



**Fiscal Year 2021**  
**Actuarial Valuation Report**  
for the  
**New York City**  
**Fire Pension Fund**

*JUNE 30, 2019 (LAG) ACTUARIAL VALUATION*

prepared by the  
**New York City**  
**Office of the Actuary**

**2021**



## OFFICE OF THE ACTUARY

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SHERRY S. CHAN  
CHIEF ACTUARY

December 29, 2021

Board of Trustees  
New York City Fire Pension Fund and Group Life Insurance Plan  
One Battery Park Plaza, 9<sup>th</sup> Floor  
New York, NY 10004

Re: Fiscal Year 2021 Actuarial Valuation Report (Report)

Dear Trustees:

This Report presents the results of the June 30, 2019 (Lag) actuarial valuation of the benefits under both the New York City Fire Pension Fund (FIRE) and Group Life Insurance Plan (collectively, the Plan). This valuation, known as the June 30, 2019 (Lag) valuation, forms the basis for determining the statutorily-required contribution (Statutory Contribution) of \$1,436,977,136 for Fiscal Year 2021 (i.e. for the period beginning July 1, 2020 and ending June 30, 2021). It is not intended, nor necessarily suitable, for other purposes. Calculations made for other purposes may differ significantly from those shown herein.

Results of the June 30, 2018 (Lag) actuarial valuation are shown in this Report for comparative purposes. Other historical information that the Actuary believes useful is also included.

The June 30, 2019 (Lag) and June 30, 2018 (Lag) actuarial valuations are based upon census data as of those dates submitted by the Plan's administrative staff and the employer's payroll facilities. Financial information was provided by FIRE and the Office of the Comptroller as of June 30, 2019 and June 30, 2018.

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 presented 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.

A summary of the benefits available under the terms of the Plan is shown in SECTION VIII – SUMMARY OF PLAN PROVISIONS. The benefits under the Plan are unchanged from the prior valuation.

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 assumptions and

methods used for the June 30, 2019 valuation have changed from the prior valuation and were presented in the memorandum titled "Proposed Changes to Actuarial Assumptions and Methods (Revised 2021 A&M)" dated July 19, 2021 and were adopted by the Board of Trustees at the July 28, 2021 Board meeting.

This Report does not present Governmental Accounting Standards Board (GASB) results. The Office of the Actuary published the Fiscal Year 2021 GASB67 and GASB68 results in a report dated September 24, 2021, which is available on the website of the Office of the Actuary ([www.nyc.gov/actuary](http://www.nyc.gov/actuary)).

I, Sherry S. Chan, am the Chief Actuary for, and independent of, the New York City Retirement Systems and Pension Funds. I am a Fellow of the Society of Actuaries, an Enrolled Actuary under the Employee Retirement Income and Security Act of 1974, a Member of the American Academy of Actuaries, and a Fellow of the Conference of Consulting Actuaries. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. To the best of my knowledge, the results contained herein have been prepared in accordance with generally accepted actuarial principles and procedures and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

Best Regards,



Sherry S. Chan, FSA, EA, MAAA, FCA  
Chief Actuary

SSC/eh

cc: Ms. Melissa Chacko - New York City Office of the Actuary  
Mr. Craig Chu - New York City Office of the Actuary  
Mr. Patrick Dunn - New York City Fire Pension Fund  
Mr. Anderson Huynh - New York City Office of the Actuary  
Mr. Michael Samet - New York City Office of the Actuary  
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## SECTION I - EXECUTIVE SUMMARY

This Report presents the results of the June 30, 2019 (Lag) actuarial valuation of the New York City Fire Pension Fund (FIRE) and Group Life Insurance Plan (collectively, the Plan).

The purposes of the valuation are:

- To determine the actuarially-required contribution (Actuarial Contribution) for Fiscal Year 2021 (i.e. July 1, 2020 to June 30, 2021),
- To measure the funding progress of the Plan,
- To disclose the census data and financial information used in the valuation, and
- To disclose the actuarial assumptions and actuarial methods used to determine the Actuarial Contribution.

The statutorily-required contribution (Statutory Contribution) is also shown and compared to the Actuarial Contribution in historical years.

This Report does not provide financial and accounting information required by current GASB standards. That information is provided in a separate report.

All results are based on preliminary SKIM amounts as determined by the Actuary in a letter dated August 29, 2019 to the Comptroller's Office. All results are without regard to the Variable Supplements Funds, unless specifically noted.

Future measurements of this information may differ from current measurements for many reasons including, but not limited to, experience differing from economic or demographic assumptions, changes in actuarial assumptions and methods, and changes in applicable statute and plan provisions. These and additional risks may be present for the Plan. A further discussion is presented in SECTION VII – RISK AND UNCERTAINTY for consideration.

**Table I-1**  
**Executive Summary**

Presented in **Table I-1** are the principal results of the June 30, 2019 (Lag) actuarial valuation and, for comparative purposes, the June 30, 2018 (Lag) actuarial valuation.

NEW YORK CITY FIRE PENSION FUND		
SUMMARY OF VALUATION RESULTS		
Valuation Date	June 30, 2019 (Lag)	June 30, 2018 (Lag)
Fiscal Year	2021	2020
<b>Funded Status</b>		
1. Accrued Liability <sup>1</sup>	\$ 22,824,418,903	\$ 21,787,887,650
2. Actuarial Value of Assets (AVA) <sup>2</sup>	14,337,618,000	12,876,671,000
3. Unfunded Accrued Liability (AVA Basis) (1. - 2.)	\$ 8,486,800,903	\$ 8,911,216,650
4. Funded Ratio (AVA Basis) (2. / 1.)	62.8%	59.1%
5. Market Value of Assets (MVA) <sup>2</sup>	14,337,618,000	13,267,043,000
6. Unfunded Accrued Liability (MVA Basis) (1. - 5.)	\$ 8,486,800,903	\$ 8,520,844,650
7. Funded Ratio (MVA Basis) (5. / 1.)	62.8%	60.9%
<b>Contribution<sup>3</sup></b>		
1. Normal Cost	\$ 606,173,530	\$ 591,951,663
2. Amortization of Unfunded Accrued Liability	819,513,747	819,977,001
3. Administrative Expenses <sup>4</sup>	11,289,859	7,341,099
4. Actuarial Contribution (1. + 2. + 3.)	\$ 1,436,977,136	\$ 1,419,269,763
5. Statutory Contribution (4.)	\$ 1,436,977,136	\$ 1,419,269,763
<b>Participant Data</b>		
1. Active Members		
a. Number	11,244	11,237
b. Annual Salary <sup>5</sup>	1,336,843,002	\$ 1,305,960,137
c. Average Salary	\$ 118,894	\$ 116,220
2. Active Off Payroll Members <sup>6</sup>	28	35
3. Terminated Vested Members	67	68
4. Retirees and Beneficiaries		
a. Number	16,628	16,593
b. Total Annual Benefits	1,294,170,638	\$ 1,240,810,210
c. Average Annual Benefit	\$ 77,831	\$ 74,779

<sup>1</sup> Includes unfunded VSF Accrued Liability.

<sup>2</sup> Actuarial Value of Assets and Market Value of Assets are rounded to the nearest thousand.

<sup>3</sup> Including results for Variable Supplements Funds.

<sup>4</sup> Chapter 298/16 changed FIRE to a corpus funded entity. Beginning in FY18, administrative expenses are paid out of the FIRE Main Fund.

<sup>5</sup> Salaries shown are the base salary plus assumed overtime paid and reflect the impact of recent labor contract settlements and certain non-union salary increases with retroactive effective dates, if any.

<sup>6</sup> Represents members no longer on payroll, but not otherwise classified.



**Table I-2**  
**Actuarial Liabilities**

NEW YORK CITY FIRE PENSION FUND		
ACTUARIAL LIABILITIES BY STATUS		
Valuation Date	June 30, 2019 (Lag)	June 30, 2018 (Lag)
Fiscal Year	2021	2020
<b>Accrued Liability</b>		
1. Active Members	\$ 8,284,636,413	\$ 7,926,734,196
2. Active Off Payroll Members <sup>1</sup>	5,354,344	7,362,355
3. Terminated Vested Members	16,130,101	15,345,609
4. Retirees and Beneficiaries	<u>14,351,915,056</u>	<u>13,822,620,016</u>
5. Accrued Liability Pre-Adjustments (1. to 4.)	\$ 22,658,035,914	\$ 21,772,062,176
6. Actuarial Adjustments <sup>2</sup>	<u>166,382,989</u>	<u>15,825,474</u>
7. Total Accrued Liability (5. + 6.)	\$ 22,824,418,903	\$ 21,787,887,650
<b>Present Value of Benefits</b>		
1. Active Members	\$ 14,158,529,182	\$ 13,727,061,882
2. Active Off Payroll Members <sup>1</sup>	5,354,344	7,362,355
3. Terminated Vested Members	16,130,101	15,345,609
4. Retirees and Beneficiaries	<u>14,351,915,056</u>	<u>13,822,620,016</u>
5. Present Value of Benefits (1. to 4.)	\$ 28,531,928,683	\$ 27,572,389,862
6. Actuarial Adjustments <sup>2</sup>	<u>240,372,685</u>	<u>161,270,823</u>
7. Total Present Value of Benefits (5. + 6.)	\$ 28,772,301,368	\$ 27,733,660,685

<sup>1</sup> Represents members no longer on payroll, but not otherwise classified.

<sup>2</sup> Includes unfunded VSF liability and other actuarial loading adjustments.

Graph I-3  
Historical Funded Status



## SECTION II - MARKET AND ACTUARIAL VALUES OF ASSETS

Information on the Market Value of Assets (MVA) of the Plan is provided by the Office of the Comptroller. An Actuarial Asset Valuation Method (AAVM) is used to determine the Actuarial Value of Assets (AVA) of the Plan.

The Actuary reset the AVA to the market value as of June 30, 2011 and as of June 30, 2019. Beginning with the June 30, 2020 (Lag) actuarial valuation, the AAVM recognizes investment returns greater or less than expected over a period of five years. In accordance with this AAVM, the Unexpected Investment Returns (UIR) are phased into the AVA at rates of 20% per year.

UIR is defined as the excess of net investment return over the Expected Investment Return (EIR) based on the expected rate of return and the MVA, where EIR equals the sum of beginning-of-fiscal-year MVA plus one-half of net cash flow, multiplied by the expected rate of return.

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

**Table II-1**  
**Statement of Plan Net Assets**

(\$ Thousands)		
	June 30, 2019	June 30, 2018
<b>ASSETS</b>		
Cash	\$ 6,770	\$ 2,883
Receivables		
Investment Securities Sold	\$ 269,966	\$ 143,921
Member Loans	23,052	25,248
Accrued Interest and Dividends	36,211	25,777
Other Receivables	<u>225</u>	<u>129</u>
Total Receivables	\$ 329,454	\$ 195,075
<b>INVESTMENTS AT FAIR VALUE</b>		
Short-Term Investments		
Commercial Paper	\$ 254,839	\$ 237,589
Short-Term Investment Fund	78,084	105,484
U.S. Treasury Bills	0	0
Discount Notes	108,843	0
Debt Securities		
U.S. Government and Agencies	1,513,791	3,029,091
Mortgage Debt Security	309,829	0
Corporate and Other	1,469,495	0
Treasury Inflation Protected Securities	462,901	0
Bank Loans	102,820	0
Equity Securities	4,256,999	3,848,728
Alternative Investments	2,947,833	2,607,718
Collective Trust Funds		
Bank Loans	105,615	0
Corporate and Other	32,299	0
International Equity	2,368,346	2,264,395
Domestic Equity	156,999	88,801
Fixed Income	0	1,206,636
Mortgage Debt Security	107,129	99,102
Opportunistic Fixed Income	48,113	0
Treasury Inflation Protected Securities	158,200	0
Collateral From Securities Lending	<u>774,084</u>	<u>1,140,436</u>
Total Investments	\$ 15,256,219	\$ 14,627,980
<b>OTHER ASSETS</b>	<u>2,573</u>	<u>2,899</u>
<b>TOTAL ASSETS</b>	<b>\$ 15,595,016</b>	<b>\$ 14,828,837</b>
<b>LIABILITIES</b>		
Accounts Payable	\$ 167,302	\$ 177,540
Payable for Investment Securities Purchased	292,460	203,986
Accrued Benefits Payable	8,552	10,832
Accrued Transfers to VSFs	15,000	29,000
Security Lending	<u>774,084</u>	<u>1,140,436</u>
<b>TOTAL LIABILITIES</b>	<b>\$ 1,257,398</b>	<b>\$ 1,561,794</b>
<b>PLAN ASSETS HELD IN TRUST FOR PENSION BENEFITS</b>	<b>\$ 14,337,618</b>	<b>\$ 13,267,043</b>

**Table II-2**  
**Statement of Changes in Plan Net Assets**

(\$ Thousands)		
	<b>June 30, 2019</b>	<b>June 30, 2018</b>
<b>ADDITIONS</b>		
Contributions		
Member Contributions	\$ 108,015	\$ 108,338
Employer Contributions	<u>1,398,565</u>	<u>1,200,417</u>
<b>Total Contributions</b>	<b>\$ 1,506,580</b>	<b>\$ 1,308,755</b>
Investment Income (Loss)		
Interest Income	\$ 181,067	\$ 168,451
Dividend Income	170,140	159,918
Net Appreciation (Depreciation) in Fair Value	<u>667,697</u>	<u>952,687</u>
Total Investment Income (Loss)	\$ 1,018,904	\$ 1,281,056
Less Investment Expenses	89,976	96,936
Net Income (Loss)	\$ 928,928	\$ 1,184,120
Securities Lending Transactions		
Securities Lending Income	5,498	5,267
Securities Lending Fees	<u>(537)</u>	<u>(527)</u>
Net Securities Lending Income (Loss)	\$ 4,961	\$ 4,740
<b>Net Investment Income (Loss)</b>	<b>\$ 933,889</b>	<b>\$ 1,188,860</b>
Other		
<b>Net Receipts from Other Retirement Systems</b>	1,565	8,697
<b>Litigation Income</b>	<u>492</u>	<u>714</u>
Other Total	2,057	9,411
Transferable Earnings due from VSFs to QPP	14,000	0
<b>TOTAL ADDITIONS</b>	<b>\$ 2,456,526</b>	<b>\$ 2,507,026</b>
<b>DEDUCTIONS</b>		
Benefit Payments and Withdrawals	\$ 1,376,090	\$ 1,308,467
Accrued Transfers to VSFs	0	15,000
Administrative Expenses	<u>9,861</u>	<u>6,412</u>
<b>TOTAL DEDUCTIONS</b>	<b>\$ 1,385,951</b>	<b>\$ 1,329,879</b>
<b>NET INCREASE (DECREASE) IN PLAN NET ASSETS</b>	<b>\$ 1,070,575</b>	<b>\$ 1,177,147</b>
<b>PLAN NET ASSETS HELD IN TRUST FOR PENSION BENEFITS</b>		
Beginning of Year	\$ 13,267,043	\$ 12,089,896
End of Year	\$ 14,337,618	\$ 13,267,043

