



June 30, 2022 Actuarial Valuation Report

for the

New York City
Board of Education
Retirement System

prepared by the
New York City
Office of the Actuary

CONTRIBUTIONS REQUIRED FOR FISCAL YEAR 2024



OFFICE OF THE ACTUARY

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MAREK TYSZKIEWICZ
CHIEF ACTUARY

December 19, 2024

Board of Trustees
New York City Board of Education Retirement System
55 Water Street – 50th Floor
New York, NY 10041

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

Dear Trustees:

This is the June 30, 2022 actuarial valuation report of the New York City Board of Education Retirement System (BERS) Qualified Pension Plan (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 \$ 247,720,923.

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 BERS 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 are 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.
- Unknown potential future claims from Gulino vs. Department of Education, 96 Civ. 8414(KMW).
- 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.

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.

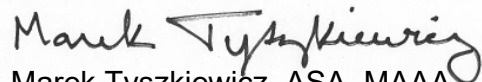
Actuarial Qualifications

Marek Tyszkiewicz and Dolores Capone are Associates of the Society of Actuaries and Members of the American Academy of Actuaries. Dolores Capone is also an Enrolled Actuary under the Employee Retirement Income Security Act of 1974.


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



Dolores Capone, ASA, EA, MAAA
Assistant Deputy Chief Actuary

MT/eh

cc: Crage Lu, ASA - New York City Office of the Actuary
Sanford Rich - New York City Board of Education Retirement System

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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 119.8% in the prior valuation to 87.9% as of June 30, 2022. The Plan's investment return for this period, based on the Market Value of Assets, was negative 14.3%.

Required Contribution Amount

The actuarially required contribution for Fiscal Year 2024 is \$247,720,923 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 BOARD OF EDUCATION RETIREMENT SYSTEM		
SUMMARY OF VALUATION RESULTS		
Valuation Date	June 30, 2022	June 30, 2021
Fiscal Year	2024	2023
Funded Status		
1. Accrued Liability	\$ 6,682,653,014	\$ 5,880,070,849
2. Actuarial Value of Assets (AVA)	<u>6,303,743,000</u>	<u>5,471,199,526</u>
3. Unfunded Accrued Liability (AVA Basis) (1. - 2.)	\$ 378,910,014	\$ 408,871,323
4. Market Value of Assets (MVA)	5,876,084,000	7,044,240,000
5. Unfunded Accrued Liability (MVA Basis) (1. - 4.)	806,569,014	(1,164,169,151)
6. Funded Ratio (MVA Basis) (4. / 1.)	87.9%	119.8%
Contribution		
1. Normal Cost	\$ 163,082,524	\$ 166,665,135
2. Unfunded Accrued Liability	43,918,887	38,058,209
3. Administrative Expenses	40,719,512	28,822,858
4. Late Contribution Interest	<u>0</u>	<u>0</u>
5. Actuarial Required Contribution (1. + 2. + 3. + 4.)	\$ 247,720,923	\$ 233,546,202
Participant Data		
1. Active Members		
a. Number	25,639	27,556
b. Annual Salary ¹	\$ 1,467,607,056	\$ 1,484,264,302
c. Average Salary	\$ 57,241	\$ 53,864
2. Terminated Nonvested Members	9,245	8,922
3. Deferred Vested Members	2,410	1,972
4. Retirees and Beneficiaries		
a. Number	20,481	19,448
b. Total Annual Benefits	\$ 318,685,212	\$ 292,603,477
c. Average Benefit	\$ 15,560	\$ 15,045

¹ Includes the impact of recent labor contract settlements and certain non-union salary increases with retroactive effective dates, if any, that are not yet reflected in the census data.

Table I-2
Actuarial Liabilities

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM		
ACTUARIAL LIABILITIES BY STATUS		
Valuation Date	June 30, 2022	June 30, 2021
Fiscal Year	2024	2023
Accrued Liability		
1. Active Members	\$ 2,734,068,312	\$ 2,767,005,501
2. Terminated Nonvested Members	39,149,076	36,029,961
3. Deferred Vested Members	148,891,302	122,910,697
4. Retirees and Beneficiaries	<u>3,286,048,841</u>	<u>2,953,124,690</u>
5. Accrued Liability (1. to 4.)	\$ 6,208,157,531	\$ 5,879,070,849
6. Other ¹	<u>474,495,483</u>	<u>1,000,000</u>
7. Total Accrued Liability (AL) (5. + 6.)	\$ 6,682,653,014	\$ 5,880,070,849
Present Value of Benefits		
1. Active Members	\$ 4,445,567,983	\$ 4,488,170,440
2. Terminated Nonvested Members	39,149,076	36,029,961
3. Deferred Vested Members	148,891,302	122,910,697
4. Retirees and Beneficiaries	<u>3,286,048,841</u>	<u>2,953,124,690</u>
5. Present Value of Benefits (1. to 4.)	\$ 7,919,657,202	\$ 7,600,235,788
6. Other ¹	<u>474,495,483</u>	<u>1,000,000</u>
7. Total Present Value of Benefits (5. + 6.)	\$ 8,394,152,685	\$ 7,601,235,788

¹ As of June 30, 2021, the liability shown is the reserve for adverse WTC experience; as of June 30, 2022 the liability shown is the amount due to/(from) the TDA. Please refer to Table I-4 for more information on the amount due to/(from) the TDA.

Graph I-3
Historical Funded Status

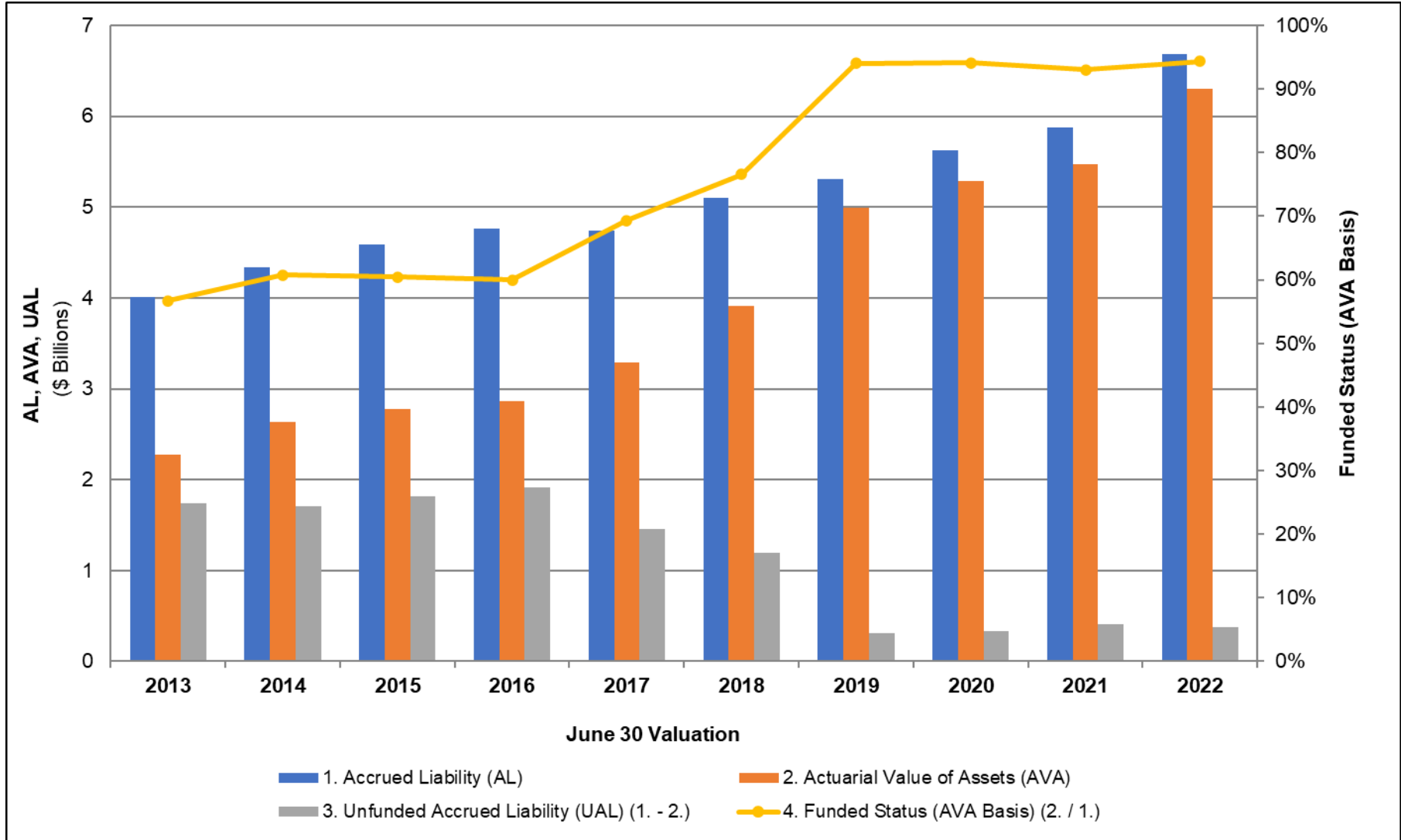


Table I-4
TDA Balances and Effect on the QPP

BERS' Tax-Deferred Annuity (TDA) Program was established and is administered pursuant to IRC Section 403(b) and Administrative Code of the City of New York (ACCNYS) section 13-582, and became effective February 1, 1970. The TDA Program is a voluntary defined-contribution savings option available to BERS members.

ACCNYS section 13-582, provides for the maintenance of TDA accounts in the Annuity Savings Fund ("Fixed-Return Fund") and Variable Annuity Programs ("Variable-Return Funds"), which are distinct from similar funds for the QPP.

The assets of the TDA Program are accounted for separately from assets of the QPP Plan. Statutory Rates received by funds invested in the QPP and the TDA Program's Annuity Savings Fund ("Fixed-Return Fund") are set by ACCNYS sections 13-638.2 and 13-582(d).

Assets in the TDA Program's Fixed-Return Fund are pooled with the QPP assets in the BERS Pension Fund for investment purposes only. Differences between actual earnings and the TDA guaranteed Statutory Rates result in investment gains and losses for the QPP, which are reflected in the Actuarial Value of Assets. Annuitization of TDA balances result in QPP actuarial gains and losses as well. The TDA impact on QPP accrued liabilities as of June 30, 2022 is shown below, where the Unfunded TDA Amount is held as an additional QPP liability.

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM SUMMARY OF TDA BALANCES AND EFFECT ON THE QPP AS OF JUNE 30, 2022			
	TDA Liabilities	TDA Assets	Unfunded TDA Amount
UFT			
Fixed Balances	\$ 579,685,500	\$ 579,685,500	\$ 0
Non-UFT			
Fixed Balances	\$ 2,138,732,537	\$ 1,732,111,080	\$ 406,621,457
Annuitized Members	\$ 443,264,189	\$ 375,390,163	\$ 67,874,026
Other	\$ 60,041,730	\$ 60,041,730	\$ 0
TOTAL	\$ 3,221,723,956	\$ 2,747,228,473	\$ 474,495,483

The QPP Normal Cost has been increased by \$ 24,661,373 to reflect the cost of the TDA guaranteed Statutory Rate of 8.25% for non-UFT members differing from the Actuarial Interest Rate of 7.0%.

The Financial Section of the Board of Education Retirement System of the City of New York Annual Comprehensive Financial Report includes more detailed TDA asset information.

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	\$ 7,556	\$ 12,920
Receivables		
Investment Securities Sold	\$ 138,290	\$ 232,846
Member Loans	48,461	47,251
Accrued Interest and Dividends	25,062	23,673
Other	417	412
Fixed return funds		
Short-Term Investments		
Commercial Paper	\$ 201,539	\$ 135,880
Short-term Investment Fund	60,875	86,487
U.S. Treasury Bills	0	0
Discount Notes	2,409	121,533
Debt Securities	2,103,604	2,565,100
Equity Securities	3,493,244	4,436,044
Alternative Investments	1,979,276	1,423,257
Collective Trust Funds		
Fixed Income	174	512
Domestic Equity	70,349	90,709
International Equity	1,524	1,964
Mortgage Debt Security	20,493	23,482
Treasury Inflation Protected Securities	0	0
Promissory Notes	0	0
Collateral From Securities Lending	538,433	790,811
Variable return funds		
Short-Term Investments	497	549
Debt Securities	0	1,809
Equities	57,295	71,531
Collateral From Securities Lending	3,327	3,431
Other Assets	319,776	464,473
TOTAL ASSETS	\$ 9,072,601	\$ 10,534,674
LIABILITIES		
Accounts Payable	\$ 63,581	\$ 78,462
Payable for Investment Securities Purchased	204,459	436,597
Accrued Benefits Payable	12,621	13,150
TDA Program's interest in the fixed return fund	2,374,096	2,167,983
Other Liabilities	0	0
Security Lending	541,760	794,242
TOTAL LIABILITIES	\$ 3,196,517	\$ 3,490,434
PLAN ASSETS HELD IN TRUST FOR PENSION BENEFITS	\$ 5,876,084	\$ 7,044,240

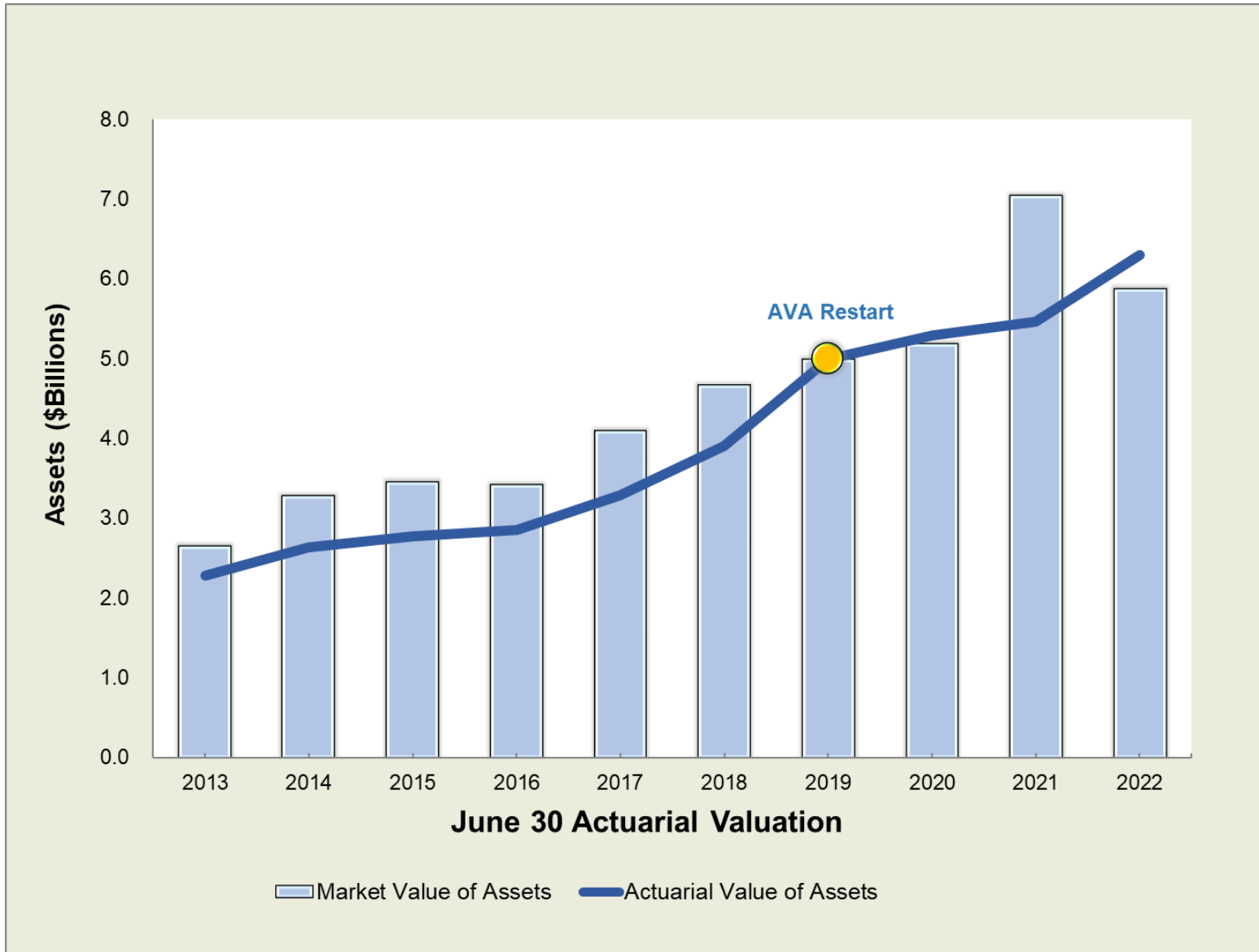
Table II-2
Statement of Changes in Plan Net Assets

(\$ Thousands)		
	June 30, 2022	June 30, 2021
ADDITIONS		
Contributions		
Member Contributions	\$ 49,591	\$ 48,125
Employer Contributions	<u>262,404</u>	<u>182,983</u>
Total Contributions	\$ 311,995	\$ 231,108
Investment Income (Loss)		
Interest Income	\$ 130,765	\$ 95,613
Dividend Income	101,584	82,601
Net Appreciation (Depreciation) in Fair Value	<u>\$ (976,018)</u>	<u>1,753,472</u>
Total Investment Income (Loss)	\$ (743,669)	\$ 1,931,686
Less Investment Expenses	61,687	42,955
Net Income (Loss)	\$ (805,356)	\$ 1,888,731
Securities Lending Transactions		
Securities Lending Income	\$ 1,874	\$ 1,140
Securities Lending Fees	<u>(182)</u>	<u>(120)</u>
Net Securities Lending Income (Loss)	\$ 1,692	\$ 1,020
Net Investment Income (Loss)	\$ (803,664)	\$ 1,889,751
Other		
Payments to Other Retirement Systems & Other Revenues/Expenses	<u>\$ (124,188)</u>	<u>\$ 239,808</u>
TOTAL ADDITIONS	\$ (615,857)	\$ 2,360,667
DEDUCTIONS		
Benefit Payments and Withdrawals	\$ 325,679	\$ 302,336
Administrative Expenses	35,566	25,175
TDA Program's Interest Income in the Fixed Return Fund	<u>\$ 191,054</u>	<u>\$ 171,806</u>
TOTAL DEDUCTIONS	\$ 552,299	\$ 499,317
NET INCREASE (DECREASE) IN PLAN NET ASSETS	\$ (1,168,156)	\$ 1,861,350
PLAN NET ASSETS HELD IN TRUST FOR PENSION BENEFITS		
Beginning of Year	\$ 7,044,240	\$ 5,182,890
End of Year	\$ 5,876,084	\$ 7,044,240

