



June 30, 2022 Actuarial Valuation Report

for the

New York City Fire Pension Fund

prepared by the

New York City
Office of the Actuary

CONTRIBUTIONS REQUIRED FOR FISCAL YEAR 2024



OFFICE OF THE ACTUARY

255 GREENWICH STREET • 9TH FLOOR
NEW YORK, NY 10007
(212) 442-5775 • FAX: (212) 442-5777

MAREK TYSZKIEWICZ
CHIEF ACTUARY

December 10, 2024

Board of Trustees
New York City Fire Pension Fund
One Battery Park Plaza, 9th Floor
New York, NY 10004

Re: June 30, 2022 Actuarial Valuation Report (Report)

Dear Trustees:

This is the June 30, 2022 actuarial valuation report of the New York City FIRE Pension Fund (FIRE) and the Group Life Insurance Plan (collectively, the Plan).

Purpose

The purpose of this actuarial valuation report is to:

- Determine the actuarially required contribution for Fiscal Year 2024 - the period from July 1, 2023 to June 30, 2024;
- Measure the Plan's funding progress; and
- Disclose the census data, financial information, assumptions, and methods used.

Required Contribution

The actuarially required contribution for Fiscal Year 2024 is \$1,479,614,795.

Data Used

Results shown for current and prior valuation dates are based on data as of June 30th of the valuation year, including:

- Census data submitted by the Plan's administrative staff and the employers' payroll facilities; and
- Financial information was provided by FIRE and the Office of the Comptroller.

The Office of the Actuary has reviewed this data for reasonableness, consistent with Actuarial Standards of Practice, but has not audited it. The accuracy of these results depends on the accuracy of this data. If the data provided is materially inaccurate, these results require revision.

Benefit Changes

A summary of the Plan's benefits is shown in SECTION VIII – SUMMARY OF PLAN PROVISIONS.

All benefits under the Plan have remained unchanged from the prior valuation.

Actuarial Assumptions and Methods

A summary of the actuarial assumptions and methods used in the valuation of the Plan is shown in SECTION XI – ACTUARIAL ASSUMPTIONS AND METHODS. The actuarial assumptions and methods are unchanged from the prior valuation.

Items Excluded or Not Valued

Not included in this Report are:

- Governmental Accounting Standards Board (GASB) results. The Office of the Actuary publishes the Fiscal Year 2024 GASB67 and GASB68 results in a separate Report which can be found on the Office of the Actuary website www.nyc.gov/actuary.
- The cost for any pension payments that exceed the Internal Revenue Code Section 415 Limit which are expected to be made from the Excess Benefit Plan.
- Unless specifically noted, Variable Supplements Funds results.

Risks and Uncertainty

These results may be different in future reports for many reasons, including:

- Economic or demographic experience being different than what was assumed;
- Changes in actuarial assumption and methods; and
- Changes in statute and plan provisions.

Likewise, results for purposes other than those described earlier may be quite different.

See SECTION VII – RISK AND UNCERTAINTY for more information about these risks.

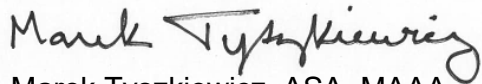
Actuarial Qualifications

Marek Tyszkiewicz is an Associate of the Society of Actuaries and a Member of the American Academy of Actuaries. Anderson Huynh is a Fellow of the Society of Actuaries, an Enrolled Actuary under the Employee Retirement Income Security Act of 1974, a Member of the American Academy of Actuaries, and a Fellow of the Conference of Consulting Actuaries.

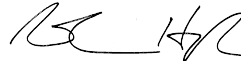
Actuaries' Statement of Opinion

To the best of our knowledge, these results have been prepared in accordance with generally accepted actuarial principles, procedures, and under the Actuarial Standards of Practice issued by the Actuarial Standards Board. We meet the Qualification Standards of the American Academy of Actuaries to render this actuarial opinion.

Best Regards,



Marek Tyszkiewicz, ASA, MAAA
Chief Actuary



Anderson Huynh, FSA, EA, MAAA, FCA
Assistant Deputy Chief Actuary

MT/eh

cc: LeRoy McGinnis - New York City Fire Pension Fund
Lei Tian - New York City Fire Pension Fund

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SECTION I – SUMMARY OF VALUATION RESULTS

Funded Status

The funded status is the ratio of Plan assets to liabilities. The Plan's funded status based on the Market Value of Assets decreased from 77.5% in the prior valuation to 68.7% as of June 30, 2022. The Plan's investment return for this period, based on the Market Value of Assets, was negative 8.0%.

Required Contribution Amount

The actuarially required contribution for Fiscal Year 2024 is \$1,479,614,795 and is derived as the sum of the:

- Normal Cost: The actuarial cost for the additional one year of service credit expected to be earned by current active members for the upcoming year; and
- Amortization of Unfunded Accrued Liabilities: The amortization of the unfunded actuarial accrued liabilities for past service earned prior to the valuation date; and
- Administrative Expense: The reimbursement to the Plan with interest for administrative expenses paid from Plan assets during the valuation year; and
- Interest on Late Payments: Interest at 7% for any late employer contributions.

The derivation of the funded status and required contribution amounts are shown on the next page.

**Table I-1
Valuation Results**

Presented in **Table I-1** are the principal results of the June 30, 2022 actuarial valuation and, for comparative purposes, the June 30, 2021 actuarial valuation.

NEW YORK CITY FIRE PENSION FUND		
SUMMARY OF VALUATION RESULTS		
Valuation Date	June 30, 2022	June 30, 2021
Fiscal Year	2024	2023
Funded Status		
1. Accrued Liability ¹	\$ 25,423,190,980	\$ 24,394,754,991
2. Actuarial Value of Assets (AVA)	18,205,629,000	16,943,734,000
3. Unfunded Accrued Liability (AVA Basis) (1. - 2.)	\$ 7,217,561,980	\$ 7,451,020,991
4. Market Value of Assets (MVA)	17,472,164,000	18,908,561,000
5. Unfunded Accrued Liability (MVA Basis) (1. - 4.)	\$ 7,951,026,980	\$ 5,486,193,991
6. Funded Ratio (MVA Basis) (4. / 1.)	68.7%	77.5%
Contribution²		
1. Normal Cost	\$ 615,055,409	\$ 610,269,938
2. Amortization of Unfunded Accrued Liability	850,006,562	801,486,747
3. Administrative Expenses	14,552,824	11,843,991
4. Interest on Late Employer Contributions	0	0
5. Actuarial Required Contribution (1. + 2. + 3. + 4.)	\$ 1,479,614,795	\$ 1,423,600,676
Participant Data		
1. Active Members		
a. Number	10,685	10,793
b. Annual Salary ³	\$ 1,444,043,876	\$ 1,401,377,517
c. Average Salary	\$ 135,147	\$ 129,841
2. Terminated Nonvested Members	0	2
3. Deferred Vested Members	71	62
4. Retirees and Beneficiaries		
a. Number	16,717	16,578
b. Total Annual Benefits	\$ 1,447,806,758	\$ 1,383,669,434
c. Average Annual Benefit	\$ 86,607	\$ 83,464

¹ Includes unfunded Accrued Liability for VSFs, if any.

² Includes results for VSFs.

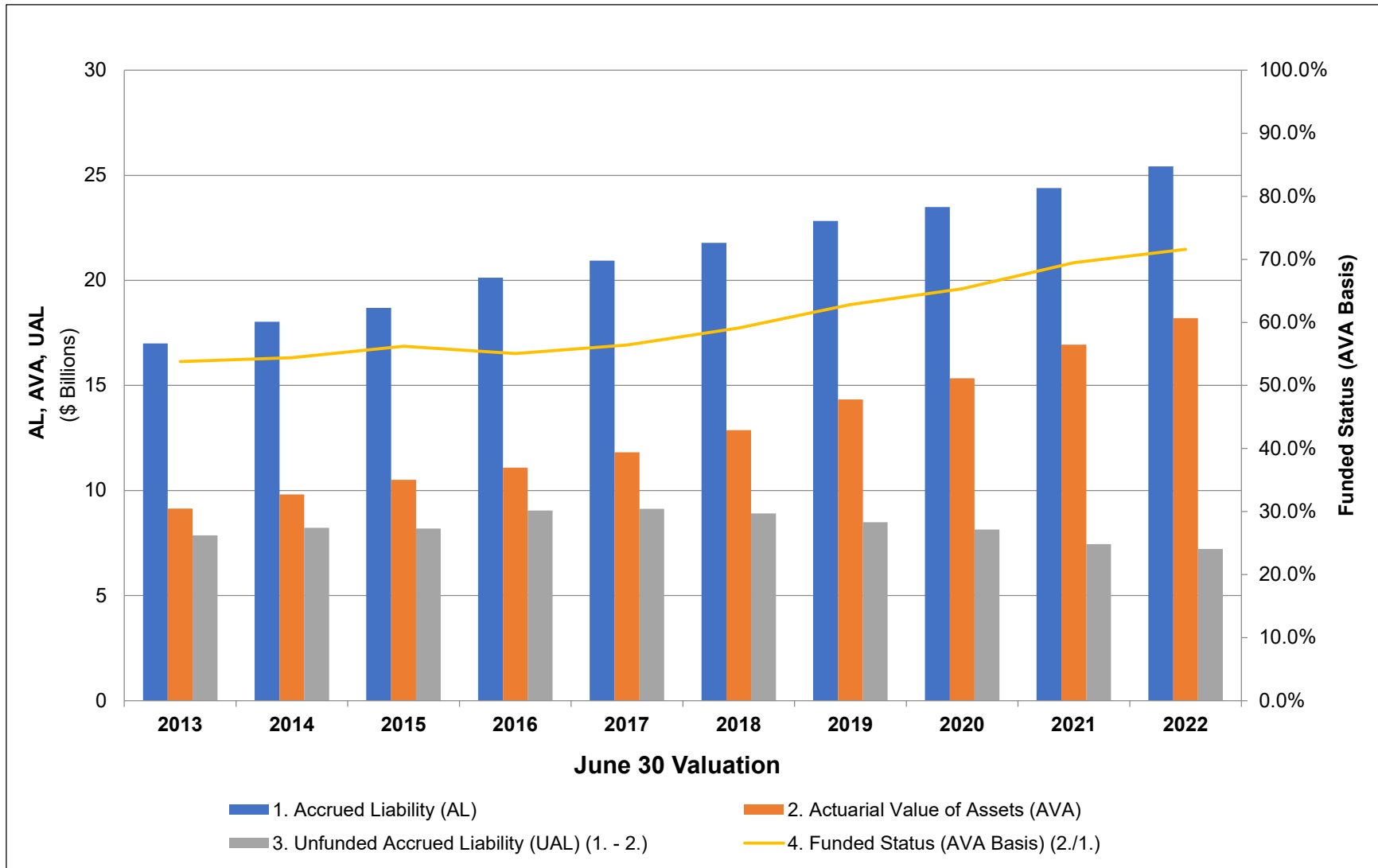
³ Salaries shown are the base salary plus assumed overtime paid and reflect certain salary increases with retroactive dates, if any, that are not yet reflected in census data.

**Table I-2
Actuarial Liabilities**

NEW YORK CITY FIRE PENSION FUND		
ACTUARIAL LIABILITIES BY STATUS		
Valuation Date	June 30, 2022	June 30, 2021
Fiscal Year	2024	2023
Accrued Liability		
1. Active Members	\$ 8,843,922,251	\$ 8,744,373,215
2. Terminated Nonvested Members	0	15,729
3. Deferred Vested Members	23,159,244	16,185,100
4. Retirees and Beneficiaries	16,556,109,485	15,634,180,947
5. Unfunded VSF Accrued Liability ¹	<u>0</u>	<u>0</u>
6. Plan Accrued Liability	\$ 25,423,190,980	\$ 24,394,754,991
Present Value of Benefits		
1. Active Members	\$ 14,612,132,638	\$ 14,411,133,537
2. Terminated Nonvested Members	0	15,729
3. Deferred Vested Members	23,159,244	16,185,100
4. Retirees and Beneficiaries	16,556,109,485	15,634,180,947
5. Unfunded VSF PVB	<u>79,555,424</u>	<u>69,168,071</u>
6. Total Present Value of Benefits	\$ 31,270,956,791	\$ 30,130,683,384

¹ For funding purposes, unfunded VSF benefits are an obligation of the Plan. Therefore, the Accrued Liability of the Plan includes any VSF unfunded accrued liabilities, not less than zero as VSF assets cannot be used to pay QPP benefits. See Table VI-1 for more information.

Graph I-3
Historical Funded Status



SECTION II – MARKET AND ACTUARIAL VALUES OF ASSETS

Information on the Market Value of Assets (MVA) of the Plan is provided by the Office of the Comptroller. An asset smoothing method is used to determine the Actuarial Value of Assets (AVA) of the Plan.

The Actuary reset the AVA to the MVA as of June 30, 2011 and as of June 30, 2019. Beginning with the June 30, 2020 actuarial valuation, the asset smoothing method recognizes investment returns greater or less than expected over a period of five years, phasing these gains and losses into the AVA at a rate of 20% per year.

The expected investment return is derived using the Actuarial Interest Rate of 7%, beginning-of-fiscal-year MVA, and net cash flows which are assumed to occur midyear.

The AVA is further constrained to be within a corridor of 80% to 120% of the MVA.

Table II-1
Statement of Plan Net Assets

(\$ Thousands)		
	June 30, 2022	June 30, 2021
ASSETS		
Cash	\$ 10,873	\$ 22,894
Receivables		
Investment Securities Sold	\$ 303,803	\$ 406,775
Member Loans	11,656	15,173
Accrued Interest and Dividends	59,230	65,923
Other Receivables	0	0
Total Receivables	\$ 374,689	\$ 487,871
INVESTMENTS AT FAIR VALUE		
Short-Term Investments		
Commercial Paper	\$ 150,480	\$ 227,013
Short-Term Investment Fund	178,943	205,068
U.S. Treasury Bills and Agencies	179,990	185,564
Debt Securities		
U.S. Government and Agencies	2,899,182	2,347,865
Mortgage Debt Security	796,717	865,263
Corporate and Other	1,546,553	1,757,335
Treasury Inflation Protected Securities	0	813,528
Bank Loans	46,620	65,367
Equity Securities		
Domestic Equity	4,973,935	6,121,847
International Equity	1,805,750	2,351,785
Alternative Investments	4,528,673	3,743,576
Collective Trust Funds		
Bank Loans	172	436
Corporate and Other	0	0
International Equity	393,822	491,133
Domestic Equity	11,101	23,202
Mortgage Debt Security	48,946	54,320
Opportunistic Fixed Income	53,999	58,843
Collateral From Securities Lending	1,905,756	2,067,990
Total Investments	\$19,520,639	\$21,380,135
OTHER ASSETS	14,644	3,431
TOTAL ASSETS	\$19,920,845	\$21,894,331
LIABILITIES		
Accounts Payable	\$ 90,612	\$ 100,679
Payable for Investment Securities Purchased	424,802	796,171
Accrued Benefits Payable	27,511	20,930
Accrued Transfers to VSFs	0	0
Security Lending	1,905,756	2,067,990
TOTAL LIABILITIES	\$ 2,448,681	\$ 2,985,770
PLAN ASSETS HELD IN TRUST FOR PENSION BENEFITS	\$17,472,164	\$18,908,561

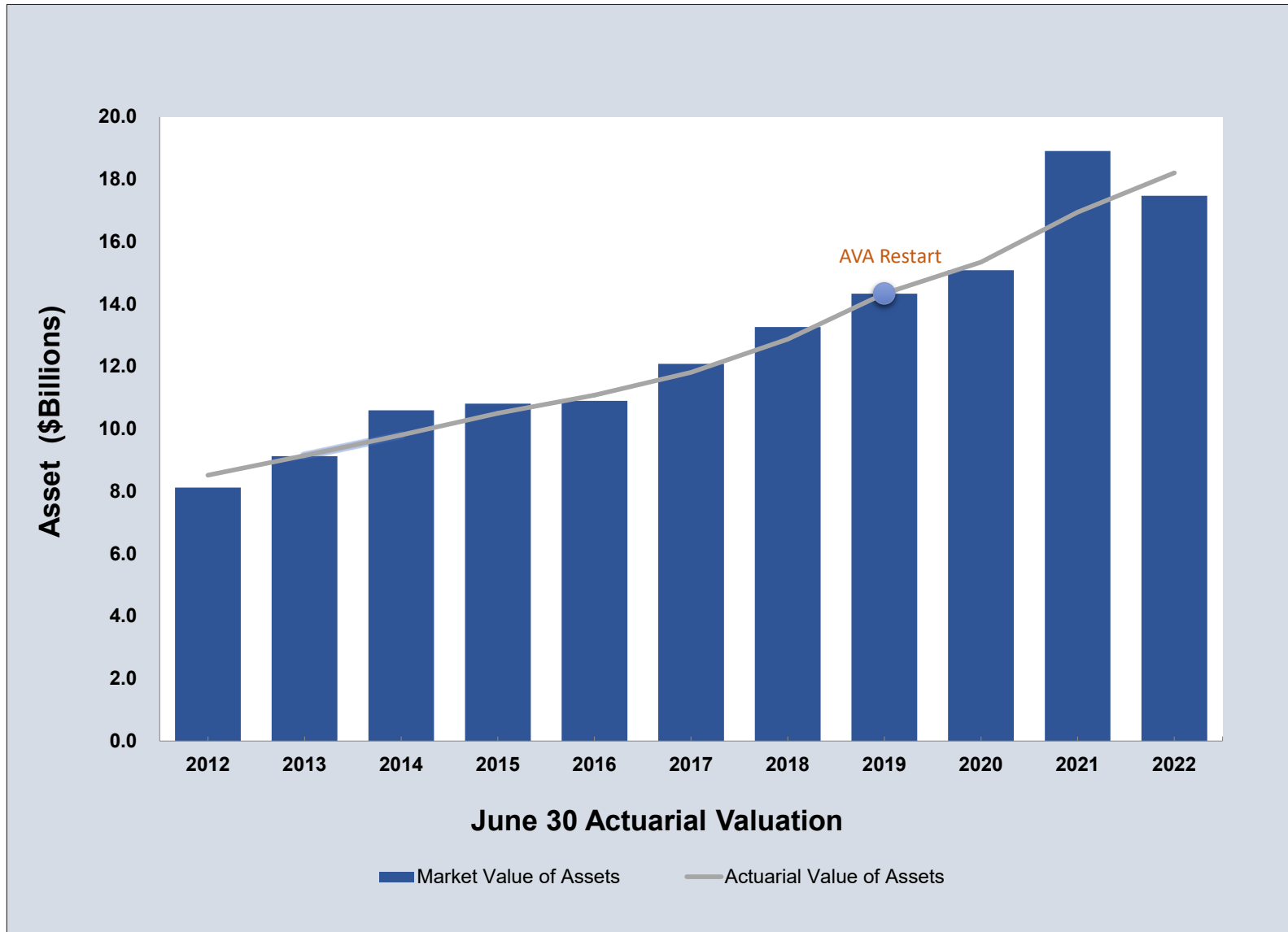
Table II-2
Statement of Changes in Plan Net Assets

(\$ Thousands)		
	June 30, 2022	June 30, 2021
ADDITIONS		
Contributions		
Member Contributions	\$ 134,469	\$ 112,566
Employer Contributions	1,446,992	1,436,977
Total Contributions	<u>\$ 1,581,461</u>	<u>\$ 1,549,543</u>
Investment Income (Loss)		
Interest Income	\$ 253,563	\$ 197,929
Dividend Income	209,174	173,022
Net Appreciation (Depreciation) in Fair Value	(1,781,277)	3,487,916
Total Investment Income (Loss)	<u>\$ (1,318,540)</u>	<u>\$ 3,858,867</u>
Less Investment Expenses	\$ 140,427	\$ 103,577
Net Income (Loss)	\$ (1,458,967)	\$ 3,755,290
Securities Lending Transactions		
Securities Lending Income	4,494	2,843
Securities Lending Fees	(445)	(268)
Net Securities Lending Income (Loss)	<u>\$ 4,049</u>	<u>\$ 2,575</u>
Other		
Net Receipts from Other Retirement Systems	0	51
Litigation Income	953	707
Other Total	<u>953</u>	<u>758</u>
Transferable Earnings due from VSFs to QPP	0	0
TOTAL ADDITIONS	\$ 127,496	\$ 5,308,166
DEDUCTIONS		
Benefit Payments and Withdrawals	\$ 1,551,182	\$ 1,475,835
Accrued Transfers to VSFs	0	0
Administrative Expenses	12,711	10,345
Payment to VSFs - Interest on SKIM	0	0
TOTAL DEDUCTIONS	<u>\$ 1,563,893</u>	<u>\$ 1,486,180</u>
NET INCREASE (DECREASE) IN PLAN NET ASSETS	\$ (1,436,397)	\$ 3,821,986
PLAN NET ASSETS HELD IN TRUST FOR PENSION BENEFITS		
Beginning of Year	\$ 18,908,561	\$15,086,575
End of Year	\$ 17,472,164	\$18,908,561