**Table II-3**  
**Development of Actuarial Value of Assets**

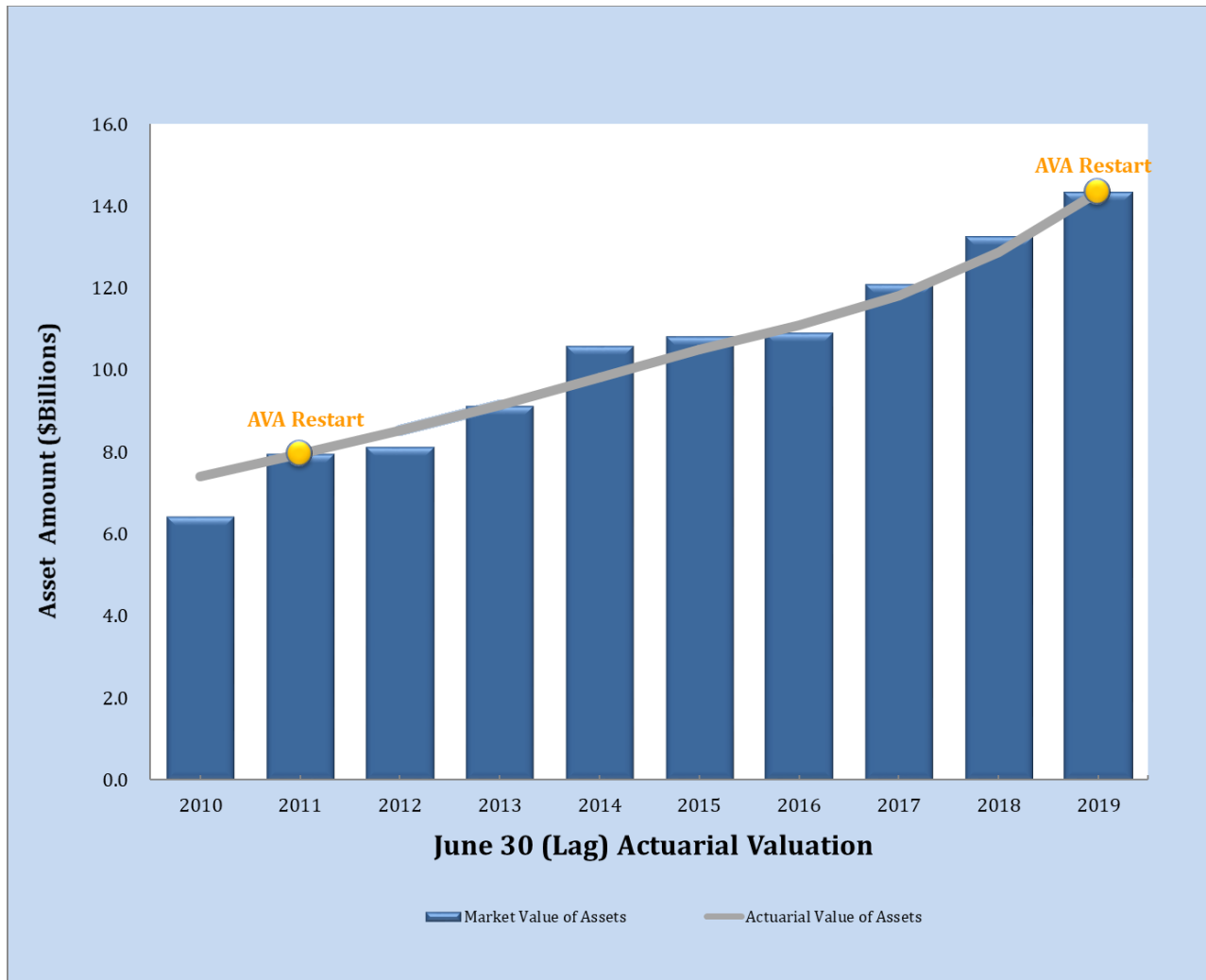
(\$ Thousands)		
Valuation Date	June 30, 2019 <sup>1</sup>	June 30, 2018
1. Market Value of Assets (MVA)		
Beginning of Year (BOY)	\$ 13,267,043	\$ 12,089,896
End of Year (EOY)	\$ 14,337,618	\$ 13,267,043
2. Contributions		
a. Employee	\$ 108,015	\$ 108,338
b. Employer	<u>1,398,565</u>	<u>1,200,417</u>
c. Total Contributions	\$ 1,506,580	\$ 1,308,755
3. Benefit Payments and Other Cash Flow	(1,383,894)	(1,305,468)
4. Transferable Earnings from FIRE to VSFs - EOY	\$ 14,000	\$ (15,000)
5. Net Cash Flow (2.c. + 3. + 4.)	<u>136,686</u>	<u>(11,713)</u>
6. Net Investment Income		
a. Investment Income	\$ 1,023,865	\$ 1,285,796
b. Investment Expenses	\$ (89,976)	<u>(96,936)</u>
c. Total Net Investment Income	\$ 933,889	\$ 1,188,860
7. Average invested assets		
a. AVA @ BOY	N/A	\$ 11,814,576
b. 1/2 Net Cash Flow before SKIM ((2.c. + 3.) / 2)	<u>N/A</u>	<u>1,644</u>
c. Total	N/A	\$ 11,816,220
8. Expected Rate of Return (AIR)	7.00%	7.00%
9. Expected Investment Return (EIR) (7.c. x 8.) <sup>2</sup>	\$ 933,889	\$ 827,135
10. Unexpected Investment Return (UIR) (6.c. - 9.)	\$ 0	\$ 361,725
11. Preliminary AVA @ EOY		
a. AVA @ BOY (prior to corridor limit) <sup>2</sup>	N/A	\$ 11,814,576
b. Net Cash Flow (5.)	N/A	(11,713)
c. Expected Investment Return (9.)	N/A	827,135
d. Phase in of UIR <sup>3</sup>		
20%/15% * UIR for prior year	N/A	54,259
20%/15% * UIR for second prior year	N/A	76,622
20%/15% * UIR for third prior year	N/A	(80,291)
20%/15% * UIR for fourth prior year	N/A	(62,216)
20%/20% * UIR for fifth prior year	N/A	185,641
0%/20% * UIR for sixth prior year	<u>N/A</u>	<u>72,658</u>
Total	N/A	\$ 246,673
e. Preliminary AVA (11.a. + 11.b. + 11.c. + 11.d.)	N/A	\$ 12,876,671
12. Corridor		
a. 80% of MVA	\$ 11,470,094	\$ 10,613,634
b. 120% of MVA	\$ 17,205,142	\$ 15,920,452
<b>13. Final AVA of EOY (11e. bounded by 12)</b>	<b>\$ 14,337,618</b>	<b>\$ 12,876,671</b>

<sup>1</sup> Calculations reflect the "Revised 2021 A&M," the actuarial assumptions and methods proposed in a memo dated July 19, 2021 and adopted by the Board at the July 28, 2021 Board meeting.

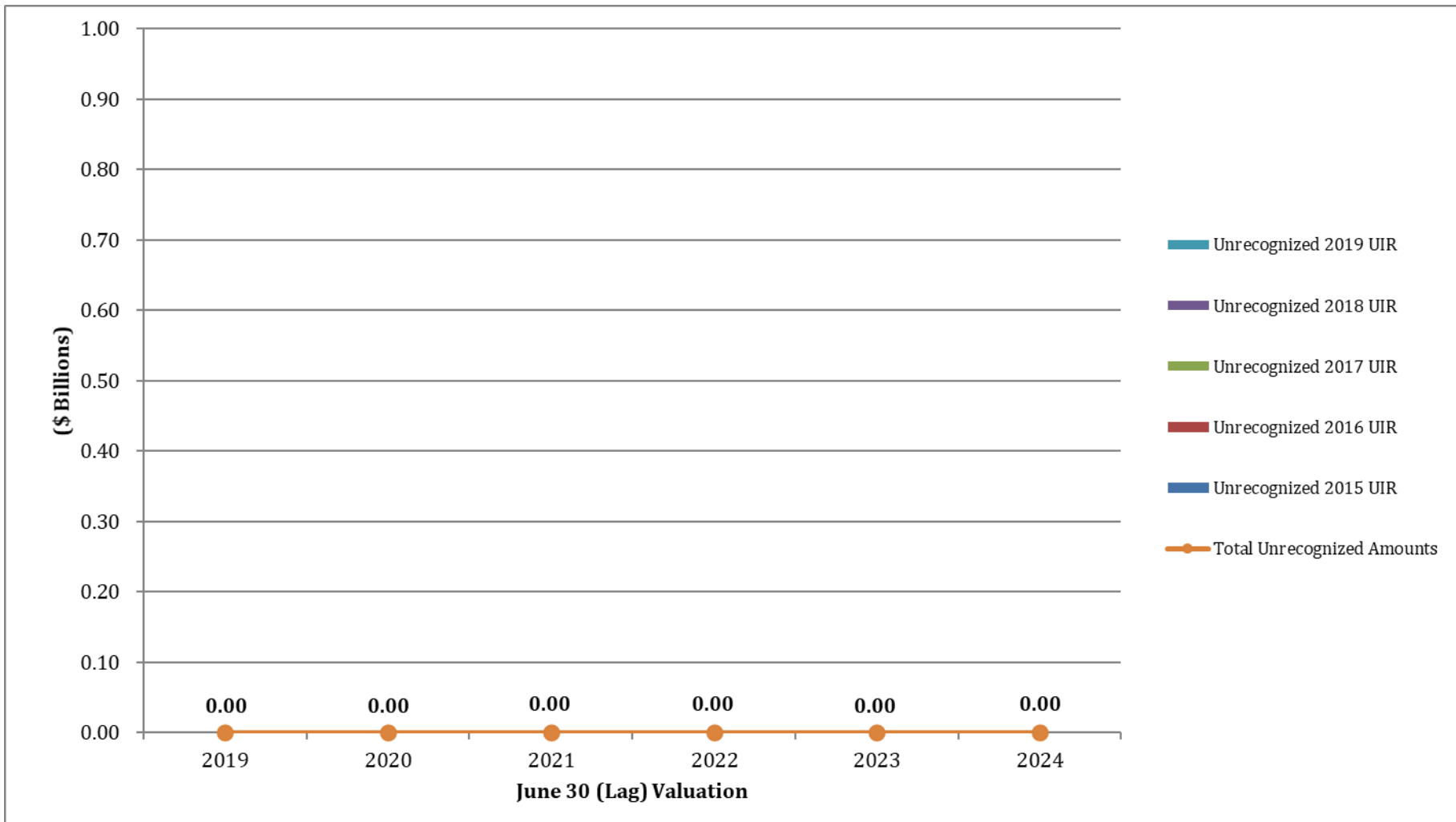
<sup>2</sup> Due to the "Revised 2021 A&M," AVA has been restarted by setting it equal to the MVA as of June 30, 2019 and Actual Investment Return rather than Expected Investment Return is used in the June 30, 2019 calculations.

<sup>3</sup> Due to the "Revised 2021 A&M," the recognition of future asset performance has been changed from the previous six-year period, from 15% for the first four years and 20% for the last two years, to a five-year period at 20% per year.

Graph II-4  
Historical Market and Actuarial Value of Assets



Graph II-5  
Future Recognition of UIR as of June 30, 2019



As a result of the AVA restart as of June 30, 2019, all previous UIRs have been recognized.



## SECTION III - CONTRIBUTION DEVELOPMENT AND HISTORY

**Table III-1**  
**Statutory Contributions**

**Table III-1** shows the components of the Fiscal Year 2021 and the Fiscal Year 2020 Statutory Contributions.

COMPONENTS OF CURRENT AND PRIOR FISCAL YEAR STATUTORY CONTRIBUTIONS		
Valuation Date	June 30, 2019 (Lag)	June 30, 2018 (Lag)
Fiscal Year	2021	2020
Normal Cost <sup>1</sup>	\$ 606,173,530	\$ 591,951,663
Amortization of Unfunded Accrued Liability		
- Initial UAL	695,609,768	675,349,289
- 2011 (Gain)/Loss	(19,908,798)	(19,908,798)
- 2012 (Gain)/Loss	3,110,478	3,110,478
- 2013 (Gain)/Loss	7,251,935	7,251,935
- 2014 (Gain)/Loss	9,980,736	9,980,736
- 2014 Assumption Change <sup>2</sup>	32,784,417	32,784,417
- 2015 (Gain)/Loss	506,537	506,537
- 2016 (Gain)/Loss	18,745,299	18,745,299
- 2016 SADB	96,997,069	96,997,069
- 2016 Enhanced ADR	249,358	249,358
- 2017 (Gain)/Loss	7,078,925	7,078,925
- 2017 No VSF Escalation Offset	45,144	45,144
- 2017 Non-uniformed Service	264,728	264,728
- 2017 Assumption Changes <sup>3</sup>	40,764,306	40,764,306
- 2017 Method Changes <sup>3</sup>	(32,109,613)	(32,109,613)
- 2018 (Gain)/Loss	(21,132,809)	(21,132,809)
- 2019 (Gain)/Loss	(15,021,890)	N/A
- 2019 Assumption Changes <sup>4</sup>	9,925,679	N/A
- 2019 Method Changes <sup>4</sup>	(15,627,522)	N/A
<b>Total</b>	<b>819,513,747</b>	<b>819,977,001</b>
Administrative Expenses	11,289,859	7,341,099
Interest on Late Employer Contributions	N/A	N/A
<b>Total Contribution to the New York City Fire Pension Fund</b>	<b>\$ 1,436,977,136</b>	<b>\$ 1,419,269,763</b>

<sup>1</sup> Includes amounts necessary, if any, to provide for financing of the Excess Benefit Plan established by Chapter 623/04.

<sup>2</sup> Change in post retirement mortality assumptions including the change to the mortality improvement scale MP-2015.

<sup>3</sup> 2019 A&M.

<sup>4</sup> Revised 2021 A&M.

**Table III-2**  
**Schedule of Unfunded Accrued Liability Bases**

The Initial Unfunded Accrued Liability (UAL) is being amortized over a closed 22-year period using Increasing Dollar Payments (IDP). Under IDP, amortization payments increase by 3.0% per year, consistent with the assumed rate of General Wage Increases. Increments to the UAL established after June 30, 2010 are generally amortized using Level Dollar Payments (LDP) as follows:

- Benefit Changes – Over the remaining working lifetimes of those impacted, unless the amortization period is determined by statute.
- Assumption and Method Changes – Over a closed 20-year period.
- Actuarial Gains and Losses – Over a closed 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 closed 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, 2019.

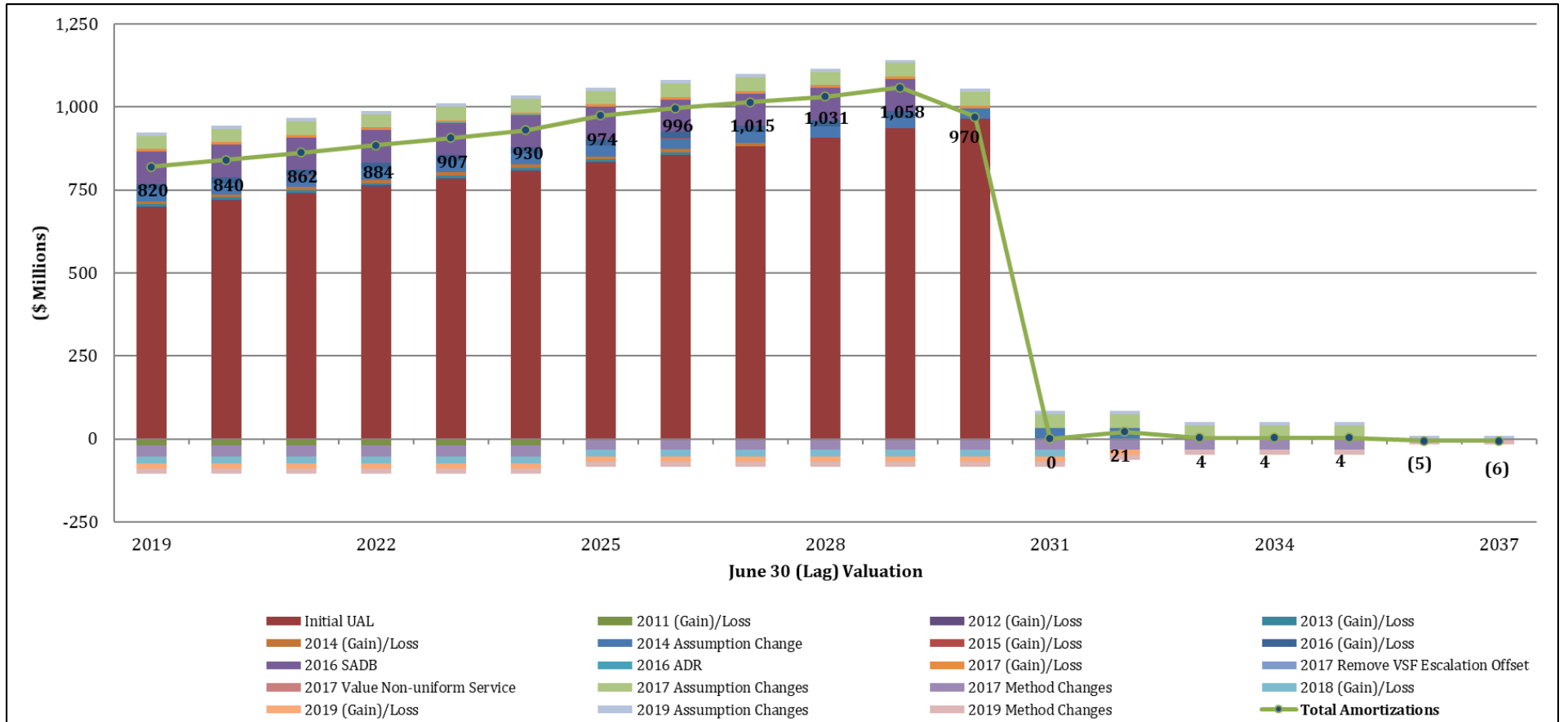
NEW YORK CITY FIRE PENSION FUND SCHEDULE OF UNFUNDED ACCRUED LIABILITY BASES						
Amortization Base	Date Established	Original Amount	Amortization Years	Amortization Payment	Payments Remaining	OYLM UAL June 30, 2019
Initial UAL	6/30/10	\$ 7,095,864,159	22	\$ 695,609,768	12	\$ 6,169,001,875
(Gain)/Loss	6/30/11	\$ (168,320,189)	15	\$ (19,908,798)	6	\$ (91,739,500)
(Gain)/Loss	6/30/12	\$ 26,297,732	15	\$ 3,110,478	7	\$ 16,205,661
(Gain)/Loss	6/30/13	\$ 61,311,940	15	\$ 7,251,935	8	\$ 41,863,042
(Gain)/Loss	6/30/14	\$ 84,382,762	15	\$ 9,980,736	9	\$ 62,863,793
Assumption Change <sup>1</sup>	6/30/14	\$ 327,575,238	20	\$ 32,784,417	14	\$ 277,177,917
(Gain)/Loss	6/30/15	\$ 4,282,552	15	\$ 506,537	10	\$ 3,439,365
(Gain)/Loss	6/30/16	\$ 158,483,315	15	\$ 18,745,299	11	\$ 135,889,214
SADB	6/30/16	\$ 820,067,832	15	\$ 96,997,069	11	\$ 703,155,236
Enhanced ADR	6/30/16	\$ 2,612,048	22	\$ 249,358	18	\$ 2,424,877
(Gain)/Loss	6/30/17	\$ 59,849,221	15	\$ 7,078,925	12	\$ 54,355,420
No VSF Escalation Offset	6/30/17	\$ 462,349	21	\$ 45,144	18	\$ 439,003
Non-Uniformed Service	6/30/17	\$ 2,645,107	20	\$ 264,728	17	\$ 2,498,624
Assumption Changes <sup>2</sup>	6/30/17	\$ 407,308,674	20	\$ 40,764,306	17	\$ 384,752,433
Method Changes <sup>2</sup>	6/30/17	\$ (320,832,740)	20	\$ (32,109,613)	17	\$ (303,065,427)
(Gain)/Loss	6/30/18	\$ (178,668,664)	15	\$ (21,132,809)	13	\$ (170,745,613)
(Gain)/Loss	6/30/19	\$ (127,003,510)	15	\$ (15,021,890)	14	\$ (127,003,510)
Assumption Changes <sup>3</sup>	6/30/19	\$ 99,175,360	20	\$ 9,925,679	19	\$ 99,175,360
Method Changes <sup>3</sup>	6/30/19	\$ (156,147,033)	20	\$ (15,627,522)	19	\$ (156,147,033)

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

<sup>2</sup> 2019 A&M.