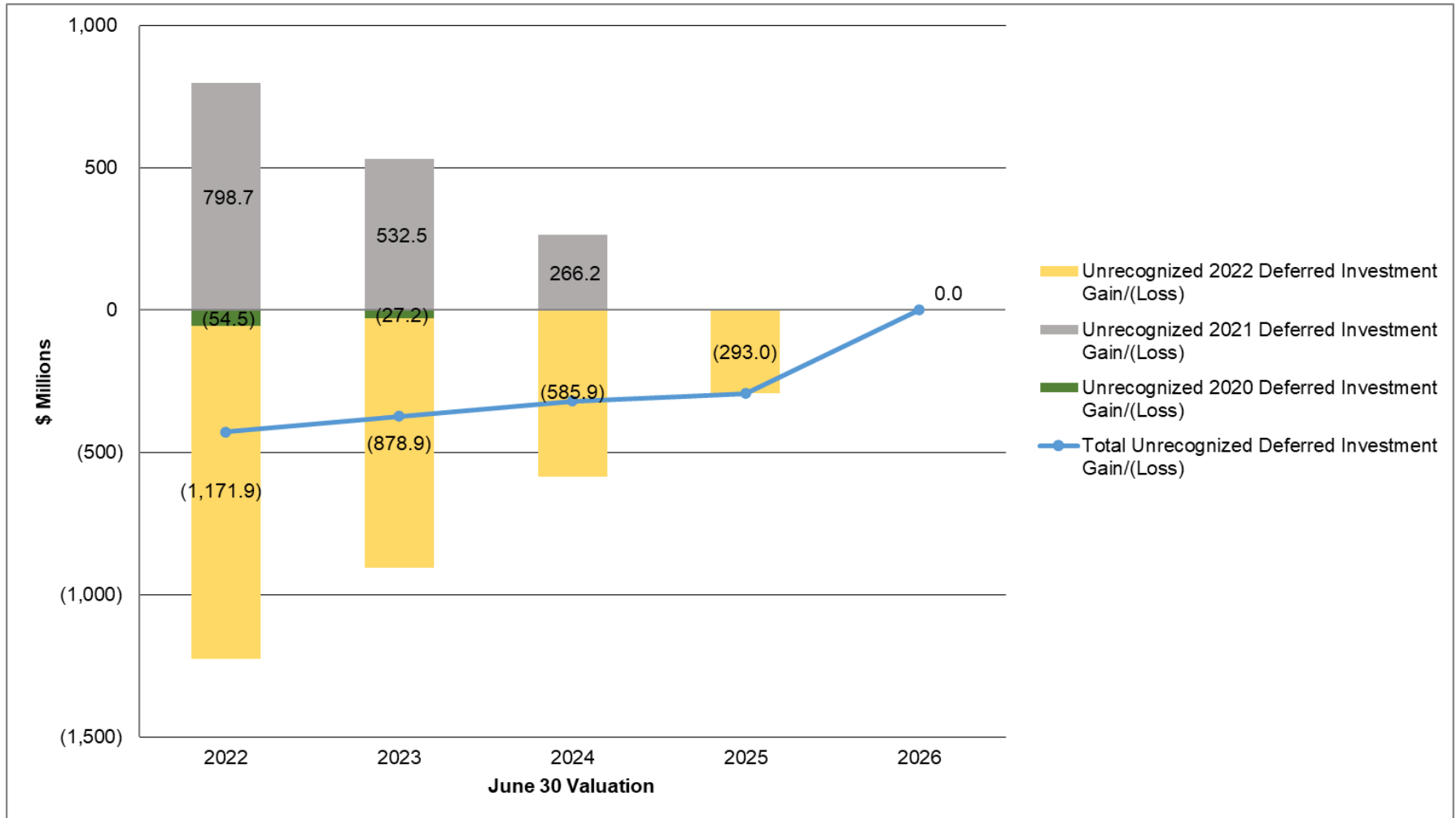
Table II-3
Development of Actuarial Value of Assets

(\$ Thousands)		
Valuation Date	June 30, 2022	June 30, 2021
1. Market Value of Fixed Fund Assets		
a. Beginning of Year (BOY)	\$ 6,970,173	\$ 5,129,204
b. End of Year (EOY)	\$ 5,818,131	\$ 6,970,173
2. Contributions		
a. Employee	\$ 49,591	\$ 48,125
b. Employer	<u>262,404</u>	<u>182,983</u>
c. Total Contributions	\$ 311,995	\$ 231,108
3. Net Investment Income		
a. Investment Income	\$ (921,224)	\$ 1,738,075
b. Investment Expenses	<u>(61,541)</u>	<u>(42,875)</u>
c. Total Net Investment Income	\$ (982,765)	\$ 1,695,200
4. Benefit Payments and Other Cash Flow	\$ (481,272)	\$ (85,339)
5. Net Cash Flow (2.c. + 4.)	\$ (169,277)	\$ 145,769
6. Expected Investment Return	\$ 482,088	\$ 364,060
7. Unexpected Investment Return (UIR) (3.c. - 6.)	\$ (1,464,853)	\$ 1,331,140
8. Preliminary Fixed AVA		
a. Preliminary Fixed AVA @ BOY	\$ 5,986,952	\$ 5,238,125
b. Net Cash Flow (5.)	(169,277)	145,769
c. Expected Investment Return (6.)	482,088	364,060
d. Phase in of UIR		
20% of UIR for prior year	\$ (292,971)	\$ 266,228
20% of UIR for second prior year	266,228	(27,230)
20% of UIR for third prior year	(27,230)	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	\$ (53,973)	\$ 238,998
e. Lower Corridor Bound (80% of 1.b.)	4,654,505	5,576,139
f. Upper Corridor Bound (120% of 1.b.)	6,981,757	8,364,207
g. Preliminary Fixed AVA (a. through d., bounded by e. and f.)	6,245,790	5,986,952
9. Market Value of Variable Fund Assets	\$ 57,953	\$ 74,067
10. Amounts due (To)/From TDA	\$ -	\$ (589,819)
11. AVA (8.g. + 9. + 10.)	\$ 6,303,743	\$ 5,471,200

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	\$ 163,082,524	\$ 166,665,135
Unfunded Accrued Liability Amortization ¹	\$ 43,918,887	\$ 38,058,209
Administrative Expenses	<u>40,719,512</u>	<u>28,822,858</u>
Total Contribution to the New York City Board of Education Retirement System	\$ 247,720,923	\$ 233,546,202

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 6/30/2010 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 level dollar 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 BOARD OF EDUCATION RETIREMENT SYSTEM SCHEDULE OF UNFUNDED ACCRUED LIABILITY BASES				
Amortization Base	Date Established	Original \$ Amount	Amortization Years	Amortization \$ Payment
Initial UAL	6/30/10	1,312,067,636	22	140,549,166
(Gain)/Loss	6/30/11	(182,268,307)	15	(21,558,572)
(Gain)/Loss	6/30/12	36,911,124	15	4,365,823
(Gain)/Loss	6/30/13	325,722,811	15	38,526,274
(Gain)/Loss	6/30/14	84,146,947	15	9,952,844
Assumption Change ¹	6/30/14	165,544,370	20	16,568,028
Method Change ²	6/30/14	(275,445,000)	20	(27,567,113)
(Gain)/Loss	6/30/15	128,325,391	15	15,178,241
(Gain)/Loss	6/30/16	108,322,889	15	12,812,358
(Gain)/Loss	6/30/17	(333,814,462)	15	(39,483,349)
Assumption Change ³	6/30/17	(222,122,082)	20	(22,230,444)
Method Change ³	6/30/17	109,985,516	20	11,007,581
(Gain)/Loss	6/30/18	(66,597,775)	15	(7,877,140)
Method Change ⁴	6/30/18	(112,583,000)	20	(11,267,543)
(Gain)/Loss	6/30/19	(326,361,725)	15	(38,601,844)
Assumption Change ⁵	6/30/19	(22,538,024)	20	(2,255,653)
Method Change ⁵	6/30/19	(486,896,000)	20	(48,729,573)
(Gain)/Loss	6/30/20	105,240,334	15	12,447,756
Method Change ⁶	6/30/20	356,463,914	20	35,675,656
Plan Change ⁷	6/30/20	18,363,811	7	3,985,213
(Gain)/Loss	6/30/21	(351,811,429)	15	(41,612,018)
Plan Change ⁸	6/30/21	17,400,840	13	2,266,182
(Gain)/Loss	6/30/22	14,939,322	15	1,767,014
TOTAL				43,918,887

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

² AVA constrained to a corridor of 80% to 120% of the market value.

³ 2019 A&M.

⁴ Change in method of characterizing interest credited on TDA Fixed Fund account balances.

⁵ Revised 2021 A&M.

⁶ TDA guaranteed interest credits reflected as a liability of the QPP.

⁷ Older Workers Benefit Protection Act (OWBPA).

⁸ Chapter 56 of the Laws of 2022

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

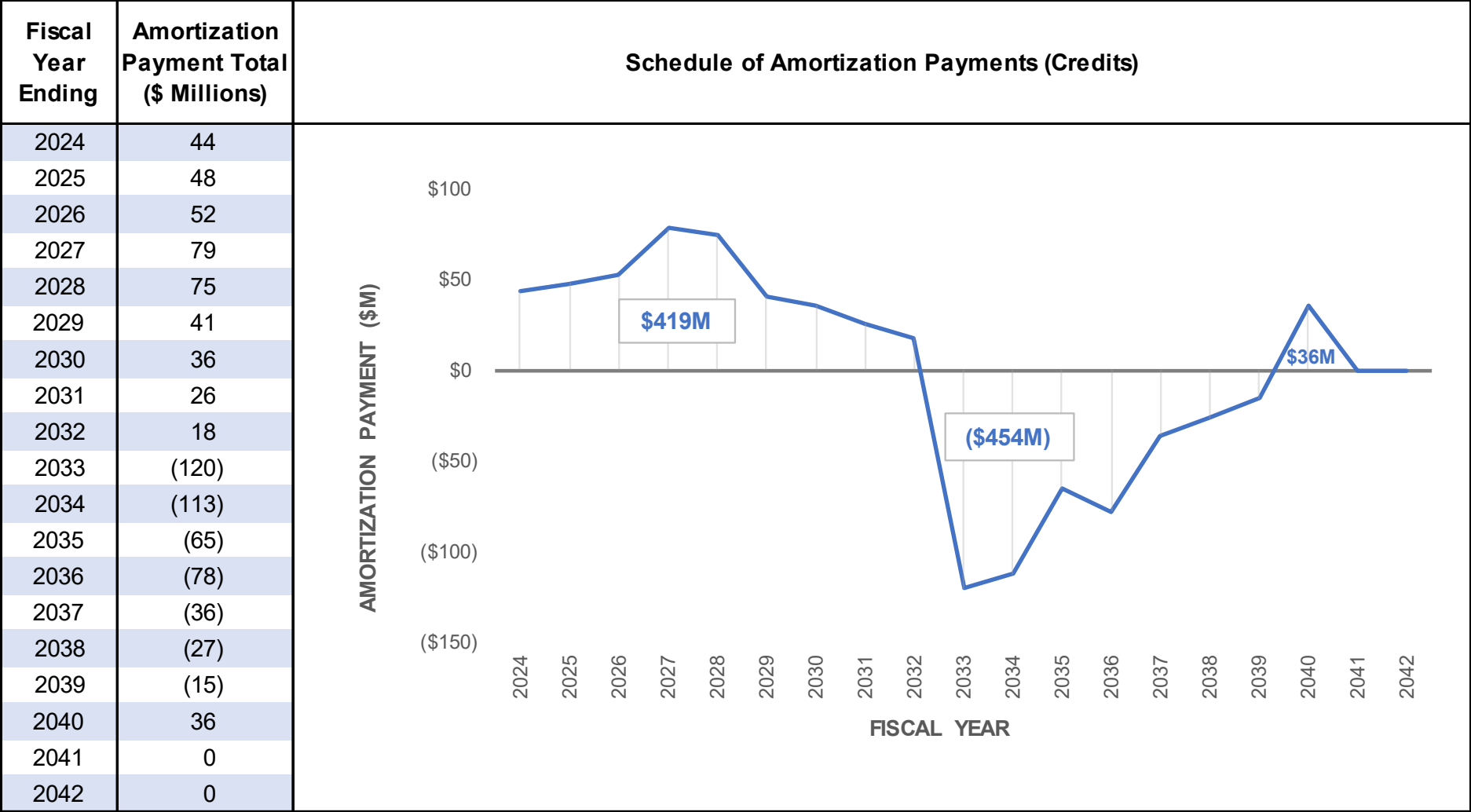


Table III-4
Reconciliation of Outstanding UAL Bases

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	06/30/10	\$ 1,312,067,636	22	\$ 1,117,987,611	\$ 136,455,502	\$ 1,055,096,075	\$ 140,549,166	8
(Gain)/Loss	06/30/11	(182,268,307)	15	(75,536,032)	(21,558,572)	(58,523,192)	(21,558,572)	2
(Gain)/Loss	06/30/12	36,911,124	15	18,516,664	4,365,823	15,296,788	4,365,823	3
(Gain)/Loss	06/30/13	325,722,811	15	189,955,603	38,526,274	163,400,608	38,526,274	4
(Gain)/Loss	06/30/14	84,146,947	15	55,484,361	9,952,844	49,072,964	9,952,844	5
Assumption Change	06/30/14	165,544,370	20	136,122,560	16,568,028	128,513,037	16,568,028	10
Method Change	06/30/14	(275,445,000)	20	(226,490,811)	(27,567,113)	(213,829,525)	(27,567,113)	10
(Gain)/Loss	06/30/15	128,325,391	15	93,752,336	15,178,241	84,614,506	15,178,241	6
(Gain)/Loss	06/30/16	108,322,889	15	86,347,718	12,812,358	79,138,852	12,812,358	7
(Gain)/Loss	06/30/17	(333,814,462)	15	(286,856,371)	(39,483,349)	(266,094,423)	(39,483,349)	8
Assumption Change	06/30/17	(222,122,082)	20	(209,439,667)	(22,230,444)	(201,105,095)	(22,230,444)	13
Method Change	06/30/17	109,985,516	20	103,705,719	11,007,581	99,578,788	11,007,581	13
(Gain)/Loss	06/30/18	(66,597,775)	15	(61,100,525)	(7,877,140)	(57,229,385)	(7,877,140)	9
Method Change	06/30/18	(112,583,000)	20	(110,102,926)	(11,267,543)	(106,154,894)	(11,267,543)	14
(Gain)/Loss	06/30/19	(326,361,725)	15	(317,151,927)	(38,601,844)	(299,422,504)	(38,601,844)	10
Assumption Change	06/30/19	(22,538,024)	20	(22,780,189)	(2,255,653)	(22,041,540)	(2,255,653)	15
Method Change	06/30/19	(486,896,000)	20	(492,127,575)	(48,729,573)	(476,170,243)	(48,729,573)	15
(Gain)/Loss	06/30/20	105,240,334	15	107,613,600	12,447,756	102,270,494	12,447,756	11
Method Change	06/30/20	356,463,914	20	371,212,350	35,675,656	360,294,029	35,675,656	16
Plan Change	06/30/20	18,363,811	7	16,902,391	3,985,213	13,963,223	3,985,213	3
(Gain)/Loss	06/30/21	(351,811,429)	15	(376,438,229)	(41,612,018)	(359,745,097)	(41,612,018)	12
Plan Change	06/30/21	17,400,840	13	18,618,899	2,266,182	17,578,067	2,266,182	10
Admin Expenses	06/30/21	26,041,222	2	27,864,109	28,822,858	0	0	0
Normal Cost	07/01/21	150,580,623	2	161,121,267	166,665,135	0	0	0
(Gain)/Loss	06/30/22	14,939,322	15	14,939,322	0	15,985,076	1,767,014	13
Admin Expenses	06/30/22	36,789,756	2	36,789,756	0	39,365,038	40,719,512	0
Normal Cost	07/01/22	147,343,763	2	0	0	157,657,826	163,082,524	0
TOTAL				\$ 378,910,014	\$ 233,546,202	\$ 321,509,473	\$ 247,720,923	

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)

Total of Cost Components Summarized by Type	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	\$ 1,117,987,611	\$ 136,455,502	\$ 1,055,096,075	\$ 140,549,166
Method Changes	(353,803,243)	(40,880,992)	(336,281,845)	(40,880,992)
Assumption Changes	(96,097,296)	(7,918,069)	(94,633,598)	(7,918,069)
Plan Changes	35,521,290	6,251,395	31,541,290	6,251,395
(Gain)/Loss	(550,473,480)	(55,849,627)	(531,235,313)	(54,082,613)
Normal Cost	161,121,267	166,665,135	157,657,826	163,082,524
Admin Expenses	64,653,865	28,822,858	39,365,038	40,719,512
TOTAL	\$ 378,910,014	\$ 233,546,202	\$ 321,509,473	\$ 247,720,923

	6/30/2022		FY 2024
(A) Actuarial Accrued Liability	\$ 6,682,653,014	Normal Cost	\$ 163,082,524
(B) Actuarial Value of Assets	6,303,743,000	UAL Payment	43,918,887
(C) Unfunded Accrued Liabilities (A) - (B)	\$ 378,910,014	Admin Expenses	40,719,512
		Total	\$ 247,720,923