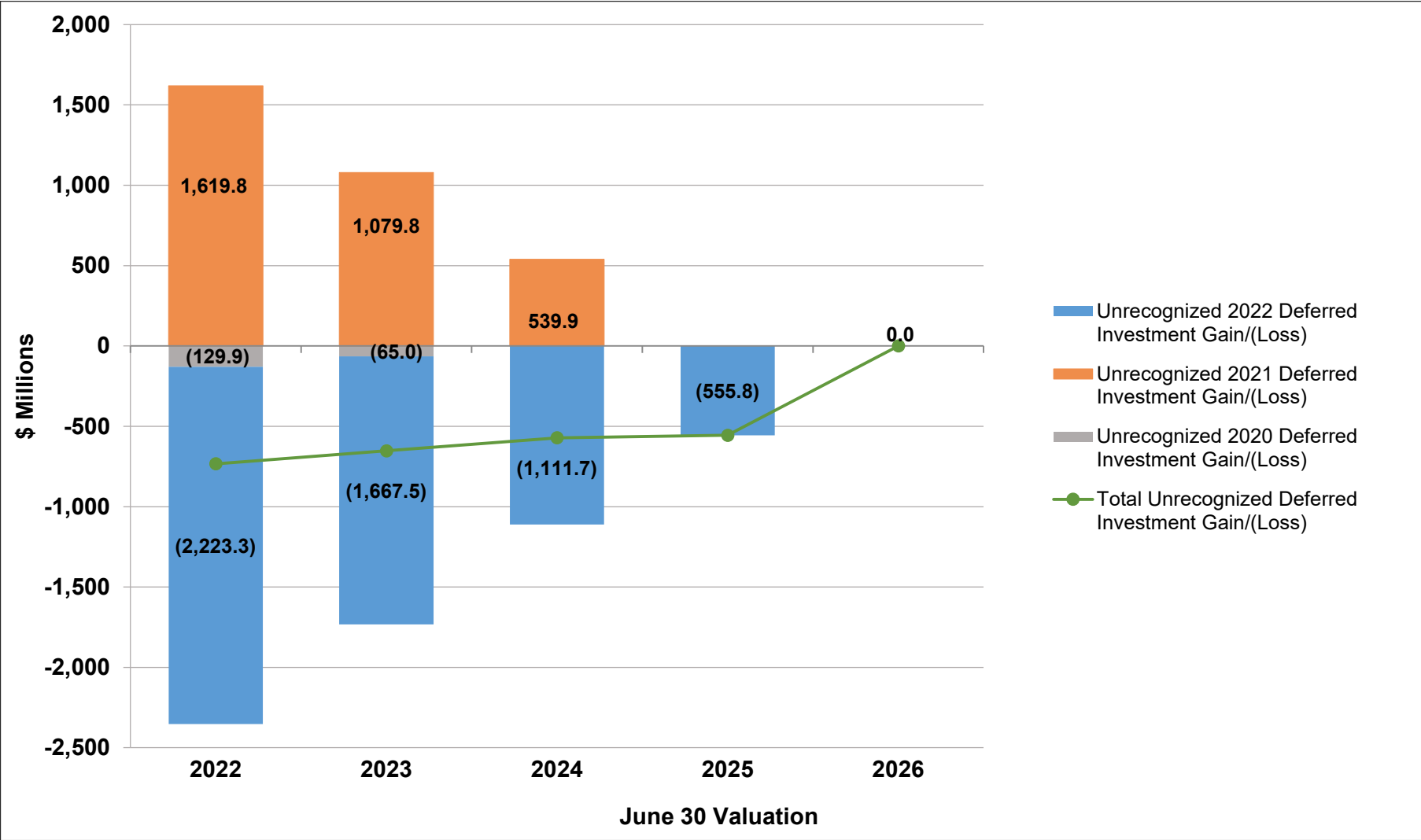
Table II-3
Development of Actuarial Value of Assets

(\$ Thousands)		
Valuation Date	June 30, 2022	June 30, 2021
1. Market Value of Assets (MVA)		
a. Beginning of Year (BOY)	\$ 18,908,561	\$ 15,086,575
b. End of Year (EOY)	\$ 17,472,164	\$ 18,908,561
2. Contributions		
a. Employee	\$ 134,469	\$ 112,566
b. Employer	<u>1,446,992</u>	<u>1,436,977</u>
c. Total Contributions	\$ 1,581,461	\$ 1,549,543
3. Net Investment Income		
a. Investment Income	\$ (1,314,491)	\$ 3,861,442
b. Investment Expenses	<u>(140,427)</u>	<u>(103,577)</u>
c. Total Net Investment Income	\$ (1,454,918)	\$ 3,757,865
4. Benefit Payments and Other Cash Flow	\$ (1,562,940)	\$ (1,485,422)
5. Preliminary Transferable Earnings from FIRE to VSFs - EOY	\$ 0	\$ 0
6. Net Cash Flow (2.c. + 4. + 5.)	\$ 18,521	\$ 64,121
7. Expected Investment Return (EIR)	\$ 1,324,236	\$ 1,058,266
8. Unexpected Investment Return (UIR) (3.c. - 7.)	\$ (2,779,154)	\$ 2,699,599
9. Preliminary AVA @ EOY		
a. AVA @ BOY (prior to corridor limit)	\$ 16,943,734	\$ 15,346,377
b. Net Cash Flow (6.)	\$ 18,521	\$ 64,121
c. Expected Investment Return (7.)	\$ 1,324,236	\$ 1,058,266
d. Phase in of UIR		
20% of UIR for prior year	\$ (555,832)	\$ 539,921
20% of UIR for second prior year	539,921	(64,951)
20% of UIR for third prior year	(64,951)	N/A
20% of UIR for fourth prior year	N/A	N/A
20% of UIR for fifth prior year	N/A	N/A
Total	<u>\$ (80,862)</u>	<u>\$ 474,970</u>
e. Preliminary AVA (9.a. + 9.b. + 9.c. + 9.d.)	\$ 18,205,629	\$ 16,943,734
10. Corridor		
a. Lower Corridor Bound (80% of 1.b.)	\$ 13,977,731	\$ 15,126,849
b. Upper Corridor Bound (120% of 1.b.)	\$ 20,966,597	\$ 22,690,273
11. AVA @ EOY (9.e. bounded by 10.a. and 10.b.)	\$ 18,205,629	\$ 16,943,734

Graph II-4
Historical Market and Actuarial Value of Assets



**Graph II-5
Future Recognition of Unexpected Investment Return**



SECTION III – CONTRIBUTION DEVELOPMENT AND HISTORY

Table III-1
Actuarial Required Contributions

Table III-1 shows the components of the Fiscal Year 2024 and the Fiscal Year 2023 Actuarial Required Contributions.

COMPONENTS OF CURRENT AND PRIOR FISCAL YEAR ACTUARIAL REQUIRED CONTRIBUTIONS		
Valuation Date	June 30, 2022	June 30, 2021
Fiscal Year	2024	2023
Normal Cost	\$ 615,055,409	\$ 610,269,938
Unfunded Accrued Liability Amortization ¹	\$ 850,006,562	\$ 801,486,747
Administrative Expenses	\$ 14,552,824	\$ 11,843,991
Total Contribution to the New York City Fire Pension Fund	\$ 1,479,614,795	\$ 1,423,600,676

¹ See Table III-2 for additional details.

Table III-2 Schedule of Unfunded Accrued Liability Bases

The Initial Unfunded Accrued Liability (UAL) established with the June 30, 2010 valuation is being amortized as a level percent of pay (with payments increasing by 3% per year) over a 22-year period.

Increments to the UAL established after June 30, 2010 are amortized as using level dollars over the following periods:

- Benefit Changes: Over the remaining working lifetimes of those impacted unless the amortization period is determined by statute.
- Assumption and Method Changes: Over a 20-year period.
- Actuarial Gains and Losses: Over a 15-year period.

Under the One-Year Lag methodology (OYLM), the number of payments is one fewer than the number of years in the amortization period (e.g., 14 payments over a 15-year amortization period).

Table III-2
Schedule of Unfunded Accrued Liability Bases (cont'd)

Table III-2 shows the Schedule of UAL Bases as of June 30, 2022.

NEW YORK CITY FIRE PENSION FUND SCHEDULE OF UNFUNDED ACCRUED LIABILITY BASES				
Amortization Base	Date Established	Original \$ Amount	Amortization Years	Amortization \$ Payment
Initial UAL	6/30/10	7,095,864,159	22	760,111,575
(Gain)/Loss	6/30/11	(168,320,189)	15	(19,908,798)
(Gain)/Loss	6/30/12	26,297,732	15	3,110,478
(Gain)/Loss	6/30/13	61,311,940	15	7,251,935
(Gain)/Loss	6/30/14	84,382,762	15	9,980,736
Assumption Change ¹	6/30/14	327,575,238	20	32,784,417
(Gain)/Loss	6/30/15	4,282,552	15	506,537
(Gain)/Loss	6/30/16	158,483,315	15	18,745,299
SADB	6/30/16	820,067,832	15	96,997,069
Enhanced ADR	6/30/16	2,612,048	22	249,358
(Gain)/Loss	6/30/17	59,849,221	15	7,078,925
No VSF Escalation Offset	6/30/17	462,349	21	45,144
Non-Uniformed Service	6/30/17	2,645,107	20	264,728
Assumption Change ²	6/30/17	407,308,674	20	40,764,306
Method Change ²	6/30/17	(320,832,740)	20	(32,109,613)
(Gain)/Loss	6/30/18	(178,668,664)	15	(21,132,809)
(Gain)/Loss	6/30/19	(127,003,510)	15	(15,021,890)
Assumption Change ³	6/30/19	99,175,360	20	9,925,679
Method Change ³	6/30/19	(156,147,033)	20	(15,627,522)
(Gain)/Loss	6/30/20	(62,988,586)	15	(7,450,247)
(Gain)/Loss	6/30/21	(394,165,627)	15	(46,621,645)
SADB for Parents	6/30/21	30,992,336	15	3,665,752
(Gain)/Loss	6/30/22	138,630,725	15	16,397,148
TOTAL				850,006,562

¹ Change in post-retirement mortality assumptions including the change to the mortality improvement scale MP-2015.

² 2019 A&M.

³ Revised 2021 A&M.

Graph III-3
Remaining UAL Amortizations as of June 30, 2022

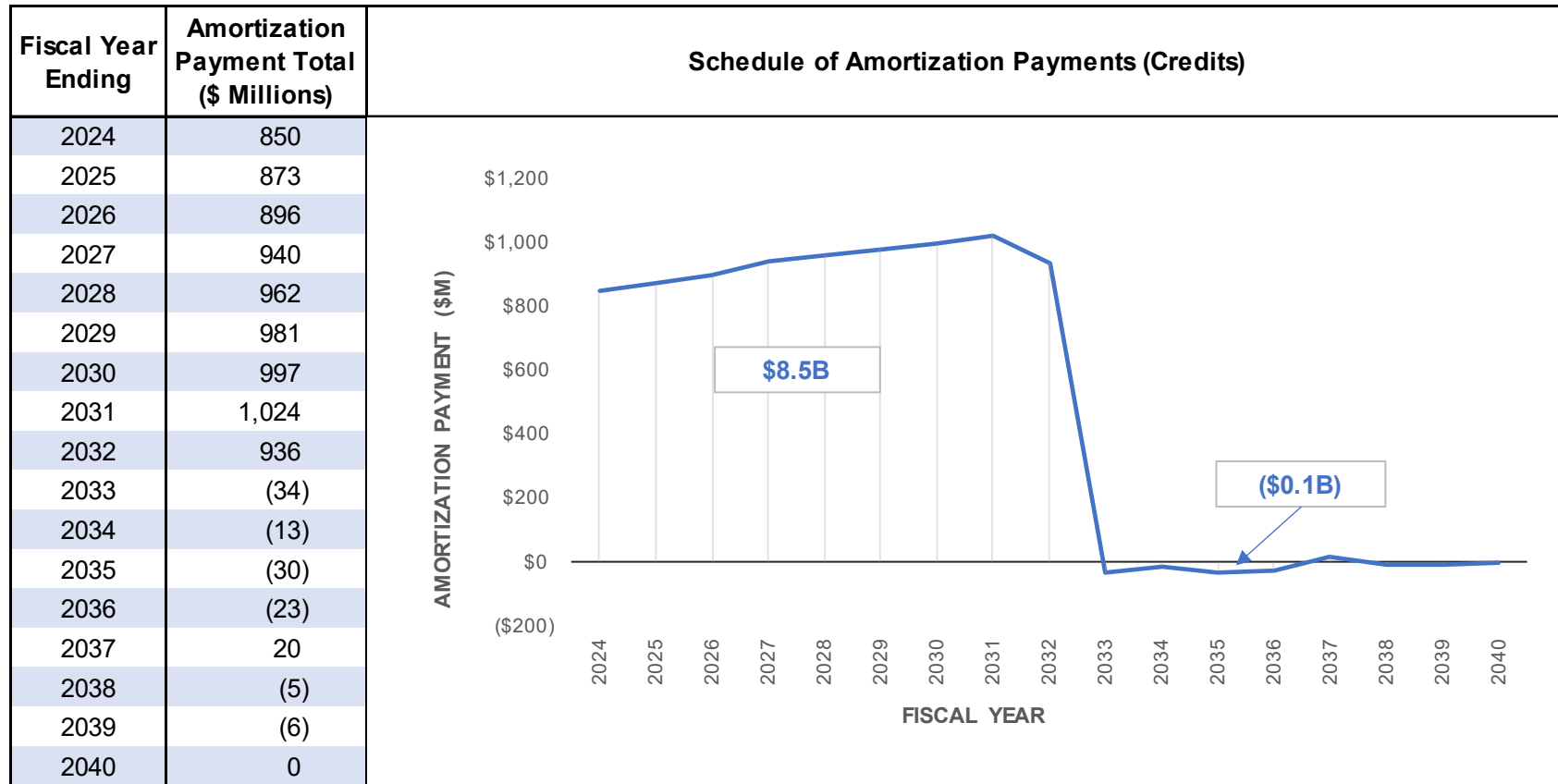


Table III-4
Reconciliation of Outstanding UAL Bases

Cost Component	Date Established	Original Amount	Amort Years	Outstanding Balance 6/30/2022	FY 2023 Payment on 12/31/2022	Outstanding Balance 6/30/2023	FY 2024 Payment on 12/31/2023	Additional Payments
Initial UAL	6/30/10	\$7,095,864,159	22	\$6,046,249,452	\$737,972,402	\$5,706,122,325	\$760,111,575	8
(Gain)/Loss	6/30/11	(168,320,189)	15	(69,755,625)	(19,908,798)	(54,044,698)	(19,908,798)	2
(Gain)/Loss	6/30/12	26,297,732	15	13,192,397	3,110,478	10,898,361	3,110,478	3
(Gain)/Loss	6/30/13	61,311,940	15	35,756,004	7,251,935	30,757,464	7,251,935	4
(Gain)/Loss	6/30/14	84,382,762	15	55,639,851	9,980,736	49,210,487	9,980,736	5
Assumption Change	6/30/14	327,575,238	20	269,356,064	32,784,417	254,298,524	32,784,417	10
(Gain)/Loss	6/30/15	4,282,552	15	3,128,763	506,537	2,823,810	506,537	6
(Gain)/Loss	6/30/16	158,483,315	15	126,332,234	18,745,299	115,785,202	18,745,299	7
SADB	6/30/16	820,067,832	15	653,702,884	96,997,069	599,127,538	96,997,069	7
Enhanced ADR	6/30/16	2,612,048	22	2,436,645	249,358	2,349,272	249,358	14
(Gain)/Loss	6/30/17	59,849,221	15	51,430,159	7,078,925	47,707,773	7,078,925	8
No VSF Escalation Offset	6/30/17	462,349	21	441,135	45,144	425,317	45,144	14
Non-Uniformed Service	6/30/17	2,645,107	20	2,494,079	264,728	2,394,828	264,728	13
Assumption Change	6/30/17	407,308,674	20	384,052,737	40,764,306	368,769,503	40,764,306	13
Method Change	6/30/17	(320,832,740)	20	(302,514,286)	(32,109,613)	(290,475,844)	(32,109,613)	13
(Gain)/Loss	6/30/18	(178,668,664)	15	(163,920,626)	(21,132,809)	(153,535,122)	(21,132,809)	9
(Gain)/Loss	6/30/19	(127,003,510)	15	(123,419,520)	(15,021,890)	(116,520,123)	(15,021,890)	10
Assumption Change	6/30/19	99,175,360	20	100,240,971	9,925,679	96,990,637	9,925,679	15
Method Change	6/30/19	(156,147,033)	20	(157,824,794)	(15,627,522)	(152,707,295)	(15,627,522)	15
(Gain)/Loss	6/30/20	(62,988,586)	15	(64,409,037)	(7,450,247)	(61,211,074)	(7,450,247)	11
(Gain)/Loss	6/30/21	(394,165,627)	15	(421,757,221)	(46,621,645)	(403,054,422)	(46,621,645)	12
415 Limit	6/30/21	(9,020,007)	2	(9,651,407)	(9,983,494)	0	0	0
SADB for Parents	6/30/21	30,992,336	15	33,161,800	3,665,752	31,691,243	3,665,752	12
Admin Expenses	6/30/21	10,700,952	2	11,450,019	11,843,991	0	0	0
Normal Cost	7/1/21	551,374,035	2	589,970,217	610,269,938	0	0	0
(Gain)/Loss	6/30/22	138,630,725	15	138,630,725	0	148,334,876	16,397,148	13
Admin Expenses	6/30/22	13,148,360	2	13,148,360	0	14,068,745	14,552,824	0
Normal Cost	7/1/22	555,697,670	2	0	0	594,596,507	615,055,409	0
TOTAL				\$7,217,561,980	\$1,423,600,676	\$6,844,803,834	\$1,479,614,795	

Payment for amortization bases, normal costs and administrative expenses are deferred 1.5 years to the middle of the fiscal year under the One-Year Lag Methodology. The number of amortization payments is one less than the number of years amortized. Required contributions are the sum of all cost components after interest adjustments due to the lag.

**Table III-4
Reconciliation of Outstanding UAL Bases (cont'd)**

Cost Component	Outstanding Balance 6/30/2022	FY 2023 Payment on 12/31/2022	Outstanding Balance 6/30/2023	FY 2024 Payment on 12/31/2023
Initial UAL	\$6,046,249,452	\$737,972,402	\$5,706,122,325	\$760,111,575
Method Change	(460,339,080)	(47,737,135)	(443,183,139)	(47,737,135)
Assumption Change	753,649,772	83,474,402	720,058,664	83,474,402
Plan Change	692,236,543	101,222,051	635,988,198	101,222,051
415 Limit	(9,651,407)	(9,983,494)	0	0
(Gain)/Loss	(419,151,896)	(63,461,479)	(382,847,466)	(47,064,331)
Normal Cost	589,970,217	610,269,938	594,596,507	615,055,409
Admin Expenses	24,598,379	11,843,991	14,068,745	14,552,824
TOTAL	\$7,217,561,980	\$1,423,600,676	\$6,844,803,834	\$1,479,614,795

	6/30/2022
(A) Actuarial Accrued Liability	\$ 25,423,190,980
(B) Actuarial Value of Assets	18,205,629,000
(C) Unfunded Accrued Liabilities (A) - (B)	\$ 7,217,561,980

	FY 2024
Normal Cost	\$ 615,055,409
UAL Payment	850,006,562
Admin Expenses	14,552,824
Total	\$ 1,479,614,795

**Table III-5
Contribution History**

Table III-5 compares the actual contributions to the Actuarial Required Contributions for Fiscal Years 2015 through 2024.

(\$ Thousands)			
Fiscal Year Ended June 30	Actuarial Required Contribution	Amount Contributed	Percentage of Required Contribution
2015	\$ 988,784	\$ 988,784	100.0%
2016	1,054,478	1,054,478	100.0%
2017	1,061,170	1,061,170	100.0%
2018	1,200,417	1,200,417	100.0%
2019	1,398,565	1,398,565	100.0%
2020	1,419,270	1,419,270	100.0%
2021	1,436,977	1,436,977	100.0%
2022	1,446,992	1,446,992	100.0%
2023	1,423,601	1,423,601	100.0%
2024	1,479,615	1,479,615	100.0%

Table III-6
City Rates: Contributions as a Percentage of Salary

Table III-6 shows the City Rates defined to be the contributions as a percentage of salary for the Fiscal Years 2015 through 2024.

CITY RATES (\$ Thousands)			
Fiscal Year Ended June 30	Actuarial Required Contribution	Salary¹ at Beginning of Fiscal Year	City Rate
2015	\$ 988,784	\$ 1,111,744	88.9%
2016	1,054,478	1,129,470	93.4%
2017	1,061,170	1,145,919	92.6%
2018	1,200,417	1,164,528	103.1%
2019	1,398,565	1,272,490	109.9%
2020	1,419,270	1,326,177	107.0%
2021	1,436,977	1,362,579	105.5%
2022	1,446,992	1,372,178	105.5%
2023	1,423,601	1,419,221	100.3%
2024	1,479,615	1,461,945	101.2%

¹ Includes assumed overtime paid, the impact of recent labor contract settlements and certain non-union salary increases with retroactive effective dates, if any.

Table III-7
Normal Cost Rates by Tier

Table III-7 shows the Normal Cost Rates as a percentage of salary by Tier.

NORMAL COST RATES AS OF JUNE 30, 2022				
	Tier 2	Tier 3 Modified	Tier 3 Enhanced	Total
Total	47.4%	22.6%	28.5%	41.1%
Employee	<u>(1.7%)</u>	<u>(2.6%)</u>	<u>(4.7%)</u>	<u>(2.6%)</u>
Employer	45.7%	20.0%	23.8%	38.5%

SECTION IV – (GAIN)/LOSS ANALYSIS

Table IV-1
Development of Experience (Gain)/Loss

NEW YORK CITY FIRE PENSION FUND DEVELOPMENT OF EXPERIENCE (GAIN) / LOSS JUNE 30, 2022 (\$ Thousands)			
1. Expected Accrued Liability (AL)	QPP	VSF	Total
a. AL at June 30, 2021	\$ 24,394,755	\$ 762,397	\$ 25,157,152
b. Normal Cost and Administrative Expenses at June 30, 2021	679,799	13,859	693,658
c. Interest on 1.a. and 1.b. to June 30, 2022	1,755,219	54,338	1,809,557
d. Fiscal Year 2022 Benefit Payments	(1,551,182)	(69,223)	(1,620,405)
e. Interest on 1.d. to June 30, 2022	<u>(53,373)</u>	<u>(2,382)</u>	<u>(55,755)</u>
f. Expected AL at June 30, 2022	\$ 25,225,218	\$ 758,989	\$ 25,984,207
2. Actual AL at June 30, 2022	\$ 25,423,191	\$ 765,889	\$ 26,189,080
3. Expected Actuarial Value of Assets (AVA)			
a. AVA at June 30, 2021	\$ 16,943,734	\$ 876,814	\$ 17,820,548
b. Interest on 3.a. to June 30, 2022	1,186,061	61,377	1,247,438
c. Total Contributions Paid in Fiscal Year 2022 ¹	1,581,461	0	1,581,461
d. Interest on 3.c. to June 30, 2022	54,415	0	54,415
e. Fiscal Year 2022 Benefit Payments	(1,551,182)	(69,223)	(1,620,405)
f. Interest on 3.e. to June 30, 2022	(53,373)	(2,382)	(55,755)
g. Change in VSF Assets in Excess of Liabilities at June 30, 2022	<u>0</u>	<u>(28,081)</u>	<u>(28,081)</u>
h. Expected AVA at June 30, 2022	\$ 18,161,116	\$ 838,505	\$ 18,999,621
4. Actual AVA at June 30, 2022	\$ 18,205,629	\$ 860,234	\$ 19,065,863
5. Liability (Gain) / Loss (2. - 1.f.)	\$ 197,973	\$ 6,900	\$ 204,873
6. Actuarial Asset (Gain) / Loss (3.h. - 4.)	\$ (44,513)	\$ (21,729)	\$ (66,242)
7. Total Actuarial (Gain) / Loss (5. + 6.)	\$ 153,460	\$ (14,829)	\$ 138,631

¹ Contributions include SKIM amounts, if any, transferred from QPP to VSF.