<sup>3</sup> Revised 2021 A&M.

Graph III-3  
 Remaining UAL Amortizations as of June 30, 2019



**Table III-4**  
**Reconciliation of Outstanding UAL Bases**

June 30 (Lag) Valuation Date	Amounts (in \$ Thousands) Remaining to be Amortized, as of									
	2010	2011	2012	2013	2014	2015	2016	2017 <sup>1</sup>	2018	2019
Unfunded Accrued Liability, June 30, 2010	\$ 7,095,864	\$ 7,592,575	\$ 7,572,584	\$ 7,534,650	\$ 7,477,020	\$ 7,397,804	\$ 7,294,965	\$ 6,550,901	\$ 6,375,595	\$ 6,169,004
2011 (Gain)/Loss		(168,320)	(180,103)	(172,116)	(163,570)	(154,426)	(144,642)	(114,927)	(103,725)	(91,740)
2012 (Gain)/Loss			26,298	28,139	26,891	25,556	24,127	19,591	17,956	16,206
2013 (Gain)/Loss				61,312	65,604	62,695	59,582	49,240	45,676	41,863
2014 (Gain)/Loss					84,383	90,290	86,286	72,353	67,769	62,864
2014 Assumption Change					327,575	350,506	341,128	299,401	288,665	277,178
2015 (Gain)/Loss						4,283	4,582	3,889	3,672	3,439
2016 (Gain)/Loss							158,483	151,455	143,935	135,889
2016 SADB							820,068	783,702	744,791	703,155
2016 Enhanced ADR							2,612	2,554	2,492	2,425
2017 (Gain)/Loss								59,849	57,195	54,355
2017 Removal of VSF Escalation Offset								462	451	439
2017 Non-uniformed Service								2,645	2,574	2,499
2017 Assumption Changes								407,309	396,412	384,752
2017 Method Changes								(320,833)	(312,249)	(303,065)
2018 (Gain)/Loss									(178,669)	(170,746)
2019 (Gain)/Loss										(127,004)
2019 Assumption Changes										99,175
2019 Method Changes										(156,147)
<b>Sum of Outstanding Amortization Amounts</b>	<b>\$ 7,095,864</b>	<b>\$ 7,424,255</b>	<b>\$ 7,418,779</b>	<b>\$ 7,451,985</b>	<b>\$ 7,817,903</b>	<b>\$ 7,776,708</b>	<b>\$ 8,647,191</b>	<b>\$ 7,967,591</b>	<b>\$ 7,552,540</b>	<b>\$ 7,104,541</b>

June 30 (Lag) Valuation Date	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1. Accrued Liability (AL)	\$ 15,349,598	\$ 15,808,930	\$ 16,358,108	\$ 17,003,722	\$ 18,028,696	\$ 18,688,642	\$ 20,125,429	\$ 20,942,655	\$ 21,787,888	\$ 22,824,419
2. Actuarial Value of Assets (AVA)	7,392,656	7,955,668	8,520,769	9,144,587	9,808,854	10,504,728	11,082,451	11,814,576	12,876,671	14,337,618
3. Unfunded Accrued Liability (UAL) (1. - 2.)	7,956,942	7,853,262	7,837,339	7,859,135	8,219,842	8,183,914	9,042,978	9,128,079	8,911,217	8,486,801
4. PV 1-year Adjusted Employer Contribution <sup>2</sup>	861,078	429,007	418,560	407,150	401,939	407,206	395,787	1,160,488	1,352,044	1,372,060
5. PV Future Administrative Expense Reimbursement	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6,633	10,200
<b>6. Adjusted UAL (3. - 4. - 5.)</b>	<b>\$ 7,095,864</b>	<b>\$ 7,424,255</b>	<b>\$ 7,418,779</b>	<b>\$ 7,451,985</b>	<b>\$ 7,817,903</b>	<b>\$ 7,776,708</b>	<b>\$ 8,647,191</b>	<b>\$ 7,967,591</b>	<b>\$ 7,552,540</b>	<b>\$ 7,104,541</b>

<sup>1</sup> Beginning at June 30, 2017, amounts remaining to be amortized have been reduced by the prior valuation year's amortization payments. When considered with (2) below, this change has no effect.

<sup>2</sup> Beginning at June 30, 2017, the PV 1-year Adjusted Employer Contribution includes amounts used to pay UAL bases and one year of administrative expenses. When considered with (1) above, this change has no effect.

**Table III-5**  
**Actuarial and Statutory Contribution History**

**Table III-5** compares the Statutory Contributions to the Actuarial Contributions for Fiscal Years 2012 through 2021.

(\$ Thousands)			
Fiscal Year Ended June 30	Actuarial Contribution Certified	Statutory Contribution Contributed	Percentage of Actuarial Contribution Contributed
2012	\$ 976,895	\$ 976,895	100.0%
2013	962,173	962,173	100.0%
2014	969,956	969,956	100.0%
2015	988,784	988,784	100.0%
2016	1,054,478	1,054,478	100.0%
2017	1,061,170	1,061,170	100.0%
2018	1,200,417	1,200,417	100.0%
2019	1,398,565	1,398,565	100.0%
2020	1,419,270	1,419,270	100.0%
2021	1,436,977	1,436,977	100.0%

**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 2012 through 2021.

CITY RATES (\$ Thousands)			
Fiscal Year Ended June 30	Actuarial Contribution	Salary <sup>1</sup> at Beginning of Fiscal Year	City Rate
2012	\$ 976,895	\$ 1,149,426	85.0%
2013	962,173	1,129,926	85.2%
2014	969,956	1,102,396	88.0%
2015	988,784	1,111,744	88.9%
2016	1,054,478	1,129,470	93.4%
2017	1,061,170	1,145,919	92.6%
2018	1,200,417	1,164,528	103.1%
2019	1,398,565	1,272,490	109.9%
2020	1,419,270	1,326,177	107.0%
2021	1,436,977	1,362,579	105.5%

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

## SECTION IV - (GAIN)/LOSS ANALYSIS

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

**Table IV-1** develops the asset and liability (Gain)/Loss between the June 30, 2018 (Lag) actuarial valuation and the June 30, 2019 (Lag) actuarial valuation<sup>1</sup>.

DEVELOPMENT OF EXPERIENCE (GAIN)/LOSS JUNE 30, 2019 (\$ Thousands)	
1. Expected Accrued Liability (AL)	
a. AL at June 30, 2018	\$ 22,693,479
b. Total Normal Cost and Administrative Expenses at June 30, 2018	648,778
c. Interest on 1.a. and 1.b. to June 30, 2019	1,633,958
d. Fiscal Year 2019 Benefit Payments	(1,445,569)
e. Interest on 1.d. to June 30, 2019	<u>(49,739)</u>
f. Expected AL at June 30, 2019	\$ 23,480,907
2. Actual AL at June 30, 2019 before Revised 2021 A&M	\$ 23,508,607
3. Expected Total Actuarial Value of Assets (AVA)	
a. Total AVA at June 30, 2018	\$ 13,782,262
b. Interest on 3.a. to June 30, 2019	964,758
c. Total Contributions Paid in Fiscal Year 2019	1,506,580
d. Interest on 3.c. to June 30, 2019	51,838
e. Fiscal Year 2019 Benefit Payments	(1,445,569)
f. Interest on 3.e. to June 30, 2019	<u>(49,739)</u>
g. Expected Total AVA at June 30, 2019	\$ 14,810,130
4. Actual Total AVA at June 30, 2019 before Revised 2021 A&M	\$ 14,964,834
5. Liability (Gain)/Loss (2. - 1.f.)	\$ <b>27,700</b>
6. Actuarial Asset (Gain)/Loss (3.g. - 4.)	\$ <b>(154,704)</b>
7. Total Actuarial (Gain)/Loss (5. + 6.)	\$ <b>(127,004)</b>

<sup>1</sup> Includes results for the Variable Supplements Funds.



## SECTION V – SCHEDULE OF FUNDING PROGRESS

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

**Table V-1**  
**Schedule of Funding Progress**

NEW YORK CITY FIRE PENSION FUND						
(\$ Thousands)						
June 30 (Lag) 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	(6) UAL as a % of Covered Payroll (3) / (5)
2010	\$7,392,656	\$15,349,598	\$7,956,942	48.2%	\$1,138,188	699.1%
2011	7,955,668	15,808,930	7,853,262	50.3%	1,125,460	697.8%
2012	8,520,769	16,358,108	7,837,339	52.1%	1,106,113	708.5%
2013	9,144,587	17,003,722	7,859,135	53.8%	1,129,706	695.7%
2014	9,808,854	18,028,695	8,219,841	54.4%	1,150,390	714.5%
2015	10,504,728	18,688,642	8,183,914	56.2%	1,164,994	702.5%
2016	11,082,451	20,125,429	9,042,978	55.1%	1,180,226	766.2%
2017	11,814,576	20,942,655	9,128,079	56.4%	1,256,001	726.8%
2018	12,876,671	21,787,888	8,911,217	59.1%	1,305,960	682.3%
2019	14,337,618	22,824,419	8,486,801	62.8%	1,336,843	634.8%

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

## SECTION VI - VARIABLE SUPPLEMENTS FUNDS (VSF)

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

**Table VI-1**  
**VSF Accrued Liability**

(\$ Thousands)		
Valuation Date	June 30, 2019	June 30, 2018
FFVSF		
Active	\$ 143,243	\$ 142,048
Retiree	<u>341,499</u>	<u>354,715</u>
Total	\$ 484,742	\$ 496,763
FOVSF		
Active	\$ 138,507	\$ 138,081
Retiree	<u>155,617</u>	<u>157,411</u>
Total	\$ 294,124	\$ 295,492
Total VSF AL	\$ 778,866	\$ 792,255

**Table VI-2**  
**VSF Member Data**

VARIABLE SUPPLEMENTS FUNDS				
MEMBERS INCLUDED IN THE JUNE 30, 2019 (LAG) AND JUNE 30, 2018 (LAG) ACTUARIAL VALUATIONS				
	June 30, 2019		June 30, 2018	
	FFVSF	FOVSF	FFVSF	FOVSF
Actives				
Number	8,621	2,623	8,627	2,610
Average Age	38.3	47.8	38.4	47.9
Retirees				
Number	3,305	1,522	3,386	1,532
Average Age	72.9	73.4	72.6	73.4

**Table VI-3**  
**VSF Statement of Assets**

(\$ Thousands)				
Valuation Date	June 30, 2019 <sup>1</sup>		June 30, 2018 <sup>2</sup>	
	MVA <sup>3</sup>	AVA	MVA <sup>4</sup>	AVA
FFVSF	\$ 519,268	\$ 519,268	\$ 550,507	\$ 558,731
FOVSF	<u>351,386</u>	<u>351,386</u>	<u>355,712</u>	<u>346,860</u>
Total	\$ 870,654	\$ 870,654	\$ 906,219	\$ 905,591

<sup>1</sup> Includes preliminary SKIM amounts as determined by the Actuary in a letter dated August 29, 2019 to the Comptroller's Office. AVA was restarted to equal MVA in the Revised 2021 A&M.

<sup>2</sup> Includes preliminary SKIM amounts as determined by the Actuary in a letter dated September 7, 2018 to the Comptroller's Office.

<sup>3</sup> Includes Accrued Benefits Payable of \$19,953,000 for FFVSF and \$9,008,000 for FOVSF.

<sup>4</sup> Includes Accrued Benefits Payable of \$20,427,000 for FFVSF and \$9,079,000 for FOVSF.

**Table VI-4**  
**Development of VSF Actuarial Value of Assets**

(\$ Thousands)				
	June 30, 2019 <sup>1</sup>		June 30, 2018	
	FFVSF	FOVSF	FFVSF	FOVSF
1. Market Value of Assets (MVA)				
a. Beginning of Year (BOY) <sup>2</sup>	\$ 550,507	\$ 355,712	\$ 547,077	\$ 354,337
b. End of Year (EOY) <sup>3</sup>	\$ 519,268	\$ 351,386	\$ 550,507	\$ 355,712
2. Contributions				
a. Employee	\$ 0	\$ 0	\$ 0	\$ 0
b. Employer	0	0	0	0
c. Total Contributions	\$ 0	\$ 0	\$ 0	\$ 0
3. Benefit Payments and Other Cash Flow	\$ (45,218)	\$ (24,806)	\$ (46,976)	\$ (24,090)
4. Transferable Earnings from FIRE to VSFs - EOY	\$ (14,000)	\$ 0	\$ 15,000	\$ 0
5. Net Cash Flow (2.c. + 3. + 4.)	\$ (59,218)	\$ (24,806)	\$ (31,976)	\$ (24,090)
6. Net Investment Income				
a. Investment Income	\$ 28,259	\$ 20,699	\$ 35,810	\$ 25,713
b. Investment Expenses	(280)	(219)	(404)	(248)
c. Total Net Investment Income	\$ 27,979	\$ 20,480	\$ 35,406	\$ 25,465
7. Average invested assets				
a. AVA @ BOY	N/A	N/A	\$ 547,690	\$ 338,903
b. 1/2 Net Cash Flow before SKIM ((2.c. + 3.) / 2)	N/A	N/A	(23,488)	(12,045)
c. Total	N/A	N/A	\$ 524,202	\$ 326,858
8. Expected Rate of Return (AIR)	7.00%	7.00%	7.00%	7.00%
9. Expected Investment Return (EIR) (7.c. x 8.) <sup>4</sup>	\$ 27,979	\$ 20,480	\$ 36,694	\$ 22,880
10. Unexpected Investment Return (UIR) (6.c. - 9.)	\$ 0	\$ 0	\$ (1,288)	\$ 2,585
11. Preliminary AVA @ EOY				
a. AVA @ BOY <sup>4</sup>	N/A	N/A	\$ 547,690	\$ 338,903
b. Net Cash Flow (5.)	N/A	N/A	(31,976)	(24,090)
c. Expected Investment Return (9.)	N/A	N/A	36,694	22,880
d. Phase in of UIR <sup>5</sup>				
20%/15% * UIR for prior year	N/A	N/A	(193)	388
20%/15% * UIR for second prior year	N/A	N/A	1,637	2,838
20%/15% * UIR for third prior year	N/A	N/A	(4,628)	(2,843)
20%/15% * UIR for fourth prior year	N/A	N/A	(2,285)	(1,041)
20%/20% * UIR for fifth prior year	N/A	N/A	8,292	6,613
0%/20% * UIR for sixth prior year	N/A	N/A	3,500	3,212
Total	N/A	N/A	\$ 6,323	\$ 9,167
e. Preliminary AVA (11.a. + 11.b. + 11.c. + 11.d.)	N/A	N/A	\$ 558,731	\$ 346,860
<b>12. Final AVA at EOY (11.e)</b>	<b>\$ 519,268</b>	<b>\$ 351,386</b>	<b>\$ 558,731</b>	<b>\$ 346,860</b>

<sup>1</sup> Calculations reflect the "Revised 2021 A&M," the actuarial assumptions and methods proposed in a memo dated July 19, 2021 and adopted by the Board at the July 28, 2021 Board meeting.

<sup>2</sup> Includes Accrued Benefits Payable for 6/30/2018 of \$20,427,000 for FFVSF and \$9,079,000 for FOVSF and Accrued Benefits Payable for 6/30/2017 of \$20,831,000 for FFVSF and \$9,121,000 for FOVSF

<sup>3</sup> Includes Accrued Benefits Payable for 6/30/2019 of \$19,953,000 for FFVSF and \$9,008,000 for FOVSF and Accrued Benefits Payable for 6/30/2018 of \$20,427,000 for FFVSF and \$9,079,000 for FOVSF

<sup>4</sup> Due to the "Revised 2021 A&M," AVA has been restarted by setting it equal to the MVA as of June 30, 2019 and Actual Investment Return rather than Expected Investment Return is used in the June 30, 2019 calculations.

<sup>5</sup> Due to the "Revised 2021 A&M," the recognition of future asset performance has been changed from the previous six-year period, from 15% for the first four years and 20% for the last two years, to a five-year period at 20% per year.