**Table III-5
Contribution History**

Table III-5 compares 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 Contributed
2015	\$ 258,099	\$ 258,099	100.0%
2016	265,532	265,532	100.0%
2017	288,233	288,233	100.0%
2018	318,643	318,643	100.0%
2019	269,637	269,637	100.0%
2020	257,503	257,503	100.0%
2021	182,983	182,983	100.0%
2022	262,404	262,404	100.0%
2023	233,546	233,546	100.0%
2024	247,721	247,721	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 Contribution	Salary ¹ at Beginning of Fiscal Year	City Rate
2015	\$ 258,099	\$ 1,016,822	25.4%
2016	265,532	1,008,056	26.3%
2017	288,233	1,052,171	27.4%
2018	318,643	1,102,184	28.9%
2019	269,637	1,180,855	22.8%
2020	257,503	1,258,395	20.5%
2021	182,983	1,330,996	13.7%
2022	262,404	1,453,042	18.1%
2023	233,546	1,457,420	16.0%
2024	247,721	1,442,913	17.2%

¹ Includes 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 1	Tier 2	Tier 3/4	Tier 6	Total
Total	21.5%	20.8%	13.2%	11.4%	12.4%
Employee	<u>(3.8%)</u>	<u>(5.2%)</u>	<u>(3.1%)</u>	<u>(4.8%)</u>	<u>(3.9%)</u>
Employer	17.7%	15.6%	10.1%	6.6%	8.5%

SECTION IV – RESULTS BY CONTRIBUTING ENTITY

**Table IV-1
Employer Contributions by Obligor**

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM					
EMPLOYER CONTRIBUTION BY OBLIGOR					
Valuation Date	June 30, 2022				
Fiscal Year	2024				
Obligor	Department of Education	NYC School Construction Authority	Renaissance Charter School	KIPP Charter School	Total
Contribution					
1. Normal Cost	\$ 155,598,967	\$ 7,434,212	\$ 49,345	\$ 0	\$ 163,082,524
2. Amortization of Unfunded Accrued Liability	42,156,136	1,736,347	17,922	8,482	43,918,887
3. Administrative Expenses	38,349,340	2,357,651	12,521	0	40,719,512
4. Actuarial Contribution (1. + 2. + 3.)	\$ 236,104,443	\$ 11,528,210	\$ 79,788	\$ 8,482	\$ 247,720,923

**Table IV-2
Accrued Liabilities by Obligor**

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM					
SUMMARY OF LIABILITY BY STATUS AND OBLIGOR					
Valuation Date	June 30, 2022				
Fiscal Year	2024				
Obligor	Department of Education	NYC School Construction Authority	Renaissance Charter School	KIPP Charter School	Total
Accrued Liability					
1. Active Members	\$ 2,568,105,220	\$ 164,762,260	\$ 1,200,832	\$ 0	\$ 2,734,068,312
2. Terminated Nonvested Members	38,320,872	741,231	11,387	75,586	39,149,076
3. Deferred Vested Members	142,711,314	6,094,277	49,961	35,750	148,891,302
4. Retirees and Beneficiaries	3,131,660,754	153,694,210	693,877	0	3,286,048,841
5. Accrued Liability SubTotal (1. to 4.)	\$ 5,880,798,160	\$ 325,291,978	\$ 1,956,057	\$ 111,336	\$ 6,208,157,531
6. Due to/from TDA	473,301,226	1,194,257	0	0	474,495,483
7. Total Accrued Liability (AL) (5. + 6.)	\$ 6,354,099,386	\$ 326,486,235	\$ 1,956,057	\$ 111,336	\$ 6,682,653,014
Present Value of Benefits					
1. Active Members	\$ 4,190,198,684	\$ 253,750,597	\$ 1,618,702	\$ 0	\$ 4,445,567,983
2. Terminated Nonvested Members	38,320,872	741,231	11,387	75,586	39,149,076
3. Deferred Vested Members	142,711,314	6,094,277	49,961	35,750	148,891,302
4. Retirees and Beneficiaries	3,131,660,754	153,694,210	693,877	0	3,286,048,841
5. Present Value of Benefits (1. to 4.)	\$ 7,502,891,624	\$ 414,280,315	\$ 2,373,927	\$ 111,336	\$ 7,919,657,202
6. Due to/from TDA	473,301,226	1,194,257	0	0	474,495,483
7. Total Present Value of Benefits (5. + 6.)	\$ 7,976,192,850	\$ 415,474,572	\$ 2,373,927	\$ 111,336	\$ 8,394,152,685

**Table IV-3
Participant Data by Obligor**

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM					
PARTICIPANT DATA BY OBLIGOR					
Valuation Date	June 30, 2022				
Fiscal Year	2024				
Obligor	Department of Education	NYC School Construction Authority	Renaissance Charter School	KIPP Charter School	Total
Participant Data					
1. Active Members					
a. Number	24,920	710	9	0	25,639
b. Annual Salary ¹	\$ 1,382,181,613	\$ 84,974,133	\$ 451,310	\$ 0	\$ 1,467,607,056
c. Average Salary	\$ 55,465	\$ 119,682	\$ 50,146	\$ 0	\$ 57,241
2. Terminated Nonvested Members	9,173	65	2	5	9,245
3. Deferred Vested Members	2,362	45	2	1	2,410
4. Retirees and Beneficiaries					
a. Number	20,094	383	4		20,481
b. Total Annual Benefits	\$ 303,906,036	\$ 14,715,980	\$ 63,195	\$ 0	\$ 318,685,212
c. Average Annual Benefit	\$ 15,124	\$ 38,423	\$ 15,799	\$ 0	\$ 15,560

¹ Salaries shown reflect the impact of recent labor contract settlements and certain non-union salary increases with retroactive effective dates, if any.

SECTION V – (GAIN)/LOSS ANALYSIS

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

EXPERIENCE (GAIN) / LOSS as of June 30, 2022 (\$ Thousands)			
	Fixed	Variable	Total
1. Expected Accrued Liability (AL)			
a. AL at June 30, 2021	\$ 5,859,763	\$ 20,308	\$ 5,880,071
b. Total Normal Cost and Administrative Expenses at June 30, 2021	232,905	-	232,905
c. Interest on 1.a. and 1.b. to June 30, 2022	431,293	(3,385)	427,908
d. Fiscal Year 2022 Benefit Payments with Interest to June 30, 2022	<u>(333,118)</u>	<u>(3,767)</u>	<u>(336,885)</u>
e. Expected AL at June 30, 2022	\$ 6,190,843	\$ 13,156	\$ 6,203,999
2. Actual AL at June 30, 2022	\$ 6,668,019	\$ 14,634	\$ 6,682,653
3. Expected Actuarial Asset Value (AVA)			
a. AVA at June 30, 2021	\$ 5,397,133	\$ 74,067	\$ 5,471,200
b. Interest on 3.a. to June 30, 2022	395,330	(12,347)	382,983
c. Total Contributions Paid in Fiscal Year 2022	311,995	-	311,995
d. Interest on 3.c. to June 30, 2022	10,735	-	10,735
e. Fiscal Year 2022 Benefit Payments with Interest to June 30, 2022	<u>(333,118)</u>	<u>(3,767)</u>	<u>(336,885)</u>
f. Expected AVA at June 30, 2022	\$ 5,782,075	\$ 57,953	\$ 5,840,028
4. Actual AVA at June 30, 2022	\$ 6,245,790	\$ 57,953	\$ 6,303,743
5. Liability (Gain) / Loss (2. - 1.e.)	\$ 477,176	\$ 1,478	\$ 478,654
6. Asset (Gain) / Loss (3.f. - 4.)	\$ (463,715)	\$ -	\$ (463,715)
7. Total Actuarial (Gain) / Loss (5. + 6.)	\$ 13,461	\$ 1,478	\$ 14,939

SECTION VI – 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 VI-1
Schedule of Funding Progress

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM (\$ 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 Payroll ¹	(6) UAL as a % of Covered Payroll (3) / (5)
2013	\$ 2,277,791	\$ 4,015,080	\$ 1,737,289	56.7%	\$ 1,051,571	165.2%
2014	2,632,922	4,335,746	1,702,824	60.7%	1,045,188	162.9%
2015	2,772,466	4,585,781	1,813,315	60.5%	1,093,962	165.8%
2016	2,858,737	4,767,760	1,909,023	60.0%	1,149,020	166.1%
2017	3,289,191	4,743,881	1,454,690	69.3%	1,201,926	121.0%
2018	3,908,833	5,103,583	1,194,750	76.6%	1,280,302	93.3%
2019	4,991,832	5,306,986	315,154	94.1%	1,353,266	23.3%
2020	5,291,811	5,620,897	329,086	94.1%	1,476,598	22.3%
2021	5,471,200	5,880,071	408,871	93.0%	1,484,264	27.5%
2022	6,303,743	6,682,653	378,910	94.3%	1,467,607	25.8%

¹ Salaries reflect the impact of recent labor contract settlements and certain non-union salary increases with retroactive effective dates, if any.

SECTION VII – RISK AND UNCERTAINTY

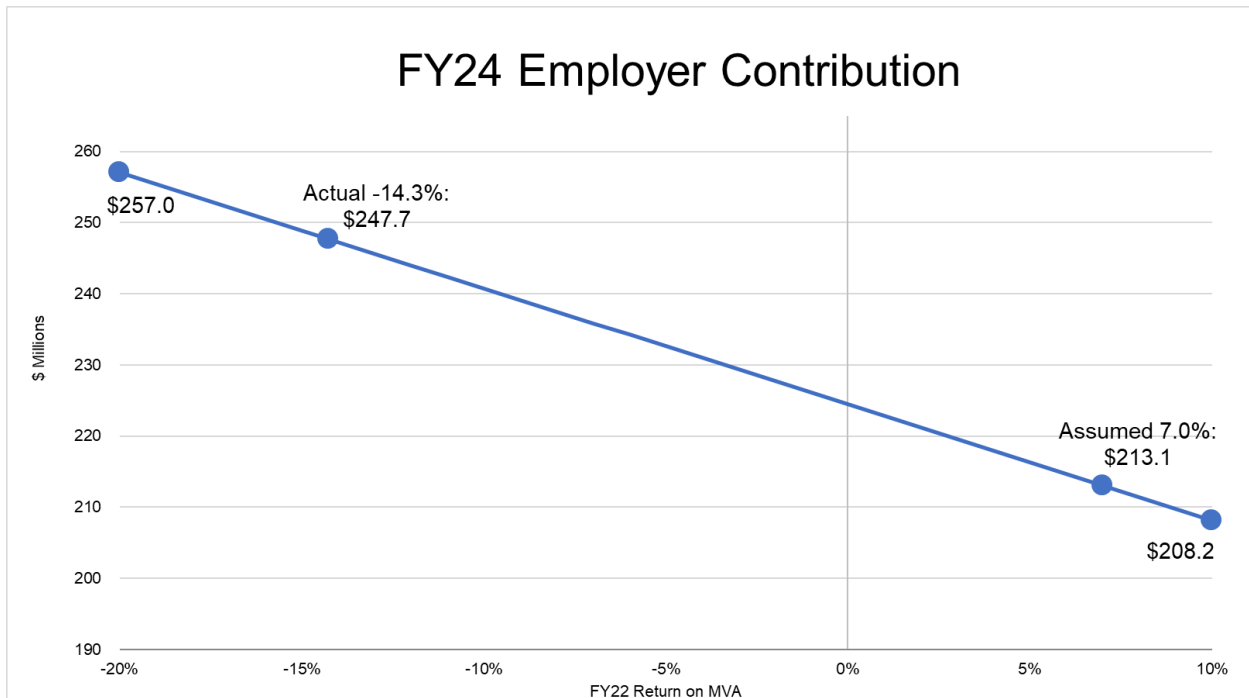
The funded status of BERS depends highly on the realization of the actuarial assumptions used, certain demographic characteristics of the Plan, and other factors. Risks faced by the Plan are described in this Section and have been separated into high, medium, and other risk categories.

High Risk Types

Investment Risk: The Risk of Not Realizing Expected Returns

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

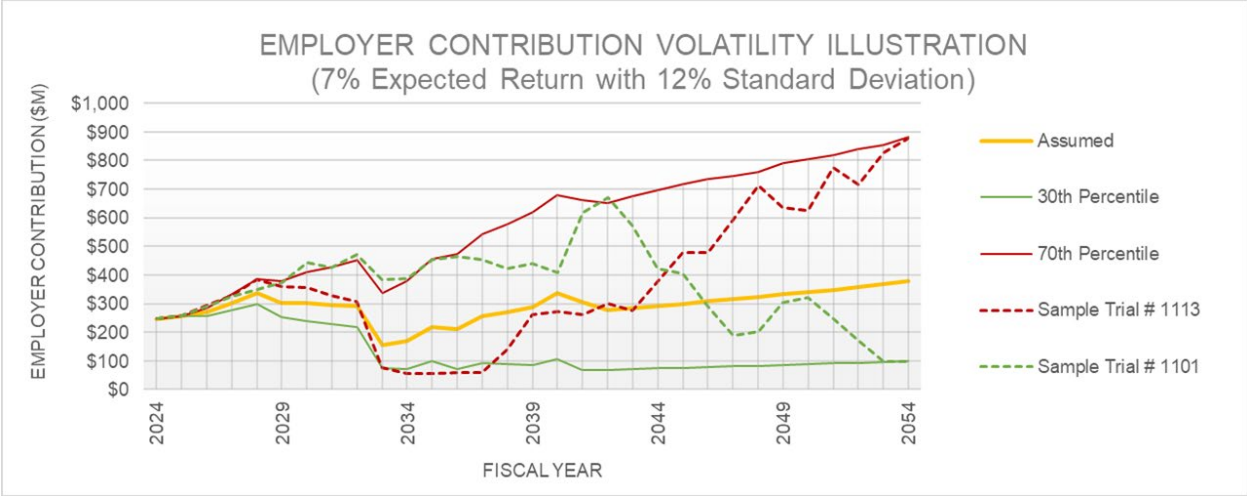
The graph below illustrates the potential FY24 employer contribution for a range of investment return outcomes if returns had differed from the assumed rate of return (i.e., from -20% to 10%). In addition, the actual investment return and employer contribution are shown.



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.

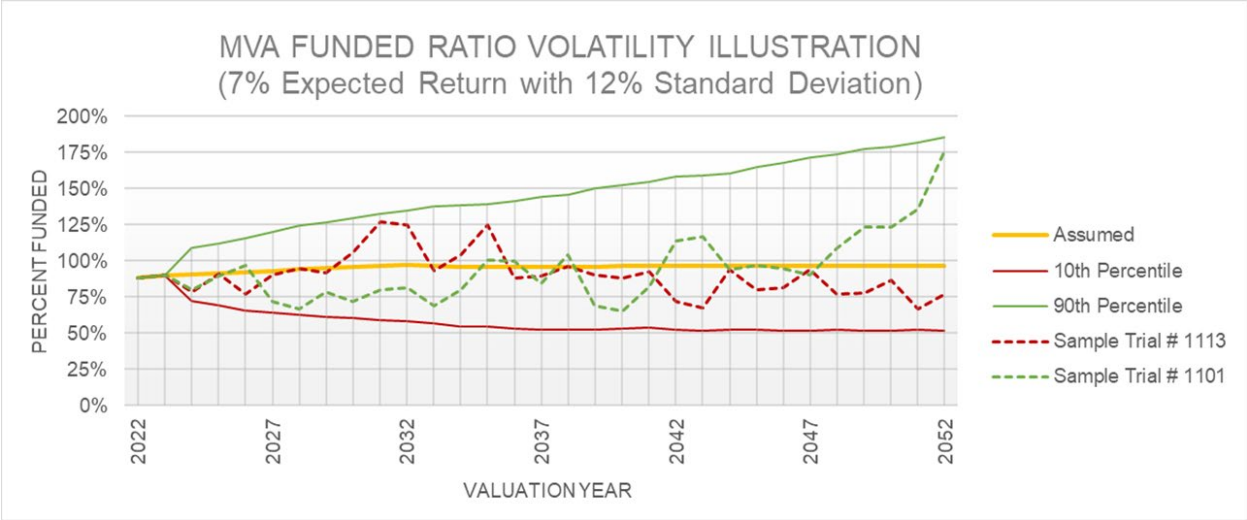
The yellow line in the charts shows the results if investment returns were exactly 7% as expected. The two solid lines show results for the indicated percentile range and together frame a range of results based on all 5,000 trials. The two dashed lines illustrate sample results from among the 5,000 trials.



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 175% funding at the end of the 30-year period (below) with a corresponding employer contribution approaching \$100M (above). The converse is shown in the red dotted line where at the end of the 30-year period, the employer contribution rate approaches \$850M (above) with a corresponding funded ratio of 75% (below).

