



Fiscal Year 2018
Actuarial Valuation Report
of the
New York City
Police Pension Fund

JUNE 30, 2016 (LAG) ACTUARIAL VALUATION

prepared by the
New York City
Office of the Actuary

2018



OFFICE OF THE ACTUARY

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SHERRY S. CHAN
CHIEF ACTUARY

July 2, 2019

Board of Trustees
New York City Police Pension Fund
233 Broadway, Room 2501
New York, NY 10279

Re: Fiscal Year 2018 Actuarial Valuation Report (Report)

Dear Trustees:

This Report presents the results of the June 30, 2016 actuarial valuation of the benefits under both the New York City Police Pension Fund (POLICE) and Group Life Insurance Plan (collectively, the Plan). This valuation, known as the June 30, 2016 (Lag) valuation, forms the basis for determining the actuarially-required contribution (Actuarial Contribution) of \$2,415,153,337 for Fiscal Year 2018 (i.e. for the period beginning July 1, 2017 and ending June 30, 2018). It is not intended, nor necessarily suitable, for other purposes. Calculations made for other purposes may differ significantly from those shown herein. This report does not present GASB results. The Office of the Actuary published Fiscal Year 2018 GASB67 and GASB68 results in a Report dated September 28, 2018, which is available on the website of the Office of the Actuary (www.nyc.gov/actuary).

Results of the June 30, 2015 (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, 2016 (Lag) and June 30, 2015 (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 POLICE and the Office of the Comptroller as of June 30, 2016 and June 30, 2015.

Consistent with the 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.

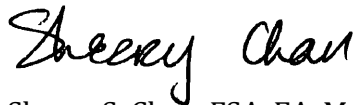
The June 30, 2016 (Lag) actuarial valuation reflects the enactment of Chapter 59 of the Laws of 2017 (Chapter 59/17), which modifies the Disability benefit provisions for Tier 3 and Tier 3 Revised members.

The June 30, 2016 (Lag) actuarial valuation also reflects a change in valuing the Accidental Death Benefit (ADB) for those members who are eligible for Special Accidental Death Benefits (SADB) pursuant to Section 208(f) of the General Municipal Law.

A summary of the actuarial assumptions and methods are shown in SECTION XI – ACTUARIAL ASSUMPTIONS AND METHODS. All other actuarial assumptions and methods are unchanged from the prior year.

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: Mr. Craig Chu - New York City Office of the Actuary
Mr. Anderson Huynh - New York City Office of the Actuary
Mr. Kevin Holloran - New York City Police Pension Fund
Mr. Sam Rumley - New York City Office of the Actuary
Mr. Michael Samet - New York City Office of the Actuary
Mr. Stanley Thomas - New York City Police Pension Fund
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SECTION I - EXECUTIVE SUMMARY

This report presents the results of the June 30, 2016 (Lag) actuarial valuation of the New York City Police Pension Fund (POLICE) 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 2018 (i.e. July 1, 2017 to June 30, 2018),
- 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 it has equaled the Actuarial Contribution in all historical years.

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

All results are based on final SKIM amounts as determined by the Actuary in the letter dated May 11, 2018 to the Boards. 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. The actuary's scope of work did not include an analysis of the range of such deviations.

Additional risks may be present for the Plan and are 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, 2016 (Lag) actuarial valuation and, for comparative purposes, the June 30, 2015 (Lag) actuarial valuation.

NEW YORK CITY POLICE PENSION FUND		
SUMMARY OF VALUATION RESULTS		
Valuation Date	June 30, 2016 (Lag)	June 30, 2015 (Lag)
Fiscal Year	2018	2017
Funded Status		
1. Accrued Liability	\$ 48,059,916,306	\$ 45,297,561,300
2. Actuarial Value of Assets (AVA) ¹	<u>33,692,647,000</u>	<u>31,092,977,000</u>
3. Unfunded Accrued Liability (AVA Basis) (1. - 2.)	\$ 14,367,269,306	\$ 14,204,584,300
4. Funded Ratio (AVA Basis) (2. / 1.)	70.1%	68.6%
5. Market Value of Assets (MVA) ¹	33,482,610,000	32,355,973,000
6. Unfunded Actuarial Accrued Liability (MVA Basis) (1. - 5.)	\$ 14,577,306,306	\$ 12,941,588,300
7. Funded Ratio (MVA Basis) (5. / 1.)	69.7%	71.4%
Contribution²		
1. Normal Cost	\$ 1,271,502,845	\$ 1,236,125,837
2. Amortization of Unfunded Actuarial Accrued Liability	1,122,495,030	1,037,216,543
3. Administrative Expenses	<u>21,155,462</u>	<u>20,497,145</u>
4. Actuarial Contribution (1. + 2. + 3.)	\$ 2,415,153,337	\$ 2,293,839,525
5. Statutory Contribution (4.)	\$ 2,415,153,337	\$ 2,293,839,525
Participant Data		
1. Active Members		
a. Number	35,961	34,435
b. Annual Salary ³	\$ 3,717,425,239	\$ 3,564,029,659
c. Average Salary	\$ 103,374	\$ 103,500
2. Active/Inactive Members ⁴	1,659	1,484
3. Terminated Vested Members	574	546
4. Retirees and Beneficiaries		
a. Number	49,151	48,703
b. Total Annual Benefits	\$ 2,378,811,349	\$ 2,264,267,709
c. Average Annual Benefit	\$ 48,398	\$ 46,491

¹ Actuarial Value of Assets and Market Value of Assets are rounded to the nearest thousand.

² Including results for Variable Supplements Funds.

³ 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.

⁴ Represents members no longer on payroll, but not otherwise classified.

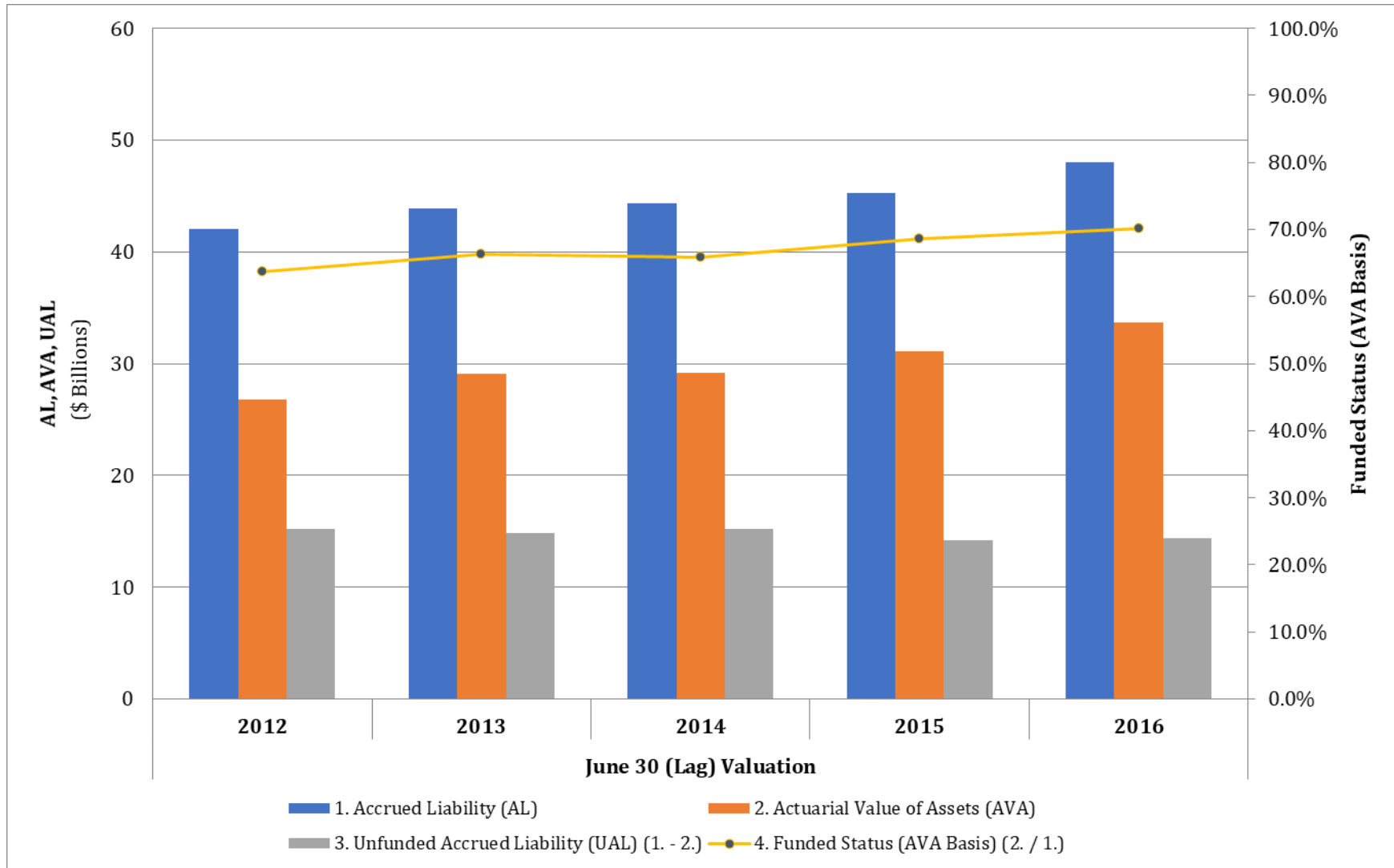
Table I-2
Actuarial Liabilities

NEW YORK CITY POLICE PENSION FUND		
ACTUARIAL LIABILITIES BY STATUS		
Valuation Date	June 30, 2016 (Lag)	June 30, 2015 (Lag)
Fiscal Year	2018	2017
Accrued Liability		
1. Active Members	\$ 15,592,545,840	\$ 14,983,927,621
2. Active/Inactive Members ¹	102,645,530	92,584,527
3. Terminated Vested Members	87,094,234	74,968,544
4. Retirees and Beneficiaries	<u>28,379,697,973</u>	<u>26,968,329,088</u>
5. Accrued Liability Pre-Adjustments (1. to 4.)	\$ 44,161,983,577	\$ 42,119,809,780
6. Actuarial Adjustments ²	<u>3,897,932,729</u>	<u>3,177,751,520</u>
7. Total Accrued Liability (AL) (5. + 6.)	\$ 48,059,916,306	\$ 45,297,561,300
Present Value of Benefits		
1. Active Members	\$ 26,354,471,735	\$ 25,192,303,521
2. Active/Inactive Members ¹	102,645,530	92,584,527
3. Terminated Vested Members	87,094,234	74,968,544
4. Retirees and Beneficiaries	<u>28,379,697,973</u>	<u>26,968,329,088</u>
5. Present Value of Benefits (1. to 4.)	\$ 54,923,909,472	\$ 52,328,185,680
6. Actuarial Adjustments ²	<u>4,714,241,566</u>	<u>3,970,345,289</u>
7. Total Present Value of Benefits (5. + 6.)	\$ 59,638,151,038	\$ 56,298,530,969

¹ Represents members no longer on payroll, but not otherwise classified.