**Table VI-5**  
**Preliminary SKIM Calculation as of June 30, 2019**

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

	<b>Preliminary<sup>1</sup></b>	
Total FIRE Pension Fund		
1. FY2019 Equity Earnings	\$	539,308,749
2. FY2019 Hypothetical Earnings		277,403,203
3. FY2019 Excess Earnings (1. - 2.)		261,905,546
4. Deficit at June 30, 2018		0
5. Hypothetical Interest Rate (HIR)		3.148%
6. Deficit with interest (4 x (1+HIR))		0
7. Potential SKIM (3. - 6.), not less than zero	\$	261,905,546
	<b>FFVSF</b>	<b>FOVSF</b>
Allocations to VSF		
8. Allocation Percentage	66.517%	33.483%
9. Potential SKIM (7. x 8.)	\$ 174,211,712	\$ 87,693,834
10. APV of Accumulated Plan Benefits	462,581,110	273,487,068
11. MVA Prior to SKIM	519,275,000	351,386,000
12. Unfunded APV of Accumulated Plan Benefits (10. - 11.), not less than zero	0	0
<b>13. SKIM Payable (Lesser of 9. and 12., not less than zero)</b>	0	0
14. Rounded Estimate, for FY19 Financial Statements <sup>1</sup>	\$ 0	\$ 0

<sup>1</sup> Included in MVA at June 30, 2019



## Summary of VSF Plan Provisions

### **A. Eligibility**

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

### **B. Benefits**

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

### **C. Cost-of-Living Benefits**

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

### **D. Form of Payment**

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

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

### **E. VSF DROP**

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

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

## Summary of VSF Actuarial Assumptions and Methods

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

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

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

## SECTION VII - RISK AND UNCERTAINTY

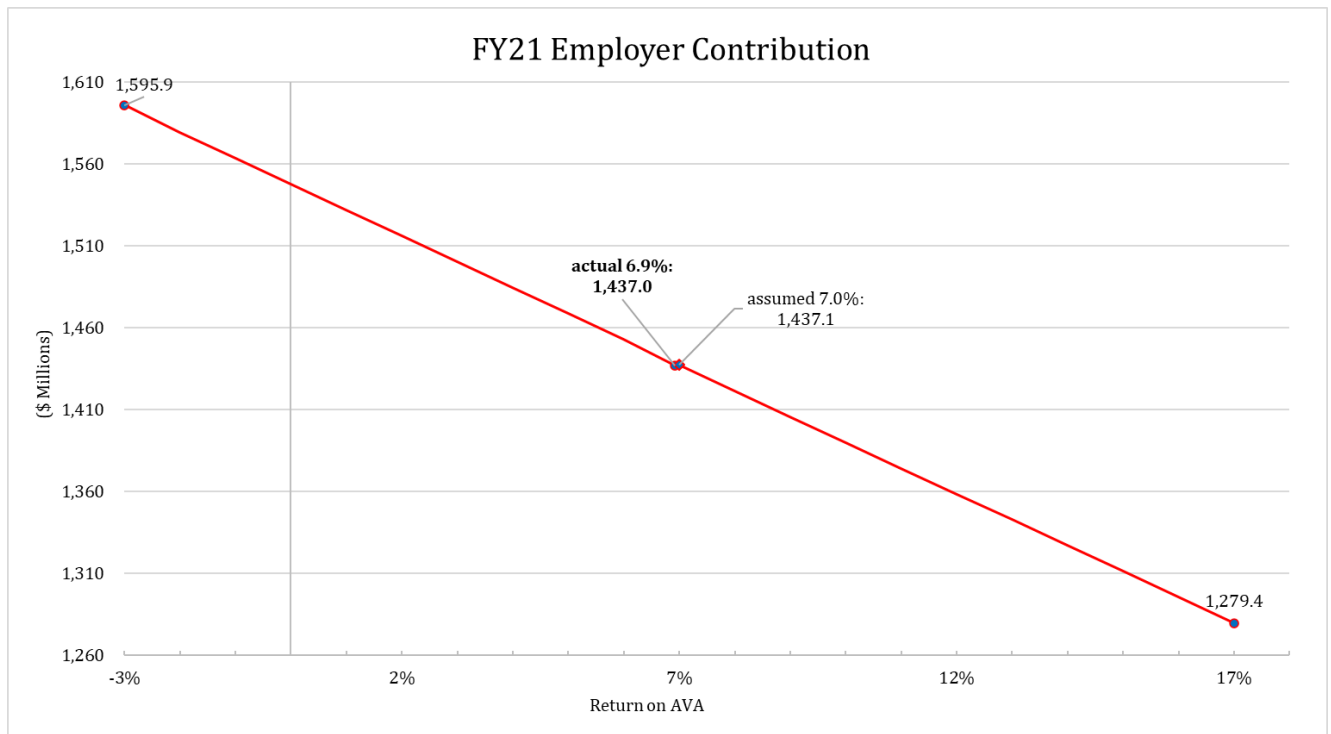
The funded status of FIRE depends highly on the realization of the actuarial assumptions used, as well as certain demographic characteristics of the Plan and other exogenous factors. Risks faced by the Plan are described in this Section. These risks have been separated, based on the Actuary's professional judgement, into high, medium, and other risks.

## High Risk Types

### Investment Risk: The Risk of Not Realizing Expected Returns

The most substantial risk for most pension systems, FIRE included, is the risk of investment returns being less than assumed. Generally speaking, as risk-free investment return rates have fallen in recent decades, more aggressive asset allocations have been taken to achieve long-term rates of return commensurate with the actuarial assumption of 7.0%.

The graph below illustrates the potential FY21 employer contributions if the annual investment return had differed from the actual rate, by up to 10%.<sup>1</sup>



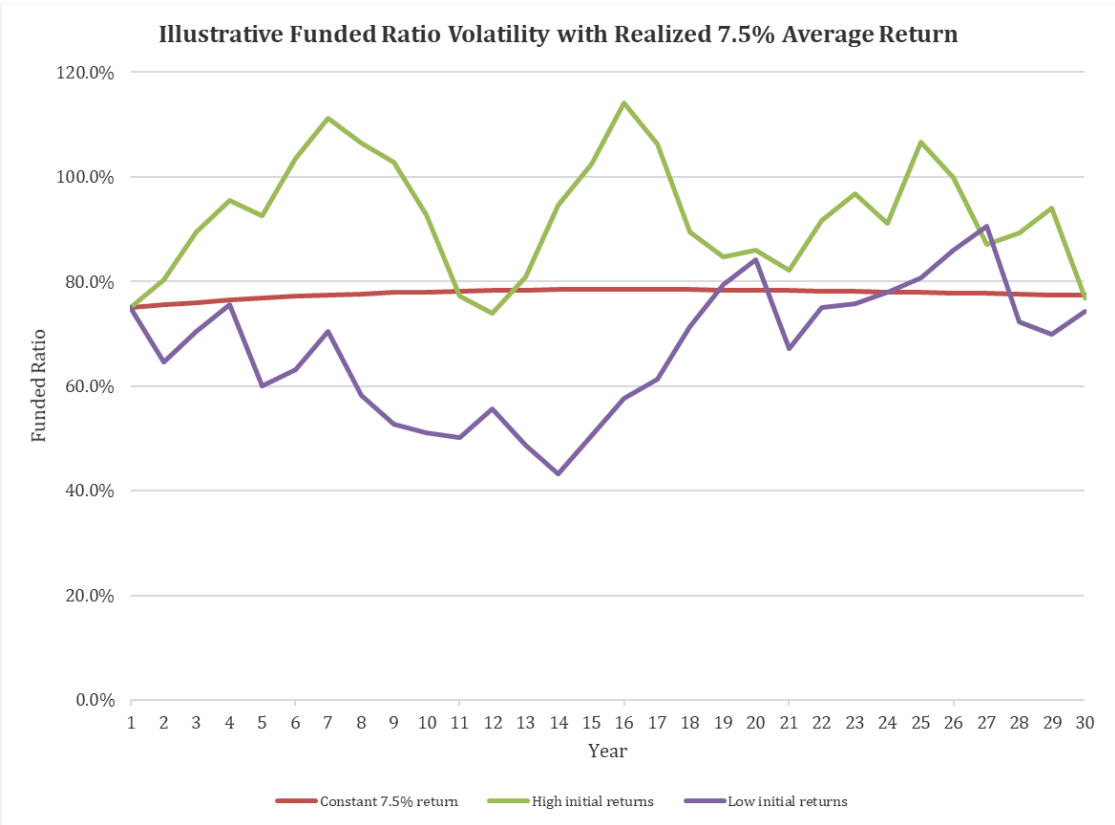
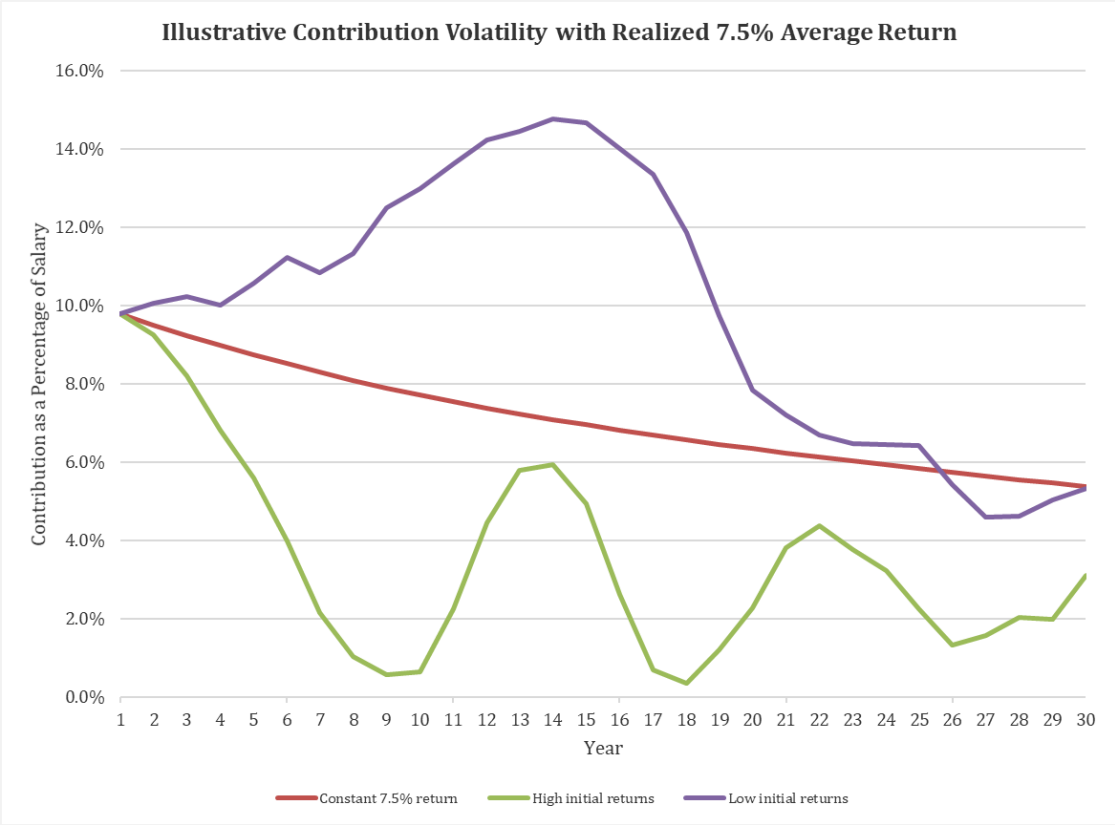
### Investment Risk: The Risk of Volatile Realized Returns

Even when long-term investment returns meet actuarial assumptions, investment return volatility can contribute substantially to contribution and funded status volatility. While not yet available specifically for the Plan at this time, recent research demonstrates this volatility based on a sample public plan with typical characteristics, a typical contribution policy, and a long-term return assumption of 7.5%, which can be realized in different patterns.<sup>2</sup>

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<sup>1</sup> The actual rate of return displayed in this graph is calculated as the overall rate of return for FIRE when combining the Plan and the VSFs together.

<sup>2</sup> Yin, Yimeng; Boyd, Don. Pension Simulation Project. *The Nelson A. Rockefeller Institute of Government*.

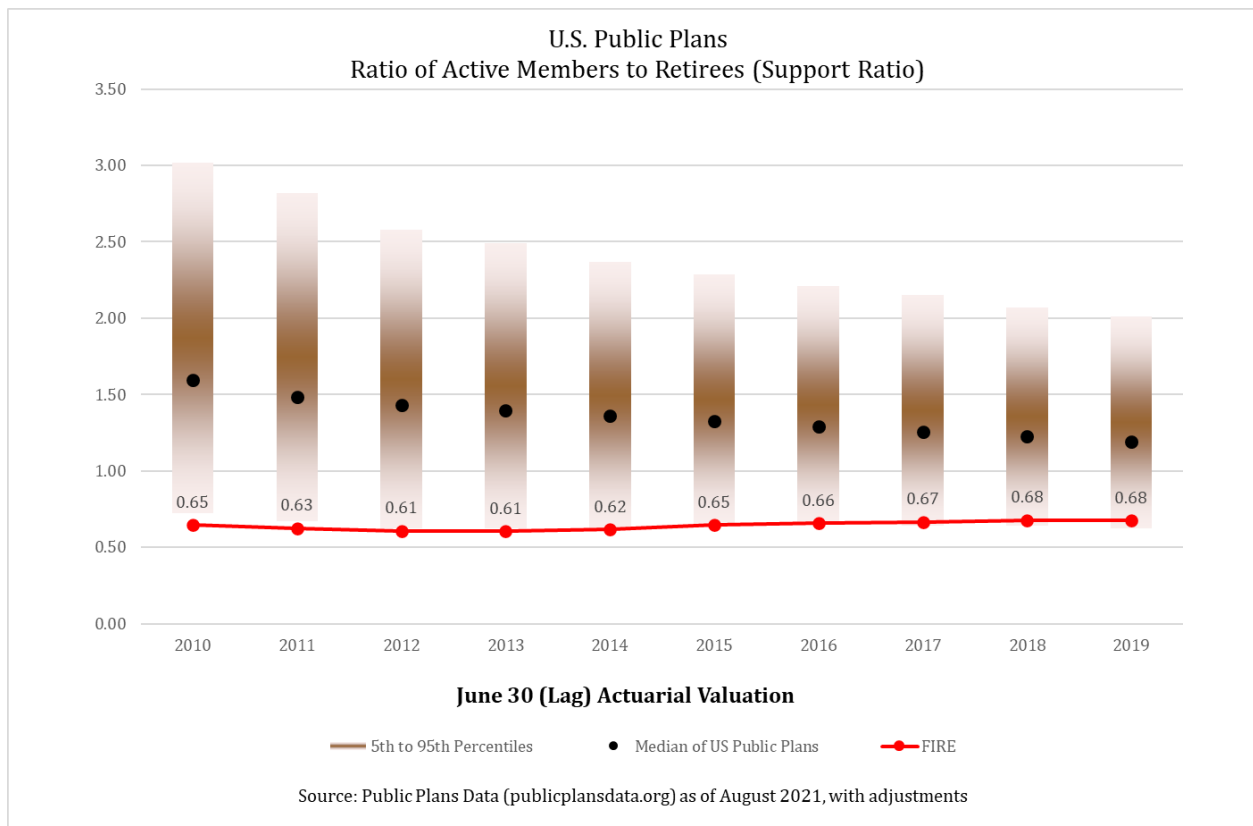


## Maturity Risk: The Risk of Demographic Imbalance

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. In a plan's early years, the ratio is very high as the plan contains mostly active members. As it matures, more active members transition to retirement, leading to a decrease in the Support Ratio over time that can result in a ratio near or below one. For FIRE, this ratio has been below one, meaning fewer active workers exist to support pensioner payments.

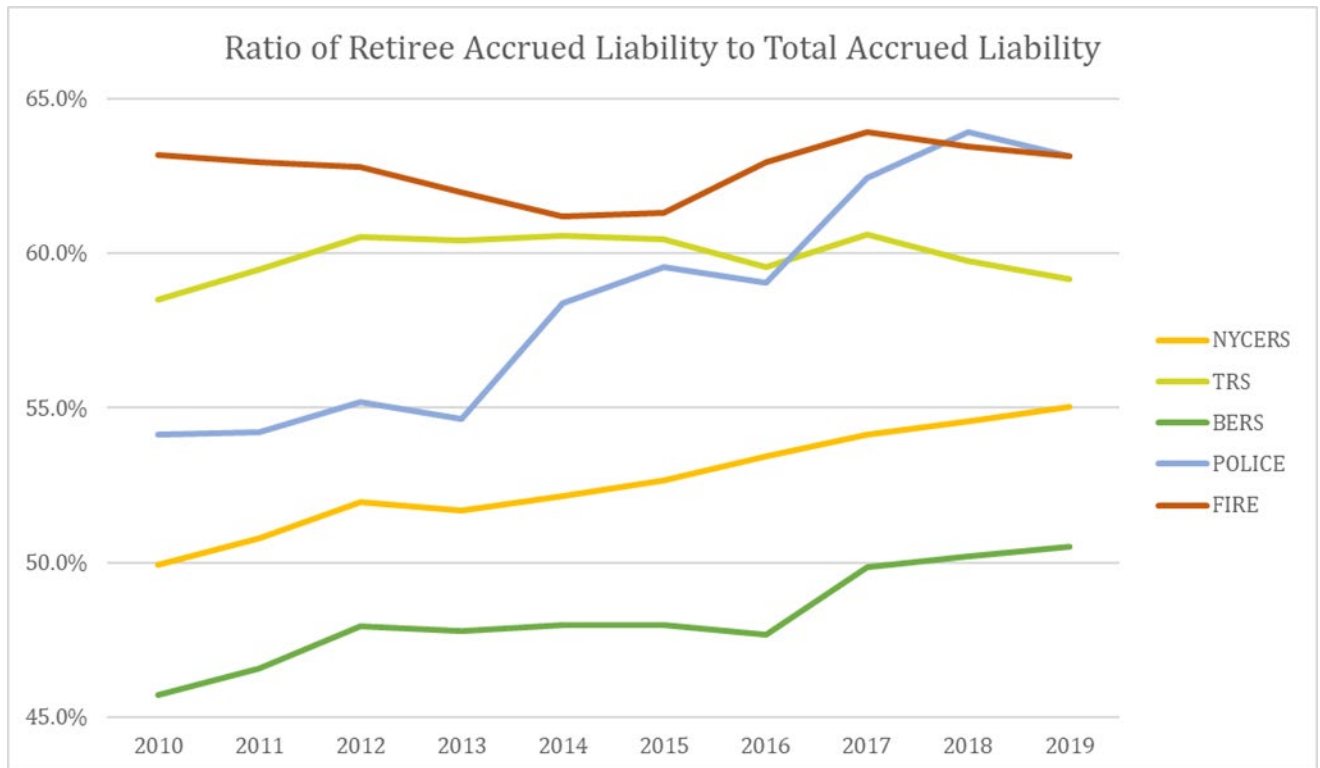


The chart above shows U.S. public pension plan Support Ratios in comparison to the Plan's. The median Support Ratio amongst U.S. public pensions has declined from 1.60 in the 2010 valuation year to 1.19 in the 2019 valuation year. Over that same period, the Plan's Support Ratio increased from 0.65 to 0.68, but remains significantly lower than the U.S. public pension plan median Support Ratio meaning fewer active workers exist to support guaranteed pensioner payments.