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

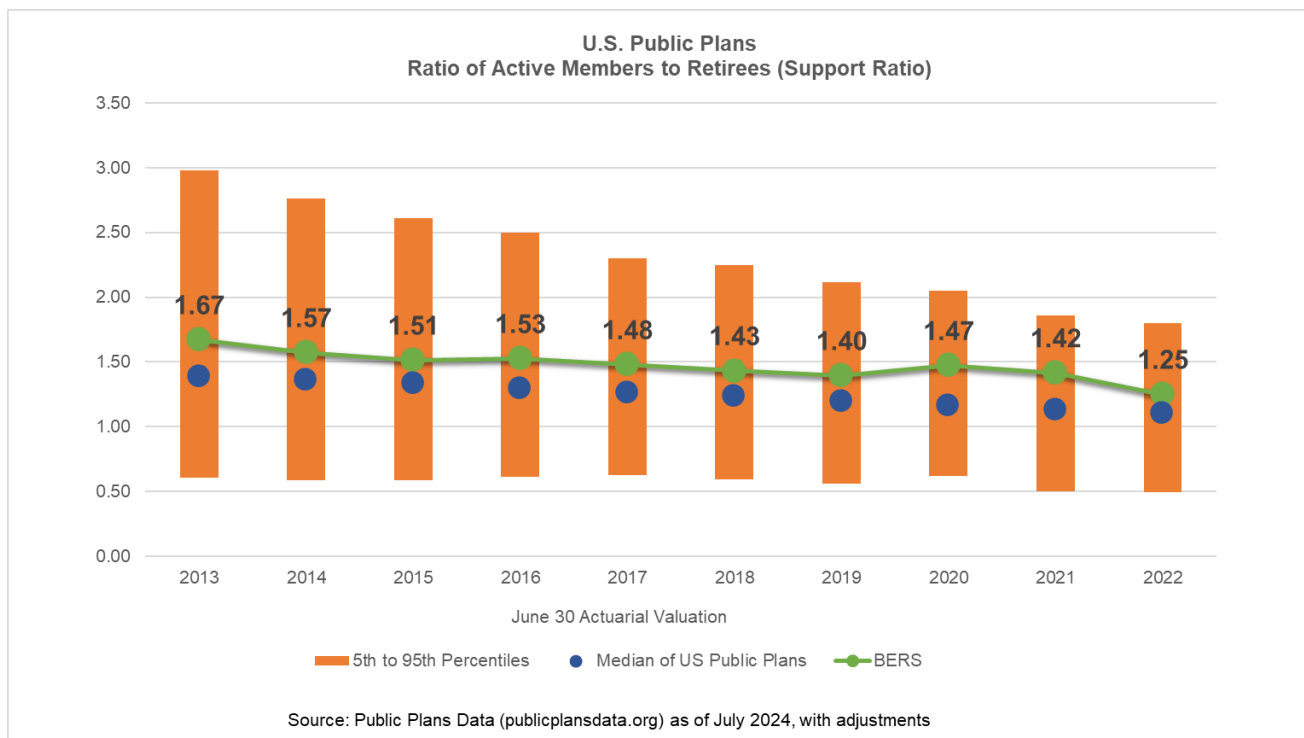


Maturity Risk: The Risk of Demographic Imbalance

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)

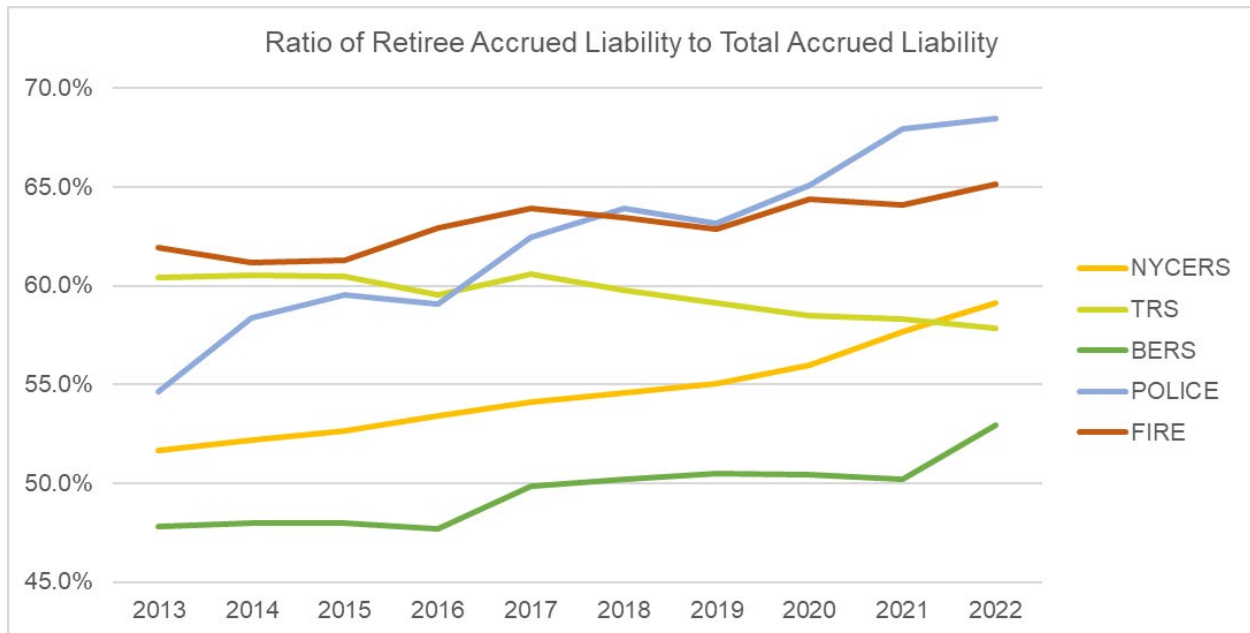
A plan's Support Ratio (i.e., the ratio of active members to retirees) is an indicator of the Plan's maturity level. Lower Support Ratios have higher contribution volatility. In a plan's early years, the ratio is very high as the plan contains mostly active members. As it matures, more active members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



The chart above shows U.S. public pension plan Support Ratios in comparison to the Plan's. The median Support Ratio amongst U.S. public pensions has declined from 1.39 in the 2013 valuation year to 1.10 in the 2022 valuation year. Likewise, over that same period, the Plan's Support Ratio declined from 1.67 to 1.25.

Ratio of Retiree Accrued Liability to Total Accrued Liability

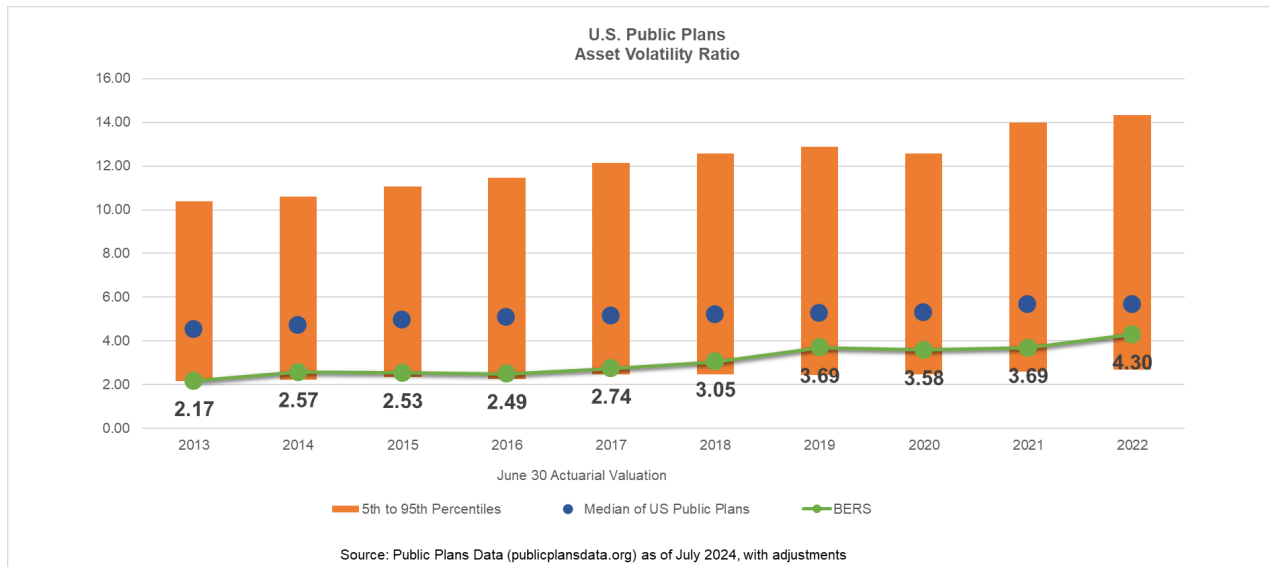
A plan's ratio of retiree liabilities to its total liabilities is also a measure of its maturity. A new pension plan begins with this ratio at zero; as the plan matures, the ratio increases. This ratio is shown in the graph below for BERS; the other New York City Retirement Systems¹ (NYCRS) are included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



¹ New York City Employees' Retirement System (NYCERS); Teachers' Retirement System (TRS); Police Pension Fund (POLICE); 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 BERS to the population of public pension systems.



As a plan matures, AVRs 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 the Normal Cost of the Plan are shown below:

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM	
SENSITIVITY ANALYSIS AS OF JUNE 30, 2022	
Valuation Date	June 30, 2022
Results at 7.0%	
1. Accrued Liability	\$ 6,682,653,014
2. Actuarial Value of Assets (AVA)	<u>6,303,743,000</u>
3. Unfunded Accrued Liability (1. - 2.)	\$ 378,910,014
4. Normal Cost	\$ 163,082,524
Results at 6.0%	
1. Accrued Liability	\$ 8,003,711,662
2. Actuarial Value of Assets (AVA)	<u>6,303,743,000</u>
3. Unfunded Accrued Liability (1. - 2.)	\$ 1,699,968,662
4. Normal Cost	\$ 252,197,365
Sensitivity Analysis for 1.0% Reduction in Interest Rate	
1. Increase in Accrued Liability	19.8%
2. Increase in Unfunded Accrued Liability	348.6%
3. Increase in Normal Cost	54.6%

Longevity Risk: The Risk of Higher than Assumed Mortality Improvement

BERS 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

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 a main contributing entity to BERS.

In addition, BERS is a multiple-employer plan with several contributing entities. BERS faces risk if contributing entities become insolvent while still carrying Unfunded Accrued Liability. Existing law and precedent transfer these amounts to other employers, creating imbalanced funding responsibility in the event of default. For example, in the final June 30, 2016 actuarial valuation for FY18, the Department of Education assumed responsibility for unfunded liabilities associated with the Beginning with Children Charter School, which closed in 2016.

Other Risk Types

Inflation Risk: The Risk of Higher than Assumed Inflation

BERS 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. City benefits are constitutionally protected and participating employers have historically contributed to the actuarial contribution as certified by the Actuary. The Actuary believes the City and other participating employers will continue to do so in future years. See Table III-5 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. Covered Employment

Membership in BERS is open to all employees of the Department of Education who are not eligible to participate in the New York City Teachers' Retirement System. In addition, employees of the New York City School Construction Authority, employees of the Office of the Special Commissioner of Investigation, School Crossing Guards employed by the New York City Police Department, and employees of NYC charter schools that have elected and are approved to participate in the plan may also be eligible for membership. Membership in BERS may be voluntary or mandated.

B. Tier Membership

Tier membership is based on the date that the member joined BERS. The tier status of earlier membership in BERS or another New York City or New York State public employee retirement system is reflected, but only if the service associated with that membership is purchased and included in Credited Service.

Tier 1: Prior to July 1, 1973

Tier 2: July 1, 1973 through July 26, 1976

Tier 4: July 27, 1976 through March 31, 2012

Tier 6: April 1, 2012

Tier 4 members who joined BERS before September 1, 1983 may elect a Tier 3 benefit. Unless otherwise noted, Tier 1 and Tier 2 provisions are hereafter omitted for brevity.¹ For more information about plan provisions, see the applicable Summary Plan Descriptions at www.nycbers.org. In the event of a conflict between this summary and applicable law, the applicable laws will govern.

C. Basic Member Contributions (BMC)

Basic Member Contributions earn 5% interest per year, compounded annually.

Tier 4: The contribution rate is 3% of Salary. Tier 4 members contribute BMC for the first 10 years of Credited Service except members of the Chapter 504 55/27 plan contribute BMC for the first 27 years of Credited Service.

¹ Approximately 0.1% of active members as of June 30, 2022 are members of Tier 1 and Tier 2.

Tier 6: BMC are made for all years of Credited Service according to the following schedule:

Lookback Wages	BMC Contribution Rate
Up to \$45,000	3.00%
\$45,001 up to \$55,000	3.50%
\$55,001 up to \$75,000	4.50%
\$75,001 up to \$100,000	5.75%
Greater than \$100,000	6.00%

The lookback wages used for determining the Tier 6 BMC contribution rate for a plan year are the actual wages earned two plan years prior to the plan year. A projected salary is used during the first three years of Credited Service. The BMC contribution rate was limited to 3% from April 1, 2012 through March 31, 2013.

D. Additional Member Contributions (AMC)

Additional Member Contributions including AMCs for work in physically taxing employment (AMC-PT) earn 5% interest per year, compounded annually.

Tier 4: Members of the Basic 62/5 plan do not make AMC. For other Tier 4 members, the AMC contribution rate as a percentage of Salary varies by plan in accordance with the following schedule:

Plan Description	AMC Contribution Rate	Years Required
Chapter 96 55/25	1.85% ¹	30
Chapter 96 57/5		
Chapter 19 55/25	1.85%	25
Chapter 19 55/27	1.85%	27
Special Officers 25-yr plan	6.25%	30
Auto Mechanics 50/25-yr plan	4.83%	30
Chapter 504 55/27 plan	1.85%	All years

Tier 6: Members of the 63/5 plan do not make Additional Member Contributions. For members of the Special Officers 25-yr plan and Auto Mechanics 50/25-yr plan, AMC contributions of 6.25% and 4.83%, respectively, are required for the first 30 years of Credited Service.

¹ Members of Chapter 96 55/25 and 57/5 who work in physically taxing employment contribute an additional 1.98% on top of the 1.85%.

E. Credited Service

Credited Service is comprised of Membership Service, Part-time Service, Prior Service, Transferred Service, and Military Service:

1. **Membership Service**: Service earned while a member of BERS.
2. **Part-time Service**: Service that is prorated based on the number of hours or days worked in the year.
3. **Prior Service**: Service earned prior to membership while employed by the Department of Education, the City of New York, the State of New York, or any of its political subdivisions, or by another covered employer.
4. **Transferred Service**: Service earned as a member of another public retirement system in the City or State of New York.
5. **Military Service**: Service for qualified time served in one of the armed forces of the United States.

Prior Service, Transferred Service, and Military Service must be purchased to count as Credited Service. Payments made for purchasing Military Service are considered Employer contributions.

F. Salary

Salary is based on the annual wages earned in covered employment including overtime pay. Some limitations apply for the Salary used to determine Final Average Salary (FAS).

Tier 4: Wages greater than 110% of the average of the previous two years are excluded for purposes of determining FAS.

Tier 6: Wages greater than 110% of the average of the previous four years are excluded for purposes of determining FAS. In addition, the following payments are also excluded from wages for purposes of determining FAS:

1. Wages greater than the annual salary paid to the Governor of the State of New York;
2. Lump sum payments for deferred compensation, sick leave, accumulated vacation, or other credits for time not worked;
3. Overtime greater than the overtime ceiling of \$15,000, effective April 1, 2012 and indexed annually by the Consumer Price Index (CPI-U);
4. Any form of termination pay;

5. Any additional compensation paid in anticipation of retirement; and
6. In the case of employees who receive wages from three or more employers in a twelve-month period, the wages paid by the third and each successive employer.

G. Final Average Salary (FAS)

Service retirement, early retirement, disability retirement, and vested retirement benefits are based on FAS.

Tier 4: FAS is the highest average Salary earned in any three consecutive years of Credited Service or in the final 36 months of Credited Service if greater.

Tier 6: FAS is the highest average Salary earned in any five consecutive years of Credited Service or in the final 60 months of Credited Service if greater.

H. Service Retirement

1. Eligibility: The eligibility requirements for an unreduced service retirement are summarized in the table below:

Tier	Plan Description	Minimum Age	Minimum Service
4	Basic 62/5 plan	62	5
4	Chapter 96 55/25 plan	55	25
4	Chapter 96 55/25 plan Physically-Taxing	50	25
4	Chapter 96 57/5 plan	57	5
4	Chapter 96 57/5 plan Physically-Taxing	50	25
4	Chapter 19 55/25	55	25
4	Chapter 19 55/27	55	27
4	Special Officers 25-yr plan	N/A	25
4	Auto Mechanics 50/25-yr plan	50	25
4	Chapter 504 55/27 plan	55	27
6	Basic 63/5 Plan	63	5
6	Special Officers 25-yr plan	N/A	25
6	Auto Mechanics 50/25-yr plan	50	25

2. Benefits:

- a. Tier 4 Plans except for the Special Officers 25-year plan and Auto Mechanics 50/25-yr plan:
 - i. Less than 20 years of Credited Service: 1/60 times FAS times Credited Service
 - ii. 20 or more years of Credited Service: Sum of 2.0% times FAS times Credited Service up to 30 years plus 1.5% times FAS times Credited Service in excess of 30 years.

- b. Basic Tier 6 63/5 Plan:
 - i. Less than 20 years of Credited Service: 1/60 times FAS times Credited Service;
 - ii. 20 or more years of Credited Service: Sum of 35% times FAS plus 2.0% times FAS times Credited Service in excess of 20 years.

- c. Tier 4 and Tier 6 Special Officers 25-year and Auto Mechanics 50/25-yr plans:
 - i. 2.0% times FAS times Credited Service up to 30 years.

I. Early Retirement

- 1. Eligibility: Not all plans provide for early retirement. However, certain participants may be eligible for early retirement under the Tier 4 or Tier 6 Basic plans. The eligibility requirements for early retirement plans are summarized in the table below:

Tier	Plan Description	Minimum Age	Minimum Service
4	Basic 62/5 plan	55	5
4	Chapter 504 55/27 plan	55	5
6	Basic 63/5 plan	55	5

2. Benefits:

The service retirement benefit is reduced for early retirement based on the age at commencement.

a. Tier 4 Basic 62/5 Plan:

The service retirement benefit is reduced by 0.50% for each of the first 24 months that the age at commencement precedes age 62, and reduced 0.25% for each of the next 60 months that the age of commencement precedes age 60:

Age	Early Retirement Factor
61	0.94
60	0.88
59	0.85
58	0.82
57	0.79
56	0.76
55	0.73

b. Tier 6 Basic 63/5 Plan:

The service retirement benefit is reduced by 13/2400 for each month (i.e., 6.5% per year) that the age of commencement precedes age 63.