² 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. Beginning with the June 30, 2012 (Lag) actuarial valuation, the AAVM recognizes investment returns greater or less than expected over a period of six years. In accordance with this AAVM, actual Unexpected Investment Returns (UIR) are phased into the AVA at rates of 15%, 15%, 15%, 15%, 20%, and 20% per year (i.e. UIR is recognized at cumulative rates of 15%, 30%, 45%, 60%, 80%, and 100% over a period of six years).

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 AVA, where EIR equals the sum of beginning-of-fiscal-year AVA plus one-half of net cash flow, multiplied by the expected rate of return.

Beginning with the June 30, 2014 (Lag) actuarial valuation, 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 as of June 30, 2016 and June 30, 2015

(\$ Thousands)		
	June 30, 2016	June 30, 2015
ASSETS		
Cash	\$ 116,153	\$ 48,152
Receivables		
Investment Securities Sold	\$ 575,823	\$ 461,115
Member Loans	251,861	256,288
Transferrable earnings due from VSFs to QPP	326,195	(231,000)
Accrued Interest and Dividends	<u>66,102</u>	<u>60,370</u>
Total Receivables	\$ 1,219,981	\$ 546,773
INVESTMENTS AT FAIR VALUE		
Short-Term Investments		
Commercial Paper	\$ 75,098	\$ 481,829
Short-term Investment Fund	464,188	681,410
U.S. Treasury Bills	293,310	682,955
Discount Notes	0	426,708
Debt Securities	6,870,189	7,074,891
Equity Securities	6,180,793	6,668,018
Alternative Investments	6,382,258	5,770,380
Collective Trust Funds		
Fixed Income	656,243	641,806
Domestic Equity	5,803,115	4,989,666
International Equity	5,402,281	5,411,168
Mortgage Debt Security	302,440	242,754
Treasury Inflation Protected Securities	1,503,457	953,550
Promissory Notes	0	0
Collateral From Securities Lending	<u>2,945,709</u>	<u>2,678,845</u>
Total Investments	\$36,879,081	\$36,703,980
OTHER ASSETS	<u>16,104</u>	<u>14,879</u>
TOTAL ASSETS	\$38,231,319	\$37,313,784
LIABILITIES		
Accounts Payable	\$ 260,836	\$ 233,964
Payable for Investment Securities Purchased	837,047	1,347,025
Accrued Benefits Payable	115,117	107,977
Transferrable earnings due from QPP to VSFs	590,000	0
Accrued Transfers to VSFs	0	590,000
Security Lending	<u>2,945,709</u>	<u>2,678,845</u>
TOTAL LIABILITIES	\$ 4,748,709	\$ 4,957,811
PLAN ASSETS HELD IN TRUST FOR PENSION BENEFITS	\$33,482,610	\$32,355,973

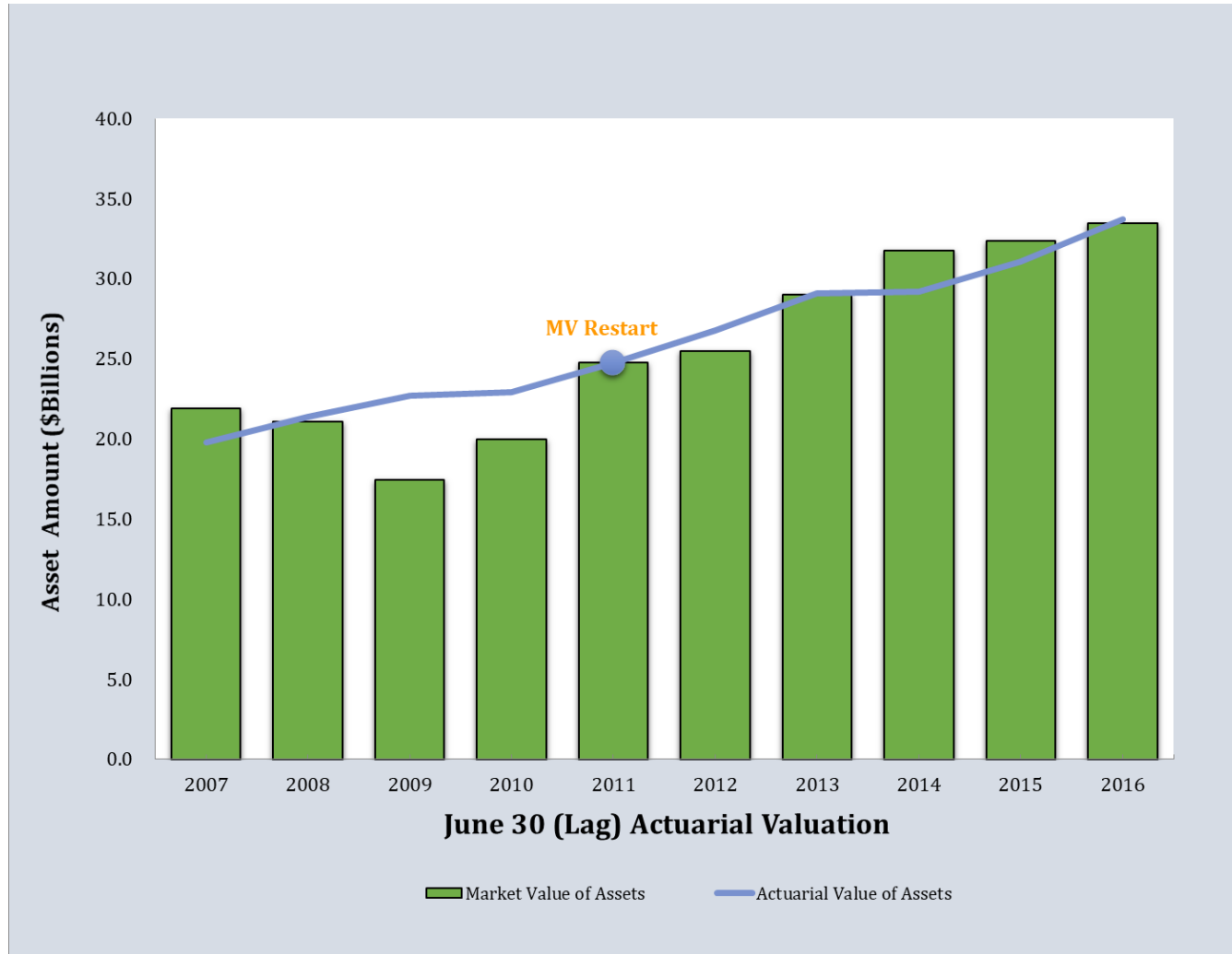
Table II-2
Statement of Changes in Plan Net Assets

(\$ Thousands)		
	June 30, 2016	June 30, 2015
ADDITIONS		
Contributions		
Member Contributions	\$ 249,921	\$ 241,102
Employer Contributions	<u>2,393,940</u>	<u>2,309,619</u>
Total Contributions	\$ 2,643,861	\$ 2,550,721
Investment Income (Loss)		
Interest Income	\$ 416,038	\$ 392,792
Dividend Income	449,480	703,701
Net Appreciation (Depreciation) in Fair Value	<u>(85,518)</u>	<u>96,151</u>
Total Investment Income (Loss)	\$ 780,000	\$ 1,192,644
Less Investment Expenses	156,155	192,099
Net Income (Loss)	\$ 623,845	\$ 1,000,545
Securities Lending Transactions		
Securities Lending Income	\$ 21,896	\$ 19,209
Securities Lending Fees	<u>(1,423)</u>	<u>(1,248)</u>
Net Securities Lending Income (Loss)	<u>\$ 20,473</u>	<u>\$ 17,961</u>
Net Investment Income (Loss)	\$ 644,318	\$ 1,018,506
Other		
Net Receipts from Other Retirement Systems	\$ 3,786	\$ 3,574
Transferrable earnings due from VSFs to QPP	326,195	0
Litigation Income	<u>2,693</u>	<u>980</u>
TOTAL ADDITIONS	\$ 3,620,853	\$ 3,573,781
DEDUCTIONS		
Benefit Payments and Withdrawals	\$ 2,475,738	\$ 2,360,484
Reimbursement of benefit payments from QPP to PSOVSF	0	313
Accrued Transfers to VSFs	0	590,000
Administrative Expenses	<u>18,478</u>	<u>17,903</u>
TOTAL DEDUCTIONS	\$ 2,494,216	\$ 2,968,700
NET INCREASE (DECREASE) IN PLAN NET ASSETS	\$ 1,126,637	\$ 605,081
PLAN NET ASSETS HELD IN TRUST FOR PENSION BENEFITS		
Beginning of Year	\$ 32,355,973	\$ 31,750,892
End of Year	\$ 33,482,610	\$ 32,355,973