Because the Plan's Support Ratio is below the median, FIRE's contributions for active members form a smaller proportion of the total actuarial contribution than other pension funds in the U.S. with average maturity.

## Ratio of Retiree Accrued Liability to Total Accrued Liability

We can also consider the ratio of the Plan's retiree liability to its total liability. A new pension plan begins with this ratio at zero; as the plan matures, the ratio increases. Mature plans often have ratios above 60%. This measure is shown in the graph below for FIRE; the other New York City Retirement Systems<sup>1</sup> are included for comparison purposes. The ratio for FIRE has been between 60-65% for the past few years, indicating that FIRE is a mature retirement system.



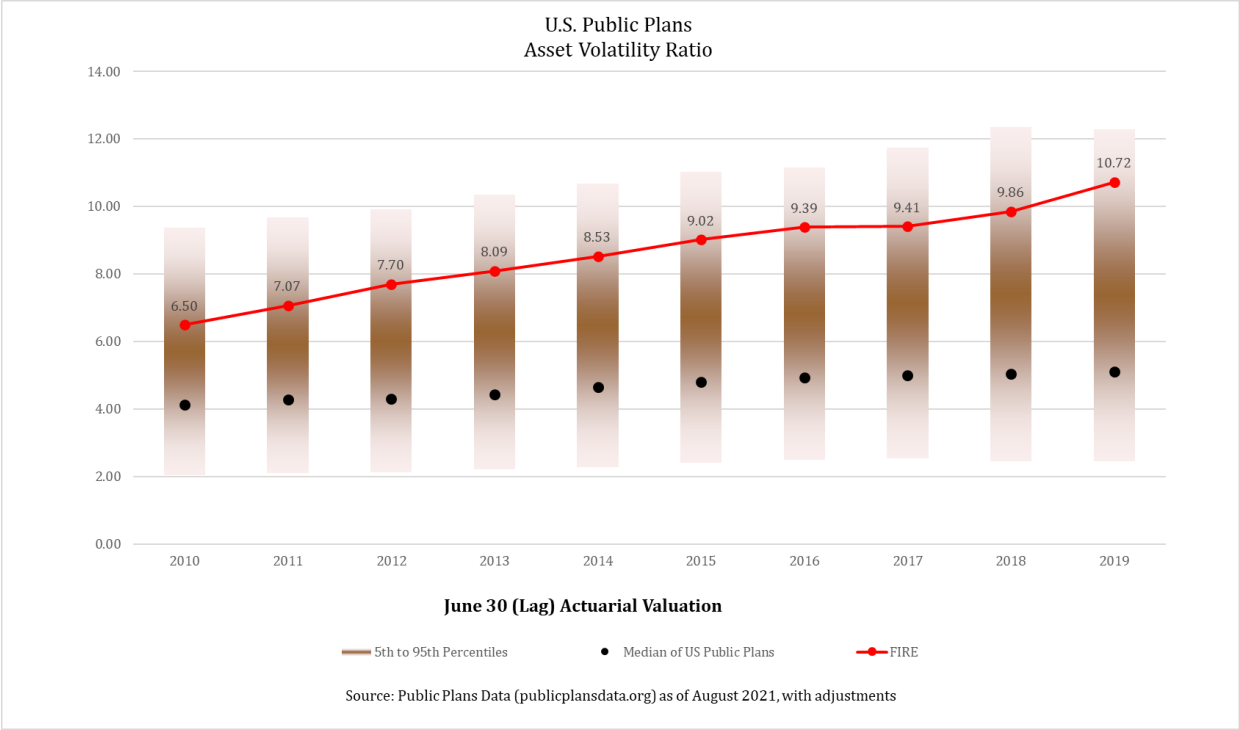
## Asset Volatility Ratio

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

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<sup>1</sup> New York City Employees' Retirement System (NYCERS); Teachers' Retirement System (TRS); Board of Education Retirement System (BERS); New York City Police Pension Fund (POLICE)





As a plan approaches maturity, 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, leading to additional volatility. Therefore, mature plans may wish to consider more conservative investment strategies. Typical AVRs for a mature retirement system are between 5 and 6. As shown in the tables above, for FIRE, since ratios are greater than the average, FIRE is considered a mature plan under this measure.

## 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 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, Funded Ratio, and Normal Cost of the Plan are shown below:

NEW YORK CITY FIRE PENSION FUND	
SENSITIVITY ANALYSIS AS OF JUNE 30, 2019	
Valuation Date	June 30, 2019
<b>Results at 7.0%</b>	
1. Accrued Liability (AL)	\$ 22,824,418,903
2. Actuarial Value of Assets (AVA)	14,337,618,000
3. Unfunded Accrued Liability (AVA Basis) (1. - 2.)	\$ 8,486,800,903
4. Funded Ratio (AVA Basis) (2. / 1.)	62.8%
5. Normal Cost	606,173,530
<b>Results at 6.0%</b>	
1. Accrued Liability (AL)	\$ 25,464,397,357
2. Actuarial Value of Assets (AVA)	14,337,618,000
3. Unfunded Accrued Liability (AVA Basis) (1. - 2.)	\$ 11,126,779,357
4. Funded Ratio (AVA Basis) (2. / 1.)	56.3%
5. Normal Cost	746,878,640
<b>Sensitivity Analysis for 1.0% Reduction in Interest Rate</b>	
1. Increase in Accrued Liability	11.6%
2. Increase in Unfunded Accrued Liability	31.1%
3. Decrease in Funded Ratio	6.5%
4. Increase in Normal Cost	23.2%

### Longevity Risk: The Risk of Higher than Assumed Mortality Improvement

FIRE faces risk in its assumption of future mortality rates. Actuarial experience studies were used to develop the base mortality rates assumed in the valuation; Society of Actuaries mortality improvement scale MP-2020 was subsequently applied to these base rates.<sup>1</sup>

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.”<sup>2</sup> 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.<sup>3</sup> In its most recent claims report, the Comptroller reports that in FY2020, NYC settled 13,741 claims and lawsuits for \$1.0 billion. On occasion, these settlements involve NYCRS. The 1996 case *Gulino v. Board of Education* awards damages to plaintiffs that in some cases include counterfactual service and salary in NYCRS. It remains a continuing risk that litigation may expand the scope of pension benefits beyond what is intended or codified in statute.

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<sup>1</sup> 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*.

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

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

## Other Risk Types

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

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

**Contribution Risk: The Risk that Future Contributions Are Less than the Actuarially-Determined Contributions**

Public pension systems can suffer from contribution risk when sponsoring governmental entities fail to make contributions as determined by the actuary under their funding policies. A 2018 study<sup>1</sup> which used data from 50 states and 230 retirement systems, found that since 2007 the shortfall between actual contributions to state pension plans and minimum actuarial funding standards was \$200 billion.<sup>2</sup>

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 will continue to do so in future years. See Table III-5 ACTUARIAL AND STATUTORY CONTRIBUTION HISTORY.

Contribution risk may also increase in future years if the actuarial contribution determined for the Plan grows to be a larger part of the City budget. The five New York City Retirement Systems and Pension Funds currently require contributions of over 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

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<sup>1</sup> The Pew Charitable Trusts. *"The State Pension Funding Gap: 2018."*

<sup>2</sup> Accounting standards changed in 2014. From 2007 to 2013, the shortfall is calculated between the actuarial recommended contribution and actual employer contributions. From 2014 to 2018, the shortfall represents the gap between the net amortization benchmark and employer contributions.

promises for future funding can be disregarded for political expediency or other priorities. In other cases, certain plan provisions or administrative practices intended to provide occasional clarity or relief become commonplace or intentionally sought for the benefit of members at the expense of taxpayers.

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

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

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

## SECTION VIII - SUMMARY OF PLAN PROVISIONS

### A. Effective Date

July 15, 1941.

### B. Tier Membership

**Tier 1:** Prior to July 1, 1973

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

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

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

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

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

### C. Member Contributions

**Tier 1 and Tier 2:** Required Member Contributions - Based upon age at entry and elected retirement age, credited with regular and special interest. Contributions are required for the first 20 years.

Voluntary Member Contributions - Additional contributions to the Annuity Savings Fund credited with regular and special interest.

**Tier 3, Tier 3 Modified, and Tier 3 Enhanced:** Basic Member Contributions - Members contribute 3.0% of salary for a maximum of 25 years.

Additional Member Contributions (AMC) – Effective September 8, 2019, Tier 3 Enhanced Plan members are required to contribute an additional 2.1% (previously 2.0%) of salary for a maximum of 25 years. Chapter 298/16 states that the AMC rate for Tier 3 Enhanced Plan members is required to be reviewed by the Actuary every 3 years.

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

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

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

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

## **E.** Credited Service

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

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

## **F.** Salary Base

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

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

**Tier 2:** Final Average Salary (FAS): Total pensionable compensation (i.e. wages, overtime, night differential, worked vacation, etc.) a member earned during the 12 months preceding the date of retirement, not in excess of 120% of the immediate previous 12 months' pensionable compensation.

For members hired prior to July 1, 2000 (original Tier 2 members), if greater, FAS will equal the greatest average three consecutive years' pensionable compensation, where each year's salary cannot exceed 120% of the average of the two previous years.

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

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

## G. Service Retirement

### 1. Eligibility

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

<b>Tier</b>	<b>Minimum Service for Normal Retirement</b>	<b>Minimum Service for Early Retirement</b>
1	20	NA
2	20	NA
3	22	20
3 Modified	22	20
3 Enhanced	22	20

### Benefits

- a. Tier 1 and Tier 2
  - i. 50% of [FS (Tier 1) or FAS (Tier 2)] plus 1/60<sup>th</sup> of the sum of all salary after 20 or 25 years, as applicable, of Credited Service.
  - ii. The benefit is adjusted by the annuitized value of the net excess or deficit of accumulated member contributions and ITHP over or under required amounts.
- b. Tier 3, Tier 3 Modified, and Tier 3 Enhanced



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

## H. Disability Retirement

### 1. Accidental Disability (ADR)

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

- b. Benefits

- i. Tier 1 and Tier 2

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

- ii. Tier 3 and Tier 3 Modified

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

- iii. Tier 3 Enhanced Plan

- 75% of FAS.

### 2. Ordinary Disability (ODR)

- a. Eligibility

- i. Tier 1 and Tier 2

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

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

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

b. Benefits

i. Tier 1 and Tier 2

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

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

Minimum Benefit:

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

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

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

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

The greater of:

(a) 33-1/3% of FAS

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

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

## I. Death Benefits:

### 1. Accidental Death Benefits

a. Eligibility for all Tiers: Immediate.

b. Benefits

i. Tier 1 and Tier 2

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

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

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

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

In addition, there may be a benefit payable in accordance with General Municipal Law Section 208(f).

### 2. Ordinary Death Benefit

a. Eligibility

i. Tier 1: Immediate

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

b. Benefits

i. Tier 1

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

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

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

The beneficiary can also elect to receive the death benefit in the form of an annuity.

ii. Tier 2

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

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

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

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

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

**J. Vested Benefit After Termination**

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

a. Tier 1 and Tier 2

2.5% for members choosing 20 years as their minimum period of Membership service, or 2.0% for members choosing 25 years as their minimum period of Membership service, times [FS (Tier 1) or FAS (Tier 2)] times number of years of Credited Service plus annuitized value of the net excess or deficit of accumulated member contributions and ITHP over or under the required amounts with interest to normal retirement date.

b. Tier 3

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

In addition, the benefit is reduced by 50% of the Primary Social Security Retirement benefit at age 62.

c. Tier 3 Modified and Tier 3 Enhanced

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

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

**K.** Forms of Payment

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

**L.** Loans

Applicable to Tier 1 and Tier 2 only.

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

**M.** Cost-of-Living Adjustments (COLA)

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

1. Eligibility Thresholds:
  - a. Service Retirement and Vested Retirement: The earlier of (i) and (ii):
    - i. Attainment of age 62 and 5 years since commencement
    - ii. Attainment of age 55 and 10 years since commencement
  - b. Disability Retirement: 5 years since commencement
  - c. Beneficiaries of an Accidental Death benefit: 5 years since commencement

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

## **N. Escalation**

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

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

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

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

#### 4. Partial Escalation

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

#### **O.** WTC Disability Benefits

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

#### **P.** WTC Death Benefits

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

#### **Q.** Changes Since the Prior Valuation

None.

## SECTION IX – CHAPTER AMENDMENTS

The Chapter amendments enacted during the past five years that had a significant impact on the June 30, 2019 (Lag) actuarial valuation results include:

- **Chapter 266 of the Laws of 2018** (Chapter 266/18) extends the deadline to file a Notice of Participation in the World Trade Center Rescue, Recovery, and Cleanup Operations to September 11, 2022.
- **Chapter 179 of the Laws of 2018** (Chapter 179/18) grants a 3% COLA increase to beneficiaries receiving Special Accidental Death Benefits pursuant to GML 208-f. (Similar legislation was enacted in each of the previous years.)
- **Chapter 298 of the Laws of 2016** (Chapter 298/16), signed into law on September 8, 2016, changes the Accidental Disability Retirement and Ordinary Disability Retirement benefits for current Tier 3 and Tier 3 Modified members who elect to participate in the Enhanced Disability Benefits Plan. Members as of June 15, 2016 and later are mandated into the Enhanced Disability Benefits Plan. Additionally, Chapter 298/16 changes FIRE into a corpus funded entity.
- **Chapter 41 of the Laws of 2016** (Chapter 41/16) provides up to three years of service credit to members of public retirement systems of the State of New York for military service. Chapter 41/16 removes the requirement that such military service occur during specified periods of hostilities.



## SECTION X – SUBSEQUENT EVENTS

The following legislation was adopted after the June 30, 2019 valuation date and could have a significant impact on future years' valuations:

**Chapter 704 of the Laws of 2021** (Chapter 704/21) establishes a presumption with respect to Parkinson's Disease that results in death or disability for paid firefighters in New York State.

**Chapter 540 of the Laws of 2021** (Chapter 540/21) amends Section 443 of the Retirement and Social Security Law to change the salary base for FIRE Tier 2 members who are hired on or after July 1, 2000 to a salary base used for such members who joined prior to July 1, 2000.

**Chapter 424 of the Laws of 2021** (Chapter 424/21) expands eligibility of certain public service employees for participation in the World Trade Center Rescue, Recovery, or Clean-up Operations.

Effective March 1, 2020, **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 382 of the Laws of 2019** (Chapter 382/19), **Chapter 58 of the Laws of 2020** (Chapter 58/20), and **Chapter 327 of the Laws of 2021** (Chapter 327/21) extend the 3% COLA increase to beneficiaries receiving Special Accidental Death Benefits (SADB) for Fiscal Years 2020, 2021, and 2022, respectively. Note that the June 30, 2019 valuation assumes that future legislation on this 3% COLA increase will continue to pass in subsequent years. For more information on this COLA assumption, see Page 63.

**Chapter 250 of the Laws of 2019** (Chapter 250/19) relates to presumptive evidence of disability caused by cancer of firefighters who have been retired for five years or less.

## SECTION XI – ACTUARIAL ASSUMPTIONS AND METHODS

The Actuary issued a memorandum titled “Proposed Changes to Actuarial Assumptions and Methods (Revised 2021 A&M)” dated July 19, 2021. The actuarial assumptions and methods described in that report were adopted by the Board of Trustees at the July 28, 2021 Board meeting and are referred to as the “Revised 2021 A&M.”

The Actuary reset the Actuarial Value of Assets (AVA) to the market value as of June 30, 2019. Beginning with the June 30, 2020 (Lag) actuarial valuation, the Actuarial Asset Valuation Method (AAVM) recognizes investment returns greater or less than expected over a period of five years. In accordance with this AAVM, Unexpected Investment Returns (UIR) are phased into the AVA at rates of 20% per year.

The post-commencement mortality improvement table was changed from MP-2018 to MP-2020. The MP-2020 table was also applied to the base mortality rates for active members and terminated vested members prior to commencement.