SECTION V – SCHEDULE OF FUNDING PROGRESS

A schedule of funding progress is provided below. This schedule of funding progress was previously required by GASB25, which has been superseded by GASB67, and is provided for historical context. These liability and asset measures are used to develop the Actuarial Contribution and are not suitable for other purposes including, but not limited to, settlement of plan obligations. For more information, see SECTION II – MARKET AND ACTUARIAL VALUES OF ASSETS.

Table V-1
Schedule of Funding Progress

NEW YORK CITY FIRE PENSION FUND (\$ Thousands)						
June 30 Valuation Date	(1) Actuarial Value of Assets (AVA)	(2) Accrued Liability (AL)	(3) Unfunded AL (UAL) (2) - (1)	(4) Funded Ratio (1) / (2)	(5) Covered Payroll¹	(6) UAL as a % of Covered Payroll (3) / (5)
2013	\$ 9,144,587	\$ 17,003,722	\$ 7,859,135	53.8%	\$ 1,129,706	695.7%
2014	9,808,854	18,028,695	8,219,841	54.4%	1,150,390	714.5%
2015	10,504,728	18,688,642	8,183,914	56.2%	1,164,994	702.5%
2016	11,082,451	20,125,429	9,042,978	55.1%	1,180,226	766.2%
2017	11,814,576	20,942,655	9,128,079	56.4%	1,256,001	726.8%
2018	12,876,671	21,787,888	8,911,217	59.1%	1,305,960	682.3%
2019	14,337,618	22,824,419	8,486,801	62.8%	1,336,843	634.8%
2020	15,346,377	23,491,617	8,145,240	65.3%	1,348,006	604.2%
2021	16,943,734	24,394,755	7,451,021	69.5%	1,401,378	531.7%
2022	18,205,629	25,423,191	7,217,562	71.6%	1,444,044	499.8%

¹ Salaries shown are base salary plus assumed overtime paid and reflect certain salary increases with retroactive effective dates, if any, that are not yet reflected in the census data.

SECTION VI – VARIABLE SUPPLEMENTS FUNDS (VSF)

The New York City Fire Pension Fund administers both the Firefighters' Variable Supplements Fund (FFVSF) and the Fire Officers' Variable Supplements Fund (FOVSF). The FFVSF and FOVSF (the Funds) operate pursuant to the provisions of Title 13, Chapter 3 of the Administrative Code of the City of New York (ACCNY) and provide supplemental benefits to retirees who were Firefighters and Fire Officers, respectively, of the New York City Fire Department, Subchapter One Pension Fund or New York City Fire Department, Subchapter Two Pension Fund and who retired for service with 20 or more years of service on or after October 1, 1968.

Table VI-1
Summary of VSF Valuation Results

FFVSF		
Valuation Date	June 30, 2022 ¹	June 30, 2021 ²
Fiscal Year	2024	2023
Funded Status		
1. Accrued Liability	\$ 466,599,620	\$ 469,357,376
2. Actuarial Value of Assets (AVA)	<u>494,430,000</u>	<u>507,821,000</u>
3. Unfunded Accrued Liability (AVA Basis), not less than zero (1. - 2.)	\$ 0	\$ 0
4. Market Value of Assets (MVA) ³	452,127,000	568,740,000
5. Unfunded Accrued Liability (MVA Basis), not less than zero (1. - 4.)	\$ 14,472,620	\$ 0
6. Funded Ratio (MVA Basis) (4. / 1.)	96.9%	121.2%
Participant Data		
1. Active Members		
a. Number	8,159	8,203
b. Average Age	38.6	38.9
2. Retirees and Beneficiaries		
a. Number	3,121	3,130
b. Average Age	72.6	73.2

FOVSF		
Valuation Date	June 30, 2022 ¹	June 30, 2021 ²
Fiscal Year	2024	2023
Funded Status		
1. Accrued Liability	\$ 299,288,998	\$ 293,039,467
2. Actuarial Value of Assets (AVA)	<u>365,804,000</u>	<u>368,993,000</u>
3. Unfunded Accrued Liability (AVA Basis), not less than zero (1. - 2.)	\$ 0	\$ 0
4. Market Value of Assets (MVA) ⁴	333,347,000	414,297,000
5. Unfunded Accrued Liability (MVA Basis), not less than zero (1. - 4.)	\$ 0	\$ 0
6. Funded Ratio (MVA Basis) (4. / 1.)	111.4%	141.4%
Participant Data		
1. Active Members		
a. Number	2,526	2,590
b. Average Age	48.6	48.4
2. Retirees and Beneficiaries		
a. Number	1,514	1,467
b. Average Age	72.9	73.5

¹ Includes preliminary Transferable Earnings as determined by the Actuary in a letter dated September 9, 2022 to the Comptroller's Office.

² Includes preliminary Transferable Earnings as determined by the Actuary in a letter dated September 9, 2021 to the Comptroller's Office.

³ Includes Accrued Benefits Payable for FFVSF of \$18,395,000 for 6/30/2022 and \$18,924,000 for 6/30/2021.

⁴ Includes Accrued Benefits Payable for FOVSF of \$8,793,000 for 6/30/2022 and \$8,665,000 for 6/30/2021.

Table VI-2
Development of VSF Actuarial Value of Assets

(\$ Thousands)				
	June 30, 2022		June 30, 2021	
	FFVSF	FOVSF	FFVSF	FOVSF
1. Market Value of Assets (MVA)				
a. Beginning of Year (BOY) ¹	\$ 568,740	\$ 414,297	\$ 493,727	\$ 348,788
b. End of Year (EOY) ²	\$ 452,127	\$ 333,347	\$ 568,740	\$ 414,297
2. Contributions				
a. Employee	\$ 0	\$ 0	\$ 0	\$ 0
b. Employer	0	0	0	0
c. Total Contributions	\$ 0	\$ 0	\$ 0	\$ 0
3. Net Investment Income				
a. Investment Income	\$ (72,233)	\$ (55,204)	\$ 119,414	\$ 86,422
b. Investment Expenses	(292)	(210)	(257)	(187)
c. Total Net Investment Income	\$ (72,525)	\$ (55,414)	\$ 119,157	\$ 86,235
4. Benefit Payments and Other Cash Flow	\$ (44,088)	\$ (25,536)	\$ (44,144)	\$ (20,726)
5. Preliminary Transferable Earnings from FIRE to VSFs - EOY ³	\$ 0	\$ 0	\$ 0	\$ 0
6. Net Cash Flow (2.c. + 4. + 5.)	\$ (44,088)	\$ (25,536)	\$ (44,144)	\$ (20,726)
7. Expected Investment Return (EIR)	\$ 38,295	\$ 28,122	\$ 33,042	\$ 23,702
8. Unexpected Investment Return (UIR) (3.c. - 7.)	\$ (110,820)	\$ (83,536)	\$ 86,115	\$ 62,533
9. AVA @ EOY				
a. AVA @ BOY	\$ 507,821	\$ 368,993	\$ 504,358	\$ 355,084
b. Net Cash Flow (6.)	\$ (44,088)	\$ (25,536)	\$ (44,144)	\$ (20,726)
c. Expected Investment Return (7.)	\$ 38,295	\$ 28,122	\$ 33,042	\$ 23,702
d. Phase in of UIR				
20% of UIR for prior year	\$ (22,163)	\$ (16,708)	\$ 17,223	\$ 12,507
20% of UIR for second prior year	\$ 17,223	\$ 12,507	\$ (2,658)	\$ (1,574)
20% of UIR for third prior year	\$ (2,658)	\$ (1,574)	N/A	N/A
20% of UIR for fourth prior year	N/A	N/A	N/A	N/A
20% of UIR for fifth prior year	N/A	N/A	N/A	N/A
Total	\$ (7,598)	\$ (5,775)	\$ 14,565	\$ 10,933
e. AVA (9.a. + 9.b. + 9.c. + 9.d.)	\$ 494,430	\$ 365,804	\$ 507,821	\$ 368,993

¹ Includes Accrued Benefits Payable for 6/30/2021 of \$18,924,000 for FFVSF and \$8,665,000 for FOVSF and Accrued Benefits Payable for 6/30/2020 of \$19,451,000 for FFVSF and \$8,932,000 for FOVSF.

² Includes Accrued Benefits Payable for 6/30/2022 of \$18,395,000 for FFVSF and \$8,793,000 for FOVSF and Accrued Benefits Payable for 6/30/2021 of \$18,924,000 for FFVSF and \$8,665,000 for FOVSF.

³ Reflects preliminary Transferable Earnings as determined by the Actuary in a letter dated September 9, 2022 for 6/30/2022 and a letter dated September 9, 2021 for 6/30/2021 to the Comptroller's Office.

Table VI-3
Transferable Earnings Calculation as of June 30, 2022

For details, see Summary of VSF Actuarial Assumptions and Methods.

(\$ Thousands)		
Total FIRE Pension Fund		
1. FY2022 Equity Earnings	\$	(925,810)
2. FY2022 Hypothetical Earnings		279,189
3. FY2022 Excess Earnings (1. - 2.)		(1,204,999)
4. Deficit at June 30, 2021		0
5. Hypothetical Interest Rate (HIR)		2.223%
6. Deficit with interest (4. x (1+HIR))		0
7. Potential Transferable Earnings (3. - 6.), not less than zero	\$	0
	FFVSF	FOVSF
Allocations to VSF		
8. Allocation Percentage	64.936%	35.064%
9. Potential Transferable Earnings (7. x 8.)	\$ (782,478)	\$ (422,521)
10. APV of Accumulated Plan Benefits	435,240	269,972
11. MVA Prior to Transferable Earnings	452,127	333,347
12. Unfunded APV of Accumulated Plan Benefits (10. - 11.), not less than zero	0	0
13. Transferable Earnings Payable (Lesser of 9. and 12., not less than zero)	0	0
14. Rounded Estimate, for FY22 Financial Statements	\$ 0	\$ 0

Summary of VSF Plan Provisions

A. Eligibility

Service Retirement with at least 20 years of allowable service on or after October 1, 1968. This benefit is not payable to disability retirees, vested retirees, or beneficiaries of members who die while eligible for service retirement.

B. Benefits

The benefit is currently \$12,000 per year, prorated in the first year and in the year of death based on the number of full months of retirement. The month of retirement and the month of death are not included in these two prorations.

C. Cost-of-Living Benefits

Any AutoCOLA payable to a retiree reduces VSF benefits by an amount equal to such AutoCOLA until the attainment of age 62.

D. Form of Payment

Firefighters: Life annuity payable annually on or about December 15 for the current calendar year.

Fire Officers: Life annuity payable annually on or about January 31 for the prior calendar year.

E. VSF DROP

Firefighters who retire on and after January 1, 2002 with 20 or more years of service are entitled to an additional one-time special lump sum payment (VSF DROP) payable on or about December 15 succeeding the date of retirement equal to the cumulative Fund benefits that would have been paid after January 1, 2002 had the member retired at the completion of the 20th year of service.

Fire Officers who retire on and after January 1, 2002 with 20 or more years of service are entitled to an additional one-time special lump sum payment (VSF DROP) payable on or about January 31 of the calendar year succeeding the date of retirement equal to the cumulative Fund benefits that would have been paid after January 1, 2002 had the member retired at the completion of the 20th year of service.

Summary of VSF Actuarial Assumptions and Methods

Assumptions not detailed below are as described in SECTION XI – ACTUARIAL ASSUMPTIONS AND METHODS.

1. **FFVSF vs. FOVSF Membership:** Amongst current active members, 70% of members who become eligible for VSF benefits are assumed to retire as Firefighters, while the remaining 30% are assumed to retire as Fire Officers.
2. **COLA:** 1.5% per year for AutoCOLA, used to estimate future COLA on the first \$18,000 of FIRE benefits which, in general, reduces benefits payable by the Fund until age 62.
3. **Asset Smoothing Method:** Information on the MVA of the VSF is provided by the Office of the Comptroller. The same Asset Smoothing Method is used to determine the AVA of the FFVSF and the FOVSF as is used to determine the AVA of the Plan, except there is no corridor of 80% to 120% of the MVA for the VSFs. For more information, see SECTION II – MARKET AND ACTUARIAL VALUES OF ASSETS.
4. **Liability Method:** The obligations of FIRE to the FFVSF and the FOVSF are recognized through a methodology where the FFVSF and FOVSF UALs are included directly as part of the accrued liability of FIRE. Under Entry Age Normal (EAN) cost method, FFVSF and FOVSF normal costs and UALs are financed as part of the Employer Contribution.
5. **Transferable Earnings Calculation:** The ACCNY provides that FIRE transfer to the Funds a portion of the amount by which earnings on equity investments of FIRE exceed what the earnings would have been had such funds been invested at the Hypothetical Interest Rate, less any negative Cumulative Earnings Differentials and other limitations, determined as follows:
 - a. *Hypothetical Interest Rate:* 115% of the 12-month average of monthly 10-year U.S. Treasury Note yields
 - b. *Hypothetical Fixed Income Securities Earnings:* Investment earnings had equities been invested in fixed income securities earning the Hypothetical Interest Rate
 - c. *Earnings Differential:* Difference between actual equity investment earnings and Hypothetical Fixed Income Securities Earnings

- d. *Cumulative Earnings Differential*: The current year's Earnings Differential, offset by any negative Earnings Differentials from prior years, accumulated with interest at the corresponding year's Hypothetical Interest Rate
- e. *Proportionate Transferable Earnings*: The portion of the Cumulative Earnings Differential allocable to the VSFs based on the ratio of total contributions between Firefighters and Fire Officers, limited to not allow transfers to exceed the unfunded actuarial PV of accumulated plan benefits of the VSFs

SECTION VII – RISK AND UNCERTAINTY

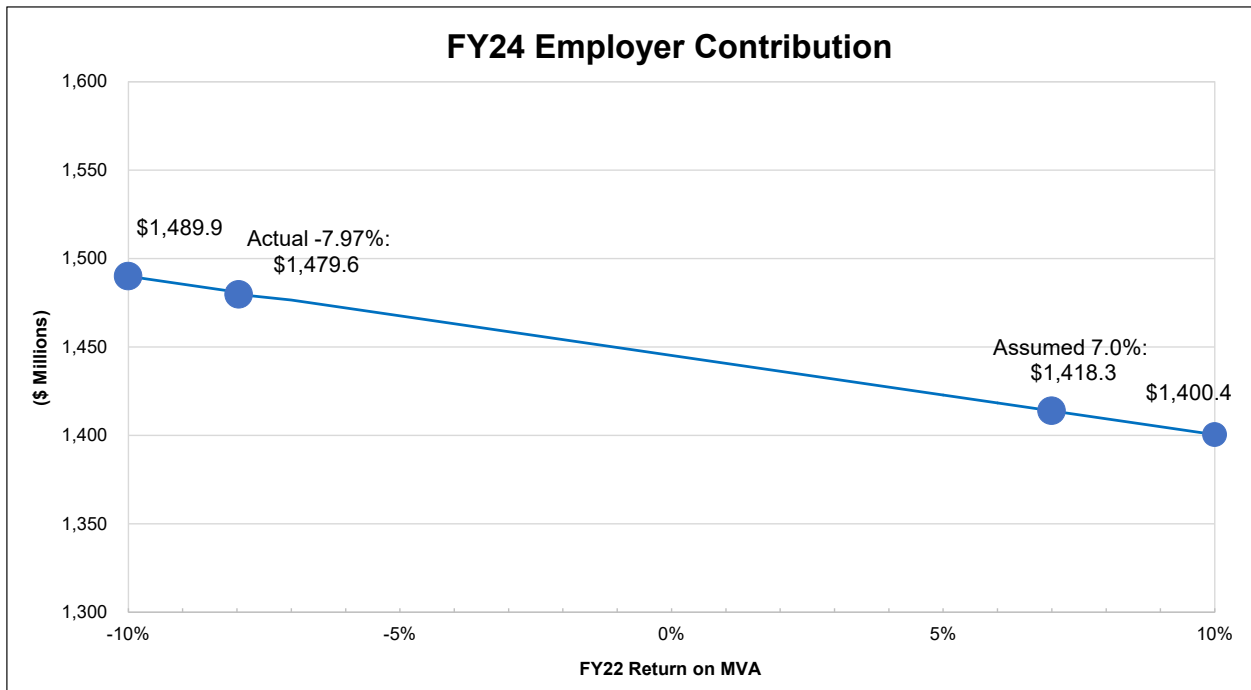
The funded status of FIRE depends highly on the realization of the actuarial assumptions used, certain demographic characteristics of the Plan, and other factors. Risks faced by the Plan are described in this Section and have been separated into high, medium, and other risk categories.

High Risk Types

Investment Risk: The Risk of Not Realizing Expected Returns

The most substantial risk for most pension systems, FIRE included, is the risk of investment returns being less than assumed. For FIRE this assumed investment return is 7%.

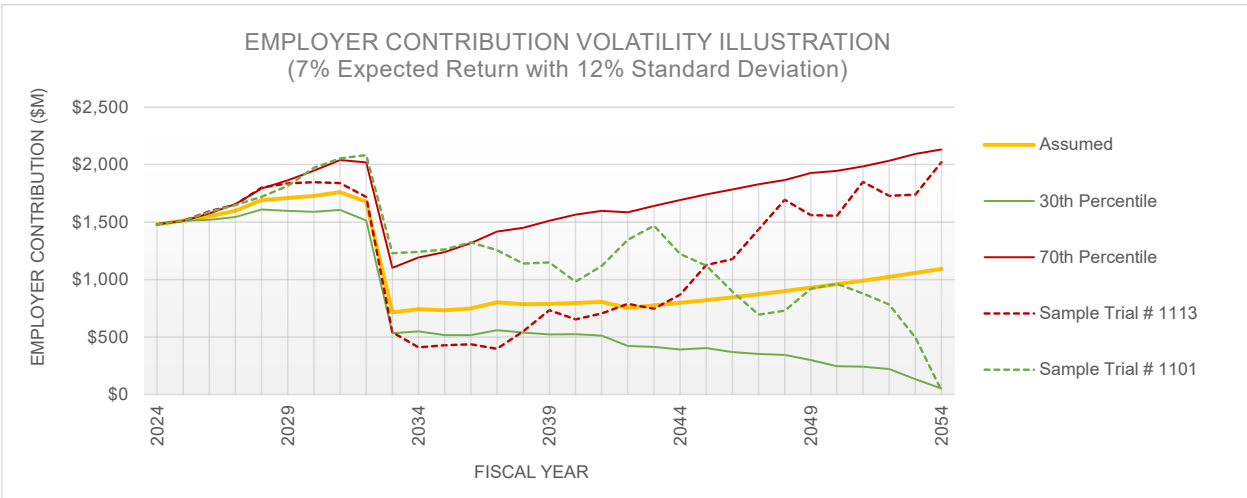
The graph below illustrates the potential FY24 employer contributions for a range of investment return outcomes if returns had differed from the assumed rate of return (i.e., from -10% to 10%). In addition, the actual investment return and employer contribution are shown.



Investment Risk: The Risk of Volatile Realized Returns

Even when long-term investment returns meet actuarial assumptions, investment volatility can contribute substantially to contribution and funded status volatility. The following charts illustrate the impact of investment return volatility on employer contributions and funded ratios based on 5,000 30-year investment return trials. Each stochastic investment return within each 30-year trial was generated from a normal distribution with an expected return of 7% and a standard deviation of 12%. Note that individual asset classes within the portfolio were NOT separately modeled and no attempt was made to rebalance the asset classes during the 30-year trials. The actual investment return for the next valuation year was known prior to the publication of this report and was also incorporated into this projection.

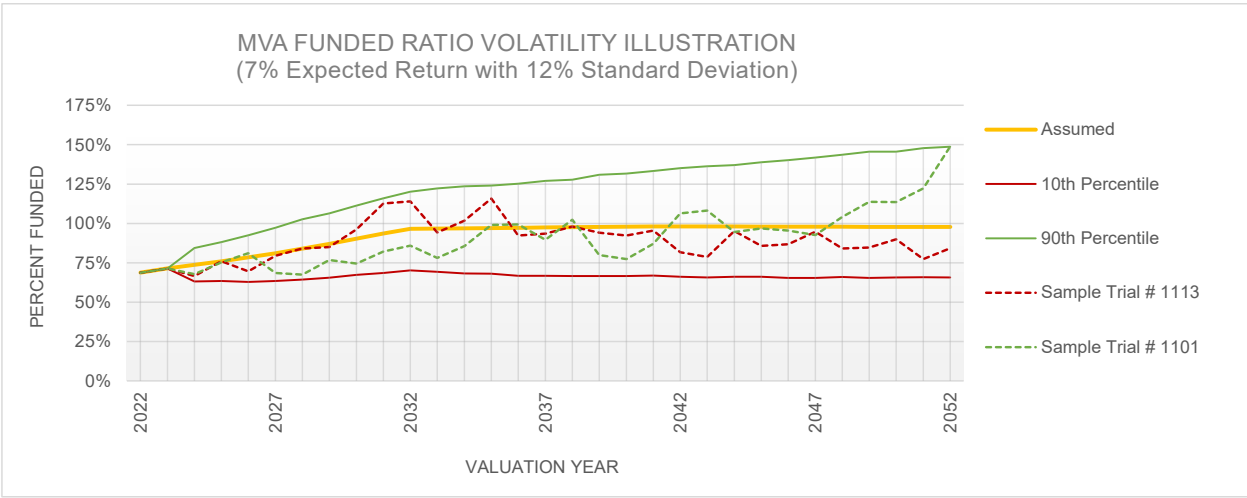
The yellow line in the charts show the results if investment returns were exactly 7% as expected. The two solid lines show results for the indicated percentile range and together frame a range of results based on all 5,000 trials. The two dashed lines illustrate sample results from among the 5,000 trials.