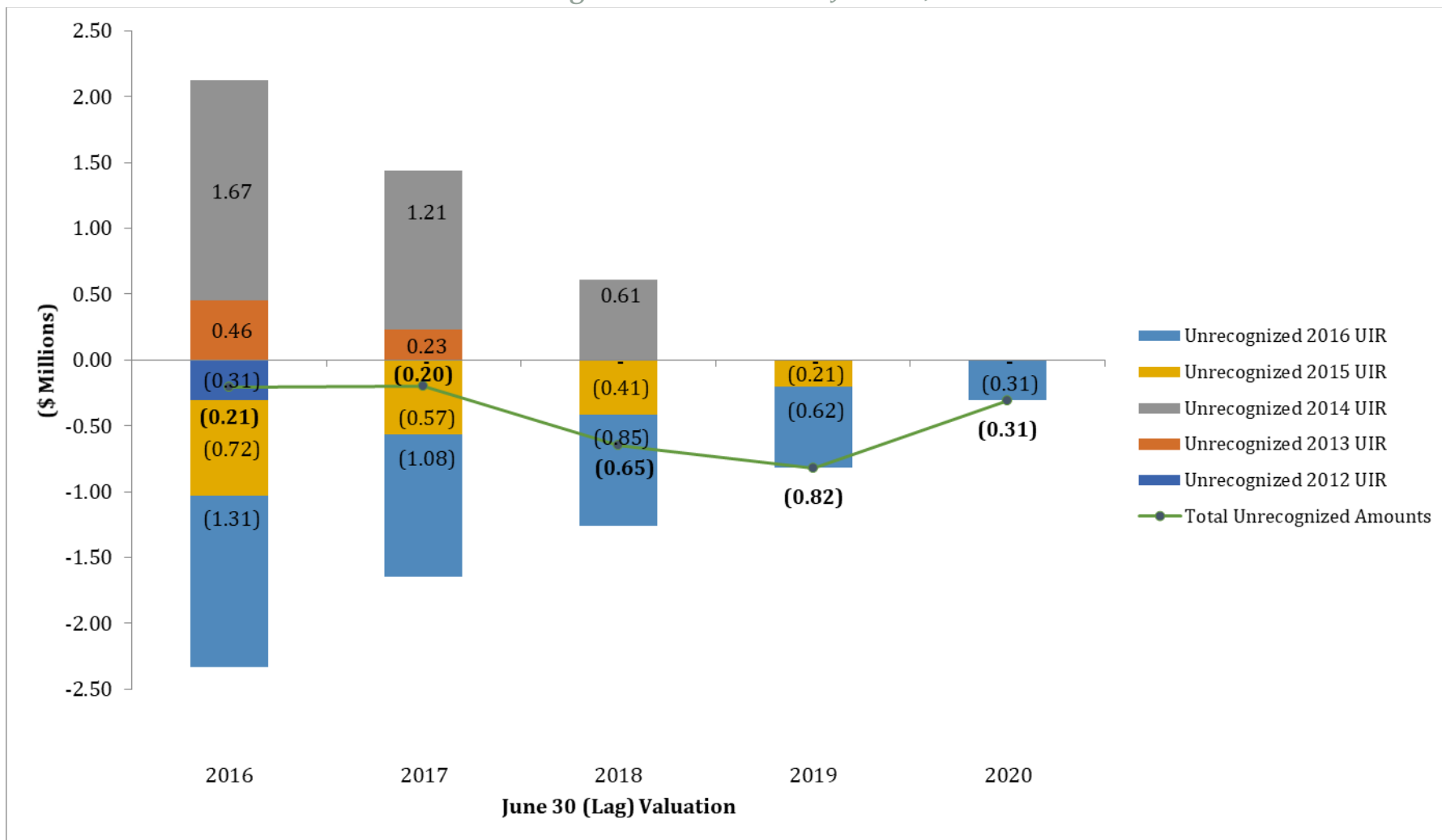
Table II-3
Development of Actuarial Value of Assets

(\$ Thousands)		
Valuation Date	June 30, 2016	June 30, 2015
1. Market Value of Assets (MVA)		
a. Beginning of Year (BOY)	\$ 32,355,973	\$ 31,750,892
b. End of Year (EOY)	\$ 33,482,610	\$ 32,355,973
2. Contributions		
a. Employee	\$ 249,921	\$ 241,102
b. Employer	<u>2,393,940</u>	<u>2,309,619</u>
c. Total Contributions	\$ 2,643,861	\$ 2,550,721
3. Benefit Payments and Other Cash Flow	\$ (2,487,737)	\$ (2,374,146)
4. Transferable Earnings from VSFs to QPP	\$ 326,195	\$ (590,000)
5. Net Cash Flow (2.c. + 3. + 4.)	\$ 482,319	\$ (413,425)
6. Net Investment Income		
a. Investment Income	\$ 800,473	\$ 1,210,605
b. Investment Expenses	<u>(156,155)</u>	<u>(192,099)</u>
c. Total Net Investment Income	\$ 644,318	\$ 1,018,506
7. Average invested assets		
a. AVA @ BOY	\$ 31,092,977	\$ 29,212,981
b. 1/2 Net Cash Flow before SKIM ((2.c. + 3.) / 2)	<u>78,062</u>	<u>88,288</u>
c. Total	\$ 31,171,039	\$ 29,301,269
8. Expected Rate of Return (AIR)	7.00%	7.00%
9. Expected Investment Return (EIR) (7.c. x 8.)	\$ 2,181,973	\$ 2,051,089
10. Unexpected Investment Return (UIR) (6.c. - 9.)	\$ (1,537,655)	\$ (1,032,583)
11. Preliminary AVA @ EOY		
a. AVA @ BOY	\$ 31,092,977	\$ 29,212,981
b. Net Cash Flow (5.)	482,319	(413,425)
c. Expected Investment Return (9.)	2,181,973	2,051,089
d. Phase in of UIR		
15% * UIR	(230,648)	(154,887)
15% * UIR	(154,887)	455,301
15% * UIR	455,301	170,836
15% * UIR	170,836	(228,918)
20% * UIR	(305,224)	N/A
20% * UIR	<u>N/A</u>	<u>N/A</u>
Total	\$ (64,622)	\$ 242,332
e. AVA (11.a. + 11.b. + 11.c. + 11.d.)	\$ 33,692,647	\$ 31,092,977
12. Corridor		
a. 80% of MVA	\$ 26,786,088	\$ 25,884,778
b. 120% of MVA	\$ 40,179,132	\$ 38,827,168
13. Final AVA @ EOY (11e. bounded by 12.)	\$ 33,692,647	\$ 31,092,977

Graph II-4
Historical Market and Actuarial Value of Assets



Graph II-5
 Future Recognition of UIR as of June 30, 2016



SECTION III - CONTRIBUTION DEVELOPMENT AND HISTORY

Table III-1
Statutory Contributions

Table III-1 shows the components of the Fiscal Year 2018 and the Fiscal Year 2017 Statutory Contributions.

COMPONENTS OF CURRENT AND PRIOR FISCAL YEAR STATUTORY CONTRIBUTIONS		
Valuation Date	June 30, 2016 (Lag)	June 30, 2015 (Lag)
Fiscal Year	2018	2017
Normal Cost ¹	\$ 1,271,502,845 ²	\$ 1,236,125,837 ³
Amortization of Unfunded Accrued Liability		
-Initial UAL	1,185,213,831	1,150,693,040
-2011 (Gain)/Loss	32,652,194	32,652,194
-2012 (Gain)/Loss	(58,789,449)	(58,789,449)
-2013 (Gain)/Loss	(27,789,355)	(27,789,355)
-2014 (Gain)/Loss	(25,983,043)	(25,983,043)
-2014 Assumption Changes	70,722,523	70,722,523
-2015 (Gain)/Loss	(104,289,367)	(104,289,367)
-2016 (Gain)/Loss	2,510,395	NA
-2016 SADB	46,805,208	NA
-2016 Enhanced ADR	1,442,093	NA
Total	1,122,495,030	1,037,216,543
Administrative Expenses Contribution	21,155,462	20,497,145
Total Contribution to the New York City Police Pension Fund	\$ 2,415,153,337	\$ 2,293,839,525

¹ Includes amounts necessary, if any, to provide for financing of the Excess Benefit Plan established by Chapter 623/04. Also includes amounts attributable to Variable Supplements Funds.

² Includes \$1,179,453 for Group Life Insurance Plan.

³ Includes \$1,121,118 for Group Life Insurance Plan.

Table III-2
Schedule of Unfunded Accrued Liability Bases

The Initial 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/or 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 shows the Schedule of Unfunded Accrued Liability (UAL) Bases as of June 30, 2016.

NEW YORK CITY POLICE PENSION FUND SCHEDULE OF UNFUNDED ACTUARIAL ACCRUED LIABILITY BASES (\$ Millions)						
Amortization Base	Date Established	Original Amount	Amortization Period/Method	Amortization Payment	Years/ Payments Remaining	OYLM UAL June 30, 2016
Initial UAL	6/30/10	\$ 13,211 ¹	22 Years Closed/IDP - 3%	\$ 1,185	16/16	\$ 13,582
(Gain)/Loss	6/30/11	\$ 276	15 Years Closed/LDP	\$ 33	10/10	\$ 237
(Gain)/Loss	6/30/12	\$ (497)	15 Years Closed/LDP	\$ (59)	11/11	\$ (456)
(Gain)/Loss	6/30/13	\$ (235)	15 Years Closed/LDP	\$ (28)	12/12	\$ (228)
(Gain)/Loss	6/30/14	\$ (220)	15 Years Closed/LDP	\$ (26)	13/13	\$ (225)
Assumption Change	6/30/14	\$ 707	20 Years Closed/LDP	\$ 71	18/18	\$ 736
(Gain)/Loss	6/30/15	\$ (882)	15 Years Closed/LDP	\$ (104)	14/14	\$ (943)
(Gain)/Loss	6/30/16	\$ 21	15 Years Closed/LDP	\$ 3	15/14	\$ 21
SADB	6/30/16	\$ 396	15 Years Closed/LDP	\$ 47	15/14	\$ 396
Enhanced ADR	6/30/16	\$ 14	18 Years Closed/LDP	\$ 1	18/17	\$ 14

¹ Initial UAL as of June 30, 2010 after adjustments under OYLM. The amount prior to adjustments under OYLM was \$15,225,698,261.