The assumption for the amount of member contribution balance elected by active members as a loan upon benefit commencement was changed from 90% of member balance to 25% of member balance for Tier 1 and Tier 2 members.

The actuarial assumptions and a description of the actuarial methods follow.

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

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

<sup>1</sup>100% for Tier 3, Tier 3 Modified, and Tier 3 Enhanced members.

**Table XI-1b**  
**Early Service Retirement**

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

**Table XI-2**  
**Active Termination Rates**

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

**Table XI-3  
Active Disability Rates**

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

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

**Table XI-4**  
**Active Mortality Rates**

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

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

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

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



**Table XI-6**  
**Disabled Retiree Mortality**

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

**Table XI-7**  
**Beneficiary Mortality**

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

**Table XI-8  
Salary Scale**

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

<sup>1</sup>Salary Increase is the General Wage Increase of 3.00% plus the Merit Increase.

**Table XI-9  
Overtime Assumptions**

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

## Additional Assumptions and Methods

1. **Mortality Assumption:** Improvement scales are applied to actives, terminated vesteds, and pensioners using mortality improvement scale MP-2020. The base tables for pensioners are also multiplied by adjustment factors to convert them from lives-weighted to amounts-weighted tables to account for socioeconomic effects on mortality. The adjustment factors used are as follows:

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

These post-adjusted probabilities were then smoothed at certain ages to reflect internal consistency between service and disability post-commencement mortality.

2. **Marital Assumption:** All active members are assumed to be married and females are assumed to be two years younger than their male spouses.
3. **Credited Service:** Calculated in whole year increments for valuation purposes.
4. **Loans:** Except for Death Benefits, it is assumed that Tier 1 and 2 members take a loan at retirement equal to 25% of their member contribution balances.
5. **Actuarial Interest Rate (AIR):** 7.0% per annum, net of investment expenses.
6. **COLA:** Based on an assumed long-term Consumer Price Index inflation rate of 2.5% per year. 1.5% per year for Auto COLA, 2.5% per year for Escalation. For beneficiaries receiving Special Accidental Death Benefits, 3.0% COLA per year is assumed in the future.
7. **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 (Lag) actuarial valuation, the AAVM recognizes investment returns greater or less than expected over a period of five years. In accordance with this AAVM, the Unexpected Investment Returns (UIR) are phased into the Actuarial Value of Assets (AVA) over five-year period at 20% per year.

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

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

8. **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 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 Page 12.

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

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

This methodology requires adjustments to certain components used to determine Fiscal Year XX employer contributions as follows:

a. Normal Cost

The normal cost as of June 30, XX-2 is rolled forward with the assumed AIR of 7.0% to derive the normal cost as of December 31, XX-1.

b. UAL Payments

For determining the UAL payments for Fiscal Year XX, and to be consistent with the OYLM, the UAL as of June 30, XX-2 is adjusted by the discounted value of employer normal cost and UAL payments paid during Fiscal Year XX-1 and the discounted value of Administrative Expenses reimbursed during Fiscal Years XX-1 and XX.

## SECTION XII - SUMMARY OF DEMOGRAPHIC DATA

The June 30, 2019 (Lag) and June 30, 2018 (Lag) actuarial valuations are based upon census data as of those dates submitted by the Plan's administrative staff and the employer's payroll facilities. Financial information was provided by the Office of the Comptroller as of June 30, 2019 and June 30, 2018.

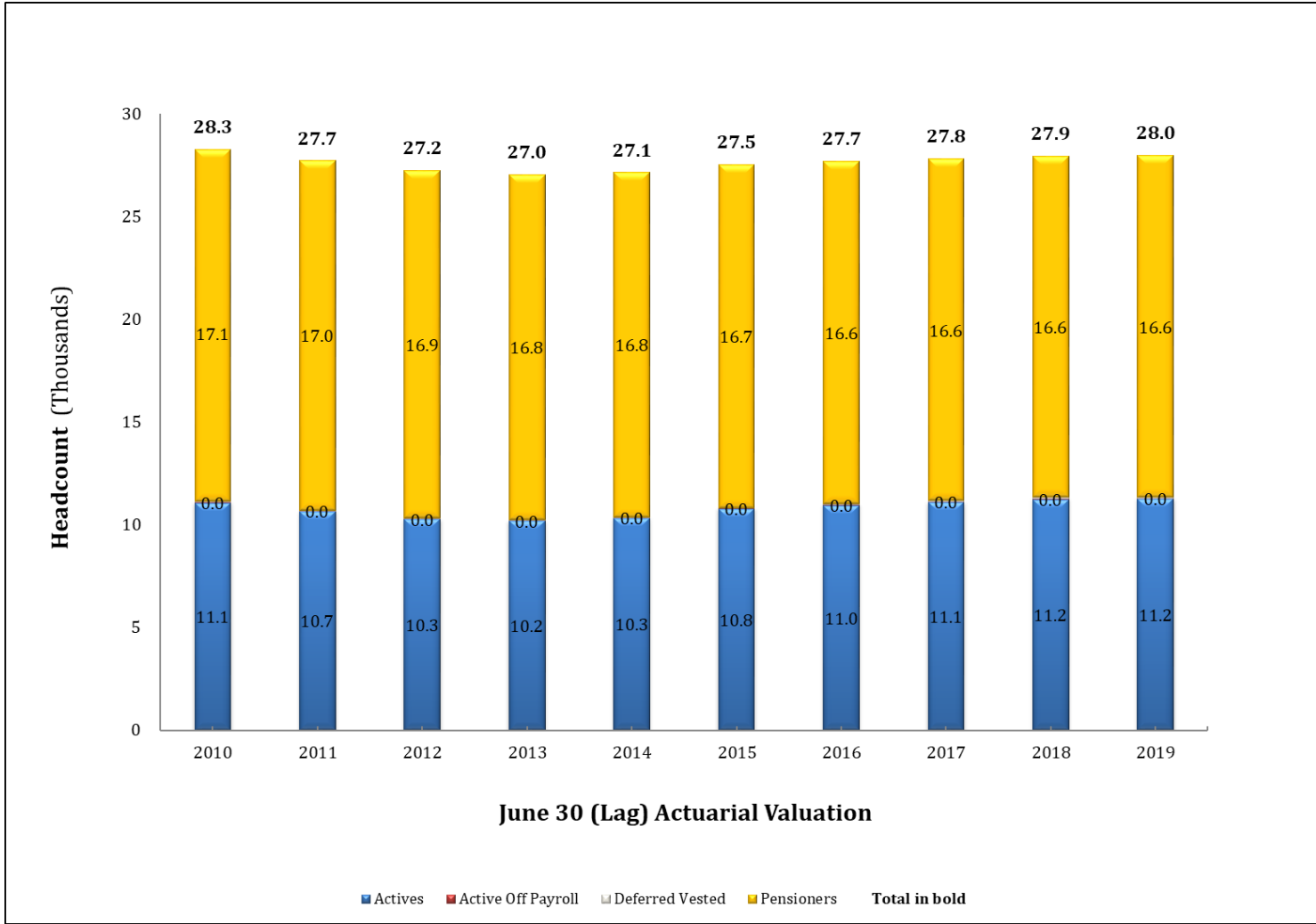
Consistent with Actuarial Standards of Practice, the Office of the Actuary has reviewed census data and financial information for consistency and reasonability but has not audited it. The accuracy of the results and calculations contained in this Report are dependent on the accuracy of this census data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



**Table XII-1**  
**Status Reconciliation**

CHANGES IN THE NUMBER OF ACTIVES AND PENSIONERS DURING THE FISCAL YEAR CLASSIFIED BY STATUS										
Status	(1) Active Members	(2) Active Off Payroll	(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)
<b>Number at June 30, 2018</b>	11,237	35	68	4,993	731	9,870	645	354	16,593	27,933
New Entrants	508	0	7	0	0	0	5	1	6	521
Rehires	24	(24)	0	0	0	0	0	0	0	0
Leaving Active Payroll	(19)	19	0	0	0	0	0	0	0	0
Vested Termination	(6)	(1)	0	0	0	0	0	0	0	(7)
Non-Vested Termination / Cashout	(18)	(1)	0	0	0	0	0	0	0	(19)
Accidental Death (from Active)	(3)	0	0	0	0	0	3	0	3	0
Ordinary Death (from Active)	(3)	0	(1)	0	0	0	0	0	0	(4)
Service Retirement	(134)	0	(7)	141	0	0	0	0	141	0
Ordinary Disability Retirement	(1)	0	0	0	1	0	0	0	1	0
Accidental Disability Retirement	(341)	0	0	0	0	341	0	0	341	0
Reclassifications	0	0	0	(42)	0	42	4	(4)	0	0
Death with Beneficiary	0	0	0	(5)	0	(16)	7	14	0	0
Death without Beneficiary	0	0	0	(184)	(46)	(181)	(8)	(38)	(457)	(457)
Off Pension Payroll	0	0	0	0	0	0	0	0	0	0
Net Change	7	(7)	(1)	(90)	(45)	186	11	(27)	35	34
<b>Number at June 30, 2019</b>	11,244	28	67	4,903	686	10,056	656	327	16,628	27,967

Graph XII-2  
Headcount Summary by Status

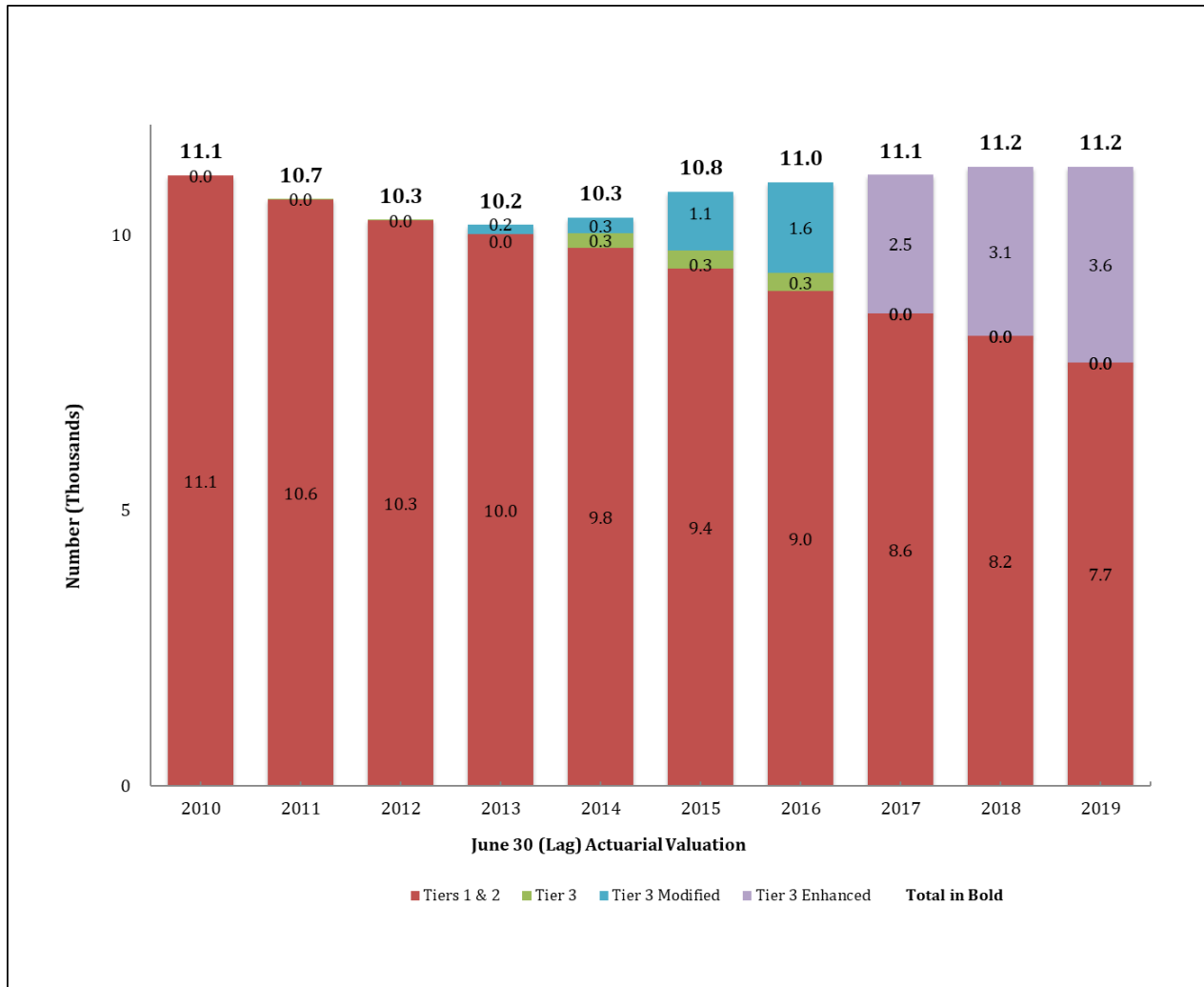


**Table XII-3**  
**Summary of Active Membership**

NEW YORK CITY FIRE PENSION FUND		
ACTIVE MEMBERS INCLUDED IN THE JUNE 30, 2019 (LAG) AND JUNE 30, 2018 (LAG) ACTUARIAL VALUATIONS		
	June 30, 2019 (Lag)	June 30, 2018 (Lag)
Number		
Males	11,117	11,129
Females	127	108
Total	11,244	11,237
Annual Salary <sup>1</sup>		
Males	\$ 1,324,585,776	\$ 1,295,685,394
Females	12,257,226	10,274,743
Total	\$ 1,336,843,002	\$ 1,305,960,137
Average Salary <sup>1</sup>		
Males	\$ 119,150	\$ 116,424
Females	96,514	95,137
Total Average	\$ 118,894	\$ 116,220
Average Age		
Males	40.6	40.7
Females	36.1	36.4
Total Average	40.6	40.6
Average Past Service		
Males	13.9	13.9
Females	7.1	7.1
Total Average	13.8	13.9

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

Graph XII-4  
Active Membership by Tier



**Table XII-5**  
**Schedule of Active Member Salary Data**

<b>June 30 (Lag) Actuarial Valuation</b>	<b>Number</b>	<b>Annual Salary</b>	<b>Average Annual Salary</b>	<b>Percentage Increase/ (Decrease) In Avg. Salary</b>
2010	11,080	\$1,138,187,795	\$102,725	9.0%
2011	10,650	1,125,459,668	105,677	2.9%
2012	10,267	1,106,113,386	107,735	1.9%
2013	10,182	1,129,706,314	110,951	3.0%
2014	10,319	1,150,389,645	111,483	0.5%
2015	10,780	1,164,994,036	108,070	(3.1%)
2016	10,951	1,180,226,281	107,773	(0.3%)
2017	11,091	1,256,001,332	113,245	5.1%
2018	11,237	1,305,960,137	116,220	2.6%
2019	11,244	1,336,843,002	118,894	2.3%

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

**Table XII-6**  
**Detailed Active Membership and Salaries as of June 30, 2019**

ALL TIERS: MALE										
AGE \ SVC	UNDER 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & UP	ALL YEARS
<i>NUMBER:</i>										
UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	72	0	0	0	0	0	0	0	0	72
25 TO 29	1,107	116	0	0	0	0	0	0	0	1,223
30 TO 34	1,134	538	192	0	0	0	0	0	0	1,864
35 TO 39	293	201	1,228	398	4	0	0	0	0	2,124
40 TO 44	28	20	601	1,314	184	2	0	0	0	2,149
45 TO 49	1	2	126	837	628	119	0	0	0	1,713
50 TO 54	2	1	2	102	525	376	64	2	0	1,074
55 TO 59	0	0	0	13	117	249	211	57	0	647
60 TO 64	0	0	0	1	2	30	53	112	38	236
65 TO 69	0	0	1	1	1	1	1	6	3	14
70 & UP	0	0	0	0	0	0	0	1	0	1
<b>TOTAL</b>	<b>2,637</b>	<b>878</b>	<b>2,150</b>	<b>2,666</b>	<b>1,461</b>	<b>777</b>	<b>329</b>	<b>178</b>	<b>41</b>	<b>11,117</b>

<i>SALARIES (IN THOUSANDS):</i>										
UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	3,909	0	0	0	0	0	0	0	0	3,909
25 TO 29	69,672	11,331	0	0	0	0	0	0	0	81,002
30 TO 34	77,757	56,094	23,449	0	0	0	0	0	0	157,300
35 TO 39	21,289	20,871	157,026	53,998	561	0	0	0	0	253,746
40 TO 44	2,048	2,116	76,804	178,300	26,526	248	0	0	0	286,042
45 TO 49	59	304	16,265	114,434	94,386	17,579	0	0	0	243,027
50 TO 54	271	169	296	14,103	76,697	58,953	10,105	242	0	160,837
55 TO 59	0	0	0	1,743	16,641	37,128	33,766	9,751	0	99,029
60 TO 64	0	0	0	170	314	4,503	7,818	17,912	6,601	37,319
65 TO 69	0	0	169	170	172	172	196	891	462	2,232
70 & UP	0	0	0	0	0	0	0	143	0	143
<b>TOTAL *</b>	<b>175,005</b>	<b>90,884</b>	<b>274,010</b>	<b>362,919</b>	<b>215,297</b>	<b>118,582</b>	<b>51,886</b>	<b>28,939</b>	<b>7,063</b>	<b>1,324,586</b>

<i>AVERAGE SALARIES: **</i>										
UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	54,290	0	0	0	0	0	0	0	0	54,290
25 TO 29	62,937	97,677	0	0	0	0	0	0	0	66,232
30 TO 34	68,568	104,263	122,132	0	0	0	0	0	0	84,388
35 TO 39	72,660	103,836	127,871	135,674	140,328	0	0	0	0	119,466
40 TO 44	73,139	105,777	127,794	135,692	144,165	124,084	0	0	0	133,105
45 TO 49	59,329	151,915	129,091	136,720	150,296	147,720	0	0	0	141,872
50 TO 54	135,678	169,332	147,838	138,262	146,090	156,790	157,898	120,989	0	149,755
55 TO 59	0	0	0	134,098	142,229	149,107	160,029	171,072	0	153,059
60 TO 64	0	0	0	170,429	157,156	150,093	147,514	159,930	173,712	158,131
65 TO 69	0	0	169,332	170,429	171,526	171,526	195,897	148,456	154,113	159,413
70 & UP	0	0	0	0	0	0	0	143,328	0	143,328
<b>TOTAL</b>	<b>66,365</b>	<b>103,513</b>	<b>127,447</b>	<b>136,129</b>	<b>147,363</b>	<b>152,615</b>	<b>157,708</b>	<b>162,580</b>	<b>172,278</b>	<b>119,150</b>

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

\* Total may not add up due to rounding.