J. Disability Retirement

1. Accidental Disability (ADR)

- a. Eligibility: No age or service requirement. Requires Medical Board determination that the active member is physically or mentally incapacitated due to an accident in the performance of duties and that the accident is not due to willful negligence of the member.
- b. Benefits: Greater of 1/60 times FAS times Credited Service or 1/3 times FAS. The member may elect a service retirement benefit, if eligible.

2. Ordinary Disability (ODR)

- a. Eligibility: 10 years of Credited Service. Requires Medical Board determination that the member is physically or mentally incapacitated while an active member.
- b. Benefits: Greater of 1/60 times FAS times Credited Service or 1/3 times FAS. The member may elect a service retirement benefit, if eligible.

K. Death Benefits

1. Accidental Death Benefits

- a. Eligibility: No age or service requirement. Death due to the performance of duties while an active member.
- b. Benefits: A monthly pension is payable to the beneficiary equal to 50% of 1/12 of annual wages earned during the year prior to death. The benefit is equal to 50% of 1/12 of the annual wage rate if the member had less than one year of Credited Service.

2. Ordinary Death Benefits

a. Eligibility

- i. Active members: No age or service requirement. Death during active employment while not in the performance of duties.
- ii. Deferred vested members: Death after termination of employment and prior to benefit commencement.
- iii. Retired Members: Death after benefit commencement.

b. Benefits

- i. Active members: Refund of BMC and the employee portion of AMC with interest plus a salary-based death benefit. The salary-based death benefit is equal to one year's wages times completed years of Credited Service up to 3 years. The salary-based portion of the death benefit is reduced 3% for each year the member remains in service beyond age 60 (to a maximum reduction of 30% at age 70).
- ii. Deferred vested members with 10 or more years of Credited Service: Refund of BMC and the employee portion of AMC, if any, with interest plus one half of the salary-based death benefit that would have been payable had the member died on the last day of active service as described above.
- iii. Deferred vested members with less than 10 years of Credited Service: Refund of BMC and the employee portion of AMC, if any, with interest.
- iv. Retirees: The pre-retirement, salary-based death benefit if eligible, that would have been payable had the member died on the last

day of active service times the Adjustment Factor described in the table below:

Year of Death	Adjustment Factor
1 st year after retirement	50%
2 nd year after retirement	25%
3 rd year or later after retirement	10%, or if greater, the benefit is 10% of the pre-retirement, salary-based death benefit in effect at age 60

c. Form of Payment: Lump sum.

L. Vested Benefit After Termination

1. Eligibility

- a. All Tier 4 plans: 5 years of Credited Service.
- b. Tier 6 plans: 5 years of Credited Service.

2. Benefits: The vested benefit is equal to the amount of the Service Retirement benefit (unless noted otherwise below), payable at the times specified below.

- a. Tier 4 Special Officers 25-year plan: When the member would have earned 25 years of Credited Service if he or she had continued working in covered employment.
- b. Tier 4 Auto Mechanics 50/25-year plan: When the member would have earned 25 years of Credited Service if he or she had continued working in covered employment, but not prior to age 50.
- c. All other Tier 4 plans: Age 62.
- d. Tier 6 Plans: Age 63. In no case can the vested benefit be less than the annuity equivalent of the BMC.

M. Forms of Payment

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

N. 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. 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 highest 0.1%. Such percentage shall not be less than 1.0% nor greater than 3.0%.

O. Refund of BMC and AMC

Refunded with interest under some circumstances. AMC include Additional Member Contributions for work in physically taxing employment (AMC-PT). Only the employee portion of AMC is refunded.

1. Employee Portion of AMC: 50% for all plans that require AMC except for the Special Officers and Auto Mechanics plans, it is 100%.
2. Non-vested termination: BMC and employee portion of AMC are refunded with interest.
3. Vested termination:
 - a. A member may elect a refund of BMC and the employee portion of AMC with interest in lieu of a pension benefit, but only if he or she has less than 5 years of Credited Service.
 - b. A member of one of the Special Officer plans may elect a refund of AMC in lieu of remaining in the Special Officers 25-year plan if he or she leaves

service as a special officer prior to earning 15 years of Credited Service as a special officer.

- c. A member of one of the Auto Mechanics plans may elect a refund of AMC in lieu of remaining in the Auto Mechanics 50/25-year plan if he or she leaves service as an auto mechanic prior to earning 5 years of Credited Service as an auto mechanic.
4. Ordinary death: BMC and the employee portion of AMC are refunded with interest.
5. Accidental death: The employee portion of AMC are refunded with interest.
6. Disability Retirement: The employee portion of AMC are refunded with interest.
7. Service Retirement: The employee portion of AMC is refunded with interest if the member retires on or after age 62. For retirement prior to age 62, the employee portion of AMC-PT are refunded if a member of the Chapter 96 55/25 plan retires on or after age 55 with 25 years of Credited Service or if a member of the Chapter 96 57/5 plan retires on or after age 57 with 25 years of Credited Service.

P. Service and Early Retirement for Tier 4 Members with Tier 3 Rights

1. Eligibility: Age 55 and 5 years of Credited Service.
2. Benefits: These members may elect a Tier 3 benefit instead of a Tier 4 benefit. The benefit formula for Tier 3 is the same as the benefit formula for the Tier 4 Basic 62/5 plan except:
 - a. Credited Service under the Tier 3 benefit formula is capped at 30 years,
 - b. The Tier 3 benefit formula includes an offset starting at age 62 equal to 50% of the Primary Social Security benefit, and
 - c. The early retirement factors used to reduce benefits for early commencement are smaller and thus reduce benefits more for Tier 3 than the corresponding factors used under the Basic Tier 4 62/5 plan.
3. Cost of Living Adjustments: Tier 3 retirement benefits may be adjusted annually by Escalation. A Tier 3 retirement benefit cannot be less than the initial benefit payable at the commencement date.
 - a. Full Escalation: Applicable for benefits commencing on or after age 65. Equal to the lesser of 3% and the Consumer Price Index (CPI-U) for

positive increases in the CPI-U, and the greater of -3% and the Consumer Price Index (CPI-U) for negative increases in the CPI-U.

- b. Partial Escalation: Applicable for benefits commencing after age 62 and prior to age 65. Equal to full escalation reduced by 1/36 times the number of months that the age at commencement precedes age 65.

Q. Loans

A member generally may borrow up to 75% of the accumulated BMC with interest. A member's unpaid loan balance will reduce his or her retirement benefit.

R. Tax-deferred Annuity Program (TDA)

Members may elect to make voluntary employee contributions to the BERS TDA. A member's contributions to a TDA account are capped by the dollar limitations under §402(g)(1) of the Internal Revenue Code (IRC) on the exclusion for elective deferrals described in §402(g)(3), and the dollar limitation under §414(v)(2)(B)(i) of the IRC for catch-up contributions for members who have attained aged 50.

A member may withdraw his or her TDA account balance as a lump sum or convert a portion of the accumulated balance into an annuity upon retirement.

S. Others

None.

SECTION IX – CHAPTER AMENDMENTS

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

- **Chapter 716 of the Laws of 2023 (Chapter 716/23)**, enacted on December 8, 2023 amends certain Tier 2, 3, 4 and 6 death benefit provisions for NYCERS, TRS and BERS to ensure continued compliance with OWBPA.
- **Chapter 56 of the Laws of 2022 (Chapter 56/22)**, enacted on April 9, 2022, reduces the Tier 6 vesting requirement from 10 years to 5 years and allows for retirement with 5 years of service, and excludes certain forms of overtime and extracurricular compensation from the salary used to determine Tier 6 BMC Contribution Rates during the specified period from 2022 through 2024.
- **Chapter 561 of the Laws of 2022 (Chapter 561/22)**, enacted September 9, 2022, extends the deadline for filing a Notice of Participation in the World Trade Center Rescue, Recovery, and Cleanup Operations from September 11, 2022 to September 11, 2026.
- **Chapter 585 of the Laws of 2022 (Chapter 585/22)**, enacted on November 10, 2022, expands the qualifications for military service buybacks.
- **Chapter 775 of the Laws of 2022 (Chapter 775/22)**, enacted on December 23, 2022, increased the asset allocation limits for “Basket Clause” investments from 25% to 35%.
- **Chapter 424 of the Laws of 2021 (Chapter 424/21)**, enacted on September 10, 2021, 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 78 of the Laws of 2021 (Chapter 78/21) amends Chapter 89/20 by extending the eligibility window of these death benefits through December 31, 2022.
Chapter 783 of the Laws of 2022 (Chapter 783/22) extends the deadline for the COVID-19 Accidental Death Benefits from December 31, 2022 to December 31, 2024.

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 711 of the Laws of 2023 (Chapter 711/23)** allows members of NYCERS, TRS or BERS to suspend their membership in such system and join a second city retirement system based on eligible dual employment.
- **Chapter 717 of the Laws of 2023 (Chapter 717/23)** reinstates the transfer of reserves between certain New York City and State retirement systems for members who transfer systems with 10 or more years of service.
- **Chapter 721 of the Laws of 2023 (Chapter 721/23)** will require certain new and existing New York City Board of Education Retirement System (BERS) eligible employees, who are non-provisional and who are not otherwise already a member in a public retirement system within the State, to be enrolled into BERS membership unless the employees timely opt out of such membership.
- **Chapter 55 of the Laws of 2024 (Chapter 55/24)** extends Chapter 56/22 by excluding overtime and compensation earned for supplemental work from wages used to calculate Tier 6 Basic Member Contribution Rates for two additional years.
- **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.

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 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-1
Active Retirement Rates**

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM					
PROBABILITIES OF SERVICE RETIREMENT					
Age	Reduced Service Retirement	Unreduced Service Retirement Probabilities For Members Who Did Not Elect an Improved Retirement Program		Unreduced Service Retirement Probabilities For Members Who Elected an Improved Retirement Program	
		Year 1	Ultimate	Year 1	Ultimate
55	2.50%	15.00%	0.00%	35.00%	0.00%
56	2.50%	15.00%	6.50%	35.00%	12.00%
57	2.50%	15.00%	6.50%	35.00%	12.00%
58	2.50%	15.00%	6.50%	35.00%	12.00%
59	3.75%	15.00%	6.50%	35.00%	12.00%
60	5.00%	15.00%	6.50%	35.00%	12.00%
61	6.25%	15.00%	10.00%	35.00%	12.00%
62	7.50% ¹	20.00%/15.00% ²	10.00%	50.00%	20.00%
63	0.00%	15.00%/20.00% ³	10.00%	35.00%	15.00%
64	0.00%	15.00%	10.00%	35.00%	15.00%
65	0.00%	20.00%	15.00%	50.00%	20.00%
66	0.00%	15.00%	10.00%	35.00%	15.00%
67	0.00%	15.00%	10.00%	35.00%	15.00%
68	0.00%	15.00%	10.00%	35.00%	15.00%
69	0.00%	15.00%	10.00%	35.00%	15.00%
70	0.00%	20.00%	20.00%	35.00%	15.00%
71	0.00%	20.00%	20.00%	35.00%	15.00%
72	0.00%	20.00%	20.00%	35.00%	15.00%
73	0.00%	20.00%	20.00%	35.00%	15.00%
74	0.00%	20.00%	20.00%	35.00%	15.00%
75	0.00%	20.00%	20.00%	35.00%	15.00%
76	0.00%	20.00%	20.00%	35.00%	15.00%
77	0.00%	20.00%	20.00%	35.00%	15.00%
78	0.00%	20.00%	20.00%	35.00%	15.00%
79	0.00%	20.00%	20.00%	35.00%	15.00%
80+	N/A	100.00%	100.00%	100.00%	100.00%

¹ 7.50% only applies to Tier 6 members; 0.00% otherwise.

² 20.00% for Tier 1, 2, & 4 members and 15.00% for Tier 6 members.

³ 15.00% for Tier 1, 2, & 4 members and 20.00% for Tier 6 members.

Table XI-2
Active Termination Rates

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM		
PROBABILITIES OF TERMINATION		
Years of Service	Males	Females
0	8.40%	5.60%
1	7.70%	5.30%
2	7.20%	5.00%
3	6.70%	4.70%
4	6.20%	4.50%
5	5.70%	4.20%
6	5.20%	3.90%
7	4.70%	3.60%
8	4.30%	3.30%
9	3.90%	3.00%
10	3.50%	2.80%
11	3.20%	2.60%
12	2.90%	2.50%
13	2.60%	2.40%
14	2.30%	2.20%
15	2.10%	2.10%
16	1.90%	1.90%
17	1.80%	1.80%
18	1.70%	1.70%
19	1.50%	1.50%
20+	1.40%	1.40%

**Table XI-3
Active Disability Rates**

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM				
PROBABILITIES OF DISABILITY RETIREMENT				
Age	Ordinary Disability		Accidental Disability	
	Males	Females	Males	Females
15	0.20%	0.20%	0.030%	0.025%
16	0.20%	0.20%	0.030%	0.025%
17	0.20%	0.20%	0.030%	0.025%
18	0.20%	0.20%	0.030%	0.025%
19	0.20%	0.20%	0.030%	0.025%
20	0.20%	0.20%	0.030%	0.025%
21	0.20%	0.20%	0.030%	0.025%
22	0.20%	0.20%	0.030%	0.025%
23	0.20%	0.20%	0.030%	0.025%
24	0.20%	0.20%	0.030%	0.025%
25	0.20%	0.20%	0.030%	0.025%
26	0.20%	0.20%	0.030%	0.025%
27	0.20%	0.20%	0.030%	0.025%
28	0.20%	0.20%	0.030%	0.025%
29	0.20%	0.20%	0.030%	0.025%
30	0.20%	0.20%	0.030%	0.025%
31	0.22%	0.20%	0.030%	0.025%
32	0.24%	0.20%	0.030%	0.025%
33	0.26%	0.20%	0.030%	0.025%
34	0.28%	0.20%	0.030%	0.025%
35	0.30%	0.20%	0.030%	0.025%
36	0.32%	0.21%	0.030%	0.025%
37	0.34%	0.22%	0.030%	0.025%
38	0.36%	0.23%	0.030%	0.025%
39	0.38%	0.24%	0.030%	0.025%
40	0.40%	0.25%	0.030%	0.025%
41	0.42%	0.26%	0.030%	0.025%
42	0.44%	0.27%	0.030%	0.025%
43	0.46%	0.28%	0.030%	0.025%
44	0.48%	0.29%	0.030%	0.025%
45	0.50%	0.30%	0.030%	0.025%
46	0.52%	0.34%	0.030%	0.025%
47	0.54%	0.38%	0.030%	0.025%
48	0.56%	0.42%	0.030%	0.025%
49	0.58%	0.46%	0.030%	0.025%
50	0.60%	0.50%	0.030%	0.025%
51	0.62%	0.54%	0.030%	0.025%
52	0.64%	0.58%	0.030%	0.025%
53	0.66%	0.62%	0.030%	0.025%
54	0.68%	0.66%	0.030%	0.025%
55	0.70%	0.70%	0.030%	0.025%
56	0.70%	0.70%	0.030%	0.025%
57	0.70%	0.70%	0.030%	0.025%
58	0.70%	0.70%	0.030%	0.025%
59	0.70%	0.70%	0.030%	0.025%
60	0.70%	0.70%	0.030%	0.025%
61	0.70%	0.70%	0.030%	0.025%
62	0.70%	0.70%	0.030%	0.025%
63	0.70%	0.70%	0.030%	0.025%
64	0.70%	0.70%	0.030%	0.025%
65	0.70%	0.70%	0.030%	0.025%
66	0.70%	0.70%	0.030%	0.025%
67	0.70%	0.70%	0.030%	0.025%
68	0.70%	0.70%	0.030%	0.025%
69	0.70%	0.70%	0.030%	0.025%
70	0.70%	0.70%	0.030%	0.025%
71	0.70%	0.70%	0.030%	0.025%
72	0.70%	0.70%	0.030%	0.025%
73	0.70%	0.70%	0.030%	0.025%
74	0.70%	0.70%	0.030%	0.025%
75	0.70%	0.70%	0.030%	0.025%
76	0.70%	0.70%	0.030%	0.025%
77	0.70%	0.70%	0.030%	0.025%
78	0.70%	0.70%	0.030%	0.025%
79	0.70%	0.70%	0.030%	0.025%
80+	N/A	N/A	N/A	N/A

Table XI-4
Active Mortality Rates

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM			
PROBABILITIES OF ACTIVE MEMBER MORTALITY			
Age	Ordinary Death		Accidental Death
	Males	Females	
15	0.027%	0.020%	0.000%
16	0.027%	0.020%	0.000%
17	0.027%	0.020%	0.000%
18	0.027%	0.020%	0.000%
19	0.027%	0.020%	0.000%
20	0.027%	0.020%	0.000%
21	0.027%	0.020%	0.000%
22	0.027%	0.020%	0.000%
23	0.027%	0.020%	0.000%
24	0.027%	0.020%	0.000%
25	0.027%	0.020%	0.000%
26	0.029%	0.021%	0.000%
27	0.032%	0.023%	0.000%
28	0.035%	0.024%	0.000%
29	0.037%	0.025%	0.000%
30	0.040%	0.027%	0.000%
31	0.043%	0.028%	0.000%
32	0.045%	0.029%	0.000%
33	0.048%	0.031%	0.000%
34	0.051%	0.032%	0.000%
35	0.053%	0.033%	0.000%
36	0.056%	0.035%	0.000%
37	0.059%	0.036%	0.000%
38	0.061%	0.037%	0.000%
39	0.064%	0.039%	0.000%
40	0.067%	0.040%	0.000%
41	0.073%	0.045%	0.000%
42	0.080%	0.051%	0.000%
43	0.087%	0.056%	0.000%
44	0.093%	0.061%	0.000%
45	0.100%	0.067%	0.000%
46	0.107%	0.073%	0.000%
47	0.113%	0.080%	0.000%
48	0.120%	0.087%	0.000%
49	0.127%	0.093%	0.000%
50	0.133%	0.100%	0.000%
51	0.147%	0.107%	0.000%
52	0.160%	0.113%	0.000%
53	0.173%	0.120%	0.000%
54	0.187%	0.127%	0.000%
55	0.200%	0.133%	0.000%
56	0.213%	0.140%	0.000%
57	0.227%	0.147%	0.000%
58	0.240%	0.153%	0.000%
59	0.253%	0.160%	0.000%
60	0.267%	0.167%	0.000%
61	0.280%	0.173%	0.000%
62	0.293%	0.180%	0.000%
63	0.307%	0.187%	0.000%
64	0.320%	0.193%	0.000%
65	0.333%	0.200%	0.000%
66	0.360%	0.213%	0.000%
67	0.387%	0.227%	0.000%
68	0.413%	0.240%	0.000%
69	0.440%	0.253%	0.000%
70	0.500%	0.300%	0.000%
71	0.580%	0.350%	0.000%
72	0.660%	0.400%	0.000%
73	0.740%	0.450%	0.000%
74	0.820%	0.500%	0.000%
75	0.900%	0.550%	0.000%
76	1.020%	0.640%	0.000%
77	1.140%	0.730%	0.000%
78	1.260%	0.820%	0.000%
79	1.380%	1.000%	0.000%
80+	N/A	N/A	N/A