Graph III-3
Remaining UAL Base Amortizations as of June 30, 2016

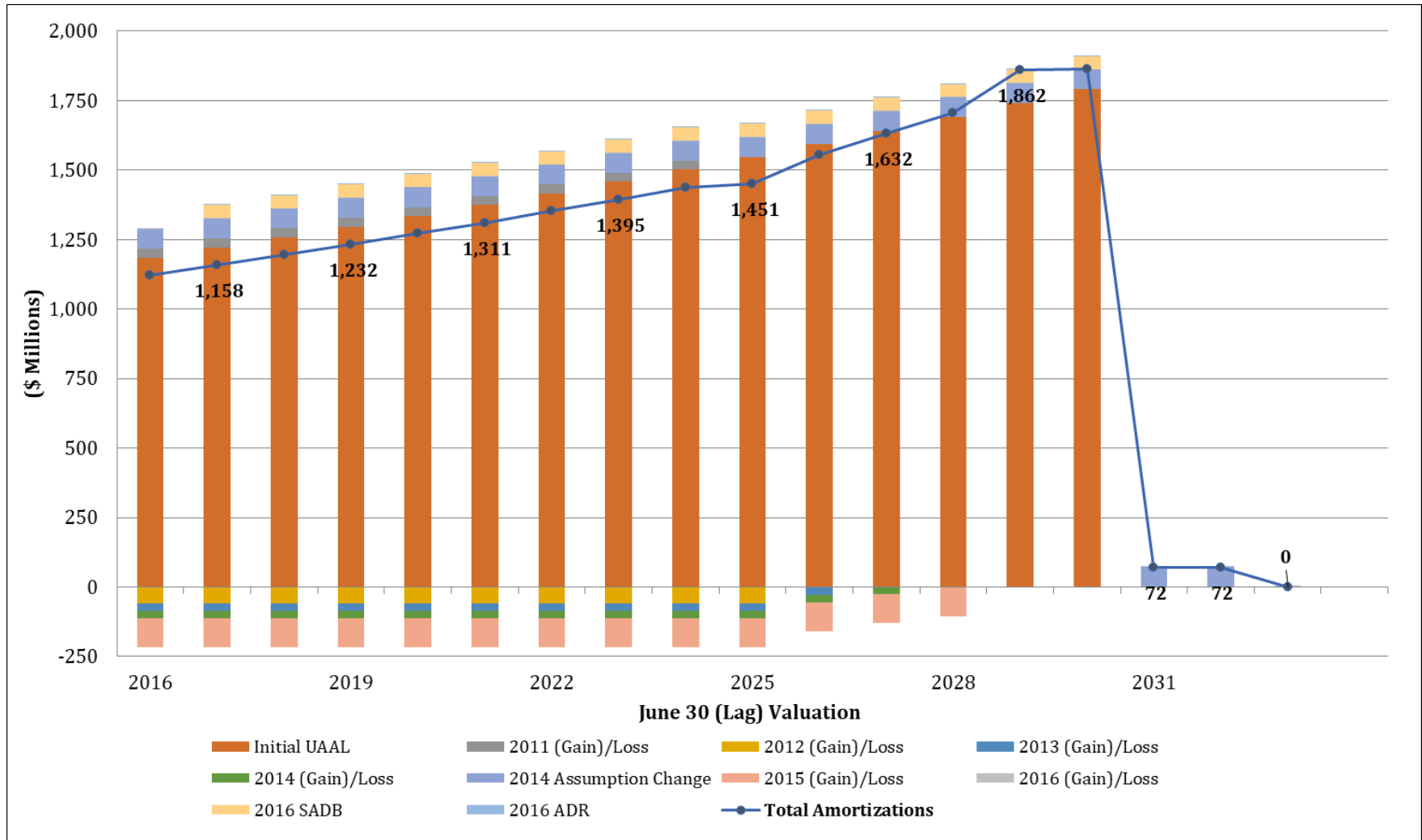


Table III-4
Reconciliation of Outstanding UAL Bases

June 30 (Lag) Valuation Date	Amounts (in \$ Thousands) Remaining to be Amortized, as of						
	2010	2011	2012	2013	2014	2015	2016
Initial UAL amortization base	\$ 13,211,375	\$ 14,136,171	\$ 14,098,951	\$ 14,028,324	\$ 13,921,027	\$ 13,773,540	\$ 13,582,070
2010-2011 (Gain)/Loss		276,060	295,384	282,285	268,270	253,273	237,226
2011-2012 (Gain)/Loss			(497,039)	(531,832)	(508,248)	(483,013)	(456,011)
2012-2013 (Gain)/Loss				(234,947)	(251,393)	(240,245)	(228,317)
2013-2014 (Gain)/Loss					(219,675)	(235,053)	(224,629)
Assumption Change at June 30, 2014					706,645	756,110	735,882
2014-2015 (Gain)/Loss						(881,721)	(943,441)
2015-2016 (Gain)/Loss							21,224
2016 SADB							395,717
2016 Enhanced ADR							13,611
Sum of Outstanding Amortization Amounts	\$ 13,211,375	\$ 14,412,231	\$ 13,897,296	\$ 13,543,830	\$ 13,916,626	\$ 12,942,891	\$ 13,133,332

June 30 (Lag) Valuation Date	2010	2011	2012	2013	2014	2015	2016
1. Accrued Liability (AL)	\$ 38,134,430	\$ 40,524,580	\$ 42,015,625	\$ 43,900,094	\$ 44,384,022	\$ 45,297,561	\$ 48,059,916
2. Actuarial Value of Assets (AVA)	22,908,732	24,748,860	26,777,077	29,087,154	29,212,981	31,092,977	33,692,647
3. Unfunded Accrued Liability (UAL) (1. - 2.)	15,225,698	15,775,720	15,238,548	14,812,940	15,171,041	14,204,584	14,367,269
4. PV 1-year Adjusted Employer Normal Cost	2,014,323	1,328,510	1,306,238	1,232,609	1,216,942	1,223,860	1,195,008
5. PV Future Administrative Expense Reimbursement	0	34,979	35,014	36,501	37,473	37,833	38,929
6. Adjusted UAL (3. - 4. - 5.)	\$ 13,211,375	\$ 14,412,231	\$ 13,897,296	\$ 13,543,830	\$ 13,916,626	\$ 12,942,891	\$ 13,133,332

Table III-5
Actuarial and Statutory Contribution History

Table III-5 compares the Statutory Contributions to the Actuarial Contributions for Fiscal Years 2009 through 2018.

(\$ Thousands)			
Fiscal Year Ended June 30	Actuarial Contribution Certified	Statutory Contribution Contributed	Percentage of Actuarial Contribution Contributed
2009	\$ 1,932,150	\$ 1,932,150	100.0%
2010	1,980,996	1,980,996	100.0%
2011	2,083,633	2,083,633	100.0%
2012	2,385,731	2,385,731	100.0%
2013	2,424,690	2,424,690	100.0%
2014	2,320,910	2,320,910	100.0%
2015	2,309,619	2,309,619	100.0%
2016	2,393,940	2,393,940	100.0%
2017	2,293,840	2,293,840	100.0%
2018	2,415,153	2,415,153	100.0%

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

Table III-6 shows the City Rates defined to be the contributions as a percentage of salary for the Fiscal Years 2009 through 2018.

CITY RATES (\$ Thousands)			
Fiscal Year Ended June 30	Actuarial Contribution	Salary ¹ at Time =1.0	City Rate
2009	\$ 1,932,150	\$ 2,946,710	65.570%
2010	1,980,996	3,097,485	63.955%
2011	2,083,633	3,252,706	64.058%
2012	2,385,731	3,448,765	69.176%
2013	2,424,690	3,459,872	70.080%
2014	2,320,910	3,420,312	67.857%
2015	2,309,619	3,512,778	65.749%
2016	2,393,940	3,540,326	67.619%
2017	2,293,840	3,509,985	65.352%
2018	2,415,153	3,673,054	65.753%

¹Includes assumed overtime paid and 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, 2015 (Lag) actuarial valuation and the June 30, 2016 (Lag) actuarial valuation.¹

DEVELOPMENT OF EXPERIENCE (GAIN)/LOSS	
JUNE 30, 2016	
(\$ Thousands)	
1.	Expected Accrued Liability (AL)
	a. AL at June 30, 2015
	\$ 48,338,520
	b. Total Normal Cost and Admin Expenses at June 30, 2015
	1,376,302
	c. Interest on 1.a. and 1.b. to June 30, 2016
	3,480,038
	d. Fiscal Year 2016 Benefit Payments
	(2,882,223)
	e. Interest on 1.d. to June 30, 2016
	(99,172)
	f. Expected AL at June 30, 2016
	\$ 50,213,465
2.	Actual AL at June 30, 2016 before Plan Changes ²
	\$ 50,082,591
3.	Expected Total Actuarial Value of Assets (AVA)
	a. Total AVA at June 30, 2015
	\$ 34,133,936
	b. Interest on 3.a. to June 30, 2016
	2,389,376
	c. Total Contributions Paid in Fiscal Year 2016
	2,643,861
	d. Interest on 3.c. to June 30, 2016
	90,970
	e. Fiscal Year 2016 Benefit Payments
	(2,882,223)
	f. Interest on 3.e. to June 30, 2016
	(99,172)
	g. Expected Total AVA at June 30, 2016
	\$ 36,276,748
4.	Actual Total AVA at June 30, 2016
	\$ 36,124,650
5.	Accrued Liability (Gain)/Loss (2. - 1.f.)
	\$ (130,874)
6.	Actuarial Asset (Gain)/Loss (3.g. - 4.)
	\$ 152,098
7.	Total Actuarial (Gain)/Loss (5. + 6.)
	\$ 21,224

¹ Includes the Accrued Liability for POLICE, POVSF, and PSOVSF.

² Enhanced ADR and SADB.