\*\* Average based on unrounded salary.

Table XII-6

## Detailed Active Membership and Salaries as of June 30, 2019 (cont'd)

		ALL TIERS: FEMALE								
AGE \ SVC	UNDER 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & UP	ALL YEARS
<i>NUMBER:</i>										
UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	0	0	0	0	0	0	0	0	0	0
25 TO 29	29	2	0	0	0	0	0	0	0	31
30 TO 34	28	2	2	0	0	0	0	0	0	32
35 TO 39	8	7	7	1	0	0	0	0	0	23
40 TO 44	1	0	8	10	3	0	0	0	0	22
45 TO 49	0	2	2	5	1	0	0	0	0	10
50 TO 54	1	1	0	1	3	0	0	0	0	6
55 TO 59	1	1	0	0	0	0	0	0	0	2
60 TO 64	0	0	0	0	0	0	0	0	0	0
65 TO 69	0	0	0	0	0	0	0	0	0	0
70 & UP	0	0	0	1	0	0	0	0	0	1
<b>TOTAL</b>	<b>68</b>	<b>15</b>	<b>19</b>	<b>18</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>127</b>

*SALARIES (IN THOUSANDS):*

UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	0	0	0	0	0	0	0	0	0	0
25 TO 29	1,715	197	0	0	0	0	0	0	0	1,912
30 TO 34	1,748	206	241	0	0	0	0	0	0	2,195
35 TO 39	638	826	823	138	0	0	0	0	0	2,426
40 TO 44	66	0	1,028	1,336	393	0	0	0	0	2,823
45 TO 49	0	338	248	707	162	0	0	0	0	1,455
50 TO 54	136	188	0	183	471	0	0	0	0	978
55 TO 59	130	168	0	0	0	0	0	0	0	299
60 TO 64	0	0	0	0	0	0	0	0	0	0
65 TO 69	0	0	0	0	0	0	0	0	0	0
70 & UP	0	0	0	170	0	0	0	0	0	170
<b>TOTAL*</b>	<b>4,434</b>	<b>1,923</b>	<b>2,340</b>	<b>2,534</b>	<b>1,026</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12,257</b>

*AVERAGE SALARIES: \*\**

UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	0	0	0	0	0	0	0	0	0	0
25 TO 29	59,139	98,338	0	0	0	0	0	0	0	61,668
30 TO 34	62,429	103,085	120,281	0	0	0	0	0	0	68,586
35 TO 39	79,769	117,978	117,617	138,253	0	0	0	0	0	105,459
40 TO 44	65,914	0	128,496	133,569	130,992	0	0	0	0	128,298
45 TO 49	0	169,044	124,158	141,379	161,835	0	0	0	0	145,513
50 TO 54	136,077	187,731	0	183,171	157,133	0	0	0	0	163,063
55 TO 59	130,486	168,236	0	0	0	0	0	0	0	149,361
60 TO 64	0	0	0	0	0	0	0	0	0	0
65 TO 69	0	0	0	0	0	0	0	0	0	0
70 & UP	0	0	0	170,429	0	0	0	0	0	170,429
<b>TOTAL</b>	<b>65,201</b>	<b>128,183</b>	<b>123,166</b>	<b>140,802</b>	<b>146,602</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>96,514</b>

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

\* Total may not add up due to rounding.

\*\* Average based on unrounded salary.

**Table XII-6**  
**Detailed Active Membership and Salaries as of June 30, 2019 (cont'd)**

AGE \ SVC	ALL TIERS: ALL MEMBERS									
	UNDER 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & UP	ALL YEARS
<i>NUMBER:</i>										
UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	72	0	0	0	0	0	0	0	0	72
25 TO 29	1,136	118	0	0	0	0	0	0	0	1,254
30 TO 34	1,162	540	194	0	0	0	0	0	0	1,896
35 TO 39	301	208	1,235	399	4	0	0	0	0	2,147
40 TO 44	29	20	609	1,324	187	2	0	0	0	2,171
45 TO 49	1	4	128	842	629	119	0	0	0	1,723
50 TO 54	3	2	2	103	528	376	64	2	0	1,080
55 TO 59	1	1	0	13	117	249	211	57	0	649
60 TO 64	0	0	0	1	2	30	53	112	38	236
65 TO 69	0	0	1	1	1	1	1	6	3	14
70 & UP	0	0	0	1	0	0	0	1	0	2
<b>TOTAL</b>	<b>2,705</b>	<b>893</b>	<b>2,169</b>	<b>2,684</b>	<b>1,468</b>	<b>777</b>	<b>329</b>	<b>178</b>	<b>41</b>	<b>11,244</b>

<i>SALARIES (IN THOUSANDS):</i>										
UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	3,909	0	0	0	0	0	0	0	0	3,909
25 TO 29	71,387	11,527	0	0	0	0	0	0	0	82,914
30 TO 34	79,505	56,300	23,690	0	0	0	0	0	0	159,494
35 TO 39	21,927	21,697	157,849	54,136	561	0	0	0	0	256,171
40 TO 44	2,114	2,116	77,832	179,635	26,919	248	0	0	0	288,864
45 TO 49	59	642	16,514	115,141	94,547	17,579	0	0	0	244,482
50 TO 54	407	357	296	14,286	77,169	58,953	10,105	242	0	161,815
55 TO 59	130	168	0	1,743	16,641	37,128	33,766	9,751	0	99,328
60 TO 64	0	0	0	170	314	4,503	7,818	17,912	6,601	37,319
65 TO 69	0	0	169	170	172	172	196	891	462	2,232
70 & UP	0	0	0	170	0	0	0	143	0	314
<b>TOTAL *</b>	<b>179,439</b>	<b>92,807</b>	<b>276,350</b>	<b>365,453</b>	<b>216,323</b>	<b>118,582</b>	<b>51,886</b>	<b>28,939</b>	<b>7,063</b>	<b>1,336,843</b>

<i>AVERAGE SALARIES: **</i>										
UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	54,290	0	0	0	0	0	0	0	0	54,290
25 TO 29	62,840	97,688	0	0	0	0	0	0	0	66,120
30 TO 34	68,421	104,259	122,113	0	0	0	0	0	0	84,122
35 TO 39	72,849	104,312	127,813	135,680	140,328	0	0	0	0	119,316
40 TO 44	72,890	105,777	127,803	135,676	143,954	124,084	0	0	0	133,056
45 TO 49	59,329	160,479	129,014	136,747	150,314	147,720	0	0	0	141,893
50 TO 54	135,811	178,532	147,838	138,698	146,153	156,790	157,898	120,989	0	149,829
55 TO 59	130,486	168,236	0	134,098	142,229	149,107	160,029	171,072	0	153,047
60 TO 64	0	0	0	170,429	157,156	150,093	147,514	159,930	173,712	158,131
65 TO 69	0	0	169,332	170,429	171,526	171,526	195,897	148,456	154,113	159,413
70 & UP	0	0	0	170,429	0	0	0	143,328	0	156,879
<b>TOTAL</b>	<b>66,336</b>	<b>103,927</b>	<b>127,409</b>	<b>136,160</b>	<b>147,359</b>	<b>152,615</b>	<b>157,708</b>	<b>162,580</b>	<b>172,278</b>	<b>118,894</b>

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

\* Total may not add up due to rounding.

\*\* Average based on unrounded salary.



## Table XII-7 Summary of Non-Pensioner Membership

TOTAL ACTIVE MEMBERS AS OF JUNE 30, 2019							TOTAL ACTIVE MEMBERS AS OF JUNE 30, 2018				
TIER	GENDER	NUMBER	SALARY	AVG SAL	AVG AGE	AVG SVC	NUMBER	SALARY	AVG SAL	AVG AGE	AVG SVC
I	M	0	0	0	0.0	0.0	0	0	0	0.0	0.0
I	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		0	0	0	0.0	0.0	0	0	0	0.0	0.0
II	M	7,642	1,062,077,354	138,979	45.1	18.8	8,118	1,091,886,792	134,502	44.5	18.1
II	F	47	6,201,712	131,951	43.0	15.2	45	5,741,282	127,584	42.5	14.5
		7,689	1,068,279,066	138,936	45.1	18.8	8,163	1,097,628,074	134,464	44.5	18.1
III	M	0	0	0	0.0	0.0	0	0	0	0.0	0.0
III	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		0	0	0	0.0	0.0	0	0	0	0.0	0.0
III Modified	M	2	196,388	98,194	33.5	4.5	2	148,875	74,438	32.5	3.5
III Modified	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		2	196,388	98,194	33.5	4.5	2	148,875	74,438	32.5	3.5
III Enhanced	M	3,473	262,312,034	75,529	30.8	3.2	3,009	203,649,727	67,680	30.3	2.6
III Enhanced	F	80	6,055,514	75,694	32.1	2.3	63	4,533,461	71,960	32.0	1.9
		3,553	268,367,548	75,533	30.8	3.2	3,072	208,183,188	67,768	30.4	2.6
<b>ALL TIERS</b>		<b>11,244</b>	<b>1,336,843,002</b>	<b>118,894</b>	<b>40.6</b>	<b>13.8</b>	<b>11,237</b>	<b>1,305,960,137</b>	<b>116,220</b>	<b>40.6</b>	<b>13.9</b>

JUNE 30, 2019 MEMBERS ALSO PRESENT AS OF JUNE 30, 2018							JUNE 30, 2018 MEMBERS ALSO PRESENT AS OF JUNE 30, 2019				
TIER	GENDER	NUMBER	SALARY	AVG SAL	AVG AGE	AVG SVC	NUMBER	SALARY	AVG SAL	AVG AGE	AVG SVC
I	M	0	0	0	0.0	0.0	0	0	0	0.0	0.0
I	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		0	0	0	0.0	0.0	0	0	0	0.0	0.0
II	M	7,622	1,059,882,884	139,056	45.1	18.8	7,622	1,022,612,330	134,166	44.1	17.8
II	F	45	6,029,751	133,994	43.5	15.6	45	5,741,282	127,584	42.5	14.5
		7,667	1,065,912,635	139,026	45.1	18.8	7,667	1,028,353,612	134,127	44.1	17.8
III	M	0	0	0	0.0	0.0	0	0	0	0.0	0.0
III	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		0	0	0	0.0	0.0	0	0	0	0.0	0.0
III Modified	M	2	196,388	98,194	33.5	4.5	2	148,875	74,438	32.5	3.5
III Modified	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		2	196,388	98,194	33.5	4.5	2	148,875	74,438	32.5	3.5
III Enhanced	M	2,976	235,339,638	79,079	31.3	3.6	2,976	201,564,234	67,730	30.3	2.6
III Enhanced	F	60	4,884,511	81,409	33.1	2.9	60	4,362,105	72,702	32.1	2.0
		3,036	240,224,149	79,125	31.3	3.6	3,036	205,926,339	67,828	30.3	2.6
<b>ALL TIERS</b>		<b>10,705</b>	<b>1,306,333,172</b>	<b>122,030</b>	<b>41.2</b>	<b>14.5</b>	<b>10,705</b>	<b>1,234,428,826</b>	<b>115,313</b>	<b>40.2</b>	<b>13.5</b>

ADDITIONS DURING THE YEAR <sup>1</sup>							SEPARATIONS FROM MEMBERSHIP DURING THE YEAR <sup>1</sup>				
TIER	GENDER	NUMBER	SALARY	AVG SAL	AVG AGE	AVG SVC	NUMBER	SALARY	AVG SAL	AVG AGE	AVG SVC
I	M	0	0	0	0.0	0.0	0	0	0	0.0	0.0
I	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		0	0	0	0.0	0.0	0	0	0	0.0	0.0
II	M	20	2,194,470	109,724	39.3	13.1	496	69,274,462	139,666	50.9	24.2
II	F	2	171,961	85,981	32.0	7.5	0	0	0	0.0	0.0
		22	2,366,431	107,565	38.6	12.6	496	69,274,462	139,666	46.3	24.2
III	M	0	0	0	0.0	0.0	0	0	0	0.0	0.0
III	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		0	0	0	0.0	0.0	0	0	0	0.0	0.0
III Modified	M	0	0	0	0.0	0.0	0	0	0	0.0	0.0
III Modified	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		0	0	0	0.0	0.0	0	0	0	0.0	0.0
III Enhanced	M	497	26,972,396	54,270	27.6	0.4	33	2,085,493	63,197	32.0	1.9
III Enhanced	F	20	1,171,003	58,550	29.3	0.5	3	171,356	57,119	30.3	0.3
		517	28,143,399	54,436	27.7	0.4	36	2,256,849	62,690	31.9	1.8
<b>ALL TIERS</b>		<b>539</b>	<b>30,509,830</b>	<b>56,605</b>	<b>28.1</b>	<b>0.9</b>	<b>532</b>	<b>71,531,311</b>	<b>134,457</b>	<b>45.3</b>	<b>22.7</b>

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.

<sup>1</sup> Separations and additions do not include members who joined after June 30, 2018 and are no longer members on June 30, 2019. Members are included as separations and additions if the tier or gender has changed.

**Table XII-8**  
**Summary of Non-Pensioner Membership as of June 30, 2019**

STATUS	TIER 1		TIER 2		TIER 3		TIER 3 MODIFIED		TIER 3 ENHANCED		ALL TIERS	
	NUMBER	SALARY <sup>1</sup>	NUMBER	SALARY <sup>1</sup>	NUMBER	SALARY <sup>1</sup>	NUMBER	SALARY <sup>1</sup>	NUMBER	SALARY <sup>1</sup>	NUMBER	SALARY <sup>1</sup>
<i>MALES:</i>												
ACTIVES	0	0	7,642	1,062,077,354	0	0	2	196,388	3,473	262,312,034	11,117	1,324,585,776
ACTIVE OFF PAYROLL	0	0	12	1,406,981	0	0	0	0	16	993,571	28	2,400,552
VESTED	0	0	65	6,155,829	0	0	0	0	0	0	65	6,155,829
<b>ALL STATUS</b>	<b>0</b>	<b>0</b>	<b>7,719</b>	<b>1,069,640,164</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>196,388</b>	<b>3,489</b>	<b>263,305,605</b>	<b>11,210</b>	<b>1,333,142,157</b>
<i>FEMALES:</i>												
ACTIVES	0	0	47	6,201,712	0	0	0	0	80	6,055,514	127	12,257,226
ACTIVE OFF PAYROLL	0	0	0	0	0	0	0	0	0	0	0	0
VESTED	0	0	2	206,327	0	0	0	0	0	0	2	206,327
<b>ALL STATUS</b>	<b>0</b>	<b>0</b>	<b>49</b>	<b>6,408,039</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>80</b>	<b>6,055,514</b>	<b>129</b>	<b>12,463,553</b>
<i>TOTAL:</i>												
ACTIVES	0	0	7,689	1,068,279,066	0	0	2	196,388	3,553	268,367,548	11,244	1,336,843,002
ACTIVE OFF PAYROLL	0	0	12	1,406,981	0	0	0	0	16	993,571	28	2,400,552
VESTED	0	0	67	6,362,156	0	0	0	0	0	0	67	6,362,156
<b>ALL STATUS</b>	<b>0</b>	<b>0</b>	<b>7,768</b>	<b>1,076,048,203</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>196,388</b>	<b>3,569</b>	<b>269,361,119</b>	<b>11,339</b>	<b>1,345,605,710</b>

<sup>1</sup>Salary shown for Active Off Payroll and Vested members is the salary when last on payroll.