Please note how in the two sample trials above (the dotted lines), the actual employer contribution fluctuates above and below the assumed contribution rate due to investment return volatility.

The impact on the funded status for these two trials can also be seen below, where for example, the green dotted line approaches 150% funding at the end of the 30-year period (below) with a corresponding employer contribution approaching \$0 (above). The converse is shown in the red dotted line where at the end of the 30-year period, the employer contribution rate approaches \$2.0B (above) with a corresponding funded ratio of approximately 86% (below).

On average, the 5,000 trials result in the yellow assumed line with a funded status approaching 100% achieved around the fiscal year ending in 2032.

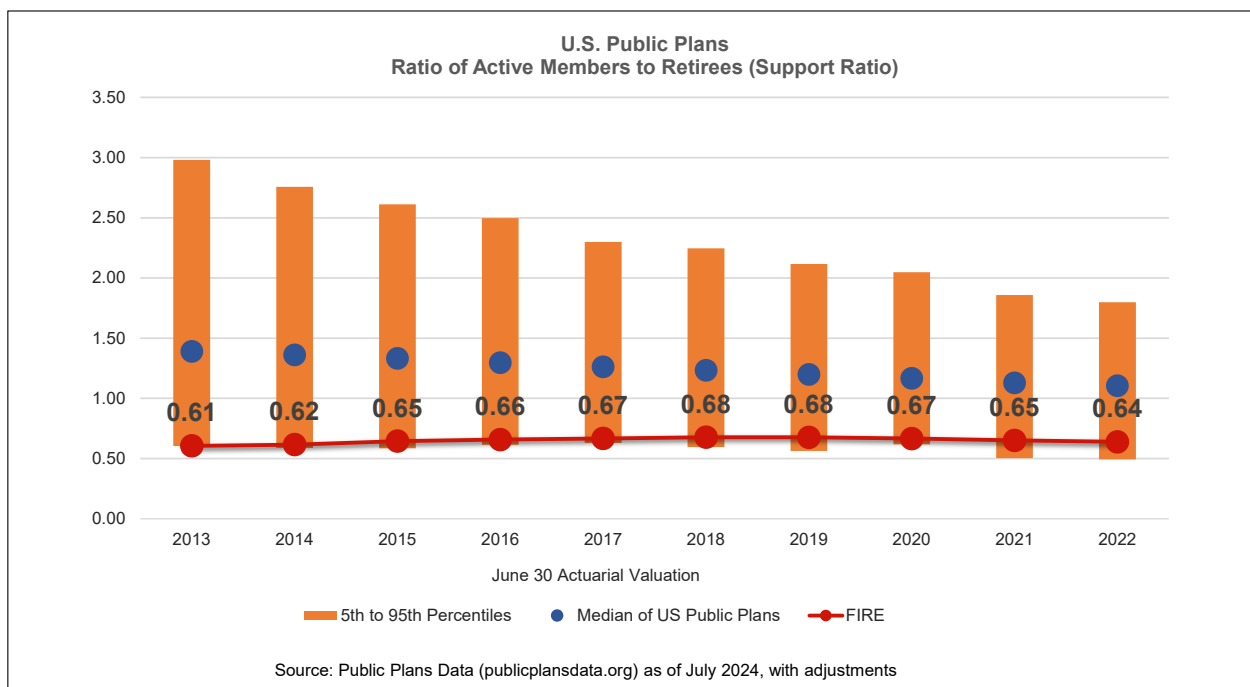


Maturity Risk: The Risk of Demographic Imbalance

As plans mature, contribution volatility can increase as retiree liabilities and total assets grow faster than active liabilities and payroll. In this subsection, the maturity of the Plan is examined with several metrics.

Ratio of Active Members to Retirees (Support Ratio)

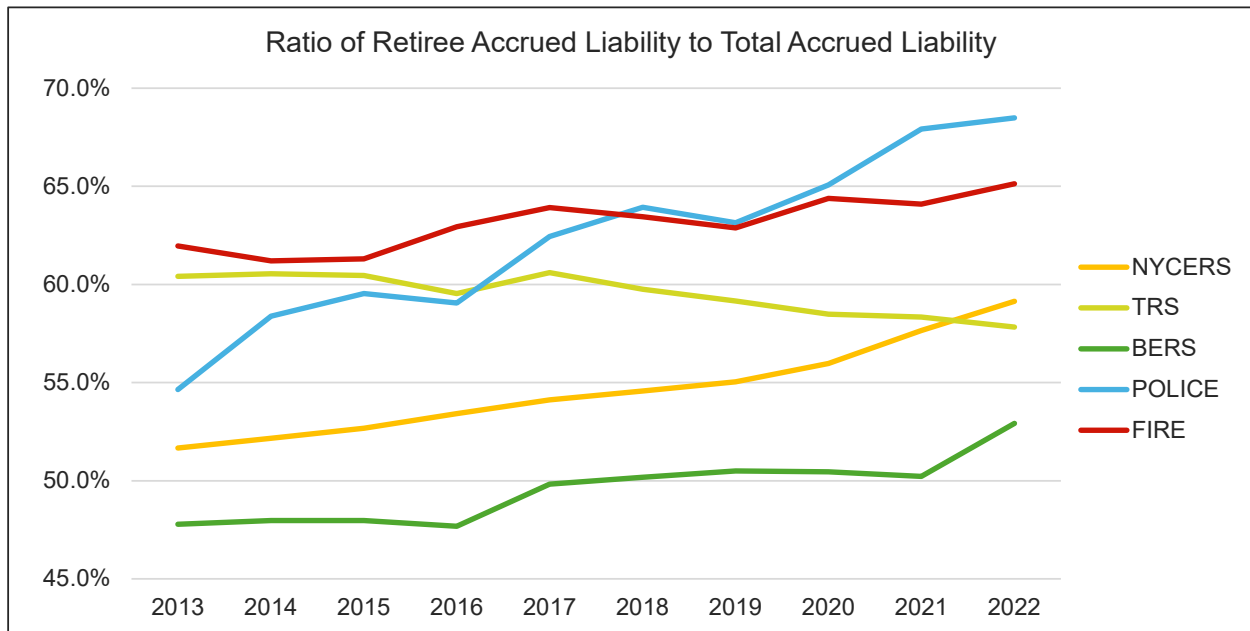
A plan's Support Ratio (i.e., the ratio of active members to retirees) is an indicator of the Plan's maturity level. Lower Support Ratios have higher contribution volatility. In a plan's early years, the ratio is very high as the plan contains mostly active members. As it matures, more active members transition to retirement, leading to a decrease in the Support Ratio over time that can result in a ratio near or below one. For FIRE, this ratio is consistently below one indicative of a relatively mature plan.



The chart above shows U.S. public pension plan Support Ratios in comparison to the Plan's. The median Support Ratio amongst US public pensions has declined from 1.39 in the 2013 valuation year to 1.10 in the 2022 valuation year. Over that same period, the Plan's Support Ratio has remained relatively flat, ranging from 0.61 to 0.64.

Ratio of Retiree Accrued Liability to Total Accrued Liability

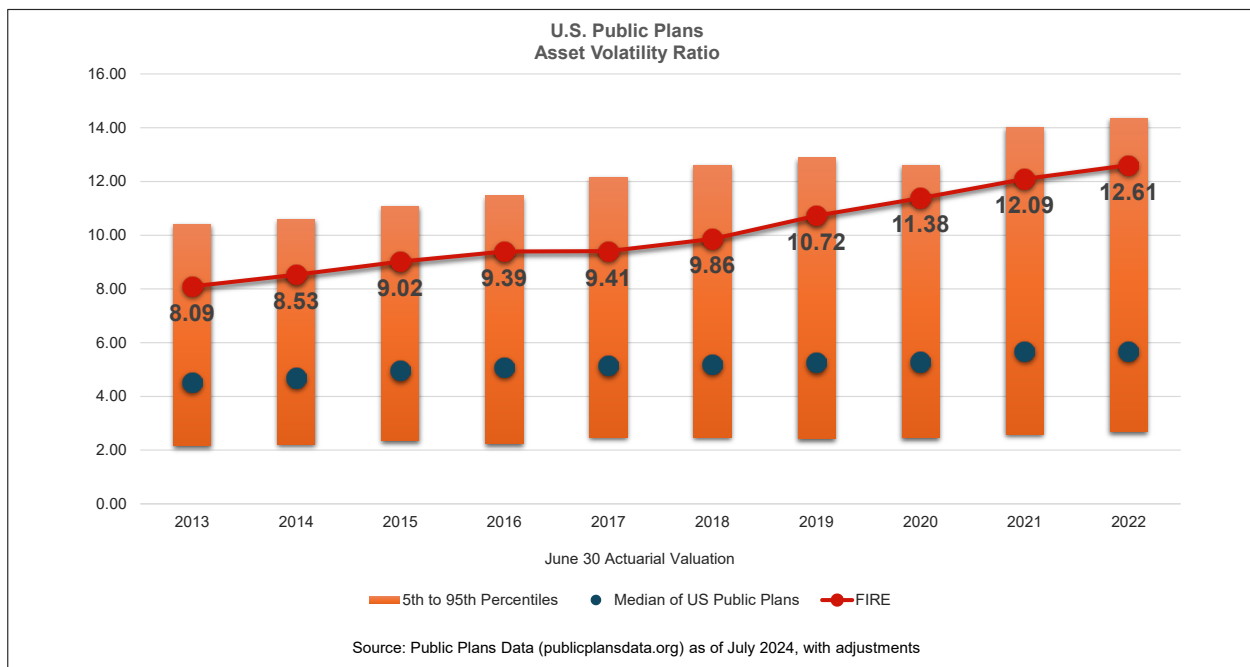
A plan's ratio of retiree liabilities to its total liabilities is also a measure of its maturity. A new pension plan begins with this ratio at zero; as the plan matures, the ratio increases. This ratio is shown in the graph below for FIRE; the other New York City Retirement Systems¹ (NYCRS) are included for comparison. The ratio for FIRE has been trending upward over time as expected as the Plan matures.



¹ New York City Employees' Retirement System (NYCERS); Teachers' Retirement System (TRS); Board of Education Retirement System (BERS); Fire Pension Fund (FIRE)

Asset Volatility Ratio

Another way to look at plan maturity is the Asset Volatility Ratio (AVR), or ratio of assets to payroll. This ratio tends to rise as plans mature because assets generally need to accumulate to provide for benefit payments. The chart below compares the AVR (on an AVA basis) for FIRE to the population of public pension systems.



As a plan matures, AVR's tend to increase, and the plan's actuarially determined contribution becomes more sensitive to investment losses. For example, the same percentage of investment losses in more mature plans with a larger asset base can increase contributions as a percentage of payroll more than in less mature plans. Likewise, large investment gains in more mature plans decrease contributions as a percentage of payroll more than comparable gains would in less mature plans. This leads to additional volatility.

Based on these metrics, the Plan is maturing as expected and contribution volatility will likely increase over time. If contribution volatility is of concern, asset allocation adjustments can be considered as a means of reducing this volatility.

Medium Risk Types

Interest Rate Risk: The Risk of Reduction in the Long-Term Rate of Return

The Accrued Liability for the Plan depends heavily on the actuarial assumption used for future investment returns. While the returns themselves can produce substantial volatility, as detailed in the Investment Risk subsection above, the long-term rate of return assumption of 7.0% is highly dependent on the allocation of Plan assets.

If market conditions and/or the allocation of Plan assets no longer support a long-term rate of return assumption of 7.0%, the Actuarial Interest Rate (AIR) may have to be reduced, which can significantly increase the Accrued Liability, Unfunded Accrued Liability, Normal Cost, and resulting contribution of the Plan. The sensitivity of the Accrued Liability, the Unfunded Accrued Liability, and Normal Cost of the Plan are shown below:

NEW YORK CITY FIRE PENSION FUND	
SENSITIVITY ANALYSIS AS OF JUNE 30, 2022	
Valuation Date	June 30, 2022
Results at 7.0%	
1. Accrued Liability (AL)	\$ 25,423,190,980
2. Actuarial Value of Assets (AVA)	<u>18,205,629,000</u>
3. Unfunded Accrued Liability (1. - 2.)	\$ 7,217,561,980
4. Normal Cost	\$ 615,055,409
Results at 6.0%	
1. Accrued Liability (AL)	\$ 28,315,780,383
2. Actuarial Value of Assets (AVA)	<u>18,205,629,000</u>
3. Unfunded Accrued Liability (1. - 2.)	\$ 10,110,151,383
4. Normal Cost	\$ 760,586,034
Sensitivity Analysis for 1.0% Reduction in Interest Rate	
1. Increase in Accrued Liability	11.4%
2. Increase in Unfunded Accrued Liability	40.1%
3. Increase in Normal Cost	23.7%

Longevity Risk: The Risk of Higher than Assumed Mortality Improvement
FIRE faces risk in its assumption of future mortality rates. Actuarial experience studies were used to develop the base mortality rates assumed in the valuation; Society of Actuaries mortality improvement scale MP-2020 was subsequently applied to these base rates.¹

This scale MP-2020 is an assumption regarding the *improvement* of future mortality rates as compared to mortality when the experience studies were completed. The scale was developed using large amounts of historical data from the Social Security Administration. Risk therefore exists such that the mortality improvement inherent in the Plan population is higher than the improvement seen in the population provided by the Social Security Administration. When mortality improvement is higher than assumed, plan participants will live longer than expected, and the plan will pay more pension benefits than had been previously funded.

Furthermore, while the scale uses recent experience to develop short-term mortality improvement rates, an actuarial assumption is applied to long-term mortality improvement rates based on expert opinion. A rate of 1.0% is assumed, which the Society of Actuaries characterizes as “neither overly optimistic nor too pessimistic with respect to future longevity improvements.”² Risk to the Plan exists, however, if Plan mortality experience shows higher levels of long-term mortality improvement; expert opinion can in some cases be flawed, particularly when past experience is not indicative or predictive of future experience.

In a letter dated June 28, 2019, Buck analyzed historical Plan experience and noted “it appears that historical mortality improvement in NYC pensioners has kept pace with, and in some cases may have exceeded slightly, the mortality improvement trends in historical Social Security Administration graduated rates that are based on a broad US population” and that “continued use of MP-20xx mortality improvement scales seems reasonable.” It may be prudent in future years, after longer trends can be observed, to quantify the effect of changing the ultimate mortality improvement rate to be higher than 1.0%.

Litigation Risk: The Risk of Legal Claims and Lawsuits

It is not uncommon for New York City to be a defendant in legal claims and lawsuits.³ In its most recent claims report, the Comptroller reports that in FY2023, NYC settled 13,227 claims and lawsuits for \$1.45 billion. On occasion, these settlements involve NYCERS. The 1996 case *Gulino v. Board of Education* awards damages to plaintiffs that in some cases include counterfactual service and salary in NYCERS. It remains a continuing risk that litigation may expand the scope of pension benefits beyond what is intended or codified in statute.

¹ Retirement Plans Experience Committee. “Mortality Improvement Scale MP-2020 Report,” “Mortality Improvement Scale MP-2018 Report,” and “Mortality Improvement Scale MP-2014 Report.” *Society of Actuaries*.

² Retirement Plans Experience Committee. “Mortality Improvement Scale BB Report” 5.5 Selection of 1.0% Long-Term Rate of Mortality Improvement. *Society of Actuaries*.

³ <https://comptroller.nyc.gov/reports/annual-claims-report>

Credit/Solvency Risk: The Risk of Potential Insolvency of Contributing Entities
All public pension systems face credit risk in the event their sponsoring entities become unable to pay their debts and obligations. Credit rating agencies currently consider New York City bonds to be of high quality, and the Actuary believes the City faces low credit risk as the main contributing entity to FIRE.

Other Risk Types

Inflation Risk: The Risk of Higher than Assumed Inflation

FIRE faces risk if inflation is higher than expected. Inflation is a key driver of the salary increase assumptions (affecting active members) and COLA assumptions (affecting both active members and pensioners/beneficiaries). A quantitative analysis is not available at this time. Notably, however, the pensioner COLA is limited to half of CPI on the first \$18,000 of annual benefits, which limits the risk exposure to inflation.

Contribution Risk: The Risk that Future Contributions Are Less Than the Actuarially Determined Contributions

Public pension systems can suffer from contribution risk when sponsoring governmental entities fail to make contributions as determined by the actuary under their funding policies.

The New York City Retirement Systems and Pension Funds face low contribution risk. Participating employers have historically contributed the actuarial contribution as certified by the Actuary. The Actuary believes the City will continue to do so in future years. See Table III-5 ACTUARIAL AND STATUTORY CONTRIBUTION HISTORY.

Contribution risk may also increase in future years if the actuarial contribution determined for the Plan grows to be a larger part of the City budget. The five New York City Retirement Systems and Pension Funds currently require contributions of approximately 10% of the City's annual budget, and contribution risk may increase if this contribution rate becomes untenable.

Agency/Political Risk: The Risk of Stakeholder Influences

With assumed long-term asset returns and gradual amortization of unfunded liabilities, the funded status of the Plan is expected to improve over time. Many public pension systems suffer from agency risk, wherein different stakeholders or agents want to influence the cost calculations in directions favorable to their interests. Agents may also downplay other risks (e.g., investment risk) to advance specific agendas. These situations create cases where promises for future funding can be disregarded for political expediency or other priorities. In other cases, certain plan provisions or administrative practices intended to provide occasional clarity or relief become commonplace or intentionally sought for the benefit of members at the expense of taxpayers.

Intergenerational Equity Risk: The Risk of Inequity in the Actuarially Determined Contributions

Intergenerational inequity could exist for certain stakeholders (e.g., public taxpayers). If, for example, liabilities are valued using overly conservative assumptions, aggressive funding patterns may occur, thus causing current taxpayers to shoulder a disproportionately high share of the funding burden, as compared to past and future taxpayers. The reverse can also be true if aggressive or unrealistic assumptions are used. As the Plan is ongoing, taxpayers across all generations should be expected to offer similar funding contributions over the lifetime of the Plan.

Additionally, in future years of higher or lower funded status, changes in the statute may take place that can improve or diminish plan provisions. If so, intergenerational equity risk could increase as taxpayers and plan members at that time may receive preferential or less preferential treatment over the taxpayers and plan members prior to and subsequent to them.

SECTION VIII – SUMMARY OF PLAN PROVISIONS

A. Effective Date

July 15, 1941.

B. Tier Membership

Tier 1: Prior to July 1, 1973

Tier 2: July 1, 1973 to June 30, 2009

Tier 3: July 1, 2009 to March 31, 2012 and did not elect to join Tier 3 Enhanced

Tier 3 Modified: April 1, 2012 to June 14, 2016 and did not elect to join Tier 3 Enhanced

Tier 3 Enhanced: On or after June 15, 2016 and those in Tier 3 and Tier 3 Modified who elected to join.

Eligible service includes City service in positions in the competitive class of the civil service for probationary periods or permanent appointments in the Fire Department.

C. Member Contributions

Tier 1 and Tier 2: Required Member Contributions – Based upon age at entry and elected retirement age, credited with interest at 8.25%. Contributions are required for the first 20 years.

Voluntary Member Contributions – Additional contributions to the Annuity Savings Fund credited with interest at 8.25%.

Tier 3, Tier 3 Modified, and Tier 3 Enhanced: Basic Member Contributions (BMC) - Members contribute 3.0% of salary for a maximum of 25 years. The Tier 3 interest rate is 5.0%.

Additional Member Contributions (AMC) – Effective September 8, 2022, Tier 3 Enhanced Plan members are required to contribute an additional 2.0% (previously 2.1%) of salary for a maximum of 25 years. Chapter 298/16 states that the AMC rate for Tier 3 Enhanced Plan members is required to be reviewed by the Actuary every 3 years.

D. Increased-Take-Home-Pay (ITHP) Contributions

Tier 1 and Tier 2: The City of New York pays a portion of member contributions. Effective October 1, 2000, the rate of ITHP contributions is 5.0% of salary, accumulated with regular and additional interest. The member may elect to waive the ITHP reduction

from the full member rate and contribute at the full member rate, which results in additional benefits attributable to the ITHP contributions.

Tier 3, Tier 3 Modified, and Tier 3 Enhanced: The City of New York does not pay any portion of member contributions.

E. Credited Service

Credited Service is classified as Allowable Fire Service or certain other Credited Service:

- Members are credited with one year of service for two hundred fifty or more days of service and not more than one year for all service in any calendar year.
- **Tier 1 and Tier 2:** Allowable Fire Service includes service in the Uniformed Force of the New York City Police Department, Uniformed Transit Police Force, Uniformed Housing Police Force, Uniformed Correction Force, Uniformed Sanitation Force, and as an Emergency Medical Technician, provided all such service immediately precedes the Uniformed Fire Force service.
- **Tier 3, Tier 3 Modified, and Tier 3 Enhanced:** Fire Service includes service in the Uniformed Force of the New York City Police Department and the New York State and Local Fire and Police Retirement System.
- Members may purchase, subject to limitations in the law, years of certain wartime military service, combined military service, and service as police officers in a foreign country for the United States Government, and authorized Child Care Leave.

F. Salary Base

Tier 1: Final Salary (FS): The contract rate of base pay and holiday pay on the last day paid, plus any overtime, night differential, and worked vacation earned in the previous 12 months, plus applicable longevity pay.