SECTION V – SCHEDULE OF FUNDING PROGRESS

A schedule of funding progress is provided below. This schedule of funding progress was previously required by GASB 25, which has been superseded by GASB 67, 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 POLICE 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 % of Covered Payroll (3) / (5)
2007	19,800,553	19,800,553	0	100.0%	2,961,649	0.0%
2008	21,393,152	21,393,152	0	100.0%	3,095,904	0.0%
2009	22,676,172	22,676,172	0	100.0%	3,261,118	0.0%
2010	22,908,732	38,134,430	15,225,698	60.1%	3,464,097	439.5%
2011	24,748,860	40,524,580	15,775,720	61.1%	3,480,066	453.3%
2012	26,777,077	42,015,625	15,238,548	63.7%	3,478,154	438.1%
2013	29,087,154	43,900,094	14,812,940	66.3%	3,607,607	410.6%
2014	29,212,981	44,384,022	15,171,041	65.8%	3,618,095	419.3%
2015	31,092,977	45,297,561	14,204,584	68.6%	3,564,030	398.6%
2016	33,692,647	48,059,916	14,367,269	70.1%	3,717,425	386.5%

Effective June 30, 2010, AL is based on the Entry Age Normal cost method. Previously, the Frozen Initial Liability cost method was used. Salaries 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 Police Pension Fund administers both the Police Officer's Variable Supplements Fund (POVSF) and the Police Superior Officers' Variable Supplements Fund (PSOVSF). The POVSF and PSOVSF (the Funds) operate pursuant to the provisions of Title 13, Chapter 2 of the Administrative Code of the City of New York (ACCNY) and provide supplemental benefits to retirees who were Police Officers and Police Superior Officers, respectively, of the New York City Police Department, Subchapter One Pension Fund or New York City Police 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, 2016	June 30, 2015 ¹
POVSF		
Active	\$ 530,988	\$ 530,258
Retiree	<u>1,552,515</u>	<u>1,549,011</u>
Total	\$ 2,083,503	\$ 2,079,269
PSOVSF		
Active	\$ 1,186,177	\$ 1,152,229
Retiree	<u>2,346,636</u>	<u>2,314,463</u>
Total	\$ 3,532,813	\$ 3,466,692
Total VSF AAL	\$ 5,616,316	\$ 5,545,961

¹Revised based on a change in the methodology of allocating active accrued liability.

Table VI-2
VSF Member Data

VARIABLE SUPPLEMENTS FUNDS				
MEMBERS INCLUDED IN THE JUNE 30, 2016 (LAG) AND JUNE 30, 2015 (LAG) ACTUARIAL VALUATIONS				
	June 30, 2016		June 30, 2015	
	POVSF	PSOVSF	POVSF	PSOVSF
Actives				
Number	23,685	12,276	22,162	12,273
Average Age	34.7	42.8	35.1	42.6
Retirees				
Number	12,418	18,357	12,367	18,029
Average Age	61.9	61.0	61.6	60.6

Table VI-3
VSF Statement of Assets

(\$ Thousands)				
Valuation Date	June 30, 2016		June 30, 2015	
	MVA ¹	AVA	MVA ²	AVA
POVSF	\$ 1,384,204	\$ 1,609,663	\$ 1,923,579	\$ 1,928,443
PSOVSF	<u>635,460</u>	<u>822,340</u>	<u>1,065,500</u>	<u>1,112,516</u>
Total	\$ 2,019,664	\$ 2,432,003	\$ 2,989,079	\$ 3,040,959

¹ Includes Accrued Benefits Payable of \$76,586,000 for POVSF and \$113,709,000 for PSOVSF.

² Includes Accrued Benefits Payable of \$75,645,000 for POVSF and \$110,878,000 for PSOVSF.

Table VI-4
Development of VSF Actuarial Value of Assets as of June 30, 2016

(\$ Thousands)		
	POVSF	PSOVSF
1. Market Value of Assets (MVA)		
a. Beginning of Year (BOY) ¹	\$ 1,923,579	\$ 1,065,500
b. End of Year (EOY) ²	\$ 1,384,204	\$ 635,460
2. Contributions		
a. Employee	\$ 0	\$ 0
b. Employer	<u>0</u>	<u>0</u>
c. Total Contributions	\$ 0	\$ 0
3. Benefit Payments and Other Cash Flow	\$ (155,607)	\$ (246,829)
4. Transferable Earnings from VSFs to QPP	\$ (250,751)	\$ (75,444)
5. Net Cash Flow (2.c. + 3. + 4.)	\$ (406,358)	\$ (322,273)
6. Net Investment Income		
a. Investment Income	\$ (132,580)	\$ (107,588)
b. Investment Expenses	<u>(437)</u>	<u>(179)</u>
c. Total Net Investment Income	\$ (133,017)	\$ (107,767)
7. Average invested assets		
a. AVA @ BOY	\$ 1,928,443	\$ 1,112,516
b. 1/2 Net Cash Flow before SKIM ((2.c. + 3.) / 2)	<u>(77,804)</u>	<u>(123,415)</u>
c. Total	\$ 1,850,639	\$ 989,101
8. Expected Rate of Return (AIR)	7.00%	7.00%
9. Expected Investment Return (EIR) (7.c. x 8.)	\$ 129,545	\$ 69,237
10. Unexpected Investment Return (UIR) (6.c. - 9.)	\$ (262,562)	\$ (177,004)
11. Preliminary AVA @ EOY		
a. AVA @ BOY	\$ 1,928,443	\$ 1,112,516
b. Net Cash Flow (5.)	(406,358)	(322,273)
c. Expected Investment Return (9.)	129,545	69,237
d. Phase in of UIR		
15% * UIR	(39,384)	(26,551)
15% * UIR	(7,283)	(6,808)
15% * UIR	7,306	(162)
15% * UIR	4,514	(264)
20% * UIR	(7,120)	(3,355)
20% * UIR	<u>N/A</u>	<u>N/A</u>
Total	\$ (41,967)	\$ (37,140)
e. AVA (11.a. + 11.b. + 11.c. + 11.d.)	\$ 1,609,663	\$ 822,340
12. Corridor		
a. 80% of MVA	\$ 1,107,363	\$ 508,368
b. 120% of MVA	\$ 1,661,045	\$ 762,552
13. Final AVA @ EOY (11e. bounded by 12.)	\$ 1,609,663	\$ 822,340

¹ Includes Accrued Benefits Payable of \$75,645,000 for POVSF and \$110,878,000 for PSOVSF.

² Includes Accrued Benefits Payable of \$76,586,000 for POVSF and \$113,709,000 for PSOVSF.

Table VI-5
SKIM Calculation as of June 30, 2016

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

(\$ Thousands)	Final	
Total POLICE Pension Fund		
1. FY2016 Equity Earnings	\$	8,692
2. FY2016 Hypothetical Earnings		525,929
3. FY2016 Excess Earnings (1. - 2.)		(517,237)
4. Deficit at June 30, 2015		0
5. Hypothetical Interest Rate (HIR)		2.324%
6. Deficit with interest (4 x (1+HIR))		0
7. Potential SKIM (3. - 6.), not less than 0.	\$	0
	POVSF	PSOVSF
Allocations to VSF ¹		
8. Allocation Percentage	N/A	N/A
9. Potential SKIM (7. x 8.)	N/A	N/A
10. Accumulated Benefit Obligation	N/A	N/A
11. MVA Prior to SKIM	N/A	N/A
12. ABO Gate = (10. - 11.)	N/A	N/A
13. SKIM Payable (Lesser of 9 and 12, not less than zero)	N/A	N/A
14. Rounded Estimate, for FY16 Financial Statements	N/A	N/A

¹ Not calculated due to no potential SKIM.

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

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

E. VSF DROP

Members who retire 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.

Summary of VSF Actuarial Assumptions and Methods

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

1. **POVSF vs. PSOVSF Membership:** Amongst current active members, 50% of members who become eligible for VSF benefits are assumed to retire as Police Officers, while the remaining 50% are assumed to retire as Police Superior Officers.
2. **COLA:** 1.5% per year for Auto COLA, used to estimate future COLA on the first \$18,000 of POLICE 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 POVSF and the PSOVSF as is used to determine the AVA of the Plan. For more information, see SECTION II – MARKET AND ACTUARIAL VALUES OF ASSETS.
4. **Liability Method:** The obligations of POLICE to the POVSF and the PSOVSF are recognized through a methodology where the PV of future VSF transfers from POLICE to the POVSF and PSOVSF is included directly as an actuarial liability of POLICE. This amount is computed as the excess, if any, of the PV of benefits of the POVSF and PSOVSF over the AVA of the POVSF and PSOVSF, 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 POLICE transfer to the Funds a portion of the amount by which earnings on equity investments of POLICE 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 average of monthly yields of 10-year U.S. Treasury Notes
 - 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 positive 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 Factor allocable to the VSFs based on the ratio of total contributions between Police Officers and Police Superior Officers, limited so assets do not or do not further exceed the Accumulated Benefit Obligation (ABO) of the VSFs

SECTION VII - RISK AND UNCERTAINTY

The Fiscal Year 2018 employer contribution is based on the census data reported as of June 30, 2016 and on actuarial assumptions and methods adopted by the Board of Trustees during Fiscal Year 2012 and enacted by the New York State Legislature as Chapter 3 of the Laws of 2013 (the 2012 A&M), with revisions made to the post-retirement mortality assumptions and to the AAVM during Fiscal Year 2016 (the 2016 A&M).

The funded status of POLICE depends highly on the realization of the actuarial assumptions used, as well as certain demographic characteristics of the Plan and other exogenous factors. Many of the risks faced by the Plan are described in fuller detail below; qualifying these risks for the Plan is beyond the scope of this valuation but may be undertaken in future years.