**Table XII-9**  
**Summary of Pensioner Membership**

Group	June 30, 2019 (Lag)				June 30, 2018 (Lag)			
	Number	Annual Amounts Payable			Number	Annual Amounts Payable		
		Plan Benefit	Supplementation	Total		Plan Benefit	Supplementation	Total
Service Pensioners	4,903	\$ 241,873,090	\$ 21,701,325	\$ 263,574,415	4,993	\$ 234,865,273	\$ 22,591,698	\$ 257,456,971
Ordinary Disability Pensioners	686	33,110,581	4,360,182	\$ 37,470,763	731	34,985,459	4,590,381	\$ 39,575,840
Accidental Disability Pensioners	10,056	870,956,934	37,756,113	\$ 908,713,047	9,870	824,576,147	37,861,826	\$ 862,437,973
Beneficiaries of Members Killed in the Line-of-Duty	656	72,724,629	2,711,408	\$ 75,436,037	645	69,618,491	2,635,199	\$ 72,253,690
Other Beneficiaries	327	8,148,815	827,561	\$ 8,976,376	354	8,177,254	908,482	\$ 9,085,736
<b>Total</b>	<b>16,628</b>	<b>\$ 1,226,814,049</b>	<b>\$ 67,356,589</b>	<b>\$ 1,294,170,638</b>	<b>16,593</b>	<b>\$ 1,172,222,624</b>	<b>\$ 68,587,586</b>	<b>\$ 1,240,810,210</b>

**Table XII-10**  
**Distribution of Pension Benefits by Cause and Age as of June 30, 2019**

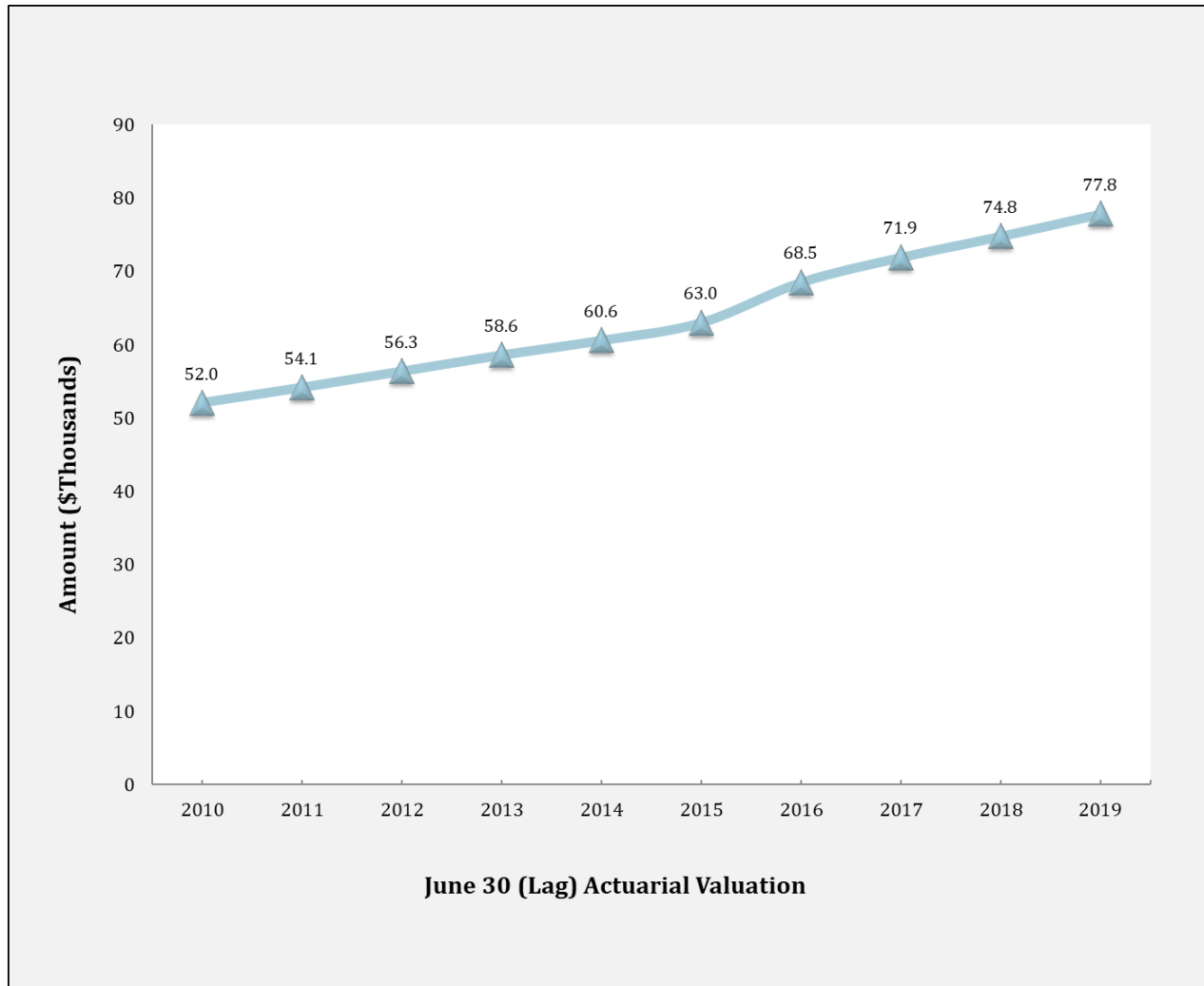
AGE	MALE			FEMALE			TOTAL		
	NUMBER	BENEFITS	AVERAGE	NUMBER	BENEFITS	AVERAGE	NUMBER	BENEFITS	AVERAGE
<i>SERVICE RETIREMENT:</i>									
UNDER 30	0	0	0	0	0	0	0	0	0
30 TO 34	0	0	0	0	0	0	0	0	0
35 TO 39	0	0	0	0	0	0	0	0	0
40 TO 44	10	679,712	67,971	0	0	0	10	679,712	67,971
45 TO 49	54	3,924,180	72,670	1	83,543	83,543	55	4,007,723	72,868
50 TO 54	138	11,077,187	80,269	0	0	0	138	11,077,187	80,269
55 TO 59	328	26,623,193	81,168	0	0	0	328	26,623,193	81,168
60 TO 64	760	52,931,827	69,647	4	262,940	65,735	764	53,194,767	69,627
65 TO 69	613	40,300,751	65,743	3	257,210	85,737	616	40,557,961	65,841
70 TO 74	636	32,531,888	51,151	1	33,803	33803	637	32,565,691	51,124
75 TO 79	798	35,840,083	44,912	0	0	0	798	35,840,083	44,912
80 TO 84	822	32,734,395	39,823	1	35,372	35372	823	32,769,767	39,817
85 TO 89	479	17,453,032	36,436	0	0	0	479	17,453,032	36,436
90 & UP	255	8,805,299	34,531	0	0	0	255	8,805,299	34,531
<b>TOTAL</b>	<b>4,893</b>	<b>262,901,547</b>	<b>53,730</b>	<b>10</b>	<b>672,868</b>	<b>67,287</b>	<b>4,903</b>	<b>263,574,415</b>	<b>53,758</b>
<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	1	61,466	61466	0	0	0	1	61,466	61,466
40 TO 44	8	365,095	45,637	0	0	0	8	365,095	45,637
45 TO 49	5	179,111	35,822	0	0	0	5	179,111	35,822
50 TO 54	12	496,280	41,357	0	0	0	12	496,280	41,357
55 TO 59	13	414,052	31,850	0	0	0	13	414,052	31,850
60 TO 64	43	1,123,613	26,131	1	29,580	29,580	44	1,153,193	26,209
65 TO 69	41	1,207,230	29,445	0	0	0	41	1,207,230	29,445
70 TO 74	52	3,391,482	65,221	0	0	0	52	3,391,482	65,221
75 TO 79	116	7,278,972	62,750	0	0	0	116	7,278,972	62,750
80 TO 84	183	11,614,366	63,466	0	0	0	183	11,614,366	63,466
85 TO 89	141	7,614,560	54,004	0	0	0	141	7,614,560	54,004
90 & UP	70	3,694,956	52,785	0	0	0	70	3,694,956	52,785
<b>TOTAL</b>	<b>685</b>	<b>37,441,183</b>	<b>54,659</b>	<b>1</b>	<b>29,580</b>	<b>29,580</b>	<b>686</b>	<b>37,470,763</b>	<b>54,622</b>
<i>ACCIDENTAL DISABILITY:</i>									
UNDER 30	0	0	0	0	0	0	0	0	0
30 TO 34	3	227,876	75,959	0	0	0	3	227,876	75,959
35 TO 39	78	7,534,246	96,593	1	68,992	68,992	79	7,603,238	96,244
40 TO 44	335	33,173,890	99,027	1	136,174	136174	336	33,310,064	99,137
45 TO 49	665	67,650,244	101,730	1	79,861	79,861	666	67,730,105	101,697
50 TO 54	1,077	114,228,938	106,062	1	86,858	86,858	1,078	114,315,796	106,044
55 TO 59	1,612	171,952,747	106,670	1	104,364	104,364	1,613	172,057,111	106,669
60 TO 64	2,097	211,368,317	100,796	8	722,523	90,315	2,105	212,090,840	100,756
65 TO 69	1,256	119,550,091	95,183	5	553,559	110,712	1,261	120,103,650	95,245
70 TO 74	824	63,197,348	76,696	2	102,866	51433	826	63,300,214	76,635
75 TO 79	794	51,542,173	64,915	0	0	0	794	51,542,173	64,915
80 TO 84	788	41,870,843	53,136	0	0	0	788	41,870,843	53,136
85 TO 89	366	17,654,656	48,237	0	0	0	366	17,654,656	48,237
90 & UP	141	6,906,481	48,982	0	0	0	141	6,906,481	48,982
<b>TOTAL</b>	<b>10,036</b>	<b>906,857,850</b>	<b>90,360</b>	<b>20</b>	<b>1,855,197</b>	<b>92,760</b>	<b>10,056</b>	<b>908,713,047</b>	<b>90,365</b>

Table XII-10

## Distribution of Pension Benefits by Cause and Age as of June 30, 2019 (cont'd)

AGE	MALE			FEMALE			TOTAL		
	NUMBER	BENEFITS	AVERAGE	NUMBER	BENEFITS	AVERAGE	NUMBER	BENEFITS	AVERAGE
<i>ACCIDENTAL DEATH:</i>									
UNDER 30	0	0	0	9	695,106	77,234	9	695,106	77,234
30 TO 34	0	0	0	0	0	0	0	0	0
35 TO 39	0	0	0	4	569,088	142,272	4	569,088	142,272
40 TO 44	0	0	0	8	946,605	118,326	8	946,605	118,326
45 TO 49	0	0	0	41	4,789,670	116,821	41	4,789,670	116,821
50 TO 54	0	0	0	73	8,925,571	122,268	73	8,925,571	122,268
55 TO 59	0	0	0	111	14,203,508	127,960	111	14,203,508	127,960
60 TO 64	1	58,426	58,426	105	13,925,671	132,625	106	13,984,097	131,925
65 TO 69	3	194,970	64,990	67	8,416,710	125,623	70	8,611,680	123,024
70 TO 74	0	0	0	70	8,021,485	114,593	70	8,021,485	114,593
75 TO 79	0	0	0	63	6,468,785	102,679	63	6,468,785	102,679
80 TO 84	1	73,747	73,747	47	4,251,932	90,467	48	4,325,679	90,118
85 TO 89	0	0	0	33	2,693,791	81,630	33	2,693,791	81,630
90 & UP	0	0	0	20	1,200,972	60,049	20	1,200,972	60,049
<b>TOTAL</b>	<b>5</b>	<b>327,143</b>	<b>65,429</b>	<b>651</b>	<b>75,108,894</b>	<b>115,375</b>	<b>656</b>	<b>75,436,037</b>	<b>114,994</b>
<i>OTHER BENEFICIARIES:</i>									
UNDER 30	1	93,127	93,127	1	52,464	52,464	2	145,591	72,796
30 TO 34	0	0	0	2	130,545	65,273	2	130,545	65,273
35 TO 39	0	0	0	6	301,252	50,209	6	301,252	50,209
40 TO 44	0	0	0	1	101,543	101,543	1	101,543	101,543
45 TO 49	1	122,869	122,869	0	0	0	1	122,869	122,869
50 TO 54	0	0	0	9	545,902	60,656	9	545,902	60,656
55 TO 59	1	23,535	23,535	11	596,374	54,216	12	619,909	51,659
60 TO 64	0	0	0	19	705,122	37,112	19	705,122	37,112
65 TO 69	0	0	0	22	897,360	40,789	22	897,360	40,789
70 TO 74	0	0	0	29	1,013,122	34,935	29	1,013,122	34,935
75 TO 79	0	0	0	46	1,493,544	32,468	46	1,493,544	32,468
80 TO 84	0	0	0	48	1,350,200	28,129	48	1,350,200	28,129
85 TO 89	0	0	0	41	745,468	18,182	41	745,468	18,182
90 & UP	0	0	0	89	803,949	9,033	89	803,949	9,033
<b>TOTAL</b>	<b>3</b>	<b>239,531</b>	<b>79,844</b>	<b>324</b>	<b>8,736,845</b>	<b>26,966</b>	<b>327</b>	<b>8,976,376</b>	<b>27,451</b>
<i>ALL PENSIONERS AND BENEFICIARIES:</i>									
UNDER 30	1	93,127	93,127	10	747,570	74,757	11	840,697	76,427
30 TO 34	3	227,876	75,959	2	130,545	65,273	5	358,421	71,684
35 TO 39	79	7,595,712	96,148	11	939,332	85,394	90	8,535,044	94,834
40 TO 44	353	34,218,697	96,937	10	1,184,322	118,432	363	35,403,019	97,529
45 TO 49	725	71,876,404	99,140	43	4,953,074	115,188	768	76,829,478	100,038
50 TO 54	1,227	125,802,405	102,528	83	9,558,331	115,161	1,310	135,360,736	103,329
55 TO 59	1,954	199,013,527	101,849	123	14,904,246	121,173	2,077	213,917,773	102,994
60 TO 64	2,901	265,482,183	91,514	137	15,645,836	114,203	3,038	281,128,019	92,537
65 TO 69	1,913	161,253,042	84,293	97	10,124,839	104,380	2,010	171,377,881	85,263
70 TO 74	1,512	99,120,718	65,556	102	9,171,276	89,914	1,614	108,291,994	67,095
75 TO 79	1,708	94,661,228	55,422	109	7,962,329	73,049	1,817	102,623,557	56,480
80 TO 84	1,794	86,293,351	48,101	96	5,637,504	58,724	1,890	91,930,855	48,641
85 TO 89	986	42,722,248	43,329	74	3,439,259	46,476	1,060	46,161,507	43,549
90 & UP	466	19,406,736	41,645	109	2,004,921	18,394	575	21,411,657	37,238
<b>TOTAL</b>	<b>15,622</b>	<b>1,207,767,254</b>	<b>77,312</b>	<b>1,006</b>	<b>86,403,384</b>	<b>85,888</b>	<b>16,628</b>	<b>1,294,170,638</b>	<b>77,831</b>

Graph XII-11  
Pensioner Average Benefits



**Table XII-12**  
**Reconciliation of Pensioner and Beneficiary Data**

SCHEDULE OF PENSIONERS AND BENEFICIARIES ADDED TO AND REMOVED FROM THE ROLLS								
June 30 (Lag) Actuarial Valuation	Added to Rolls		Removed from Rolls		End of Year Rolls		% Increase In Annual Allowances	Average Annual Allowances
	Number	Annual Allowances <sup>1</sup>	Number	Annual Allowances	Number	Annual Allowances <sup>2</sup>		
2010	556	54,883,701	679	25,161,316	17,140	891,919,867	3.4%	52,037
2011	653	64,843,804	776	35,553,289	17,017	921,210,382	3.3%	54,135
2012	538	58,288,645	638	26,379,782	16,917	953,119,245	3.5%	56,341
2013	453	54,522,199	563	23,448,369	16,807	984,193,075	3.3%	58,559
2014	490	54,256,974	534	23,299,539	16,763	1,015,150,510	3.1%	60,559
2015	500	59,578,951	553	22,526,507	16,710	1,052,202,954	3.6%	62,968
2016 <sup>3</sup>	498	110,481,515	561	22,667,718	16,647	1,140,016,751	8.3%	68,482
2017	497	77,245,492	508	21,127,518	16,636	1,196,134,725	4.9%	71,900
2018	456	65,902,484	499	21,226,999	16,593	1,240,810,210	3.7%	74,779
2019	559	78,160,361	524	24,799,933	16,628	1,294,170,638	4.3%	77,831

<sup>1</sup> Amounts shown include changes due to benefit finalization, changes in benefit type (e.g. Service to Accidental Disability), COLA increases, and other changes.

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

<sup>3</sup> Beginning in 2016, SADB payments to beneficiaries are included.

## APPENDIX: ACRONYMS AND ABBREVIATIONS

Revised 2021 A&M	Actuarial Assumptions and Methods proposed by the Actuary and adopted by Board of Trustees during Fiscal Year 2021
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
AVA	Actuarial Value of Assets
COLA	Cost-of-Living Adjustment
EAN	Entry Age Normal cost method
EIR	Expected Investment Return
FAS	Final Average Salary
FIRE	New York City Fire Pension Fund
FFVSF	Firefighters Variable Supplements Fund
FOVSF	Fire Officers Variable Supplements Fund
FS	Final Salary
GASB	Governmental Accounting Standards Board
GASB25	Governmental Accounting Standards Board Statement No. 25
GASB67	Governmental Accounting Standards Board Statement No. 67
GASB68	Governmental Accounting Standards Board Statement No. 68
IRC	Internal Revenue Code
ITHP	Increased-Take-Home-Pay
MVA	Market Value of Assets
OYLM	One-Year Lag Methodology
PV	Present Value
PVFB	Present Value of Future Benefits
PVFNC	Present Value of Future Normal Costs
PVFS	Present Value of Future Salary
UAL	Unfunded Accrued Liability
UIR	Unexpected Investment Return
VSF	Variable Supplements Fund
WTC	World Trade Center