For members appointed on or after June 17, 1971, the pensionable compensation for the final year of service is limited by the Kingston Law to 120% of the pensionable compensation for the year immediately preceding the final year.

Tier 2: Final Average Salary (FAS): Total pensionable compensation (i.e., wages, overtime, night differential, worked vacation, etc.) a member earned during the 12 months preceding the date of retirement, not in excess of 120% of the immediate previous 12 months' pensionable compensation. If greater, FAS will equal the greatest average three consecutive years' pensionable compensation, where each year's salary cannot exceed 120% of the average of the two previous years.

Tier 3: FAS: The average total pensionable compensation earned by a member during any three consecutive year period based on the month and day of retirement that provides the highest average wages. If the wages earned during any year included in the period exceed the average of the prior two years by more than 10%, the amount in excess of 10% shall be excluded. Additionally, if the member was on a leave of absence without pay (e.g., suspension) at any time during the three-year period, that time, not in excess of 12 months, will be excluded from the calculation and the same period of time immediately preceding the three-year period will be included for the final average salary.

Tier 3 Modified and Tier 3 Enhanced: FAS: The average total pensionable compensation earned by a member during any five consecutive years based on the month and day of retirement that provides the highest average wages. If the wages earned during any year included in the period exceed the average of the prior four years by more than 10%, the amount in excess of 10% shall be excluded. Additionally, if the member was on a leave of absence without pay (e.g., suspension) at any time during the five-year period, that time, not in excess of 12 months, will be excluded from the calculation and the same period of time immediately preceding the five-year period will be included for the final average salary.

G. Service Retirement

1. Eligibility

The eligibility requirements for normal service retirement and early service retirement are summarized in the table below:

Tier	Minimum Service for Normal Retirement	Minimum Service for Early Retirement
1	20	NA
2	20	NA
3	22	20
3 Modified	22	20
3 Enhanced	22	20

2. Benefits

a. Tier 1 and Tier 2

- i. 50% of [FS (Tier 1) or FAS (Tier 2)] plus 1/60th of the sum of all salary after 20 or 25 years, as applicable, of Credited Service.
- ii. The benefit is adjusted by the annuitized value of the net excess or deficit of accumulated member contributions and ITHP over or under the required amounts.

b. Tier 3, Tier 3 Modified, and Tier 3 Enhanced

- i. 2.1% of FAS times number of years of Credited Service for first 20 years plus 4.0% of FAS times number of years of Credited Service in excess of 20 years (total benefit limited to 50% of FAS), less 50% of the Primary Social Security Retirement benefit at age 62.

H. Disability Retirement

1. Accidental Disability (ADR)

- a. Eligibility for all Tiers: Immediate. Must be found by the Medical Board and the Board of Trustees to be physically or mentally unable to perform regular job duties as a result of an injury received in the performance of duty and such disability was not the result of willful negligence on the part of the member.

- b. Benefits

- i. Tier 1 and Tier 2

- 75% of [FS (Tier 1) or FAS (Tier 2)] plus 1/60th of the sum of all salary after 20 or 25 years in accordance with the Member's selection of the minimum period of Credited Service, plus annuitized value of actual member accumulated contributions and ITHP.

- ii. Tier 3 and Tier 3 Modified

- 50% of FAS less 50% of the Primary Social Security Disability Benefits.

- iii. Tier 3 Enhanced Plan

- 75% of FAS.

2. Ordinary Disability (ODR)

- a. Eligibility

- i. Tier 1 and Tier 2

- Immediate. Must be found by the Medical Board and the Board of Trustees to be physically or mentally unable to perform regular job duties as a result of an injury not received in the performance of duty.

- ii. Tier 3, Tier 3 Modified and Tier 3 Enhanced

Five years of Credited Service and eligibility for Social Security disability benefit.

b. Benefits

i. Tier 1 and Tier 2

(a) For members choosing 20 years as their minimum period of Membership service: 2.5% times [FS (Tier 1) or FAS (Tier 2)] times Credited Service.

(b) For members choosing 25 years as their minimum period of Membership service: 2.0% times [FS (Tier 1) or FAS (Tier 2)] times Credited Service.

Minimum Benefit:

Less than 10 years of service: $\frac{1}{3}$ of [FS (Tier 1) or FAS (Tier 2)]

10 or more years of service: $\frac{1}{2}$ of [FS (Tier 1) or FAS (Tier 2)],

plus (regardless of service) the annuitized value of the net excess or deficit of member accumulated contributions and ITHP over or under the required amounts.

ii. Tier 3, Tier 3 Modified, and Tier 3 Enhanced

The greater of:

(a) 33-1/3% of FAS

(b) 2.0% of FAS times number of years of Credited Service (not in excess of 22 years),

less 50% of the Primary Social Security Disability Benefit (non-Enhanced Plan only).

I. Death Benefits:

1. Accidental Death Benefits (New York City-paid)

a. Eligibility for all Tiers: No age or service requirement. Death due to the performance of duties while an active member.

b. Benefits

i. Tier 1 and Tier 2

50% of the average of the final salary as defined as the last 12 months of earnings, payable annually to surviving spouse or other eligible dependents for life.

In addition, a lump sum of accumulated member contributions and ITHP.

ii. Tier 3, Tier 3 Modified, and Tier 3 Enhanced

50% of FAS, payable annually to surviving spouse or other eligible dependents for life.

2. Special Accidental Death Benefits (New York State-paid)

a. Eligibility: No age or service requirement. Death due to the performance of duties while an active member. Payable only to the surviving spouse, eligible parent, or children until age 18 (or age 23, if a full-time student), if there is no surviving spouse.

b. Benefits: A monthly pension is payable to the beneficiary in an amount that when added to the New York City-paid Accidental Death Benefit (outlined in 1.) and any payable Social Security benefit is equal to the decedent's last year's wages including overtime and any other type of pensionable earnings.

3. Ordinary Death Benefit

a. Eligibility

i. Tier 1: Immediate

ii. Tier 2, Tier 3, Tier 3 Modified, and Tier 3 Enhanced: 90 days of service

b. Benefits

i. Tier 1

Less than 10 years of Credited Service: 50% of FS plus accumulated member contributions and ITHP with interest.

At least 10 years of Credited Service: 100% of FS plus accumulated member contributions and ITHP with interest.

However, if a member would have been eligible for a service retirement benefit at the date of death, the beneficiary may elect to receive the pension reserve had the member retired on the day before his or her death plus the accumulated member contributions. The beneficiary can also elect to receive the death benefit in the form of an annuity.

ii. Tier 2

Three times final year's salary raised to the next highest multiple of \$1,000 plus accumulated member contributions.

However, if a member would have been eligible for a service retirement benefit at the date of death, the beneficiary may elect to receive the pension reserve had the member retired on the day before his or her death plus the accumulated member contributions. The beneficiary can also elect to receive any death benefit and ITHP, if applicable, in the form of an annuity. The accumulated member contributions would still be paid as a lump sum.

iii. Tier 3, Tier 3 Modified, and Tier 3 Enhanced

Three times final year's salary raised to the next highest multiple of \$1,000 plus accumulated member contributions.

- c. Form of Payment: Lump sum. The first \$50,000 of benefit on account of death in active service will be paid from the Group Life Insurance Plan.

J. Vested Retirement After Termination

1. Eligibility: Five years of Credited Service for all Tiers
2. Benefits: A vestee may elect a refund of accumulated member contributions, but would then lose entitlement to a vested benefit. The Benefit at Service Retirement Date:

a. Tier 1 and Tier 2

2.5% for members choosing 20 years as their minimum period of Membership service, or 2.0% for members choosing 25 years as their minimum period of Membership service, times [FS (Tier 1) or FAS (Tier 2)]

times number of years of Credited Service plus annuitized value of the net excess or deficit of accumulated member contributions and ITHP over or under the required amounts with interest to normal retirement date.

b. Tier 3, Tier 3 Modified, and Tier 3 Enhanced

2.1% of FAS times number of years of Credited Service payable at the Early Retirement Age (i.e., the earlier of the date when 20 years of Credited Service would have been completed or age 62) or at age 55. If the benefit commences before the Early Retirement Age, there are reductions.

In addition, the benefit is reduced by 50% of the Primary Social Security Retirement benefit at age 62 (non-Enhanced Plan only).

K. Forms of Payment

1. Normal Form of Payment: Single Life Annuity.
2. Optional Forms of Payment: Joint and Survivor Annuities, Certain and Life Annuities.

L. Loans

Applicable to Tier 1 and Tier 2 only.

1. Eligibility: After three years of membership and up to the day of retirement.
2. Amount: Up to 90% of accumulated member contributions with a limit of \$50,000 for tax-free treatment under Internal Revenue Code (IRC) Section 72(p).

M. Cost-of-Living Adjustments (COLA)

Annuity payments are increased annually on September 1st, but only after a pensioner has attained the applicable eligibility threshold. Some beneficiaries are not eligible for COLA increases. The COLA increase is equal to a base benefit times a COLA percentage. The COLA increase for a spouse receiving a joint & survivor annuity is one half of the COLA increase that would have been applicable to the member had he or she survived.

1. Eligibility Thresholds:
 - a. Service Retirement and Vested Retirement: The earlier of (i) and (ii):
 - i. Attainment of age 62 and 5 years since commencement
 - ii. Attainment of age 55 and 10 years since commencement

- b. Disability Retirement: 5 years since commencement
 - c. Beneficiaries of an Accidental Death benefit: 5 years since commencement
2. Eligible beneficiaries: Spouses receiving a joint & survivor annuity or beneficiaries of an Accidental Death benefit. All others are non-eligible.
 3. Base Benefit: The lesser of \$18,000 and the maximum retirement allowance plus the sum of prior years' COLA increases.
 4. COLA percentage: 50% of the Consumer Price Index (CPI-U) based upon the 12 months ending March 31 prior to each September 1 effective date, rounded to the next higher 0.1%. Such percentage shall not be less than 1.0% nor greater than 3.0%.

N. Escalation

1. Eligibility:
 - a. Tier 3 and Tier 3 Modified members receiving service, vesting, disability retirement, and survivor benefits.
 - b. Tier 3 Enhanced Plan members receiving vested or service retirement benefits.
 - c. All members above receive COLA, if greater.
2. Full Escalation Date
 - a. Vested and Service Pensions: The first day of the month following the day which a member completes or would have completed 25 years of service.
 - b. Disability Pensions: The first day of the month following the day which a non-Enhanced Plan disability retiree first becomes eligible for ODR/ADR.
 - c. Death Benefits: The first day of the month following the day which a beneficiary first becomes eligible for a death benefit paid other than in a lump sum.
3. Amount

If a member first begins receiving benefits on the same date as the Full Escalation Date, the member will receive Full Escalation which is the lesser of 3.0% or the Cost-of-Living Index increase, as computed on the December 31 of each prior year for benefits being escalated the following April.

In the event of a decrease in the Cost-of-Living Index, the current benefit will be decreased by the lesser of 3% or the Cost-of-Living Index. However, the benefit will not be reduced below the benefit payable at the initial commencement date.

In addition, Cost-of-Living Index changes are computed on a cumulative basis so that any increases or decreases not affected in an adjustment are carried forward and applied in subsequent years.

4. Partial Escalation

Partial Escalation is calculated on benefits that commence prior to the member's Full Escalation Date. For each month that the benefit commencement date succeeds the date when a member completes or would have completed 22 years of service, a member will receive 1/36th of the Full Escalation, to a maximum of Full Escalation at 25 years of service.

O. WTC Disability Benefits

Certain active, vested, and retired members of the Plan, who participated in the rescue, recovery, or clean-up operations at the WTC site, and who become disabled due to certain diseases (e.g., diseases in the respiratory tract, gastroesophageal tract, psychological axis, and skin), are presumed to have become disabled in the performance of duty and therefore may be entitled to be reclassified with an Accidental Disability Retirement.

P. WTC Death Benefits

Certain active, vested, and retired members of the Plan, who participated in the rescue, recovery, or clean-up operations at the WTC site, and who die due to certain diseases (e.g., diseases in the respiratory tract, gastroesophageal tract, psychological axis, and skin) are presumed to have died in the performance of duty potentially entitling eligible beneficiaries to receive Accidental Death Benefits.

Q. Others

None.

SECTION IX – CHAPTER AMENDMENTS

The June 30, 2022 actuarial valuation results reflect the following Chapter amendments from the prior five years.

- **Chapter 782 of the Laws of 2022** (Chapter 782/22) extends eligibility of Special Accidental Death Benefits to parents of certain deceased members who died in the line-of-duty.
- **Chapter 528 of the Laws of 2022** (Chapter 528/22) grants a 3% COLA increase to beneficiaries receiving Special Accidental Death Benefits pursuant to Section 208(f) of the General Municipal Law (GML). (Similar legislation was enacted in each of the previous years.)
- **Chapter 704 of the Laws of 2021** (Chapter 704/21) establishes a presumption with respect to Parkinson’s Disease that results in death or disability for paid firefighters in New York State.
- **Chapter 540 of the Laws of 2021** (Chapter 540/21) amends Section 443 of the Retirement and Social Security Law to change the salary base for FIRE Tier 2 members who are hired on or after July 1, 2000 to a salary base used for such members who joined prior to July 1, 2000.
- **Chapter 424 of the Laws of 2021** (Chapter 424/21) expands eligibility of certain public service employees for participation in the World Trade Center Rescue, Recovery, or Clean-up Operations.
- **Chapter 89 of the Laws of 2020** (Chapter 89/20) provides death benefits to statutory beneficiaries of members whose death was a result of or was attributed to COVID-19. **Chapter 783 of the Laws of 2022** (Chapter 783/22) amends Chapter 89/20 by extending the eligibility window of these death benefits through December 31, 2024.
- **Chapter 250 of the Laws of 2019** (Chapter 250/19) relates to presumptive evidence of disability caused by cancer of firefighters who have been retired for five years or less.
- **Chapter 266 of the Laws of 2018** (Chapter 266/18) extends the deadline to file a Notice of Participation in the World Trade Center Rescue, Recovery, and Cleanup Operations to September 11, 2022.

SECTION X – SUBSEQUENT EVENTS

The following legislation was adopted after the June 30, 2022 valuation date and could have an impact on future years' valuations:

- **Chapter 56 of the Laws of 2024** (Chapter 56/24) reduces the number of years used to calculate the Final Average Salary from 5 years to 3 years for certain Tier 3 and Tier 6 members of NYCERS .
- **Chapter 213 of the Laws of 2023** (Chapter 213/23) **and Chapter 162 of the Laws of 2024** (Chapter 162/24) extend the 3% COLA increase to beneficiaries receiving Special Accidental Death Benefits. Note that the June 30, 2022 valuation assumes that future legislation on this 3% COLA increase will continue to pass in subsequent years. For more information on this COLA assumption, see page 64.

SECTION XI – ACTUARIAL ASSUMPTIONS AND METHODS

The results in this valuation report are based upon standard actuarial models (including but not limited to Entry Age Normal and related parameters) that are widely used in actuarial practice. The models are intended to calculate the liabilities associated with these plan provisions using data and assumptions as of the measurement date, and using actuarial assumptions and methods further described below.

Most of this liability and cashflow modeling is currently implemented using ProVal, an actuarial valuation and projection software program developed by Winklevoss Technologies. These results are reviewed for accuracy, reasonability, and consistency with prior results, consistent with the requirements of Actuarial Standard of Practice 56. The model is also reviewed extensively when significant changes are made to the software and additionally typically biennially by outside actuarial auditors hired by the New York City Comptroller.

Pension payments that exceed the Internal Revenue Code Section 415 Limit which have been or are expected to be made from the Excess Benefit Plan are excluded from this valuation. There were no other changes in actuarial assumptions and methods compared to the June 30, 2021 valuation.

Table XI-1a
Service Retirement, Unreduced with Full COLA/Escalation

NEW YORK CITY FIRE PENSION FUND		
PROBABILITIES OF SERVICE RETIREMENT RETIREMENT WITH FULL COLA/ESCALATION FOR THOSE ELIGIBLE FOR UNREDUCED		
Age	Years of Service Since First Eligible	
	Year 1	Ultimate
19	0.00%	0.00%
20	0.00%	0.00%
21	0.00%	0.00%
22	0.00%	0.00%
23	0.00%	0.00%
24	0.00%	0.00%
25	0.00%	0.00%
26	0.00%	0.00%
27	0.00%	0.00%
28	0.00%	0.00%
29	0.00%	0.00%
30	0.00%	0.00%
31	0.00%	0.00%
32	0.00%	0.00%
33	0.00%	0.00%
34	0.00%	0.00%
35	0.00%	0.00%
36	5.00%	0.00%
37	5.00%	1.50%
38	5.00%	1.50%
39	5.00%	1.50%
40	5.00%	1.50%
41	5.00%	1.50%
42	5.00%	1.50%
43	5.00%	1.50%
44	5.00%	1.50%
45	5.00%	1.50%
46	5.50%	1.50%
47	6.00%	1.50%
48	6.50%	1.50%
49	7.00%	1.50%
50	7.50%	1.50%
51	8.00%	1.50%
52	8.50%	2.25%
53	9.00%	3.00%
54	9.50%	3.75%
55	10.00%	4.50%
56	10.00%	5.25%
57	10.00%	6.00%
58	10.00%	6.75%
59	10.00%	7.50%
60	10.00%	9.00%
61	15.00%	11.25%
62	20.00% ¹	15.00% ¹
63	25.00% ¹	25.00% ¹
64	25.00% ¹	25.00% ¹
65	100.00%	100.00%

¹ 100% for Tier 3, Tier 3 Modified, and Tier 3 Enhanced members

Table XI-1b
Early Service Retirement

NEW YORK CITY FIRE PENSION FUND		
PROBABILITIES OF EARLY SERVICE RETIREMENT FOR TIER 3, TIER 3 MODIFIED, AND TIER 3 ENHANCED MEMBERS		
Years of Service	Reduced Service Retirement	Unreduced Before Full Escalation
20	5.00%	N/A
21	2.00%	N/A
22	N/A	5.00%
23	N/A	2.00%
24	N/A	2.00%

**Table XI-2
Active Termination Rates**

NEW YORK CITY FIRE PENSION FUND	
PROBABILITIES OF TERMINATION	
Years Of Service	Probability of Termination
0	2.00%
1	0.80%
2	0.40%
3	0.40%
4	0.40%
5	0.40%
6	0.36%
7	0.32%
8	0.28%
9	0.24%
10	0.20%
11	0.18%
12	0.16%
13	0.14%
14	0.12%
15	0.10%
16	0.10%
17	0.10%
18	0.10%
19	0.10%
20	N/A

**Table XI-3
Active Disability Rates**

NEW YORK CITY FIRE PENSION FUND				
PROBABILITIES OF DISABILITY RETIREMENT				
		Accidental Disability		
Age	Ordinary Disability	Tier 1 & Tier 2 Eligible for WTC Benefits	Tier 1 & Tier 2 Not Eligible for WTC AND Tier 3 Enhanced Plan	Tier 3 & Tier 3 Modified Non-Enhanced Plan
15	0.0025%	0.050%	0.035%	0.030%
16	0.0025%	0.050%	0.035%	0.030%
17	0.0025%	0.050%	0.035%	0.030%
18	0.0025%	0.050%	0.035%	0.030%
19	0.0025%	0.050%	0.035%	0.030%
20	0.0025%	0.050%	0.035%	0.030%
21	0.0025%	0.050%	0.035%	0.030%
22	0.0025%	0.050%	0.035%	0.030%
23	0.0025%	0.050%	0.035%	0.030%
24	0.0025%	0.050%	0.035%	0.030%
25	0.0025%	0.050%	0.035%	0.030%
26	0.0025%	0.090%	0.045%	0.040%
27	0.0050%	0.130%	0.055%	0.050%
28	0.0075%	0.170%	0.075%	0.070%
29	0.0100%	0.210%	0.115%	0.100%
30	0.0125%	0.250%	0.175%	0.150%
31	0.0150%	0.400%	0.275%	0.240%
32	0.0175%	0.550%	0.375%	0.330%
33	0.0200%	0.700%	0.475%	0.420%
34	0.0225%	0.850%	0.575%	0.510%
35	0.0250%	1.000%	0.700%	0.600%
36	0.0275%	1.200%	0.850%	0.720%
37	0.0300%	1.400%	1.000%	0.840%
38	0.0325%	1.600%	1.150%	0.960%
39	0.0350%	1.800%	1.300%	1.080%
40	0.0375%	2.000%	1.500%	1.200%
41	0.0400%	2.200%	1.650%	1.320%
42	0.0425%	2.400%	1.800%	1.440%
43	0.0450%	2.600%	1.950%	1.560%
44	0.0475%	2.800%	2.100%	1.680%
45	0.0500%	3.000%	2.300%	1.800%
46	0.0550%	3.400%	2.650%	1.920%
47	0.0600%	3.800%	3.000%	2.040%
48	0.0650%	4.200%	3.350%	2.160%
49	0.0700%	4.600%	3.700%	2.280%
50	0.0750%	5.000%	4.050%	2.400%
51	0.1100%	5.600%	4.400%	2.520%
52	0.1450%	6.200%	4.750%	2.640%
53	0.1800%	6.800%	5.100%	2.760%
54	0.2150%	7.400%	5.450%	2.880%
55	0.2500%	8.000%	5.800%	3.000%
56	0.5000%	10.000%	8.000%	4.000%
57	0.7500%	12.000%	10.000%	5.000%
58	1.0000%	15.000%	12.500%	6.000%
59	1.2500%	18.000%	15.000%	7.000%
60	1.5000%	21.000%	17.500%	8.000%
61	2.0000%	25.000%	20.000%	9.000%
62	2.5000% ¹	30.000%	22.000% ¹	N/A
63	2.5000% ¹	30.000%	22.000% ¹	N/A
64	2.5000% ¹	30.000%	22.000% ¹	N/A
65	N/A	N/A	N/A	N/A

¹N/A for Tier 3, Tier 3 Modified, and Tier 3 Enhanced members.