**Table XI-5
Service Retiree Mortality Rates**

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM					
PROBABILITIES OF MORTALITY FOR SERVICE RETIREES					
BASE RATES					
Age	Males	Females	Age	Males	Females
15	0.0105%	0.0090%	68	1.6659%	0.9362%
16	0.0142%	0.0110%	69	1.7932%	1.0193%
17	0.0191%	0.0120%	70	1.9258%	1.1035%
18	0.0222%	0.0130%	71	2.0702%	1.2437%
19	0.0240%	0.0140%	72	2.2162%	1.3853%
20	0.0251%	0.0142%	73	2.3643%	1.5280%
21	0.0268%	0.0150%	74	2.5141%	1.6727%
22	0.0284%	0.0158%	75	2.6665%	1.8182%
23	0.0301%	0.0168%	76	3.0461%	2.0628%
24	0.0315%	0.0179%	77	3.4300%	2.3088%
25	0.0327%	0.0191%	78	3.8175%	2.5551%
26	0.0342%	0.0204%	79	4.2104%	2.8024%
27	0.0354%	0.0217%	80	4.6069%	3.0489%
28	0.0371%	0.0231%	81	5.1554%	3.4450%
29	0.0394%	0.0247%	82	5.7232%	3.8502%
30	0.0427%	0.0265%	83	6.3098%	4.2655%
31	0.0495%	0.0316%	84	6.9124%	4.6895%
32	0.0562%	0.0360%	85	7.5337%	5.1258%
33	0.0625%	0.0398%	86	8.3597%	5.8556%
34	0.0682%	0.0427%	87	9.1919%	6.5878%
35	0.0743%	0.0455%	88	10.0369%	7.3277%
36	0.0780%	0.0474%	89	10.8896%	8.0720%
37	0.0818%	0.0497%	90	11.7567%	8.8218%
38	0.0861%	0.0521%	91	13.4856%	10.1869%
39	0.0917%	0.0551%	92	15.2819%	11.5772%
40	0.0997%	0.0588%	93	17.1377%	13.0290%
41	0.1422%	0.0633%	94	19.0983%	14.4884%
42	0.1848%	0.0702%	95	21.2134%	16.0080%
43	0.2279%	0.0792%	96	23.2990%	17.8232%
44	0.2725%	0.0907%	97	25.4356%	19.4807%
45	0.3194%	0.1052%	98	27.7079%	20.8097%
46	0.3686%	0.1228%	99	29.9402%	21.7553%
47	0.4207%	0.1427%	100	32.1584%	22.1859%
48	0.4752%	0.1652%	101	33.7521%	23.0680%
49	0.5320%	0.1896%	102	35.1259%	24.0803%
50	0.5908%	0.2151%	103	36.3671%	25.2770%
51	0.6563%	0.2401%	104	37.3834%	26.6309%
52	0.7203%	0.2647%	105	38.1051%	28.0912%
53	0.7821%	0.2889%	106	38.4698%	29.6244%
54	0.8405%	0.3120%	107	38.6325%	31.1943%
55	0.8938%	0.3338%	108	38.8076%	32.7579%
56	0.9368%	0.3689%	109	38.9794%	34.2712%
57	0.9718%	0.4030%	110	50.0000%	50.0000%
58	0.9982%	0.4360%	111	50.0000%	50.0000%
59	1.0164%	0.4677%	112	50.0000%	50.0000%
60	1.0277%	0.4987%	113	50.0000%	50.0000%
61	1.0989%	0.5398%	114	50.0000%	50.0000%
62	1.1606%	0.5722%	115	50.0000%	50.0000%
63	1.2158%	0.6041%	116	50.0000%	50.0000%
64	1.2656%	0.6395%	117	50.0000%	50.0000%
65	1.3111%	0.6785%	118	50.0000%	50.0000%
66	1.4252%	0.7529%	119	50.0000%	50.0000%
67	1.5432%	0.8397%	120	100.0000%	100.0000%

Table XI-6
Disabled Retiree Mortality

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM					
PROBABILITIES OF MORTALITY FOR DISABLED RETIREES					
BASE RATES					
Age	Males	Females	Age	Males	Females
15	0.3309%	0.3302%	68	2.8866%	2.3870%
16	0.4477%	0.4467%	69	2.9926%	2.4723%
17	0.6034%	0.6020%	70	3.1133%	2.5721%
18	0.7007%	0.6521%	71	3.2494%	2.6887%
19	0.7591%	0.7023%	72	3.4007%	2.8231%
20	0.7745%	0.7242%	73	3.5688%	2.9757%
21	0.8177%	0.7766%	74	3.7535%	3.1493%
22	0.8636%	0.8321%	75	3.9565%	3.3428%
23	0.9115%	0.8806%	76	4.1960%	3.5573%
24	0.9623%	0.9414%	77	4.4576%	3.7722%
25	1.0128%	0.9950%	78	4.7400%	4.0056%
26	1.0629%	1.0450%	79	5.0460%	4.2512%
27	1.1121%	1.1039%	80	5.3741%	4.5399%
28	1.1590%	1.1437%	81	5.7241%	4.8505%
29	1.2025%	1.1849%	82	6.0991%	5.1822%
30	1.2403%	1.2276%	83	6.5012%	5.5379%
31	1.2721%	1.2719%	84	6.9293%	5.9081%
32	1.2964%	1.2906%	85	7.5490%	6.6447%
33	1.3125%	1.3095%	86	8.3752%	7.3415%
34	1.3230%	1.3220%	87	9.2076%	8.0805%
35	1.3497%	1.3314%	88	10.0528%	8.8285%
36	1.3769%	1.3388%	89	10.9057%	10.1243%
37	1.4047%	1.3459%	90	11.7730%	11.4944%
38	1.4330%	1.3555%	91	13.5023%	12.9995%
39	1.4619%	1.3700%	92	15.2987%	14.4425%
40	1.4914%	1.3831%	93	17.1548%	15.8488%
41	1.5215%	1.3968%	94	19.1157%	17.6512%
42	1.5522%	1.4199%	95	21.2311%	19.4304%
43	1.5835%	1.4535%	96	23.3168%	20.7560%
44	1.6154%	1.4910%	97	25.4537%	21.5692%
45	1.6480%	1.5473%	98	27.7263%	22.0007%
46	1.6812%	1.6100%	99	29.9589%	23.0087%
47	1.7151%	1.6774%	100	32.1584%	23.1230%
48	1.7497%	1.7359%	101	33.7521%	23.6022%
49	1.7850%	1.7789%	102	35.1259%	24.0803%
50	1.8210%	1.8069%	103	36.3671%	25.2770%
51	1.8577%	1.8265%	104	37.3834%	26.6309%
52	1.8952%	1.8400%	105	38.1051%	28.0912%
53	1.9838%	1.8414%	106	38.4698%	29.6244%
54	2.0700%	1.8419%	107	38.6325%	31.1943%
55	2.1499%	1.8425%	108	38.8076%	32.7579%
56	2.2301%	1.8428%	109	38.9794%	34.2712%
57	2.2996%	1.8478%	110	50.0000%	50.0000%
58	2.3571%	1.8725%	111	50.0000%	50.0000%
59	2.4033%	1.9054%	112	50.0000%	50.0000%
60	2.4415%	1.9416%	113	50.0000%	50.0000%
61	2.4758%	1.9833%	114	50.0000%	50.0000%
62	2.5090%	2.0209%	115	50.0000%	50.0000%
63	2.5475%	2.0671%	116	50.0000%	50.0000%
64	2.5926%	2.1353%	117	50.0000%	50.0000%
65	2.6476%	2.2013%	118	50.0000%	50.0000%
66	2.7148%	2.2603%	119	50.0000%	50.0000%
67	2.7940%	2.3165%	120	100.0000%	100.0000%

**Table XI-7
Beneficiary Mortality**

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM					
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 BOARD OF EDUCATION RETIREMENT SYSTEM		
ANNUAL RATES OF MERIT AND SALARY INCREASE		
Years of Service	Merit Increase	Salary Increase¹
0	6.00%	9.00%
1	5.00%	8.00%
2	4.00%	7.00%
3	3.00%	6.00%
4	2.50%	5.50%
5	2.00%	5.00%
6	1.90%	4.90%
7	1.80%	4.80%
8	1.70%	4.70%
9	1.60%	4.60%
10	1.50%	4.50%
11	1.50%	4.50%
12	1.50%	4.50%
13	1.50%	4.50%
14	1.50%	4.50%
15	1.50%	4.50%
16	1.45%	4.45%
17	1.40%	4.40%
18	1.35%	4.35%
19	1.30%	4.30%
20	1.25%	4.25%
21	1.20%	4.20%
22	1.15%	4.15%
23	1.10%	4.10%
24	1.05%	4.05%
25+	1.00%	4.00%

¹ Salary increase is the General Wage Increase of 3% plus the Merit Increase.

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 are used as follows:

	Adjustment Factor	
	Male	Female
Service Retiree	0.980	0.980
Disabled Retiree	0.980	0.980
Beneficiary	0.890	0.951

3. **Marital Assumption:** All active members are assumed to be married, male employees are assumed to be four years older than their female spouses, and female employees 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 eligible 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 2.50% per year. AutoCOLA is assumed to be 1.50% per year, and Escalation is assumed at 2.50% per year. The assumed 30-year Treasury rate for annuitization of outstanding loans at retirement is 3.50%.
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 asset smoothing method recognizes investment returns greater or less than expected over a period of five years, phasing these gains and losses in AVA at a rate of 20% per year.

The expected investment return is derived using the AIR 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.

Beginning with the June 30, 2018 actuarial valuation, the Actuarial Value of Assets is determined by re-characterizing the interest credited on TDA Fixed Fund account balances as investment income instead of as a cash disbursement.

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 (PV) 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 (AVA) 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 Table III-2 Schedule of Unfunded Accrued Liability Bases.

Under EAN, the Normal Cost as a percentage of pay remains stable by individual and changes gradually over time for the entire plan as the characteristics of the group changes (e.g., more Tier 6 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 BERS during the second prior fiscal year.
11. **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.

12. **Excess Benefit Plan:** The valuation excludes liabilities and costs, if any, associated with benefits in excess of the Internal Revenue Code Section 415 limitation.

13. **TDA Fixed Fund Normal Cost:** A cost is added to each year's Normal Cost for providing a guaranteed 8.25% return on the TDA Fixed Fund for non-UFT members.

14. **Additional Assumptions used for the TDA fixed fund:**

- a. Active TDA members would contribute the currently elected percentage of compensation to the TDA fixed fund.
- b. TDA members would transfer 25% of their TDA variable fund to the TDA fixed fund.
- c. Active members in the QPP who have not joined the TDA would join and contribute 1% of pay to the TDA fixed fund.
- d. The probability that a member elects 4% per year withdrawals from the TDA fixed fund starting from the later of age 60 and the age at termination is 25%.

- e. The probability that a member elects required minimum distributions from the TDA fixed fund starting from the later of age 72 and the age at termination is 75%.
 - f. The probability that a member elects a lump sum of the TDA fixed fund and the probability that a member elects to annuitize the TDA fixed fund is 0%.
 - g. Beginning with the June 30, 2020 actuarial valuation, the liability of the TDA as of the valuation date reflects an actuarial projection of account balances with guaranteed interest credits.
15. **Group Life Insurance Plan:** The Employer Contribution includes an amount to fund the Group Life Insurance Plan. The Group Life Insurance amount used in the BERS valuation is \$36,000.
16. **Obligors Allocation:** By statute, employer contributions are determined for BERS in total.

For purposes of allocating the employer contributions to the Obligors, the following are determined explicitly for each Obligor:

- a. Present Value of Future Salaries
- b. Entry Age Normal Accrued Liability
- c. Present Value of Future Normal Costs
- d. Present Value of Future Employee Contributions
- e. Normal Cost

Administrative Expenses are allocated to each Obligor, pro-rata, in proportion to active member valuation salaries.

Actuarial Value of Assets are determined explicitly for each Obligor.

The components of contribution are then determined for each Obligor.

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 employers' payroll facilities. Financial information was provided by the Office of the Comptroller as of June 30, 2022 and June 30, 2021.

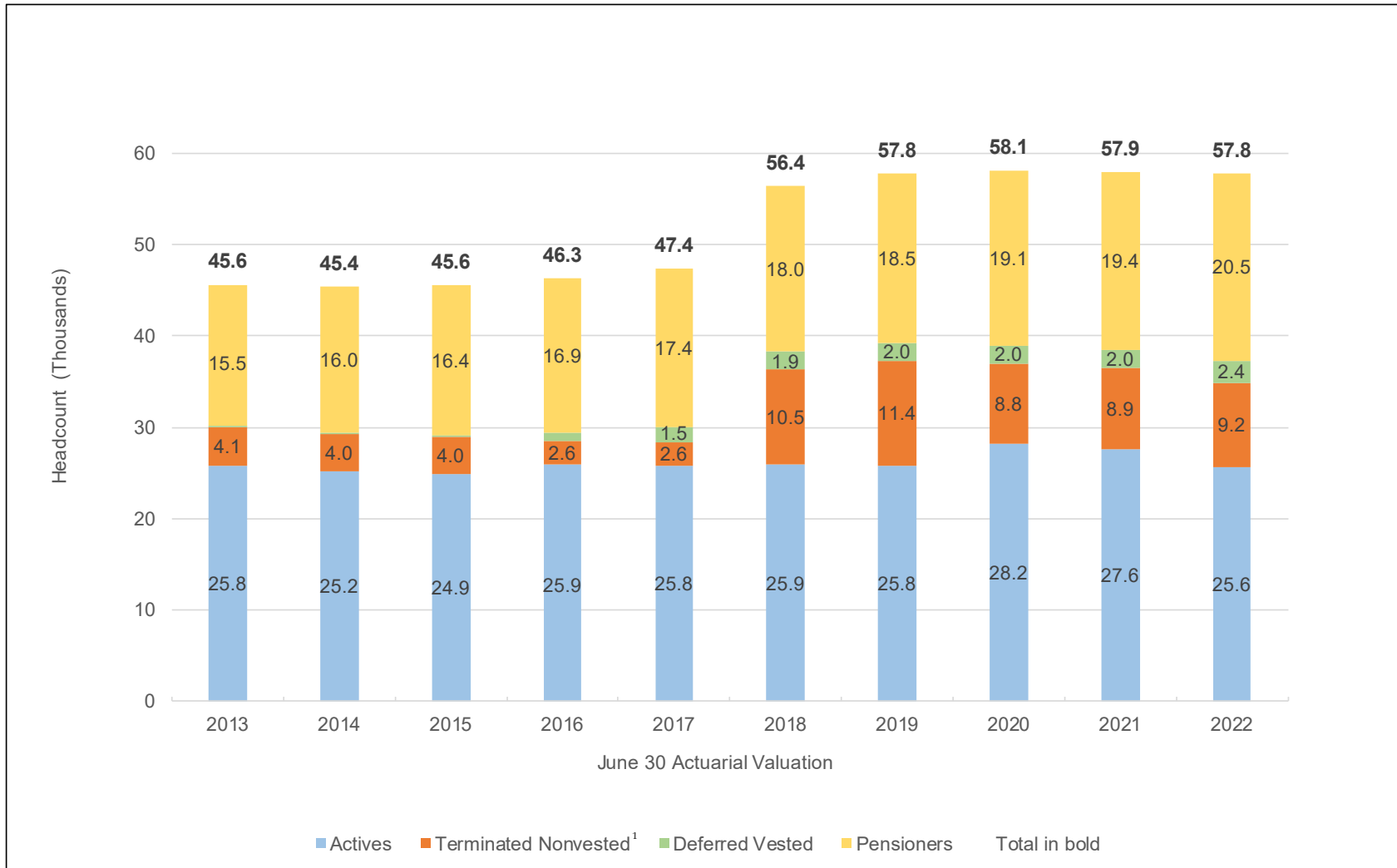
Beginning at June 30, 2020, BERS members who are no longer on payroll but not otherwise classified, have been classified as Active, Terminated Nonvested, or Deferred Vested members using actuarial judgment and consideration of available data, including leave of absence data when available.