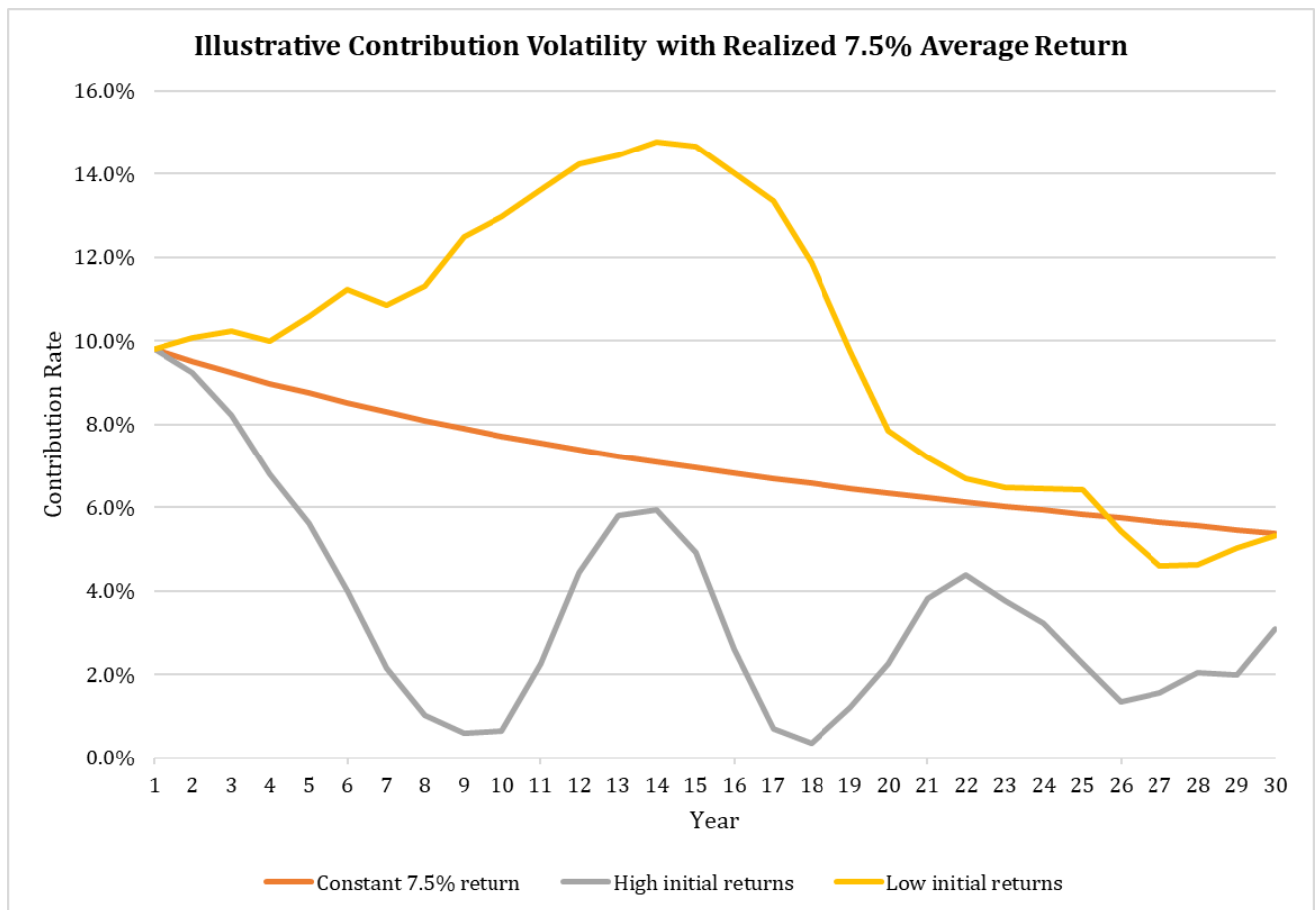
These risks have been separated, based on the Actuary's professional judgement, into high, medium, and low risks.

High Risk Types

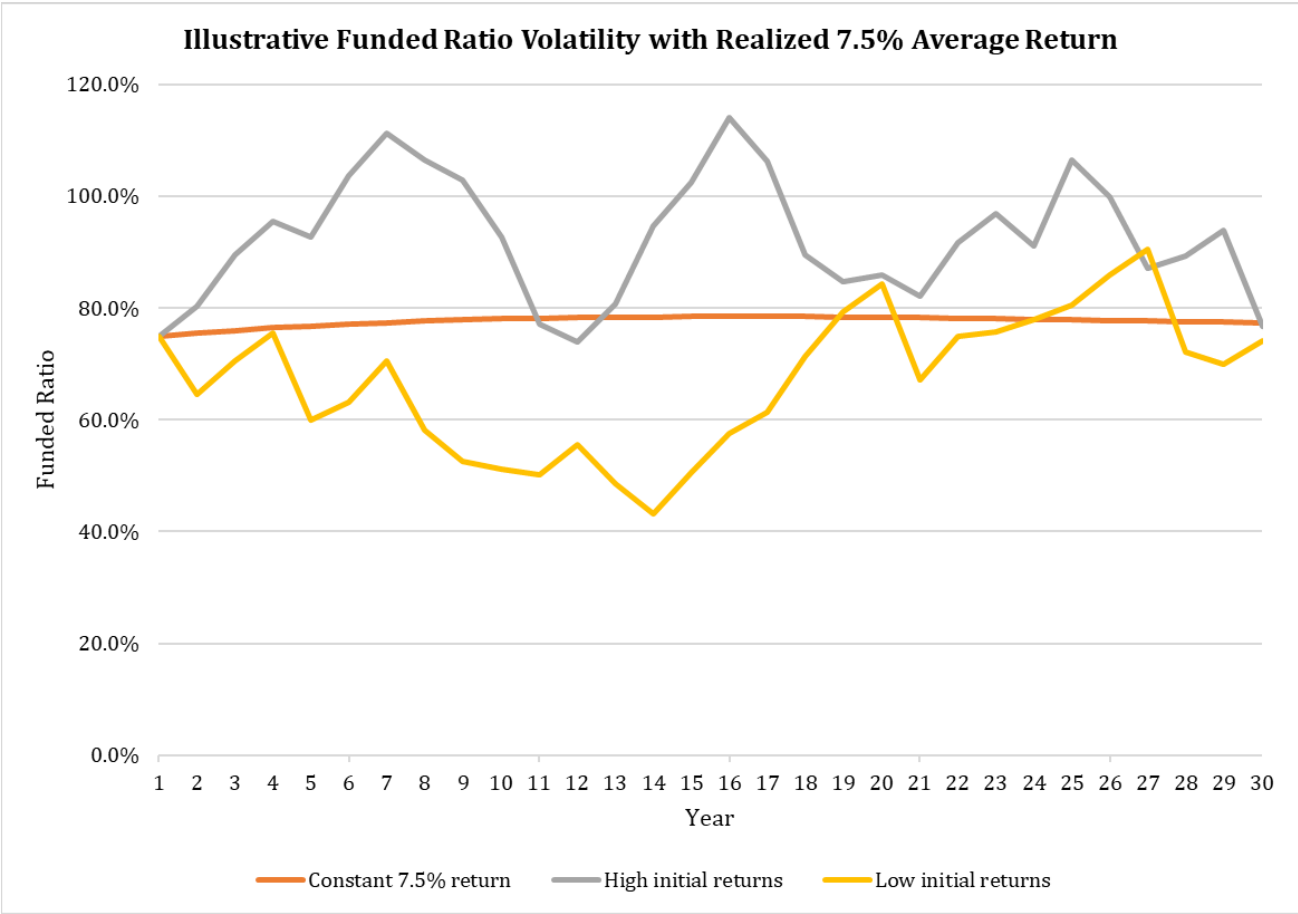
Investment Risk

The most substantial risk for POLICE is the investment risk that investment returns may be different than assumed. As risk-free investment return rates have fallen in recent decades, more aggressive asset allocations have become necessary to achieve long-term rates of return commensurate with the actuarial assumption of 7.0%.

This investment return volatility can contribute substantially to contribution and funded status volatility, even if the long-term investment return assumption of 7.0% is realized. While not 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.¹ Similar scenario analysis could be done for POLICE.



¹ Yin, Yimeng; Boyd, Don. Pension Simulation Project. *The Nelson A. Rockefeller Institute of Government*.



Note that these illustrations show volatility even if long-term expected rates of return are realized. Further risk exists that long-term expected rates of return may not be realized.

Maturity Risk

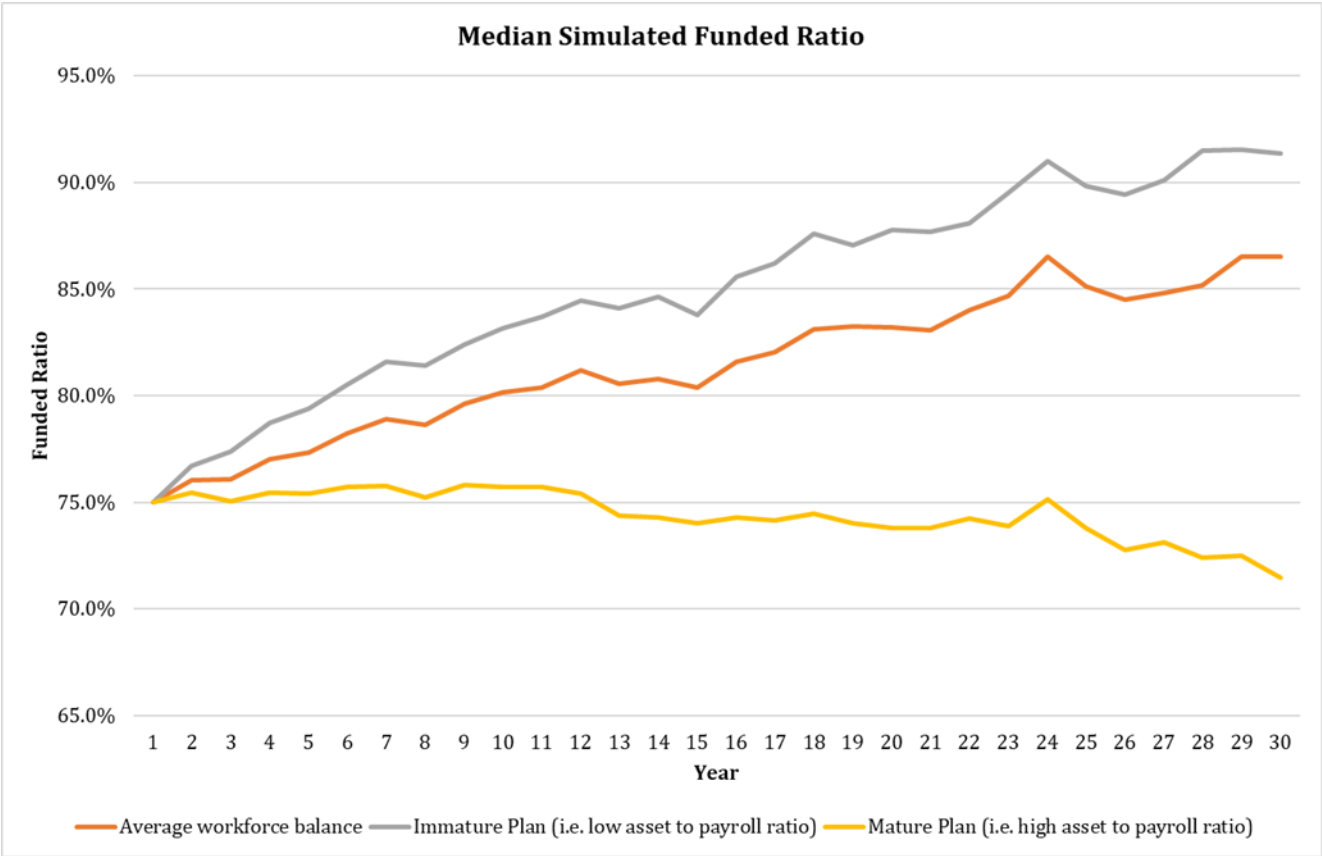
With respect to future fiscal years, it should be noted that POLICE is a mature retirement system. A mature pension fund has a significant ratio of retirees to active members and, usually, of assets to active member payroll and of Accrued Liability (AL) to active member payroll. These ratios, sometimes known as volatility ratios, for the Plan can be found in the chart below.