Table XI-4
Active Mortality Rates

NEW YORK CITY FIRE PENSION FUND			
PROBABILITIES OF MORTALITY FOR ACTIVE MEMBERS BASE RATES			
	Ordinary Death		Accidental Death
Age	Males	Females	All
15	0.020%	0.015%	0.010%
16	0.020%	0.015%	0.010%
17	0.020%	0.015%	0.010%
18	0.020%	0.015%	0.010%
19	0.020%	0.015%	0.010%
20	0.020%	0.015%	0.010%
21	0.020%	0.015%	0.010%
22	0.020%	0.015%	0.010%
23	0.020%	0.015%	0.010%
24	0.020%	0.015%	0.010%
25	0.020%	0.015%	0.010%
26	0.020%	0.015%	0.010%
27	0.020%	0.015%	0.010%
28	0.020%	0.015%	0.010%
29	0.020%	0.015%	0.010%
30	0.020%	0.015%	0.010%
31	0.020%	0.015%	0.010%
32	0.020%	0.015%	0.010%
33	0.020%	0.015%	0.010%
34	0.020%	0.015%	0.010%
35	0.020%	0.015%	0.010%
36	0.021%	0.016%	0.010%
37	0.022%	0.017%	0.010%
38	0.023%	0.018%	0.010%
39	0.024%	0.019%	0.010%
40	0.025%	0.020%	0.010%
41	0.030%	0.023%	0.013%
42	0.035%	0.026%	0.016%
43	0.040%	0.029%	0.019%
44	0.045%	0.032%	0.022%
45	0.050%	0.035%	0.025%
46	0.055%	0.038%	0.030%
47	0.060%	0.041%	0.035%
48	0.065%	0.044%	0.040%
49	0.070%	0.047%	0.045%
50	0.075%	0.050%	0.050%
51	0.080%	0.055%	0.060%
52	0.085%	0.060%	0.070%
53	0.090%	0.065%	0.080%
54	0.095%	0.070%	0.090%
55	0.100%	0.075%	0.100%
56	0.110%	0.080%	0.110%
57	0.120%	0.085%	0.120%
58	0.130%	0.090%	0.130%
59	0.140%	0.095%	0.140%
60	0.150%	0.100%	0.150%
61	0.160%	0.110%	0.200%
62	0.170% ¹	0.120% ¹	0.250% ¹
63	0.180% ¹	0.130% ¹	0.300% ¹
64	0.190% ¹	0.140% ¹	0.350% ¹
65	N/A	N/A	N/A

¹Probabilities are N/A for Tier 3 and Tier 3 Modified members.

Table XI-5
Service Retiree Mortality

NEW YORK CITY FIRE PENSION FUND					
PROBABILITIES OF MORTALITY FOR SERVICE RETIREES BASE RATES					
Age	Males	Females	Age	Males	Females
15	0.0100%	0.0084%	68	1.2063%	0.7604%
16	0.0135%	0.0103%	69	1.2653%	0.8243%
17	0.0181%	0.0112%	70	1.4084%	0.9061%
18	0.0217%	0.0131%	71	1.5806%	0.9954%
19	0.0240%	0.0140%	72	1.7538%	1.0940%
20	0.0251%	0.0142%	73	1.9842%	1.2060%
21	0.0268%	0.0150%	74	2.2163%	1.3283%
22	0.0284%	0.0158%	75	2.4510%	1.4362%
23	0.0301%	0.0168%	76	2.6879%	1.6455%
24	0.0315%	0.0179%	77	2.9280%	1.8563%
25	0.0327%	0.0191%	78	3.3690%	2.0670%
26	0.0342%	0.0204%	79	3.8155%	2.3446%
27	0.0354%	0.0217%	80	4.2660%	2.6218%
28	0.0371%	0.0231%	81	4.7728%	2.8997%
29	0.0394%	0.0247%	82	5.2958%	3.1772%
30	0.0427%	0.0265%	83	6.2483%	3.4554%
31	0.0503%	0.0323%	84	7.2266%	3.9664%
32	0.0581%	0.0372%	85	8.2335%	4.4805%
33	0.0655%	0.0415%	86	9.2715%	4.9967%
34	0.0725%	0.0448%	87	10.3365%	5.5147%
35	0.0799%	0.0478%	88	11.2397%	6.0388%
36	0.0851%	0.0505%	89	12.1663%	7.0317%
37	0.0901%	0.0532%	90	13.1242%	8.0312%
38	0.0961%	0.0561%	91	14.6163%	9.4265%
39	0.1037%	0.0595%	92	16.2757%	10.8698%
40	0.1138%	0.0634%	93	18.9667%	12.3822%
41	0.1230%	0.0688%	94	21.5036%	13.7895%
42	0.1327%	0.0725%	95	23.9289%	15.2575%
43	0.1430%	0.0775%	96	25.8261%	16.7330%
44	0.1542%	0.0843%	97	27.5777%	18.2626%
45	0.1666%	0.0931%	98	29.2887%	19.6947%
46	0.1798%	0.1041%	99	30.8020%	21.1460%
47	0.1941%	0.1166%	100	32.1584%	22.1859%
48	0.2093%	0.1295%	101	33.7521%	23.0680%
49	0.2250%	0.1425%	102	35.1259%	24.0803%
50	0.2412%	0.1555%	103	36.3671%	25.2770%
51	0.2975%	0.1681%	104	37.3834%	26.6309%
52	0.3514%	0.1797%	105	38.1051%	28.0912%
53	0.4018%	0.1902%	106	38.4698%	29.6244%
54	0.4483%	0.1996%	107	38.6325%	31.1943%
55	0.4895%	0.2075%	108	38.8076%	32.7579%
56	0.5352%	0.2144%	109	38.9794%	34.2712%
57	0.5757%	0.2629%	110	50.0000%	50.0000%
58	0.6104%	0.3090%	111	50.0000%	50.0000%
59	0.6391%	0.3530%	112	50.0000%	50.0000%
60	0.6625%	0.3957%	113	50.0000%	50.0000%
61	0.7126%	0.4377%	114	50.0000%	50.0000%
62	0.7621%	0.4800%	115	50.0000%	50.0000%
63	0.8255%	0.5231%	116	50.0000%	50.0000%
64	0.9079%	0.5675%	117	50.0000%	50.0000%
65	0.9997%	0.6138%	118	50.0000%	50.0000%
66	1.0607%	0.6613%	119	50.0000%	50.0000%
67	1.1308%	0.7103%	120	100.0000%	100.0000%

**Table XI-6
Disabled Retiree Mortality**

NEW YORK CITY FIRE PENSION FUND					
PROBABILITIES OF MORTALITY FOR DISABLED RETIREES					
BASE RATES					
Age	Males	Females	Age	Males	Females
15	0.0238%	0.0098%	68	1.5909%	1.2517%
16	0.0321%	0.0120%	69	1.7622%	1.4342%
17	0.0433%	0.0131%	70	1.9120%	1.6327%
18	0.0517%	0.0153%	71	2.1153%	1.8400%
19	0.0573%	0.0164%	72	2.3101%	2.0561%
20	0.0608%	0.0173%	73	2.4968%	2.2946%
21	0.0660%	0.0191%	74	2.6752%	2.5649%
22	0.0716%	0.0211%	75	2.8786%	2.8625%
23	0.0772%	0.0234%	76	3.2717%	3.1737%
24	0.0831%	0.0259%	77	3.6597%	3.4562%
25	0.0886%	0.0282%	78	4.0420%	3.7889%
26	0.0936%	0.0307%	79	4.4200%	4.3087%
27	0.1008%	0.0332%	80	4.8490%	4.8485%
28	0.1089%	0.0359%	81	5.6563%	5.4107%
29	0.1170%	0.0386%	82	6.4729%	5.8954%
30	0.1254%	0.0412%	83	7.2988%	6.3864%
31	0.1342%	0.0438%	84	8.1300%	7.2278%
32	0.1426%	0.0464%	85	8.9696%	8.0743%
33	0.1544%	0.0491%	86	9.7646%	8.8707%
34	0.1602%	0.0506%	87	10.5803%	9.6600%
35	0.1670%	0.0528%	88	11.4245%	10.5768%
36	0.1696%	0.0551%	89	12.3269%	11.9527%
37	0.1721%	0.0580%	90	13.2834%	13.2782%
38	0.1754%	0.0608%	91	15.7515%	14.7506%
39	0.1792%	0.0648%	92	18.1410%	15.8458%
40	0.1836%	0.0709%	93	20.4240%	16.9974%
41	0.1891%	0.0790%	94	22.5700%	18.2075%
42	0.1957%	0.0892%	95	24.6643%	19.3408%
43	0.2038%	0.1023%	96	26.5127%	20.3502%
44	0.2134%	0.1184%	97	28.2029%	21.2709%
45	0.2247%	0.1371%	98	29.5441%	21.9254%
46	0.2374%	0.1586%	99	30.9728%	22.3227%
47	0.2518%	0.1824%	100	32.1584%	22.4341%
48	0.2672%	0.2079%	101	33.7521%	23.0680%
49	0.2837%	0.2388%	102	35.1259%	24.0803%
50	0.3022%	0.2719%	103	36.3671%	25.2770%
51	0.3597%	0.2959%	104	37.3834%	26.6309%
52	0.4188%	0.3426%	105	38.1051%	28.0912%
53	0.4788%	0.3791%	106	38.4698%	29.6244%
54	0.5392%	0.4326%	107	38.6325%	31.1943%
55	0.5986%	0.4868%	108	38.8076%	32.7579%
56	0.6556%	0.5294%	109	38.9794%	34.2712%
57	0.7090%	0.5421%	110	50.0000%	50.0000%
58	0.7577%	0.5621%	111	50.0000%	50.0000%
59	0.8017%	0.6003%	112	50.0000%	50.0000%
60	0.8498%	0.6343%	113	50.0000%	50.0000%
61	0.9095%	0.6687%	114	50.0000%	50.0000%
62	0.9862%	0.7391%	115	50.0000%	50.0000%
63	1.0698%	0.8094%	116	50.0000%	50.0000%
64	1.1631%	0.8897%	117	50.0000%	50.0000%
65	1.2477%	0.9710%	118	50.0000%	50.0000%
66	1.3403%	1.0569%	119	50.0000%	50.0000%
67	1.4168%	1.1551%	120	100.0000%	100.0000%

**Table XI-7
Beneficiary Mortality**

NEW YORK CITY FIRE PENSION FUND					
PROBABILITIES OF BENEFICIARY MORTALITY BASE RATES					
Age	Males	Females	Age	Males	Females
15	0.0105%	0.0092%	68	1.8256%	1.3605%
16	0.0142%	0.0112%	69	1.9386%	1.4332%
17	0.0191%	0.0122%	70	2.0542%	1.5007%
18	0.0222%	0.0133%	71	2.2359%	1.6745%
19	0.0240%	0.0143%	72	2.4230%	1.8463%
20	0.0251%	0.0145%	73	2.6165%	2.0157%
21	0.0268%	0.0153%	74	2.8157%	2.1838%
22	0.0284%	0.0161%	75	3.0220%	2.3492%
23	0.0301%	0.0171%	76	3.4928%	2.6652%
24	0.0315%	0.0183%	77	3.9787%	2.9831%
25	0.0327%	0.0195%	78	4.4792%	3.3011%
26	0.0342%	0.0208%	79	4.9963%	3.6207%
27	0.0354%	0.0221%	80	5.5282%	3.9391%
28	0.0371%	0.0236%	81	6.1051%	4.4386%
29	0.0394%	0.0252%	82	6.6894%	4.9473%
30	0.0427%	0.0270%	83	7.2805%	5.4665%
31	0.0495%	0.0330%	84	7.8749%	5.9942%
32	0.0562%	0.0384%	85	8.4753%	6.5354%
33	0.0625%	0.0431%	86	9.6136%	7.4659%
34	0.0682%	0.0471%	87	10.8005%	8.3995%
35	0.0743%	0.0511%	88	12.0443%	9.3428%
36	0.0780%	0.0542%	89	13.3397%	10.2918%
37	0.0818%	0.0579%	90	14.6958%	11.2477%
38	0.0861%	0.0618%	91	16.4185%	12.8868%
39	0.0917%	0.0666%	92	18.1416%	14.4887%
40	0.0997%	0.0719%	93	19.8574%	16.0801%
41	0.1394%	0.0775%	94	21.6187%	17.5854%
42	0.1774%	0.0859%	95	23.5884%	19.0626%
43	0.2143%	0.0968%	96	25.4266%	20.2474%
44	0.2507%	0.1111%	97	27.2119%	21.2937%
45	0.2875%	0.1287%	98	29.0202%	22.0663%
46	0.3207%	0.1501%	99	30.6654%	22.5443%
47	0.3534%	0.1748%	100	32.1584%	22.6473%
48	0.3849%	0.2022%	101	33.7521%	23.5294%
49	0.4150%	0.2319%	102	35.1259%	24.5619%
50	0.4431%	0.2633%	103	36.3671%	25.7825%
51	0.5156%	0.2999%	104	37.3834%	27.1635%
52	0.5928%	0.3376%	105	38.1051%	28.6530%
53	0.6740%	0.3762%	106	38.4698%	30.2169%
54	0.7583%	0.4151%	107	38.6325%	31.8182%
55	0.8440%	0.4540%	108	38.8076%	33.4131%
56	0.9048%	0.5132%	109	38.9794%	34.9566%
57	0.9604%	0.5735%	110	50.0000%	50.0000%
58	1.0101%	0.6353%	111	50.0000%	50.0000%
59	1.0536%	0.6981%	112	50.0000%	50.0000%
60	1.0919%	0.7631%	113	50.0000%	50.0000%
61	1.1835%	0.8329%	114	50.0000%	50.0000%
62	1.2676%	0.8908%	115	50.0000%	50.0000%
63	1.3473%	0.9493%	116	50.0000%	50.0000%
64	1.4238%	1.0146%	117	50.0000%	50.0000%
65	1.4985%	1.0876%	118	50.0000%	50.0000%
66	1.6059%	1.1681%	119	50.0000%	50.0000%
67	1.7146%	1.2609%	120	100.0000%	100.0000%

**Table XI-8
Salary Scale**

NEW YORK CITY FIRE PENSION FUND		
ANNUAL RATES OF MERIT AND SALARY INCREASE		
Years of Service	Merit Increase	Salary Increase¹
0	20.00%	23.00%
1	12.00%	15.00%
2	12.00%	15.00%
3	12.00%	15.00%
4	27.00%	30.00%
5	16.00%	19.00%
6	1.65%	4.65%
7	1.80%	4.80%
8	1.95%	4.95%
9	4.05%	7.05%
10	2.25%	5.25%
11	2.40%	5.40%
12	2.55%	5.55%
13	2.70%	5.70%
14	4.65%	7.65%
15	3.00%	6.00%
16	2.85%	5.85%
17	2.70%	5.70%
18	2.55%	5.55%
19	4.20%	7.20%
20	2.25%	5.25%
21	2.10%	5.10%
22	1.95%	4.95%
23	1.80%	4.80%
24	1.65%	4.65%
25	1.50%	4.50%
26	1.35%	4.35%
27	1.20%	4.20%
28	1.05%	4.05%
29	0.90%	3.90%
30+	0.75%	3.75%

¹ Salary Increase is the General Wage Increase of 3.00% plus the Merit Increase.

**Table XI-9
Overtime Assumptions**

NEW YORK CITY FIRE PENSION FUND				
OVERTIME ASSUMPTION				
Years of Service	All Tiers Baseline	Tier 1 & Tier 2 Dual Service	Tier 3, Tier 3 Modified, & Tier 3 Enhanced Dual Service	All Tiers Dual Disability
0-13	20.00%	21.00%	21.00%	20.00%
14	20.00%	22.00%	21.00%	20.00%
15	20.00%	24.00%	21.00%	20.00%
16	20.00%	25.00%	22.00%	21.00%
17	20.00%	26.00%	24.00%	22.00%
18	21.00%	28.00%	25.00%	24.00%
19	22.00%	29.00%	26.00%	25.00%
20	24.00%	30.00%	28.00%	26.00%
21	22.00%	29.00%	26.00%	25.00%
22	21.00%	28.00%	25.00%	24.00%
23	20.00%	26.00%	24.00%	22.00%
24	19.00%	25.00%	22.00%	21.00%
25	17.00%	24.00%	21.00%	20.00%
26	16.00%	21.00%	19.00%	17.00%
27	15.00%	19.00%	18.00%	15.00%
28	13.00%	16.00%	15.00%	13.00%
29	12.00%	15.00%	13.00%	12.00%
30	11.00%	13.00%	12.00%	11.00%
31	9.00%	12.00%	11.00%	10.00%
32	8.00%	11.00%	9.00%	8.00%
33	7.00%	9.00%	8.00%	7.00%
34+	7.00%	8.00%	8.00%	7.00%

Additional Assumptions and Methods

1. **Actuarial Interest Rate (AIR):** 7.0% per annum, net of investment expenses.
2. **Mortality Assumption:** The mortality base tables are projected from 2012 using mortality improvement table MP-2020. The post-commencement base tables are also multiplied by adjustment factors to convert them from lives-weighted to amounts-weighted tables to account for socioeconomic effects on mortality. The adjustment factors used are as follows:

	Adjustment Factor	
	Male	Female
Service Retiree	0.910	0.910
Disabled Retiree	0.830	0.830
Beneficiary	0.890	0.951

3. **Marital Assumption:** All active members are assumed to be married and females are assumed to be two years younger than their male spouses.
4. **Credited Service:** Calculated in whole year increments for valuation purposes.
5. **Loans:** Except for Death Benefits, it is assumed that members take a loan at retirement equal to 25% of their member contribution balances.
6. **Inflation:** The long-term Consumer Price Index inflation rate is assumed to be 2.5% per year. AutoCOLA is assumed to be 1.5% per year, and Escalation is assumed at 2.5% per year. Beneficiaries receiving Special Accidental Death Benefits, if any, are assumed to receive increases at 3.0% per year.
7. **Form of Payment:** Retiring members are assumed to elect the Maximum Retirement Allowance (i.e., single life annuity) form of payment.
8. **Actuarial Asset Valuation Method (AAVM):**

The Actuary reset the Actuarial Value of Assets to Market Value as of June 30, 2019.

Beginning with the June 30, 2020 actuarial valuation, the AAVM recognizes investment returns greater or less than expected over a period of five years.

In accordance with this AAVM, any investment return over or under the expected 7% return on the MVA is phased into the AVA over a five-year period at 20% per year.

The AVA is further constrained to be within a corridor of 80% to 120% of the MVA.

For more information, see SECTION II – MARKET AND ACTUARIAL VALUES OF ASSETS.

9. **Actuarial Cost Method:** The Entry Age Normal (EAN) cost method of funding is used by the Actuary to calculate the Employer Contribution.

Under this method, the Present Value of Future Benefits (PVFB) of each individual included in the actuarial valuation is allocated on a level basis over the expected earnings (or service) of the individual between entry age and the assumed exit age(s). The employer portion of this PVFB allocated to a valuation year is the Normal Cost. The portion of this PVFB not provided for at a valuation date by the PV of Future Normal Costs or future member contributions is the Accrued Liability (AL).

The excess, if any, of the AL over the Actuarial Value of Assets is the Unfunded Accrued Liability (UAL).

Under this method, actuarial gains and losses, as they occur, reduce and increase the UAL, respectively, and are explicitly identified and amortized. Increases or decreases in obligations due to benefit changes, actuarial assumption changes, and actuarial method changes are also explicitly identified and amortized.

The explicit UALs that are developed under EAN each year are financed over fixed periods. For more information see Page 12.

Under EAN, the Normal Cost as a percentage of pay remains constant by individual and changes gradually over time for the entire plan as the characteristics of the group changes (e.g., more Tier 3 Enhanced active members decrease the average Normal Cost as a percentage of pay).

10. **Allowances for Administrative Expenses:** The Employer Contribution for a fiscal year is increased by the interest-adjusted amount of administrative expenses paid from FIRE during the second prior fiscal year.
11. **WTC Disability and Death Benefits:** Obligations attributable to the WTC Disability Benefits Law and to the WTC Death Benefits Law are determined through estimation techniques for post-retirement reclassifications.
12. **One-Year Lag Methodology (OYLM):** The One-Year Lag Methodology uses a June 30, XX valuation date to determine the Fiscal Year XX+2 employer contributions as follows:

- a. Normal Cost

The normal cost as of July 1, XX (calculated in the June 30, XX valuation) is rolled forward with the assumed AIR of 7.0% to the mid-point of Fiscal Year XX+2 (i.e., December 31, XX+1).

b. Administrative Expenses

A reimbursement for administrative expenses deducted from plan assets during the year ending June 30, XX is rolled forward with the assumed AIR of 7.0% to the mid-point of Fiscal Year XX+2.

c. UAL Payments

New amortization bases for gains and losses, method and assumption changes, and any benefit improvements are established each year XX such that the UAL, as of June 30, XX is equal to the sum of the:

- 1) Outstanding prior amortization bases;
- 2) Unpaid prior year normal cost with interest;
- 3) Unreimbursed administrative expenses with interest, and
- 4) New amortization bases.

The UAL payment is the sum of the payments on the amortization bases scheduled for Fiscal Year XX+2.

13. **Excess Benefit Plan:** The valuation excludes liabilities and costs, if any, associated with benefits in excess of the IRC Section 415 limitation.
14. **Group Life Insurance Plan:** The Employer Contribution includes an amount to fund the Group Life Insurance Plan. The Group Life Insurance amounts used in the FIRE valuation is \$50,000.

SECTION XII – SUMMARY OF DEMOGRAPHIC DATA

The June 30, 2022 and June 30, 2021 actuarial valuations are based upon census data as of those dates submitted by the Plan's administrative staff and the employer's payroll facilities. Financial information was provided by the Office of the Comptroller as of June 30, 2022 and June 30, 2021.