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 MEMBERSHIP DURING THE FISCAL YEAR CLASSIFIED BY STATUS										
Status	(1) Active Members	(2) Terminated Nonvested	(3) Deferred 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) + (9)
Number at June 30, 2021	27,556	8,922	1,972	16,993	1,141	223	11	1,080	19,448	57,898
New Entrants / Pick-ups	1,359	56	4	0	0	0	0	0	0	1,414
Rehires	145	(112)	(33)	0	0	0	0	0	0	0
Non-Vested Termination not cashed out	(1,046)	1,052	(6)	0	0	0	0	0	0	0
Non-Vested Termination / Cashout	(245)	(568)	(36)	0	0	0	0	0	0	(849)
Vested Termination	(542)	(85)	627	0	0	0	0	0	0	0
Accidental Death (from Active)	(1)	0	0	0	0	0	1	0	1	0
Ordinary Death (from Active)	(38)	(12)	(11)	0	0	0	0	0	0	(61)
Service Retirement	(1,493)	(6)	(106)	1,605	0	0	0	0	1,605	0
Ordinary Disability Retirement	(52)	(1)	0	0	53	0	0	0	53	0
Accidental Disability Retirement	(4)	(1)	0	0	0	5	0	0	5	0
Death with Beneficiary	0	0	0	(96)	(5)	0	0	101	0	0
Death without Beneficiary	0	0	0	(566)	(44)	(4)	0	(71)	(685)	(694)
Net Adjustment for Pensioners	0	0	0	(3)	(1)	4	0	0	0	0
Data Correction	0	0	(1)	11	0	0	10	33	54	67
Net Change	(1,917)	323	438	951	3	5	11	63	1,033	(123)
Number at June 30, 2022	25,639	9,245	2,410	17,944	1,144	228	22	1,143	20,481	57,775

**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 BOARD OF EDUCATION RETIREMENT SYSTEM		
ACTIVE MEMBERS INCLUDED IN THE JUNE 30, 2022 AND THE JUNE 30, 2021 ACTUARIAL VALUATIONS		
	June 30, 2022	June 30, 2021
Number		
Males	6,771	7,130
Females	18,868	20,426
Total	25,639	27,556
Annual Salary ¹		
Males	\$ 529,204,194	\$ 521,529,362
Females	938,402,862	962,734,940
Total	\$ 1,467,607,056	\$ 1,484,264,302
Average Salary ¹		
Males	\$ 78,157	\$ 73,146
Females	49,735	47,133
Total Average	\$ 57,241	\$ 53,864
Average Age		
Males	49.7	49.3
Females	51.8	51.8
Total Average	51.3	51.1
Average Past Service		
Males	10.2	9.9
Females	9.4	9.2
Total Average	9.6	9.4

¹Salaries 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**

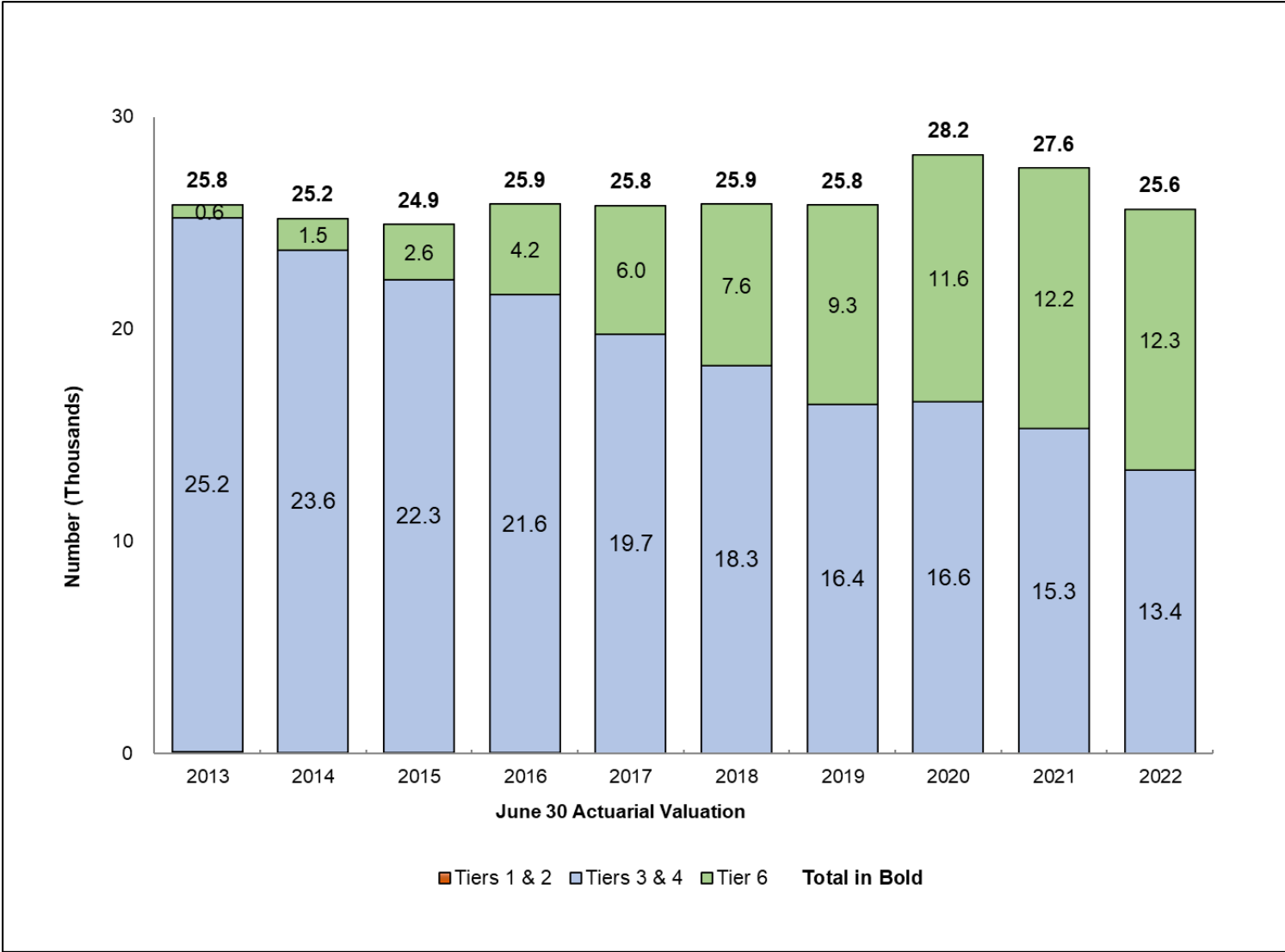


Table XII-5
Schedule of Active Member Salary Data

June 30 Actuarial Valuation	Number	Annual Salary	Average Annual Salary	Percentage Increase/ (Decrease) In Avg. Salary
2013	25,848	\$ 1,051,571,168	\$ 40,683	11.2%
2014	25,182	1,045,187,738	41,505	2.0%
2015	24,903	1,093,962,316	43,929	5.8%
2016	25,864	1,149,019,892	44,425	1.1%
2017	25,794	1,201,925,550	46,597	4.9%
2018	25,864	1,280,302,470	49,501	6.2%
2019	25,825	1,353,266,355	52,401	5.9%
2020	28,183	1,476,597,629	52,393	0.0%
2021	27,556	1,484,264,302	53,864	2.8%
2022	25,639	1,467,607,056	57,241	6.3%

Salaries 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									
	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	1	0	0	0	0	0	0	0	0	1
20 TO 24	43	1	0	0	0	0	0	0	0	44
25 TO 29	198	18	0	0	0	0	0	0	0	216
30 TO 34	327	164	19	0	0	0	0	0	0	510
35 TO 39	347	247	105	17	0	0	0	0	0	716
40 TO 44	285	236	173	78	20	0	0	0	0	792
45 TO 49	232	243	215	163	59	8	0	0	0	920
50 TO 54	228	227	198	189	119	45	8	1	0	1,015
55 TO 59	201	243	196	173	132	87	46	11	0	1,089
60 TO 64	148	198	153	98	114	64	66	31	4	876
65 TO 69	60	96	69	67	45	26	33	12	8	416
70 & UP	24	42	29	26	21	14	6	6	8	176
TOTAL	2,094	1,715	1,157	811	510	244	159	61	20	6,771

<i>SALARIES (IN THOUSANDS):</i>										
UNDER 20	31	0	0	0	0	0	0	0	0	31
20 TO 24	1,396	47	0	0	0	0	0	0	0	1,443
25 TO 29	9,723	1,050	0	0	0	0	0	0	0	10,773
30 TO 34	20,472	11,659	1,558	0	0	0	0	0	0	33,689
35 TO 39	23,233	19,853	8,234	1,434	0	0	0	0	0	52,754
40 TO 44	18,994	18,891	13,772	7,640	1,659	0	0	0	0	60,956
45 TO 49	14,751	20,978	18,887	17,649	6,160	936	0	0	0	79,361
50 TO 54	13,424	17,405	15,262	20,380	12,962	4,158	992	90	0	84,673
55 TO 59	12,206	17,265	15,000	18,092	14,088	9,126	4,687	1,022	0	91,486
60 TO 64	7,780	13,503	10,823	9,013	10,599	6,218	7,266	3,170	515	68,887
65 TO 69	3,464	6,377	4,728	6,462	4,254	2,516	3,474	1,207	864	33,346
70 & UP	1,008	1,774	1,783	1,747	1,470	1,642	750	660	971	11,805
TOTAL ¹	126,482	128,802	90,047	82,417	51,192	24,596	17,169	6,149	2,350	529,204

<i>AVERAGE SALARIES: ²</i>										
UNDER 20	31,000	0	0	0	0	0	0	0	0	31,000
20 TO 24	32,465	47,000	0	0	0	0	0	0	0	32,795
25 TO 29	49,106	58,333	0	0	0	0	0	0	0	49,875
30 TO 34	62,606	71,091	82,000	0	0	0	0	0	0	66,057
35 TO 39	66,954	80,377	78,419	84,353	0	0	0	0	0	73,679
40 TO 44	66,646	80,047	79,607	97,949	82,950	0	0	0	0	76,965
45 TO 49	63,582	86,329	87,847	108,276	104,407	117,000	0	0	0	86,262
50 TO 54	58,877	76,674	77,081	107,831	108,924	92,400	124,000	90,000	0	83,422
55 TO 59	60,726	71,049	76,531	104,578	106,727	104,897	101,891	92,909	0	84,009
60 TO 64	52,568	68,197	70,739	91,969	92,974	97,156	110,091	102,258	128,750	78,638
65 TO 69	57,733	66,427	68,522	96,448	94,533	96,769	105,273	100,583	108,000	80,159
70 & UP	42,000	42,238	61,483	67,192	70,000	117,286	125,000	110,000	121,375	67,074
TOTAL	60,402	75,103	77,828	101,624	100,376	100,803	107,981	100,803	117,500	78,157

Note: Age is nearest birthday. 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									
	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	1	0	0	0	0	0	0	0	0	1
20 TO 24	36	0	0	0	0	0	0	0	0	36
25 TO 29	422	33	0	0	0	0	0	0	0	455
30 TO 34	744	320	8	0	0	0	0	0	0	1,072
35 TO 39	743	516	189	17	0	0	0	0	0	1,465
40 TO 44	834	524	376	162	17	0	0	0	0	1,913
45 TO 49	903	640	423	300	119	10	1	0	0	2,396
50 TO 54	922	786	564	338	212	59	15	1	0	2,897
55 TO 59	764	924	814	552	288	92	59	27	1	3,521
60 TO 64	493	709	649	547	363	113	61	38	12	2,985
65 TO 69	185	293	343	295	200	86	38	12	11	1,463
70 & UP	56	127	140	163	91	50	15	11	11	664
TOTAL	6,103	4,872	3,506	2,374	1,290	410	189	89	35	18,868

<i>SALARIES (IN THOUSANDS):</i>										
UNDER 20	11	0	0	0	0	0	0	0	0	11
20 TO 24	1,085	0	0	0	0	0	0	0	0	1,085
25 TO 29	24,298	1,751	0	0	0	0	0	0	0	26,049
30 TO 34	45,079	25,055	626	0	0	0	0	0	0	70,760
35 TO 39	39,835	36,366	15,792	1,331	0	0	0	0	0	93,324
40 TO 44	34,189	32,746	29,892	13,997	1,579	0	0	0	0	112,403
45 TO 49	35,441	32,846	28,847	26,124	10,024	961	154	0	0	134,397
50 TO 54	32,652	31,940	29,936	22,259	16,267	4,948	1,394	96	0	139,492
55 TO 59	25,651	33,256	34,699	27,332	15,431	7,154	5,301	2,509	75	151,408
60 TO 64	16,159	23,999	26,153	25,196	17,900	6,497	4,372	2,942	1,033	124,251
65 TO 69	6,561	9,680	14,612	12,776	9,460	4,558	2,651	986	1,009	62,293
70 & UP	1,476	3,434	4,181	5,688	3,552	2,394	919	468	818	22,930
TOTAL ¹	262,437	231,073	184,738	134,703	74,213	26,512	14,791	7,001	2,935	938,403

<i>AVERAGE SALARIES: ²</i>										
UNDER 20	11,000	0	0	0	0	0	0	0	0	11,000
20 TO 24	30,139	0	0	0	0	0	0	0	0	30,139
25 TO 29	57,578	53,061	0	0	0	0	0	0	0	57,251
30 TO 34	60,590	78,297	78,250	0	0	0	0	0	0	66,007
35 TO 39	53,614	70,477	83,556	78,294	0	0	0	0	0	63,702
40 TO 44	40,994	62,492	79,500	86,401	92,882	0	0	0	0	58,757
45 TO 49	39,248	51,322	68,196	87,080	84,235	96,100	154,000	0	0	56,092
50 TO 54	35,414	40,636	53,078	65,855	76,731	83,864	92,933	96,000	0	48,151
55 TO 59	33,575	35,991	42,628	49,514	53,580	77,761	89,847	92,926	75,000	43,001
60 TO 64	32,777	33,849	40,297	46,062	49,311	57,496	71,672	77,421	86,083	41,625
65 TO 69	35,465	33,038	42,601	43,308	47,300	53,000	69,763	82,167	91,727	42,579
70 & UP	26,357	27,039	29,864	34,896	39,033	47,880	61,267	42,545	74,364	34,533
TOTAL	43,001	47,429	52,692	56,741	57,529	64,663	78,259	78,663	83,857	49,735

Note: Age is nearest birthday. 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									
	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	2	0	0	0	0	0	0	0	0	2
20 TO 24	79	1	0	0	0	0	0	0	0	80
25 TO 29	620	51	0	0	0	0	0	0	0	671
30 TO 34	1,071	484	27	0	0	0	0	0	0	1,582
35 TO 39	1,090	763	294	34	0	0	0	0	0	2,181
40 TO 44	1,119	760	549	240	37	0	0	0	0	2,705
45 TO 49	1,135	883	638	463	178	18	1	0	0	3,316
50 TO 54	1,150	1,013	762	527	331	104	23	2	0	3,912
55 TO 59	965	1,167	1,010	725	420	179	105	38	1	4,610
60 TO 64	641	907	802	645	477	177	127	69	16	3,861
65 TO 69	245	389	412	362	245	112	71	24	19	1,879
70 & UP	80	169	169	189	112	64	21	17	19	840
TOTAL	8,197	6,587	4,663	3,185	1,800	654	348	150	55	25,639

SALARIES (IN THOUSANDS):

UNDER 20	42	0	0	0	0	0	0	0	0	42
20 TO 24	2,481	47	0	0	0	0	0	0	0	2,528
25 TO 29	34,021	2,801	0	0	0	0	0	0	0	36,822
30 TO 34	65,551	36,714	2,184	0	0	0	0	0	0	104,449
35 TO 39	63,068	56,219	24,026	2,765	0	0	0	0	0	146,078
40 TO 44	53,183	51,637	43,664	21,637	3,238	0	0	0	0	173,359
45 TO 49	50,192	53,824	47,734	43,773	16,184	1,897	154	0	0	213,758
50 TO 54	46,076	49,345	45,198	42,639	29,229	9,106	2,386	186	0	224,165
55 TO 59	37,857	50,521	49,699	45,424	29,519	16,280	9,988	3,531	75	242,894
60 TO 64	23,939	37,502	36,976	34,209	28,499	12,715	11,638	6,112	1,548	193,138
65 TO 69	10,025	16,057	19,340	19,238	13,714	7,074	6,125	2,193	1,873	95,639
70 & UP	2,484	5,208	5,964	7,435	5,022	4,036	1,669	1,128	1,789	34,735
TOTAL ¹	388,919	359,875	274,785	217,120	125,405	51,108	31,960	13,150	5,285	1,467,607

AVERAGE SALARIES: ²

UNDER 20	21,000	0	0	0	0	0	0	0	0	21,000
20 TO 24	31,405	47,000	0	0	0	0	0	0	0	31,600
25 TO 29	54,873	54,922	0	0	0	0	0	0	0	54,876
30 TO 34	61,205	75,855	80,889	0	0	0	0	0	0	66,023
35 TO 39	57,861	73,682	81,721	81,324	0	0	0	0	0	66,978
40 TO 44	47,527	67,943	79,534	90,154	87,514	0	0	0	0	64,088
45 TO 49	44,222	60,956	74,818	94,542	90,921	105,389	154,000	0	0	64,463
50 TO 54	40,066	48,712	59,315	80,909	88,305	87,558	103,739	93,000	0	57,302
55 TO 59	39,230	43,291	49,207	62,654	70,283	90,950	95,124	92,921	75,000	52,689
60 TO 64	37,346	41,347	46,105	53,037	59,746	71,836	91,638	88,580	96,750	50,023
65 TO 69	40,918	41,278	46,942	53,144	55,976	63,161	86,268	91,375	98,579	50,899
70 & UP	31,050	30,817	35,290	39,339	44,839	63,063	79,476	66,353	94,158	41,351
TOTAL	47,447	54,634	58,929	68,170	69,669	78,147	91,839	87,667	96,091	57,241

Note: Age is nearest birthday. 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
1	M	4	560,347	140087.0	75.3	41.8	5	554,935	110,987	74.0	36.3
1	F	7	504,603	72086.0	73.7	41.7	10	650,944	65,094	75.8	32.6
		11	1,064,950	96814.0	74.3	41.7	15	1,205,879	80,392	75.2	33.8
2	M	2	239,464	119732.0	68.5	17.0	2	363,598	181,799	70.0	18.5
2	F	1	45,964	45964.0	73.0	47.0	4	81,551	20,388	73.8	18.4
		3	285,428	95143.0	70.0	27.0	6	445,149	74,191	72.5	18.5
4	M	3,441	291,012,366	84572.0	54.1	16.3	3,827	305,369,226	79,793	53.6	15.5
4	F	9,920	506,492,794	51058.0	56.4	14.5	11,479	560,334,249	48,814	56.3	13.9
		13,361	797,505,160	59689.0	55.8	15.0	15,306	865,703,475	56,560	55.6	14.3
6	M	3,324	237,392,017	71418.0	45.1	3.9	3,296	215,241,604	65,304	44.3	3.4
6	F	8,940	431,359,501	48251.0	46.7	3.7	8,933	401,668,196	44,965	45.9	3.2
		12,264	668,751,518	54530.0	46.3	3.7	12,229	616,909,799	50,446	45.5	3.3
ALL		25,639	1,467,607,056	57,241	51.3	9.6	27,556	1,484,264,302	53,864	51.1	9.4