Valuation Date	June 30, 2016 (Lag)	June 30, 2015 (Lag)
Fiscal Year	2018	2017
Volatility Ratios		
1. Market Value of Assets (MVA)	\$ 33,482,610,000	\$ 32,355,973,000
2. Actuarial Value of Assets (AVA)	33,692,647,000	31,092,977,000
3. Accrued Liability	48,059,916,306	45,297,561,300
4. Active Salary	3,717,425,239	3,564,029,659
5. Asset Volatility Ratio (MVA basis) (1. / 4.)	9.0	9.1
6. Asset Volatility Ratio (AVA basis) (2. / 4.)	9.1	8.7
7. Liability Volatility Ratio (3. / 4.)	12.9	12.7

As a plan approaches maturity, Asset Volatility and Liability Volatility Ratios increase, and the plan becomes more sensitive to investment losses. These ratios indicate a mature pension plan. The same percentage of investment losses in more mature plans can increase contributions as a percentage of payroll more so than in less mature plans. Generally, mature plans need to consider more conservative investment strategies.

While not available specifically for the Plan, illustrative forecasts of sample plans of various maturities can demonstrate this effect.¹

¹ Boyd, Donald J. and Yin, Yimeng. "How Public Pension Plan Demographic Characteristics Affect Funding and Contribution Risk." Pension Simulation Project. *The Nelson A. Rockefeller Institute of Government*.



A plan’s Support Ratio (i.e. the ratio of inactive participants to active participants) is another measure of maturity risk. A low Support Ratio implies that contributions are potentially low as a percentage of active payroll and support the benefit payments of few inactive participants. A high Support Ratio implies that contributions are potentially high as a percentage of active payroll and support the benefit payments of many inactive participants. Because the Plan’s Support Ratio is high, contributions for active members form a smaller proportion of the total actuarial contribution than in less mature pension funds (see Page 64).

Medium Risk Types

Interest Rate Risk

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% depends itself on the allocation and the returns of Plan assets.

If market conditions or the allocation of Plan assets no longer justifies a long-term rate of return assumption of 7.0%, a reduction in the Actuarial Interest Rate (AIR) may significantly increase the Accrued Liability and Unfunded Accrued Liability of the Plan, as well as the Normal Cost and resulting contribution. While not on a funding basis, the sensitivity could be expected to be generally similar to the sensitivity reported for GASB 67/68 purposes.¹

NEW YORK CITY POLICE PENSION FUND	
GASB 67/68 SENSITIVITY ANALYSIS AS OF JUNE 30, 2016	
Valuation Date	June 30, 2016
Results at 7.0%	
1. Total Pension Liability	\$ 51,140,746,394
2. Plan Fiduciary Net Position	<u>35,502,274,000</u>
3. Net Pension Liability (1. - 2.)	\$ 15,638,472,394
4. Funded Ratio (GASB Basis) (2. / 1.)	69.4%
Results at 6.0%	
1. Total Pension Liability	\$ 56,845,805,667
2. Plan Fiduciary Net Position	<u>35,502,274,000</u>
3. Net Pension Liability (1. - 2.)	\$ 21,343,531,667
4. Funded Ratio (GASB Basis) (2. / 1.)	62.5%
Sensitivity Analysis for 1.0% Reduction in Interest Rate	
1. Increase in Total Pension Liability	11.2%
2. Increase in Net Pension Liability	36.5%
3. Decrease in Funded Ratio	6.9%

¹ As disclosed in the fiscal year 2016 report for GASB 67/68, dated October 11, 2016.

Inflation Risk

POLICE faces risk in the event that 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). This risk is not currently quantified but should be considered in future years.

Longevity Risk

POLICE 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-2015 was subsequently applied to these base rates.¹

This scale MP-2015 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 that the mortality improvement inherent in the Plan population is higher than the improvement seen in the population provided by the Social Security Administration.

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

This longevity risk is not currently quantified but should be considered in future years.

¹ Retirement Plans Experience Committee. “Mortality Improvement Scale MP-2015 Report” and “Mortality Improvement Scale MP-2014 report.” *Society of Actuaries*.

² Retirement Plans Experience Committee. “Mortality Improvement Scale BB Report” *Society of Actuaries*.

Low Risk Types

Credit/Solvency Risk

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 and POLICE face low solvency risk.

Contribution Risk

Many public pension systems suffer from high contribution risk, wherein sponsoring governmental entities fail to make contributions as determined by the actuary under their funding policies. A recent study found that in 2010, the Annual Required Contribution¹ was not made for over 35% of the 110 public plans in the study.²

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

Contribution risk may also increase in future years as 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 Risk

Because of the long-term asset returns and the gradual amortization of unfunded liabilities, the long-term funded status of the Plan is expected to improve. 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.

In future years of higher funded status, this may become a higher risk to the Plan, as current taxpayers and plan members may receive preferential treatment over future taxpayers and plan members when considering changes in statute and plan provisions.

¹ As defined at the time in GASB 25/27.

² Shnitser, Natalya. "Funding Discipline for U.S. Public Pension Plans: An Empirical Analysis of Institutional Design." *Iowa Law Review*, Vol. 100 (2015).

SECTION VIII - SUMMARY OF PLAN PROVISIONS

A. Effective Date:

March 29, 1940

B. Eligibility Requirements:

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.

Tier 3 Revised: On or after April 1, 2012.

Eligible service includes City service in positions in the competitive class of the civil service for probationary periods or permanent appointments in the Police force; or City service in a position of Police Surgeon classified in the non-competitive class of civil service.

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

Enhanced Plan members are required to contribute an additional 1.0% of salary for a maximum of 25 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 and Tier 3 Revised: The City of New York does not pay any portion of member contributions.

E. Credited Service:

Credited service is classified as Allowable Police 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 Police Service includes service in Uniformed Transit Police Force, Uniformed Housing Police Force, Uniformed Correction Force, Uniformed Sanitation Force, and the New York Fire Department, provided all such service immediately precedes the Uniformed Police Force service.
- **Tier 3 and Tier 3 Revised:** Police service includes service in the uniformed force of the New York Fire Department and the New York State and Local Police and Fire 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: Final Average Salary (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 Revised: Final Average Salary (FAS). The average total pensionable compensation earned by a member during any five consecutive years based on the month and day of retirement that provides the highest average wages. If the wages earned during any year included in the period exceed the average of the prior four years by more than 10%, the amount in excess of 10% shall be excluded. Additionally, if the member was on a leave of absence without pay (e.g. suspension) at any time during the five year period, that time, not in excess of 12 months, will be excluded from the calculation and the same period of time immediately preceding the five-year period will be included for the final average salary.

G. Service Retirement

1. Eligibility

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

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

2. Benefits

a. Tier 1 and Tier 2

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

b. Tier 3 and Tier 3 Revised

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

H. Disability Retirement

1. Accidental Disability (ADR)

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

b. Benefits

i. Tier 1 and Tier 2

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

ii. Tier 3 and Tier 3 Revised Non-Enhanced Plan

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

iii. Tier 3 and Tier 3 Revised 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 and Tier 3 Revised:

5 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 and Tier 3 Revised

The greater of:

(a) 33 $\frac{1}{3}$ % 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 final salary as defined as the last 12 months of earnings, payable to surviving spouse or other eligible dependents for life

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

ii. Tier 3 and Tier 3 Revised

50% of FAS, payable 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, and Tier 3 Revised: 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 date of 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 and Tier 3 Revised

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

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

J. Vested Retirement After Termination

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

a. Tier 1 and Tier 2

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

b. Tier 3

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 Revised

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.

K. Normal Form of Retirement Income

Single Life Annuity.

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 (Auto COLA)

Applicable to all members.

1. Eligibility
 - a. Service Retirees: Age 62 and retired 5 years or age 55 and retired 10 years.
 - b. Disability Retirees: Retired 5 years.
 - c. Beneficiaries receiving accidental death benefits: Receiving benefits for 5 years.
2. Amount

Starting with benefits for September 2001, the Auto COLA percentage is 50% of the increase in CPI-U based upon the 12 months ending March 31 prior to the Auto COLA effective on the ensuing September 1, rounded to the next higher 0.1%. Such percentage shall not be less than 1.0% nor greater than 3.0%. This percentage is applied to the first \$18,000 of the total retirement benefit (including all prior Auto COLAs).

If a retiree dies and has chosen an optional form of payment which provides for benefits to be continued to the spouse for life, one half of the Auto COLA amount is paid to such spouse.

N. Escalation

Applicable to (1) all Tier 3 and Tier 3 Revised members and (2) Tier 3 and Tier 3 Revised Enhanced Plan members receiving vested or service retirement benefits. (These members receive AutoCOLA, if greater.)

1. Eligibility: Service, vesting, disability retirement, and survivor benefits.
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

Chapter 59 of the Laws of 2017 (Chapter 59/17), Part SSS, signed into law on April 10, 2017, changes the Accidental Disability Retirement and Ordinary Disability Retirement benefits for current Tier 3 and Tier 3 Revised members who elect to participate in the Enhanced Disability Benefits. Tier 3 Revised members as of April 1, 2017 and later are mandated into the Enhanced Disability Benefits. Members electing or mandated into this benefit will pay an extra 1% of wages.

1. The Enhanced Accidental Disability Benefit is equal to 75% of FAS.
2. The Enhanced Ordinary Disability Benefit is equal to the greater of:
 - a. 33-1/3% of FAS, or
 - b. 2% of FAS multiplied by years of credited service (not in excess of 22 years).
3. Under the OYLM, the first year in which these changes to the disability benefits will impact the employer contribution is Fiscal Year 2018.

SECTION IX - CHAPTER AMENDMENTS

The June 30, 2016 (Lag) actuarial valuation results reflect the following Chapter amendments from the prior five years.