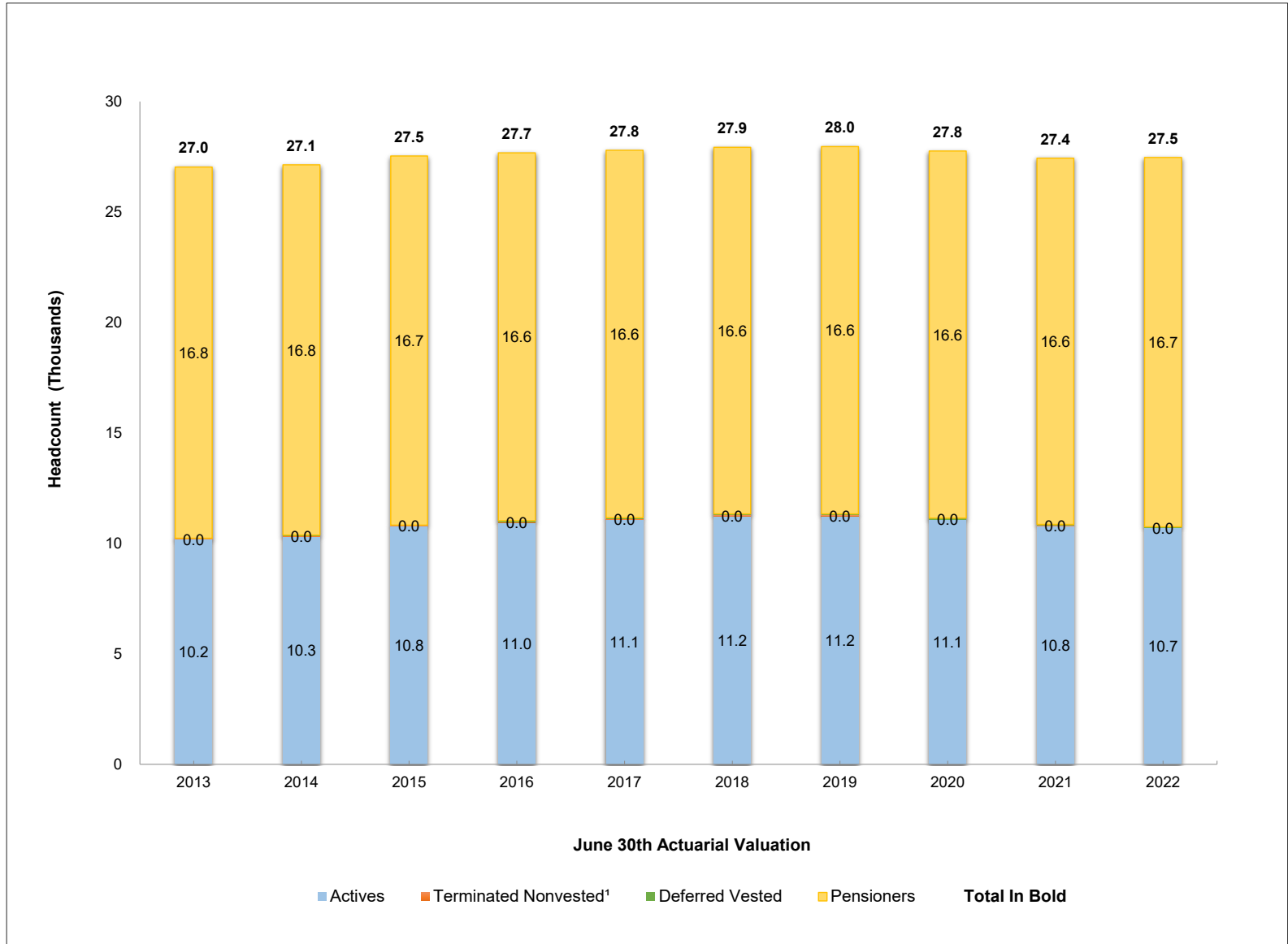
Beginning at June 30, 2020, FIRE members who are no longer on payroll but not otherwise classified have been classified as Active, Terminated Nonvested, or Deferred Vested members, using actuarial judgment and consideration of available data, including leave of absence data when available.

Consistent with Actuarial Standards of Practice, the Office of the Actuary has reviewed census data and financial information for consistency and reasonability but has not audited it. The accuracy of the results and calculations contained in this Report are dependent on the accuracy of this census data and financial information. To the extent any such data or information provided is materially inaccurate or incomplete, the results contained herein will require revision.

**Table XII-1
Status Reconciliation**

CHANGES IN THE NUMBER OF ACTIVES AND PENSIONERS DURING THE FISCAL YEAR CLASSIFIED BY STATUS										
Status	(1) Active Members	(2) Terminated Nonvested	(3) Terminated Vested	(4) Service Pension	(5) Ordinary Disability	(6) Accidental Disability	(7) Accidental Death	(8) Other Beneficiary	(9) Pensioners Subtotal (4) to (8)	(10) Grand Total (1) + (2) + (3) +
Number at June 30, 2021	10,793	2	62	4,667	590	10,335	670	316	16,578	27,435
New Entrants	537	0	0	0	0	0	0	0	0	537
Rehires	4	0	0	0	0	0	0	0	0	4
Terminated Nonvested	0	0	0	0	0	0	0	0	0	0
Vested Termination	(16)	0	16	0	0	0	0	0	0	0
Withdrawal / Cashout	(32)	(2)	(2)	0	0	0	0	0	0	(36)
Accidental Death	(3)	0	0	0	0	0	3	0	3	0
Ordinary Death	(6)	0	0	0	0	0	0	1	1	(5)
Service Retirement	(268)	0	(4)	272	0	0	0	0	272	0
Ordinary Disability Retirement	(5)	0	0	0	5	0	0	0	5	0
Accidental Disability Retirement	(319)	0	(1)	0	0	320	0	0	320	0
Reclassifications	0	0	0	(39)	(1)	20	21	(1)	0	0
Pensioner Death with Beneficiary	0	0	0	(6)	(1)	(12)	0	19	0	0
Pensioner Death without Beneficiary	0	0	0	(189)	(44)	(208)	(9)	(21)	(471)	(471)
Pension Payroll Adjustments	0	0	0	0	0	0	6	3	9	9
Net Change	(108)	(2)	9	38	(41)	120	21	1	139	38
Number at June 30, 2022	10,685	0	71	4,705	549	10,455	691	317	16,717	27,473

**Graph XII-2
Headcount Summary by Status**



¹ Active Off Payroll prior to June 30, 2020.

**Table XII-3
Summary of Active Membership**

NEW YORK CITY FIRE PENSION FUND		
ACTIVE MEMBERS INCLUDED IN THE JUNE 30, 2022 AND JUNE 30, 2021 ACTUARIAL VALUATIONS		
	June 30, 2022	June 30, 2021
Number		
Males	10,527	10,657
Females	158	136
Total	10,685	10,793
Annual Salary ¹		
Males	\$1,426,311,231	\$1,386,412,261
Females	17,732,645	14,965,256
Total	\$1,444,043,876	\$1,401,377,517
Average Salary ¹		
Males	\$ 135,491	\$ 130,094
Females	112,232	110,039
Total Average	\$ 135,147	\$ 129,841
Average Age		
Males	41.0	41.2
Females	37.1	37.5
Total Average	41.0	41.2
Average Past Service		
Males	14.3	14.5
Females	8.0	8.4
Total Average	14.2	14.5

¹ Salaries shown are base salaries plus assumed overtime paid and reflect the impact of recent labor contract settlements and certain non-union salary increases with retroactive effective dates, if any.

Graph XII-4
Active Membership by Tier

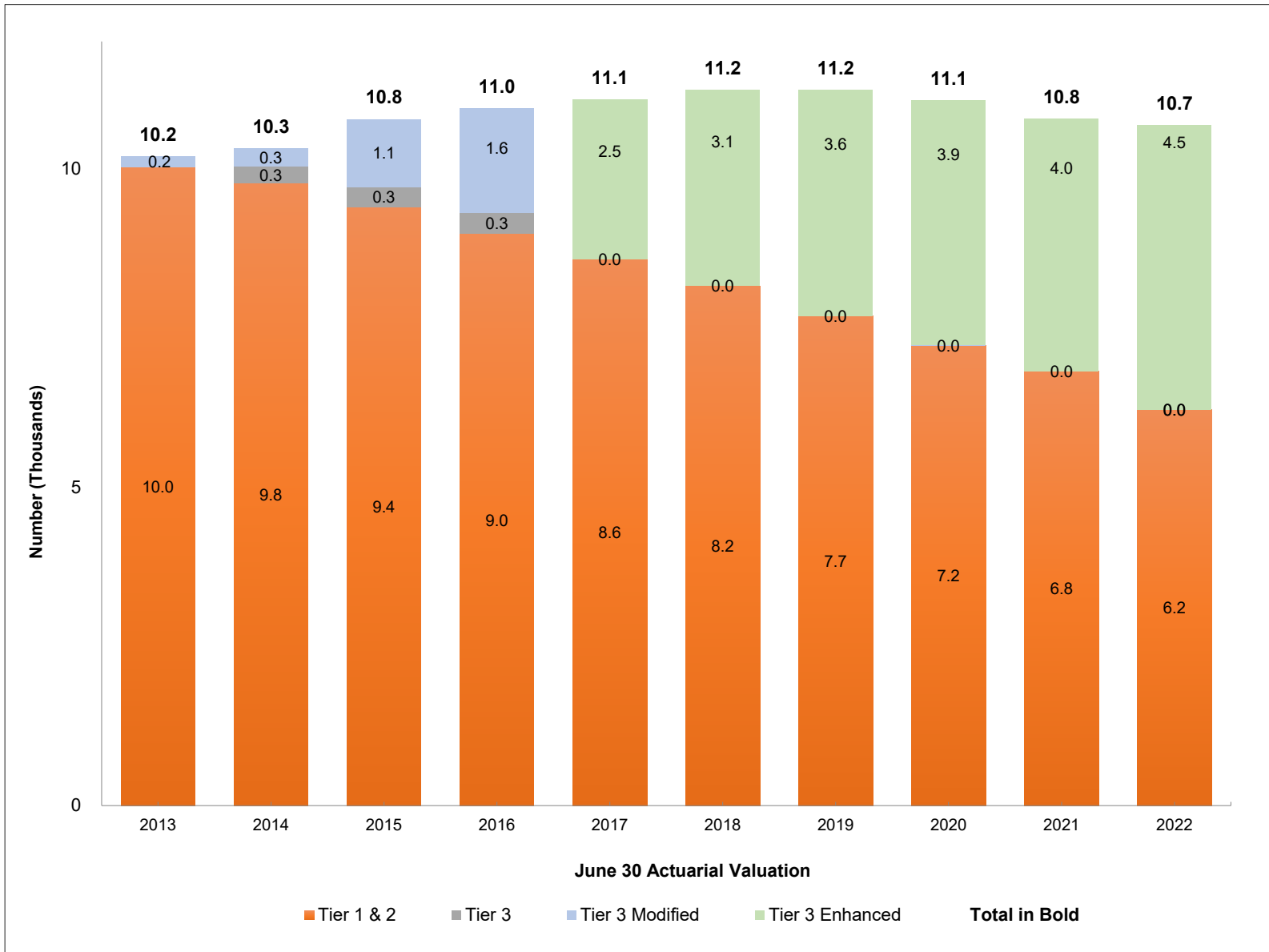


Table XII-5
Schedule of Active Member Salary Data

June 30 Actuarial Valuation	Number	Annual Salary	Average Annual Salary	Percentage Increase/ (Decrease) In Avg. Salary
2013	10,182	\$ 1,129,706,314	\$ 110,951	3.0%
2014	10,319	1,150,389,645	111,483	0.5%
2015	10,780	1,164,994,036	108,070	(3.1%)
2016	10,951	1,180,226,281	107,773	(0.3%)
2017	11,091	1,256,001,332	113,245	5.1%
2018	11,237	1,305,960,137	116,220	2.6%
2019	11,244	1,336,843,002	118,894	2.3%
2020	11,079	1,348,006,398	121,672	2.3%
2021	10,793	1,401,377,517	129,841	6.7%
2022	10,685	1,444,043,876	135,147	4.1%

Salaries shown are base salaries plus assumed overtime paid and reflect the impact of recent labor contract settlements and certain non-union salary increases with retroactive effective dates, if any.

Table XII-6
Detailed Active Membership and Salaries as of June 30, 2022

AGE \ SVC	MALE TOTAL									ALL YEARS	
	UNDER 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & UP		
<i>NUMBER:</i>											
UNDER 20	0	0	0	0	0	0	0	0	0	0	0
20 TO 24	54	0	0	0	0	0	0	0	0	0	54
25 TO 29	690	148	0	0	0	0	0	0	0	0	838
30 TO 34	832	1,222	52	2	0	0	0	0	0	0	2,108
35 TO 39	75	1,040	295	503	2	0	0	0	0	0	1,915
40 TO 44	8	159	184	1,286	350	0	0	0	0	0	1,987
45 TO 49	0	11	40	802	713	131	1	0	0	0	1,698
50 TO 54	2	0	1	174	490	326	103	1	0	0	1,097
55 TO 59	1	0	0	1	149	211	164	65	0	0	591
60 TO 64	0	0	0	1	2	36	66	85	36	6	226
65 TO 69	0	0	0	0	0	0	1	3	0	6	10
70 & UP	0	0	0	1	1	1	0	0	0	0	3
TOTAL	1,662	2,580	572	2,770	1,707	705	335	154	42	0	10,527

<i>SALARIES (IN THOUSANDS):</i>											
UNDER 20	0	0	0	0	0	0	0	0	0	0	0
20 TO 24	3,265	0	0	0	0	0	0	0	0	0	3,265
25 TO 29	48,119	16,529	0	0	0	0	0	0	0	0	64,649
30 TO 34	62,080	152,442	6,706	225	0	0	0	0	0	0	221,453
35 TO 39	5,710	138,647	40,763	73,532	320	0	0	0	0	0	258,973
40 TO 44	740	21,270	25,693	191,256	56,173	0	0	0	0	0	295,133
45 TO 49	0	1,414	5,648	119,344	113,875	21,896	161	0	0	0	262,338
50 TO 54	363	0	180	25,784	77,411	55,851	18,280	177	0	0	178,046
55 TO 59	150	0	0	181	23,420	34,731	29,651	11,888	0	0	100,021
60 TO 64	0	0	0	182	283	5,885	11,142	15,681	6,752	0	39,926
65 TO 69	0	0	0	0	0	0	185	697	1,077	0	1,959
70 & UP	0	0	0	182	182	185	0	0	0	0	549
TOTAL ¹	120,428	330,302	78,991	410,687	271,664	118,548	59,419	28,443	7,828	0	1,426,311

<i>AVERAGE SALARIES:²</i>											
UNDER 20	0	0	0	0	0	0	0	0	0	0	0
20 TO 24	60,468	0	0	0	0	0	0	0	0	0	60,468
25 TO 29	69,738	111,685	0	0	0	0	0	0	0	0	77,146
30 TO 34	74,616	124,748	128,970	112,298	0	0	0	0	0	0	105,054
35 TO 39	76,139	133,315	138,180	146,188	159,841	0	0	0	0	0	135,234
40 TO 44	92,546	133,775	139,637	148,721	160,494	0	0	0	0	0	148,532
45 TO 49	0	128,526	141,192	148,809	159,712	167,147	160,826	0	0	0	154,498
50 TO 54	181,476	0	180,192	148,184	157,982	171,321	177,479	176,607	0	0	162,303
55 TO 59	149,679	0	0	181,220	157,178	164,602	180,802	182,894	0	0	169,240
60 TO 64	0	0	0	182,421	141,726	163,483	168,814	184,483	187,543	0	176,662
65 TO 69	0	0	0	0	0	0	184,648	232,392	179,450	0	195,852
70 & UP	0	0	0	182,421	182,421	184,648	0	0	0	0	183,163
TOTAL	72,460	128,024	138,096	148,263	159,147	168,153	177,370	184,695	186,386	0	135,491

Note: Age is nearest birthdate. Service is nearest year.

¹ Total may not add up due to rounding.

² Average based on unrounded salary.

Table XII-6
Detailed Active Membership and Salaries as of June 30, 2022 (cont'd)

AGE \ SVC	FEMALE TOTAL									ALL YEARS	
	UNDER 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & UP		
<i>NUMBER:</i>											
UNDER 20	0	0	0	0	0	0	0	0	0	0	0
20 TO 24	1	0	0	0	0	0	0	0	0	0	1
25 TO 29	15	3	0	0	0	0	0	0	0	0	18
30 TO 34	53	13	0	0	0	0	0	0	0	0	66
35 TO 39	2	14	3	4	0	0	0	0	0	0	23
40 TO 44	0	7	1	6	2	0	0	0	0	0	16
45 TO 49	2	0	2	10	7	0	0	0	0	0	21
50 TO 54	1	1	0	2	4	0	0	0	0	0	8
55 TO 59	0	1	0	0	0	2	0	0	0	0	3
60 TO 64	0	0	1	0	0	0	0	0	0	0	1
65 TO 69	0	0	0	0	0	0	0	0	0	0	0
70 & UP	0	0	0	0	1	0	0	0	0	0	1
TOTAL	74	39	7	22	14	2	0	0	0	0	158

<i>SALARIES (IN THOUSANDS):</i>											
UNDER 20	0	0	0	0	0	0	0	0	0	0	0
20 TO 24	57	0	0	0	0	0	0	0	0	0	57
25 TO 29	1,003	355	0	0	0	0	0	0	0	0	1,357
30 TO 34	3,942	1,705	0	0	0	0	0	0	0	0	5,646
35 TO 39	139	1,893	371	575	0	0	0	0	0	0	2,977
40 TO 44	0	974	139	838	299	0	0	0	0	0	2,251
45 TO 49	282	0	319	1,522	1,063	0	0	0	0	0	3,185
50 TO 54	172	180	0	283	681	0	0	0	0	0	1,317
55 TO 59	0	222	0	0	0	356	0	0	0	0	577
60 TO 64	0	0	180	0	0	0	0	0	0	0	180
65 TO 69	0	0	0	0	0	0	0	0	0	0	0
70 & UP	0	0	0	0	185	0	0	0	0	0	185
TOTAL ¹	5,595	5,328	1,009	3,217	2,228	356	0	0	0	0	17,733

<i>AVERAGE SALARIES:²</i>											
UNDER 20	0	0	0	0	0	0	0	0	0	0	0
20 TO 24	57,216	0	0	0	0	0	0	0	0	0	57,216
25 TO 29	66,849	118,246	0	0	0	0	0	0	0	0	75,415
30 TO 34	74,370	131,126	0	0	0	0	0	0	0	0	85,549
35 TO 39	69,472	135,206	123,600	143,677	0	0	0	0	0	0	129,449
40 TO 44	0	139,194	139,099	139,671	149,641	0	0	0	0	0	140,673
45 TO 49	140,823	0	159,322	152,151	151,897	0	0	0	0	0	151,670
50 TO 54	172,357	180,192	0	141,522	170,249	0	0	0	0	0	164,574
55 TO 59	0	221,550	0	0	0	177,773	0	0	0	0	192,365
60 TO 64	0	0	180,192	0	0	0	0	0	0	0	180,192
65 TO 69	0	0	0	0	0	0	0	0	0	0	0
70 & UP	0	0	0	0	184,648	0	0	0	0	0	184,648
TOTAL	75,601	136,625	144,105	146,240	159,158	177,773	0	0	0	0	112,232

Note: Age is nearest birthdate. Service is nearest year.

¹ Total may not add up due to rounding.

² Average based on unrounded salary.

Table XII-6
Detailed Active Membership and Salaries as of June 30, 2022 (cont'd)

AGE \ SVC	TOTAL (ALL TIERS, ALL MEMBERS)									
	UNDER 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & UP	ALL YEARS
<i>NUMBER:</i>										
UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	55	0	0	0	0	0	0	0	0	55
25 TO 29	705	151	0	0	0	0	0	0	0	856
30 TO 34	885	1,235	52	2	0	0	0	0	0	2,174
35 TO 39	77	1,054	298	507	2	0	0	0	0	1,938
40 TO 44	8	166	185	1,292	352	0	0	0	0	2,003
45 TO 49	2	11	42	812	720	131	1	0	0	1,719
50 TO 54	3	1	1	176	494	326	103	1	0	1,105
55 TO 59	1	1	0	1	149	213	164	65	0	594
60 TO 64	0	0	1	1	2	36	66	85	36	227
65 TO 69	0	0	0	0	0	0	1	3	6	10
70 & UP	0	0	0	1	2	1	0	0	0	4
TOTAL	1,736	2,619	579	2,792	1,721	707	335	154	42	10,685

<i>SALARIES (IN THOUSANDS):</i>										
UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	3,322	0	0	0	0	0	0	0	0	3,322
25 TO 29	49,122	16,884	0	0	0	0	0	0	0	66,006
30 TO 34	66,022	154,146	6,706	225	0	0	0	0	0	227,099
35 TO 39	5,849	140,540	41,134	74,107	320	0	0	0	0	261,950
40 TO 44	740	22,245	25,832	192,094	56,472	0	0	0	0	297,383
45 TO 49	282	1,414	5,966	120,866	114,938	21,896	161	0	0	265,523
50 TO 54	535	180	180	26,067	78,092	55,851	18,280	177	0	179,363
55 TO 59	150	222	0	181	23,420	35,086	29,651	11,888	0	100,598
60 TO 64	0	0	180	182	283	5,885	11,142	15,681	6,752	40,106
65 TO 69	0	0	0	0	0	0	185	697	1,077	1,959
70 & UP	0	0	0	182	367	185	0	0	0	734
TOTAL ¹	126,023	335,631	79,999	413,905	273,893	118,903	59,419	28,443	7,828	1,444,044

<i>AVERAGE SALARIES:²</i>										
UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	60,409	0	0	0	0	0	0	0	0	60,409
25 TO 29	69,677	111,815	0	0	0	0	0	0	0	77,110
30 TO 34	74,601	124,815	128,970	112,298	0	0	0	0	0	104,461
35 TO 39	75,966	133,340	138,034	146,168	159,841	0	0	0	0	135,165
40 TO 44	92,546	134,004	139,634	148,679	160,433	0	0	0	0	148,469
45 TO 49	140,823	128,526	142,055	148,850	159,636	167,147	160,826	0	0	154,464
50 TO 54	178,436	180,192	180,192	148,108	158,082	171,321	177,479	176,607	0	162,319
55 TO 59	149,679	221,550	0	181,220	157,178	164,725	180,802	182,894	0	169,357
60 TO 64	0	0	180,192	182,421	141,726	163,483	168,814	184,483	187,543	176,678
65 TO 69	0	0	0	0	0	0	184,648	232,392	179,450	195,852
70 & UP	0	0	0	182,421	183,535	184,648	0	0	0	183,535
TOTAL	72,594	128,152	138,168	148,247	159,147	168,180	177,370	184,695	186,386	135,147

Note: Age is nearest birthdate. Service is nearest year.