JUNE 30, 2022 MEMBERS ALSO PRESENT AS OF JUNE 30, 2021							JUNE 30, 2021 MEMBERS ALSO PRESENT AS OF JUNE 30, 2022				
1	M	4	560,347	140,087	75.3	41.8	4	533,607	133,402	74.3	40.7
1	F	7	504,603	72,086	73.7	41.7	7	477,021	68,146	72.7	40.0
		11	1,064,950	96,814	74.3	41.7	11	1,010,628	91,875	73.3	40.3
2	M	1	150,649	150,649	71.0	21.0	1	142,001	142,001	70.0	20.1
2	F	1	45,964	45,964	73.0	47.0	1	43,326	43,326	72.0	45.5
		2	196,613	98,307	72.0	34.0	2	185,327	92,663	71.0	32.8
4	M	3,415	289,337,774	84,726	54.1	16.4	3,415	271,760,123	79,578	53.1	15.3
4	F	9,819	502,425,862	51,169	56.5	14.6	9,819	466,467,814	47,507	55.5	13.6
		13,234	791,763,636	59,828	55.9	15.0	13,234	738,227,938	55,783	54.9	14.1
6	M	2,956	214,602,995	72,599	45.7	4.3	2,956	196,243,382	66,388	44.7	3.4
6	F	7,895	385,537,962	48,833	47.2	4.1	7,895	350,262,955	44,365	46.2	3.3
		10,851	600,140,957	55,307	46.8	4.2	10,851	546,506,337	50,365	45.8	3.3
ALL		24,098	1,393,166,156	57,813	51.8	10.2	24,098	1,285,930,230	53,363	50.8	9.2

ADDITIONS DURING THE YEAR ¹							SEPARATIONS FROM MEMBERSHIP DURING THE YEAR ¹				
1	M	0	0	0	0.0	0.0	1	21,328	0	73.0	18.5
1	F	0	0	0	0.0	0.0	3	173,923	57,974	83.0	15.3
		0	0	0	0.0	0.0	4	195,250	48,813	80.5	16.1
2	M	1	88,815	88,815	66.0	13.0	1	221,597	221,597	70.0	17.0
2	F	0	0	0	0.0	0.0	3	38,225	12,742	74.3	9.4
		1	88,815	88,815	66.0	13.0	4	259,822	64,955	73.3	11.3
4	M	26	1,674,592	64,407	50.5	9.5	412	33,609,102	81,575	57.8	17.2
4	F	101	4,066,932	40,267	50.5	7.8	1,660	93,866,435	56,546	60.9	15.3
		127	5,741,524	45,209	50.5	8.2	2,072	127,475,537	61,523	60.3	15.7
6	M	368	22,789,022	61,927	40.5	0.4	340	18,998,222	55,877	40.7	2.9
6	F	1,045	45,821,539	43,848	42.6	0.4	1,038	51,405,241	49,523	43.5	2.7
		1,413	68,610,561	48,557	42.1	0.4	1,378	70,403,463	51,091	42.8	2.8
ALL		1,541	74,440,900	48,307	42.8	1.1	3,458	198,334,072	57,355	53.4	10.5

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			TOTAL		
	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	0	0	0	0	0	0	0	0	0
45 TO 49	0	0	0	0	0	0	0	0	0
50 TO 54	2	102,880	51,440	0	0	0	2	102,880	51,440
55 TO 59	94	3,194,009	33,979	282	3,796,019	13,461	376	6,990,028	18,590
60 TO 64	369	13,202,036	35,778	1,421	20,030,927	14,096	1,790	33,232,963	18,566
65 TO 69	723	23,962,212	33,143	2,860	39,867,903	13,940	3,583	63,830,115	17,815
70 TO 74	771	24,132,410	31,300	3,217	40,467,098	12,579	3,988	64,599,508	16,198
75 TO 79	576	17,106,033	29,698	2,776	32,662,381	11,766	3,352	49,768,414	14,847
80 TO 84	414	12,499,612	30,192	1,908	20,175,055	10,574	2,322	32,674,667	14,072
85 TO 89	256	7,267,700	28,389	1,156	11,013,323	9,527	1,412	18,281,023	12,947
90 & UP	151	4,307,085	28,524	968	8,592,489	8,877	1,119	12,899,574	11,528
TOTAL	3,356	105,773,977	31,518	14,588	176,605,193	12,106	17,944	282,379,170	15,737
<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	0	0	0	0	0	0	0	0	0
40 TO 44	0	0	0	2	39,203	19,602	2	39,203	19,602
45 TO 49	6	96,420	16,070	6	82,573	13,762	12	178,993	14,916
50 TO 54	5	99,494	19,899	20	346,440	17,322	25	445,933	17,837
55 TO 59	23	388,356	16,885	97	1,468,764	15,142	120	1,857,120	15,476
60 TO 64	51	964,560	18,913	185	2,222,944	12,016	236	3,187,504	13,506
65 TO 69	49	783,352	15,987	214	2,442,987	11,416	263	3,226,338	12,267
70 TO 74	41	767,621	18,722	179	1,941,595	10,847	220	2,709,216	12,315
75 TO 79	29	495,355	17,081	126	1,315,471	10,440	155	1,810,826	11,683
80 TO 84	13	169,048	13,004	71	695,879	9,801	84	864,927	10,297
85 TO 89	4	91,610	22,902	13	104,274	8,021	17	195,884	11,523
90 & UP	4	69,949	17,487	6	49,943	8,324	10	119,893	11,989
TOTAL	225	3,925,764	17,448	919	10,710,073	11,654	1,144	14,635,837	12,794
<i>ACCIDENTAL 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	1	4,937	4,937	0	0	0	1	4,937	4,937
40 TO 44	0	0	0	1	23,879	23,879	1	23,879	23,879
45 TO 49	0	0	0	2	20,878	10,439	2	20,878	10,439
50 TO 54	2	22,206	11,103	3	29,670	9,890	5	51,875	10,375
55 TO 59	2	51,175	25,587	10	105,993	10,599	12	157,168	13,097
60 TO 64	14	371,441	26,531	30	330,805	11,027	44	702,246	15,960
65 TO 69	8	178,624	22,328	42	509,738	12,137	50	688,362	13,767
70 TO 74	10	147,181	14,718	37	397,314	10,738	47	544,494	11,585
75 TO 79	7	194,015	27,716	25	206,710	8,268	32	400,725	12,523
80 TO 84	3	61,932	20,644	11	100,304	9,119	14	162,237	11,588
85 TO 89	3	133,358	44,453	11	78,608	7,146	14	211,966	15,140
90 & UP	2	76,513	38,257	4	37,049	9,262	6	113,562	18,927
TOTAL	52	1,241,381	23,873	176	1,840,946	10,460	228	3,082,327	13,519

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	2	6,443	3,222	2	22,382	11,191	4	28,825	7,206
30 TO 34	1	20,626	20,626	0	0	0	1	20,626	20,626
35 TO 39	1	9,540	9,540	0	0	0	1	9,540	9,540
40 TO 44	1	10,484	10,484	1	9,540	9,540	2	20,024	10,012
45 TO 49	1	3,222	3,222	1	32,906	32,906	2	36,127	18,064
50 TO 54	0	0	0	1	64,239	64,239	1	64,239	64,239
55 TO 59	3	53,421	17,807	0	0	0	3	53,421	17,807
60 TO 64	3	27,154	9,051	1	51,707	51,707	4	78,861	19,715
65 TO 69	1	17,226	17,226	1	34,676	34,676	2	51,902	25,951
70 TO 74	1	12,801	12,801	0	0	0	1	12,801	12,801
75 TO 79	0	0	0	0	0	0	0	0	0
80 TO 84	0	0	0	0	0	0	0	0	0
85 TO 89	1	397	397	0	0	0	1	397	397
90 & UP	0	0	0	0	0	0	0	0	0
TOTAL	15	161,313	10,754	7	215,450	30,779	22	376,764	17,126
<i>OTHER BENEFICIARIES:</i>									
UNDER 30	4	31,857	7,964	2	12,994	6,497	6	44,851	7,475
30 TO 34	6	56,822	9,470	3	121,165	40,388	9	177,987	19,776
35 TO 39	13	265,832	20,449	6	61,897	10,316	19	327,729	17,249
40 TO 44	5	89,621	17,924	17	203,665	11,980	22	293,286	13,331
45 TO 49	8	79,586	9,948	21	164,812	7,848	29	244,398	8,428
50 TO 54	14	133,086	9,506	38	256,283	6,744	52	389,370	7,488
55 TO 59	25	253,562	10,142	48	277,100	5,773	73	530,663	7,269
60 TO 64	32	441,302	13,791	52	467,685	8,994	84	908,986	10,821
65 TO 69	38	557,534	14,672	72	1,067,085	14,821	110	1,624,620	14,769
70 TO 74	57	1,291,470	22,657	66	1,099,522	16,659	123	2,390,992	19,439
75 TO 79	89	1,714,280	19,262	80	1,164,168	14,552	169	2,878,448	17,032
80 TO 84	69	1,320,821	19,142	89	1,865,214	20,957	158	3,186,035	20,165
85 TO 89	49	904,214	18,453	93	1,831,017	19,688	142	2,735,231	19,262
90 & UP	40	712,068	17,802	107	1,766,451	16,509	147	2,478,519	16,861
TOTAL	449	7,852,055	17,488	694	10,359,059	14,927	1,143	18,211,114	15,933
<i>ALL PENSIONERS AND BENEFICIARIES:</i>									
UNDER 30	6	38,300	6,383	4	35,377	8,844	10	73,677	7,368
30 TO 34	7	77,448	11,064	3	121,165	40,388	10	198,613	19,861
35 TO 39	15	280,309	18,687	6	61,897	10,316	21	342,206	16,296
40 TO 44	6	100,105	16,684	21	276,287	13,157	27	376,392	13,940
45 TO 49	15	179,228	11,949	30	301,168	10,039	45	480,396	10,675
50 TO 54	23	357,665	15,551	62	696,632	11,236	85	1,054,297	12,403
55 TO 59	147	3,940,523	26,806	437	5,647,875	12,924	584	9,588,399	16,418
60 TO 64	469	15,006,492	31,997	1,689	23,104,068	13,679	2,158	38,110,560	17,660
65 TO 69	819	25,498,947	31,134	3,189	43,922,389	13,773	4,008	69,421,336	17,321
70 TO 74	880	26,351,483	29,945	3,499	43,905,528	12,548	4,379	70,257,011	16,044
75 TO 79	701	19,509,683	27,831	3,007	35,348,729	11,755	3,708	54,858,412	14,795
80 TO 84	499	14,051,413	28,159	2,079	22,836,453	10,984	2,578	36,887,866	14,309
85 TO 89	313	8,397,279	26,828	1,273	13,027,222	10,233	1,586	21,424,501	13,509
90 & UP	197	5,165,615	26,221	1,085	10,445,932	9,628	1,282	15,611,547	12,177
TOTAL	4,097	118,954,490	29,035	16,384	199,730,722	12,191	20,481	318,685,212	15,560

**Graph XII-9
Pensioner Average Benefits**

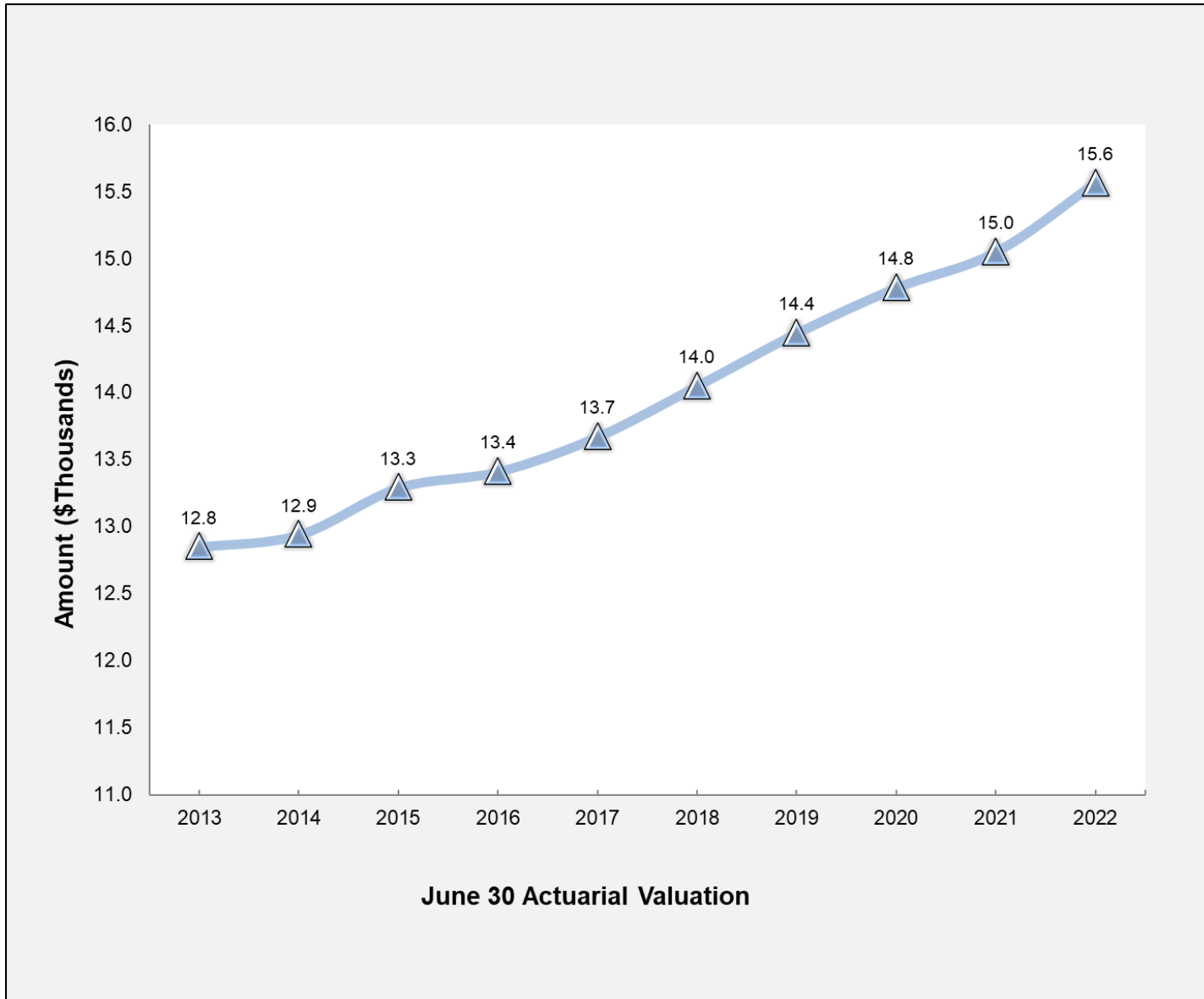


Table XII-10
Reconciliation of Pensioner and Beneficiary Data

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 ²		
2013	1,110	\$ 16,977,455	529	\$ 4,957,022	15,455	\$ 198,534,297	6.4%	\$ 12,846
2014	1,094	13,701,890	554	5,306,812	15,995	206,929,375	4.2%	12,937
2015	1,002	16,482,509	559	4,979,621	16,438	218,432,263	5.6%	13,288
2016	1,075	14,412,852	576	5,776,541	16,937	227,068,574	4.0%	13,407
2017	1,061	17,321,922	573	6,234,174	17,425	238,156,322	4.9%	13,668
2018	1,179	20,878,837	563	5,613,557	18,041	253,421,602	6.4%	14,047
2019	1,216	22,617,426	755	8,877,194	18,502	267,161,833	5.4%	14,440
2020	1,326	23,003,553	708	8,604,426	19,120	281,560,960	5.4%	14,726
2021	1,066	18,952,419	738	7,909,902	19,448	292,603,477	3.9%	15,045
2022	1,792	35,161,651	759	9,079,916	20,481	318,685,212	8.9%	15,560

¹ Amounts shown include changes in benefit type (e.g., Service to Accidental Disability), COLA increases, and other changes.

² Allowances shown are those used in the actuarial valuation as of the Year End date and are not adjusted for anticipated changes due to the finalization of benefit calculations or contract settlements

APPENDIX: ACRONYMS AND ABBREVIATIONS

Revised 2021	Actuarial Assumptions and Methods proposed by the Actuary and adopted by the Board of Trustees during Fiscal Year 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
AIR	Actuarial Interest Rate
AL	Accrued Liability
AMC	Additional Member Contributions
AMC-PT	Additional Member Contributions for Physically-Taxing Employment
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
FAS	Final Average Salary
FIRE	Fire Pension Fund
FS	Final Salary
GASB	Governmental Accounting Standards Board
IRC	Internal Revenue Code
MVA	Market Value of Assets
NYCERS	New York City Employees' Retirement System
NYCRS	New York City Retirement Systems
OWBPA	Older Workers Benefit Protection Act
OYLM	One-Year Lag Methodology
POLICE	Police Pension Fund
PT	Physically-Taxing Employment
PV	Present Value
PVFB	Present Value of Future Benefits
PVFNC	Present Value of Future Normal Costs
PVFS	Present Value of Future Salary
TDA	Tax-Deferred Annuity Program
TRS	Teachers' Retirement System
UAL	Unfunded Accrued Liability
WTC	World Trade Center