65	100%

7. All plan members have been included.

SECTION 4.5

ASOP 4

Actuarial Standards of Practice (ASOP) exist to provide guidance on the techniques, applications, procedures, and methods that reflect appropriate actuarial practices. Periodically, these ASOPs are updated\changed to meet changing times. ASOP No. 4 Measuring Pension Obligations was recently amended to require additional measurements, disclosures and commentary.

Low Default Risk Obligation Measures (LDROM)

One new measure, called the Low Default Risk Obligation Measure (LDROM), must be <u>disclosed</u> when performing a funding valuation. This disclosed measure is for informational purposes only, and it does not impact the Actuarial Accrued Liability (AAL) used for the funding policy measurements. The actuary should calculate and disclose this low-default-risk obligation measure of the benefits accrued as of the measurement date.

As the LDROM is a liability measure that uses a discount rate based on very low or no investment risk, a higher level of benefit security would be expected. However, the cost of the additional benefit security can be determined by looking at the difference in the LDROM and AAL measures.

The LDROM, calculated using the December 31, 2023 FTSE Pension Liability Index long duration rate of 4.83%, is $445.1 million compared to the $353.5 million of AAL using 7.25%. Under the LDROM measure, the funded status would be 69.7% compared to 87.7% using the valuation's assumption of 7.25%. If the assets were invested in investment grade corporate bonds, similar to those used for the FTSE index, the theoretical benefit to the higher cost would be a more stable and secure funded status.

SECTION 4.6

Description of Risk Exposures

Valuations are performed on certain basic set of pre-determined assumptions and other regulatory framework which may vary over time. Thus, the County is exposed to various risks in providing the pension benefit, which are as follows:

Asset Liability Mismatching or Market Risk: The duration of the liability is longer compared to duration of assets, exposing the County to market risk for volatilities/fall in interest rates.

Demographic Risk: The County has used certain mortality and attrition assumptions in valuation of the liability. The County is exposed to the risk of actual experience turning out to be worse compared to the assumption.

Interest Rate Risk: The Plan exposes the County to the risk of fall in interest rates. A fall in interest rates will result in an increase in the ultimate cost of providing the benefit and will thus result in an increase in value of the liability.

Investment Risk: The probability or likelihood of occurrence of losses relative to the expected return on any particular investment.

Liquidity Risk: This is the risk that the County is not able to meet the short-term pension payouts. This may arise due to non-availability of enough cash/cash equivalents to meet the liabilities or holding of illiquid assets not being sold in time.

Regulatory Risk: Pension benefit is paid in accordance with the requirements of Act 96, as amended from time to time. There is a risk of change in regulations requiring higher pension contributions.

Note: The above is a standard list of risk exposures in providing the pension benefit. The County is advised to carefully examine the above list and make suitable amendments, if relevant.

REVENUES BY SOURCE					
Fiscal Year	**Employee Contributions**	**Employer Contributions**	**Investment Income**	**Miscellaneous**	**Total**
2014	2,926,661	5,580,680	14,606,211	1,226	23,114,778
2015	3,057,133	4,341,227	1,465,544	0	8,863,904
2016	3,244,397	4,321,221	19,850,979	0	27,416,597
2017	3,472,718	4,642,134	33,594,599	0	41,709,451
2018	3,661,589	4,360,594	(13,647,596)	0	(5,625,413)
2019	3,886,103	5,773,721	44,010,574	0	53,670,398
2020	4,385,594	6,397,197	30,565,708	0	41,348,499
2021	4,461,449	6,555,075	40,104,519	0	51,121,043
2022	4,634,409	6,954,686	(36,030,224)	0	(24,441,129)
2023	4,734,260	8,471,278	35,017,905	0	48,223,443

PAYMENTS BY SOURCE				
Fiscal Year	**Benefits**	**Refunds**	**Administrative/ Investment**	**Total**
2014	12,641,440	387,728	1,071,229	14,100,397
2015	13,238,599	368,013	1,033,298	14,639,910
2016	13,937,217	438,507	944,265	15,319,989
2017	15,657,116	202,395	919,616	16,779,127
2018	16,429,494	502,211	928,630	17,860,335
2019	16,823,461	728,736	788,891	18,341,088
2020	18,362,302	288,837	683,570	19,334,709
2021	18,810,385	415,713	764,811	19,990,909
2022	21,052,177	760,043	786,449	22,598,669
2023	22,346,307	742,814	674,504	23,763,625

SECTION 6
DEPOSIT ADMINISTRATOR INFORMATION

Adams Street

Allspring Global Investments

Bentall GreenOak

Boyd Watterson

Dimensional Fund Advisors

Emerald Advisors, Inc.

Europacific Fund

Hamilton Lane

Ironsides

Multi-Employer Property Trust

PNC

Portfolio Advisors

Vanguard Funds

Vesper Capital

Fiduciary Advisor

AndCo Consulting