¹ Total may not add up due to rounding.

² Average based on unrounded salary.

Table XII-7
Detailed Reconciliation of Active Membership

TOTAL ACTIVE MEMBERS AS OF JUNE 30, 2022							TOTAL ACTIVE MEMBERS AS OF JUNE 30, 2021				
TIER	GENDER	NUMBER	SALARY	AVG SAL	AVG AGE	AVG SVC	NUMBER	SALARY	AVG SAL	AVG AGE	AVG SVC
I	M	0	0	0	0.0	0.0	0	0	0	0.0	0.0
I	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		0	0	0	0.0	0.0	0	0	0	0.0	0.0
II	M	6,172	960,301,826	155,590	46.8	20.7	6,775	1,000,660,812	147,699	46.3	20.1
II	F	44	6,634,383	150,781	46.0	18.3	45	6,428,337	142,852	45.0	17.4
		6,216	966,936,209	155,556	46.8	20.6	6,820	1,007,089,149	147,667	46.2	20.1
III	M	0	0	0	0.0	0.0	0	0	0	0.0	0.0
III	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		0	0	0	0.0	0.0	0	0	0	0.0	0.0
III Revised	M	2	272,078	136,039	36.5	9.0	2	262,020	131,010	35.5	7.0
III Revised	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		2	272,078	136,039	36.5	9.0	2	262,020	131,010	35.5	7.0
III Enhanced	M	4,353	465,737,327	106,992	32.9	5.2	3,880	385,489,429	99,353	32.4	4.9
III Enhanced	F	114	11,098,262	97,353	33.7	4.0	91	8,536,919	93,812	33.8	4.0
		4,467	476,835,589	106,746	32.9	5.2	3,971	394,026,348	99,226	32.4	4.9
ALL TIERS		10,685	1,444,043,876	135,147	41.0	14.2	10,793	1,401,377,517	129,841	41.2	14.5

JUNE 30, 2022 MEMBERS ALSO PRESENT AS OF JUNE 30, 2021							JUNE 30, 2021 MEMBERS ALSO PRESENT AS OF JUNE 30, 2022				
TIER	GENDER	NUMBER	SALARY	AVG SAL	AVG AGE	AVG SVC	NUMBER	SALARY	AVG SAL	AVG AGE	AVG SVC
I	M	0	0	0	0.0	0.0	0	0	0	0.0	0.0
I	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		0	0	0	0.0	0.0	0	0	0	0.0	0.0
II	M	6,171	960,166,615	155,593	46.8	20.7	6,171	911,396,415	147,690	45.8	19.6
II	F	44	6,634,383	150,781	46.0	18.3	44	6,290,879	142,975	45.0	17.3
		6,215	966,800,998	155,559	46.8	20.6	6,215	917,687,294	147,657	45.8	19.6
III	M	0	0	0	0.0	0.0	0	0	0	0.0	0.0
III	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		0	0	0	0.0	0.0	0	0	0	0.0	0.0
III Revised	M	2	272,078	136,039	36.5	9.0	2	262,020	131,010	35.5	7.0
III Revised	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		2	272,078	136,039	36.5	9.0	2	262,020	131,010	35.5	7.0
III Enhanced	M	3,838	435,827,832	113,556	33.4	5.9	3,838	381,597,292	99,426	32.4	4.9
III Enhanced	F	88	9,514,700	108,122	34.4	5.0	88	8,209,445	93,289	33.4	4.0
		3,926	445,342,532	113,434	33.4	5.8	3,926	389,806,737	99,289	32.4	4.9
ALL TIERS		10,143	1,412,415,608	139,250	41.6	14.9	10,143	1,307,756,051	128,932	40.6	13.9

ADDITIONS DURING THE YEAR ¹							SEPARATIONS FROM MEMBERSHIP DURING THE YEAR ¹				
TIER	GENDER	NUMBER	SALARY	AVG SAL	AVG AGE	AVG SVC	NUMBER	SALARY	AVG SAL	AVG AGE	AVG SVC
I	M	0	0	0	0.0	0.0	0	0	0	0.0	0.0
I	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		0	0	0	0.0	0.0	0	0	0	0.0	0.0
II	M	1	135,211	135,211	44.0	10.0	604	89,264,397	147,789	51.3	24.7
II	F	0	0	0	0.0	0.0	1	137,458	137,458	44.0	22.0
		1	135,211	135,211	44.0	10.0	605	89,401,855	147,772	51.3	24.7
III	M	0	0	0	0.0	0.0	0	0	0	0.0	0.0
III	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		0	0	0	0.0	0.0	0	0	0	0.0	0.0
III Revised	M	0	0	0	0.0	0.0	0	0	0	0.0	0.0
III Revised	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		0	0	0	0.0	0.0	0	0	0	0.0	0.0
III Enhanced	M	515	29,909,495	58,077	29.1	0.6	42	3,892,137	92,670	33.2	4.1
III Enhanced	F	26	1,583,562	60,906	31.1	0.7	3	327,474	109,158	43.0	3.3
		541	31,493,057	58,213	29.2	0.6	45	4,219,611	93,769	33.9	4.1
ALL TIERS		542	31,628,268	58,355	29.2	0.6	650	93,621,466	144,033	50.1	23.2

Note: Age is nearest birthday. Service is nearest year. The member is considered also present if active with the same tier and gender as of both valuation dates.

¹ Separations and additions do not include members who joined after June 30, 2021 and are no longer members on June 30, 2022. Members are included as separations and additions if the tier or gender has changed.

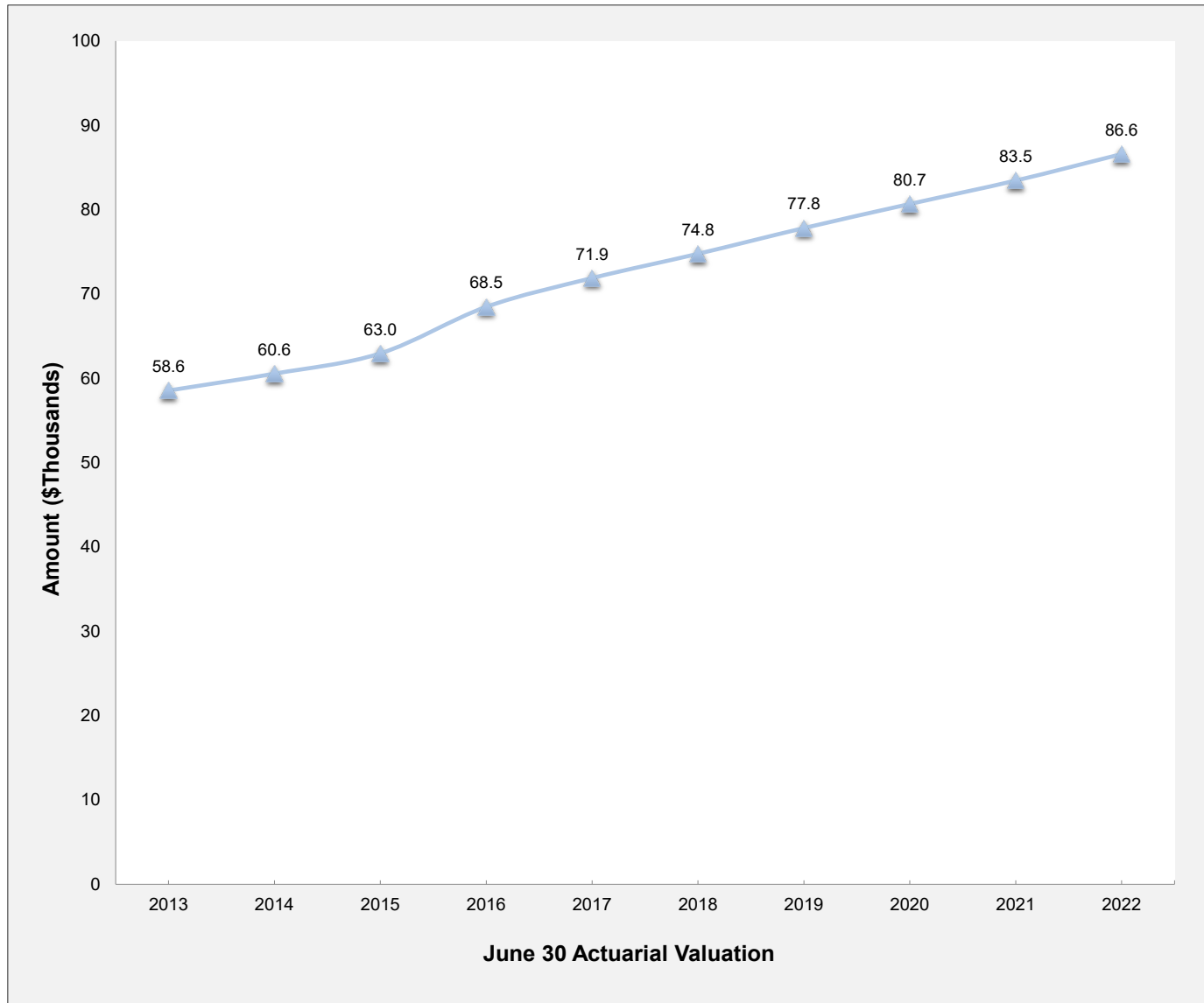
Table XII-8
Distribution of Pension Benefits as of June 30, 2022

AGE	MALE			FEMALE			BOTH MALE & FEMALE		
	NUMBER	BENEFITS	AVERAGE	NUMBER	BENEFITS	AVERAGE	NUMBER	BENEFITS	AVERAGE
<i>SERVICE RETIREMENT:</i>									
UNDER 30	0	0	0	0	0	0	0	0	0
30 TO 34	0	0	0	0	0	0	0	0	0
35 TO 39	0	0	0	0	0	0	0	0	0
40 TO 44	26	2,033,407	78,208	0	0	0	26	2,033,407	78,208
45 TO 49	94	7,220,176	76,810	2	142,576	71,288	96	7,362,752	76,695
50 TO 54	181	15,669,380	86,571	1	83,543	83,543	182	15,752,923	86,555
55 TO 59	357	32,128,551	89,996	0	0	0	357	32,128,551	89,996
60 TO 64	555	47,127,313	84,914	1	109,156	109,156	556	47,236,469	84,958
65 TO 69	736	54,978,150	74,699	4	188,950	47,238	740	55,167,100	74,550
70 TO 74	548	32,439,306	59,196	3	259,519	86,506	551	32,698,825	59,345
75 TO 79	636	31,866,651	50,105	0	0	0	636	31,866,651	50,105
80 TO 84	775	34,013,652	43,889	0	0	0	775	34,013,652	43,889
85 TO 89	524	20,502,857	39,128	0	0	0	524	20,502,857	39,128
90 & UP	262	9,513,699	36,312	0	0	0	262	9,513,699	36,312
TOTAL	4,694	287,493,142	61,247	11	783,744	71,249	4,705	288,276,886	61,270
<i>ORDINARY DISABILITY:</i>									
UNDER 30	0	0	0	0	0	0	0	0	0
30 TO 34	0	0	0	0	0	0	0	0	0
35 TO 39	2	125,546	62,773	0	0	0	2	125,546	62,773
40 TO 44	8	421,653	52,707	0	0	0	8	421,653	52,707
45 TO 49	12	576,707	48,059	0	0	0	12	576,707	48,059
50 TO 54	5	225,276	45,055	0	0	0	5	225,276	45,055
55 TO 59	13	504,791	38,830	0	0	0	13	504,791	38,830
60 TO 64	24	683,515	28,480	0	0	0	24	683,515	28,480
65 TO 69	36	929,853	25,829	1	30,192	30,192	37	960,045	25,947
70 TO 74	38	1,447,788	38,100	0	0	0	38	1,447,788	38,100
75 TO 79	50	4,026,451	80,529	0	0	0	50	4,026,451	80,529
80 TO 84	151	9,693,591	64,196	0	0	0	151	9,693,591	64,196
85 TO 89	131	7,776,508	59,363	0	0	0	131	7,776,508	59,363
90 & UP	78	4,450,999	57,064	0	0	0	78	4,450,999	57,064
TOTAL	548	30,862,678	56,319	1	30,192	30,192	549	30,892,870	56,271
<i>ACCIDENTAL DISABILITY:</i>									
UNDER 30	0	0	0	0	0	0	0	0	0
30 TO 34	2	153,362	76,681	0	0	0	2	153,362	76,681
35 TO 39	39	3,629,661	93,068	1	69,604	69,604	40	3,699,265	92,482
40 TO 44	309	31,606,193	102,285	2	189,164	94,582	311	31,795,357	102,236
45 TO 49	624	67,102,268	107,536	1	91,509	91,509	625	67,193,777	107,510
50 TO 54	1,055	116,427,299	110,358	2	167,943	83,972	1,057	116,595,242	110,308
55 TO 59	1,606	184,392,580	114,815	1	104,976	104,976	1,607	184,497,556	114,809
60 TO 64	1,866	208,188,876	111,570	4	402,160	100,540	1,870	208,591,036	111,546
65 TO 69	1,936	200,817,458	103,728	5	377,866	75,573	1,941	201,195,324	103,655
70 TO 74	920	82,420,977	89,588	5	542,079	108,416	925	82,963,056	89,690
75 TO 79	733	54,410,365	74,230	0	0	0	733	54,410,365	74,230
80 TO 84	730	45,076,168	61,748	0	0	0	730	45,076,168	61,748
85 TO 89	474	24,995,795	52,734	0	0	0	474	24,995,795	52,734
90 & UP	140	6,723,565	48,025	0	0	0	140	6,723,565	48,025
TOTAL	10,434	1,025,944,567	98,327	21	1,945,301	92,633	10,455	1,027,889,868	98,316

Table XII-8
Distribution of Pension Benefits as of June 30, 2022 (cont'd)

AGE	MALE			FEMALE			TOTAL		
	NUMBER	BENEFITS	AVERAGE	NUMBER	BENEFITS	AVERAGE	NUMBER	BENEFITS	AVERAGE
<i>ACCIDENTAL DEATH:</i>									
UNDER 30	0	0	0	9	983,683	109,298	9	983,683	109,298
30 TO 34	0	0	0	1	99,472	99,472	1	99,472	99,472
35 TO 39	0	0	0	1	208,988	208,988	1	208,988	208,988
40 TO 44	0	0	0	5	657,332	131,466	5	657,332	131,466
45 TO 49	0	0	0	20	2,627,139	131,357	20	2,627,139	131,357
50 TO 54	0	0	0	65	8,579,153	131,987	65	8,579,153	131,987
55 TO 59	0	0	0	93	12,611,908	135,612	93	12,611,908	135,612
60 TO 64	0	0	0	140	19,074,467	136,246	140	19,074,467	136,246
65 TO 69	2	156,814	78,407	100	13,977,127	139,771	102	14,133,941	138,568
70 TO 74	3	325,032	108,344	71	9,395,979	132,338	74	9,721,011	131,365
75 TO 79	0	0	0	67	8,721,409	130,170	67	8,721,409	130,170
80 TO 84	0	0	0	55	6,806,371	123,752	55	6,806,371	123,752
85 TO 89	0	0	0	37	3,811,822	103,022	37	3,811,822	103,022
90 & UP	0	0	0	22	2,232,773	101,490	22	2,232,773	101,490
TOTAL	5	481,846	96,369	686	89,787,623	130,886	691	90,269,469	130,636
<i>OTHER BENEFICIARIES:</i>									
UNDER 30	1	56,989	56,989	0	0	0	1	56,989	56,989
30 TO 34	0	0	0	3	183,009	61,003	3	183,009	61,003
35 TO 39	0	0	0	4	254,802	63,701	4	254,802	63,701
40 TO 44	0	0	0	4	179,808	44,952	4	179,808	44,952
45 TO 49	0	0	0	1	101,543	101,543	1	101,543	101,543
50 TO 54	1	122,869	122,869	4	324,632	81,158	5	447,501	89,500
55 TO 59	0	0	0	12	789,674	65,806	12	789,674	65,806
60 TO 64	1	23,535	23,535	20	979,397	48,970	21	1,002,932	47,759
65 TO 69	0	0	0	37	1,456,497	39,365	37	1,456,497	39,365
70 TO 74	0	0	0	26	909,562	34,983	26	909,562	34,983
75 TO 79	0	0	0	41	1,515,963	36,975	41	1,515,963	36,975
80 TO 84	0	0	0	49	1,444,509	29,480	49	1,444,509	29,480
85 TO 89	0	0	0	48	1,238,129	25,794	48	1,238,129	25,794
90 & UP	0	0	0	65	896,747	13,796	65	896,747	13,796
TOTAL	3	203,393	67,798	314	10,274,272	32,721	317	10,477,665	33,053
<i>ALL PENSIONERS AND BENEFICIARIES:</i>									
UNDER 30	1	56,989	56,989	9	983,683	109,298	10	1,040,672	104,067
30 TO 34	2	153,362	76,681	4	282,481	70,620	6	435,843	72,641
35 TO 39	41	3,755,207	91,590	6	533,394	88,899	47	4,288,601	91,247
40 TO 44	343	34,061,253	99,304	11	1,026,304	93,300	354	35,087,557	99,117
45 TO 49	730	74,899,151	102,602	24	2,962,767	123,449	754	77,861,918	103,265
50 TO 54	1,242	132,444,824	106,638	72	9,155,271	127,157	1,314	141,600,095	107,763
55 TO 59	1,976	217,025,922	109,831	106	13,506,558	127,420	2,082	230,532,480	110,726
60 TO 64	2,446	256,023,239	104,670	165	20,565,180	124,637	2,611	276,588,419	105,932
65 TO 69	2,710	256,882,275	94,791	147	16,030,632	109,052	2,857	272,912,907	95,524
70 TO 74	1,509	116,633,103	77,292	105	11,107,139	105,782	1,614	127,740,242	79,145
75 TO 79	1,419	90,303,467	63,639	108	10,237,372	94,790	1,527	100,540,839	65,842
80 TO 84	1,656	88,783,411	53,613	104	8,250,880	79,335	1,760	97,034,291	55,133
85 TO 89	1,129	53,275,160	47,188	85	5,049,951	59,411	1,214	58,325,111	48,044
90 & UP	480	20,688,263	43,101	87	3,129,520	35,971	567	23,817,783	42,007
TOTAL	15,684	1,344,985,626	85,755	1,033	102,821,132	99,536	16,717	1,447,806,758	86,607

**Graph XII-9
Pensioner Average Benefits**



¹ Disclosed 2020 allowances updated to reflect only allowances presented in census data.

Table XII-10
Reconciliation of Pensioner and Beneficiary Data

SCHEDULE OF PENSIONERS AND BENEFICIARIES ADDED TO AND REMOVED FROM THE ROLLS								
June 30 Actuarial Valuation	Added to Rolls		Removed from Rolls		End of Year Rolls		% Increase In Annual Allowances	Average Annual Allowances
	Number	Annual Allowances ¹	Number	Annual Allowances	Number	Annual Allowances ¹		
2013	453	\$ 54,522,199	563	\$ 23,448,369	16,807	\$ 984,193,075	3.3%	\$ 58,559
2014	490	54,256,974	534	23,299,539	16,763	1,015,150,510	3.1%	60,559
2015	500	59,578,951	553	22,526,507	16,710	1,052,202,954	3.6%	62,968
2016	498	110,481,515	561	22,667,718	16,647	1,140,016,751	8.3%	68,482
2017	497	77,245,492	508	21,127,518	16,636	1,196,134,725	4.9%	71,900
2018	456	65,902,484	499	21,226,999	16,593	1,240,810,210	3.7%	74,779
2019	559	78,160,361	524	24,799,933	16,628	1,294,170,638	4.3%	77,831
2020	560	75,661,961	564	28,481,496	16,624	1,341,351,103	3.6%	80,688
2021	482	69,949,959	528	27,631,628	16,578	1,383,669,434	3.2%	83,464
2022	689	91,913,729	550	27,776,405	16,717	1,447,806,758	4.6%	86,607

¹ Allowances shown are those presented in the census data. Beginning 2016, SADB payments to beneficiaries are included.

APPENDIX: ACRONYMS AND ABBREVIATIONS

Revised 2021 A&M	Actuarial Assumptions and Methods proposed by the Actuary and adopted by the Board of Trustees during Fiscal Year 2021
2019 A&M	Actuarial Assumptions and Methods proposed by the Actuary and adopted by the Board of Trustees during Fiscal Year 2019
AAVM	Actuarial Asset Valuation Method
ACCNY	Administrative Code of the City of New York
ADR	Accidental Disability Retirement
AIR	Actuarial Interest Rate
AL	Accrued Liability
AMC	Additional Member Contributions
AVA	Actuarial Value of Assets
BERS	Board of Education Retirement System
BMC	Basic Member Contributions
COLA	Cost-of-Living Adjustment
EAN	Entry Age Normal cost method
EBP	Excess Benefit Plan
FAS	Final Average Salary
FIRE	Fire Pension Fund
FFVSF	Firefighters' Variable Supplements Fund
FOVSF	Fire Officers' Variable Supplements Fund
FS	Final Salary
GASB	Governmental Accounting Standards Board
IRC	Internal Revenue Code
ITHP	Increased-Take-Home-Pay
MVA	Market Value of Assets
NYCERS	New York City Employees' Retirement System
NYCRS	New York City Retirement Systems
ODR	Ordinary Disability Retirement
OYLM	One-Year Lag Methodology
POLICE	Police Pension Fund
PV	Present Value
PVFB	Present Value of Future Benefits
PVFNC	Present Value of Future Normal Costs
QPP	Qualified Pension Plan
TRS	Teachers' Retirement System
UAL	Unfunded Accrued Liability
VSF	Variable Supplements Fund
WTC	World Trade Center