- **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. This law will be reflected in future valuations as participants request military service credit.
- **Chapter 59 of the Laws of 2017** (Chapter 59/17), Part SSS, signed into law on April 10, 2017, changes the Accidental Disability Retirement and Ordinary Disability Retirement benefits for current Tier 3 and Tier 3 Revised members who elect to participate in the Enhanced Disability Benefits. Tier 3 Revised members as of April 1, 2017 and later are mandated into the Enhanced Disability Benefits.
- **Chapter 427 of the Laws of 2014** (Chapter 427/14), amended Military Law Section 243-d, effective November 4, 2014, to provide non-contributory retirement service credit for members of the New York City Retirement Systems called to active military duty on or after September 11, 2001 and prior to January 1, 2006 who did not receive his or her full salary from a participating employer and is otherwise eligible to receive retirement service credit for such service.
- **Chapter 489 of the Laws of 2013** (Chapter 489/13), addressed limitations in existing disability provisions intended to protect public employees who suffered injuries or illnesses in WTC rescue, recovery, and cleanup operations.
- **Chapter 3 of the Laws of 2013** (Chapter 3/13), effective retroactive to July 1, 2011, enacted those 2012 A&M that require State legislation.
- **Chapter 18 of the Laws of 2012** (Chapter 18/12), placed certain limitations on the Tier 3 benefits available to participants hired on and after April 1, 2012 in most New York State Public Employee Retirement Systems, including POLICE, and is generally referred to as Tier 6 (referred to by POLICE as Tier 3 Revised).

SECTION X - SUBSEQUENT EVENTS

In February 2017, the City engaged Bolton to perform an actuarial audit of the five New York City Retirement Systems and Pension Funds, serving as the Independent Actuary under Section 96 of the New York City Charter. The engagement includes, but is not limited to, contribution audits, experience studies, and administrative reviews of each system. Bolton released their reports for the actuarial audit on June 4, 2019. In conjunction with the final findings of Bolton's experience study, the Actuary issued a Report entitled, "Proposed Changes in Actuarial Assumptions and Methods Used in Determining Employer Contributions for Fiscal Years Beginning on and After July 1, 2018 for the New York City Police Pension Fund," dated January 2, 2019. The actuarial assumptions and methods described in that report were adopted by the Board of Trustees at the March 13, 2019 Board meeting and are referred to as the "2019 A&M." Note that this valuation report does not reflect the new 2019 A&M.

SECTION XI - ACTUARIAL ASSUMPTIONS AND METHODS

The February 10, 2012 report entitled, "Proposed Changes in Actuarial Assumptions and Methods for Determining Employer Contributions For Fiscal Years Beginning on and After July 1, 2011 For the New York City Police Pension Fund" contains the 2012 A&M.

A memorandum dated December 4, 2015 to the Board of Trustees of POLICE contains the revised probabilities of post-retirement mortality beginning with the June 30, 2014 (Lag) actuarial valuation.

In addition, beginning with the June 30, 2014 (Lag) actuarial valuation, the AVA is constrained to be within a corridor of 80% to 120% of market value.

The 2012 A&M, including of the above changes to the probabilities of post-retirement mortality and the introduction of the AVA corridor, are referred to as the 2016 A&M.

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

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

NEW YORK CITY POLICE PENSION FUND			
PROBABILITIES OF SERVICE RETIREMENT FOR THOSE ELIGIBLE FOR UNREDUCED RETIREMENT WITH FULL ESCALATION			
Age	Years of Service Since First Eligible		
	0	1	2 or More
19	0%	0%	0%
20	0%	0%	0%
21	0%	0%	0%
22	0%	0%	0%
23	0%	0%	0%
24	0%	0%	0%
25	0%	0%	0%
26	0%	0%	0%
27	0%	0%	0%
28	0%	0%	0%
29	0%	0%	0%
30	0%	0%	0%
31	0%	0%	0%
32	0%	0%	0%
33	0%	0%	0%
34	0%	0%	0%
35	0%	0%	0%
36	60%	0%	0%
37	60%	15%	0%
38	60%	15%	10%
39	60%	15%	10%
40	60%	15%	10%
41	60%	15%	10%
42	60%	15%	10%
43	60%	15%	10%
44	60%	15%	10%
45	60%	15%	10%
46	60%	15%	11%
47	60%	15%	12%
48	60%	15%	13%
49	60%	15%	14%
50	60%	15%	15%
51	60%	15%	15%
52	60%	15%	15%
53	60%	15%	15%
54	60%	15%	15%
55	60%	15%	15%
56	60%	15%	15%
57	60%	15%	15%
58	60%	15%	15%
59	60%	15%	15%
60	60%	20%	20%
61	60%	30%	30%
62	60%	50%	50%
63	100%	100%	100%

Table XI-1b
Service Retirement, Tier 3, and Tier 3 Revised Early Service Retirement

NEW YORK CITY POLICE PENSION FUND PROBABILITIES OF SERVICE RETIREMENT FOR TIER 3 AND TIER 3 REVISED EARLY SERVICE RETIREMENT		
Years of Service	Reduced Retirement	Unreduced Before Full Escalation
20	5.00%	NA
21	2.00%	NA
22	NA	5.00%
23	NA	2.00%
24	NA	2.00%

Table XI-2
Active Termination Rates

NEW YORK CITY POLICE PENSION FUND	
PROBABILITIES OF TERMINATION	
Years Of Service	Probability Of Termination
0	4.00%
1	3.00%
2	2.00%
3	2.00%
4	2.00%
5	2.00%
6	1.80%
7	1.60%
8	1.40%
9	1.20%
10	1.00%
11	0.80%
12	0.60%
13	0.50%
14	0.40%
15	0.30%
16	0.20%
17	0.20%
18	0.20%
19	0.20%
20	NA

Table XI-3
Active Disability Rates

NEW YORK CITY POLICE PENSION FUND				
PROBABILITIES OF DISABILITY RETIREMENT				
		Accidental Disability		
		Tier 1 and Tier 2		Tier 3/ Tier 3 Revised
Age	Ordinary Disability	Not Eligible for WTC Benefits	Eligible for WTC Benefits	
19	0.045%	0.14%	0.28%	0.14%
20	0.050%	0.15%	0.30%	0.15%
21	0.055%	0.16%	0.32%	0.16%
22	0.060%	0.17%	0.34%	0.17%
23	0.065%	0.18%	0.36%	0.18%
24	0.070%	0.19%	0.38%	0.19%
25	0.075%	0.20%	0.40%	0.20%
26	0.080%	0.26%	0.52%	0.26%
27	0.085%	0.32%	0.64%	0.32%
28	0.090%	0.38%	0.76%	0.38%
29	0.095%	0.44%	0.88%	0.44%
30	0.100%	0.50%	1.00%	0.50%
31	0.105%	0.60%	1.20%	0.60%
32	0.110%	0.70%	1.40%	0.70%
33	0.115%	0.80%	1.60%	0.80%
34	0.120%	0.90%	1.80%	0.90%
35	0.125%	1.00%	2.00%	1.00%
36	0.130%	1.05%	2.10%	1.04%
37	0.135%	1.10%	2.20%	1.08%
38	0.140%	1.15%	2.30%	1.12%
39	0.145%	1.20%	2.40%	1.16%
40	0.150%	1.25%	2.50%	1.20%
41	0.155%	1.30%	2.60%	1.22%
42	0.160%	1.35%	2.70%	1.24%
43	0.165%	1.40%	2.80%	1.26%
44	0.170%	1.45%	2.90%	1.28%
45	0.175%	1.50%	3.00%	1.30%
46	0.180%	1.60%	3.20%	1.34%
47	0.185%	1.70%	3.40%	1.38%
48	0.190%	1.80%	3.60%	1.42%
49	0.195%	1.90%	3.80%	1.46%
50	0.200%	2.00%	4.00%	1.50%
51	0.250%	2.20%	4.40%	1.60%
52	0.300%	2.40%	4.80%	1.70%
53	0.400%	2.60%	5.20%	1.80%
54	0.600%	2.80%	5.60%	1.90%
55	0.800%	3.00%	6.00%	2.00%
56	1.000%	3.40%	6.80%	2.20%
57	2.000%	3.80%	7.60%	2.40%
58	3.000%	4.20%	8.40%	2.60%
59	4.000%	4.60%	9.20%	2.80%
60	6.000%	5.00%	10.00%	3.00%
61	8.000%	6.00%	12.00%	3.20%
62	10.000%	7.00%	14.00%	3.50%
63	NA	NA	NA	NA

Table XI-4
Active Mortality Rates

NEW YORK CITY POLICE PENSION FUND			
PROBABILITIES OF ACTIVE MEMBER MORTALITY			
	Ordinary Death		
Age	Males	Females	Accidental Death
19	0.040%	0.030%	0.010%
20	0.040%	0.030%	0.010%
21	0.040%	0.030%	0.010%
22	0.040%	0.030%	0.010%
23	0.040%	0.030%	0.010%
24	0.040%	0.030%	0.010%
25	0.040%	0.030%	0.010%
26	0.040%	0.030%	0.010%
27	0.040%	0.030%	0.010%
28	0.040%	0.030%	0.010%
29	0.040%	0.030%	0.010%
30	0.040%	0.030%	0.010%
31	0.040%	0.030%	0.011%
32	0.040%	0.030%	0.012%
33	0.040%	0.030%	0.013%
34	0.040%	0.030%	0.014%
35	0.040%	0.030%	0.015%
36	0.042%	0.032%	0.016%
37	0.044%	0.034%	0.017%
38	0.046%	0.036%	0.018%
39	0.048%	0.038%	0.019%
40	0.050%	0.040%	0.020%
41	0.060%	0.046%	0.021%
42	0.070%	0.052%	0.022%
43	0.080%	0.058%	0.023%
44	0.090%	0.064%	0.024%
45	0.100%	0.070%	0.025%
46	0.110%	0.076%	0.026%
47	0.120%	0.082%	0.027%
48	0.130%	0.088%	0.028%
49	0.140%	0.094%	0.029%
50	0.150%	0.100%	0.030%
51	0.160%	0.110%	0.031%
52	0.170%	0.120%	0.032%
53	0.180%	0.130%	0.033%
54	0.190%	0.140%	0.034%
55	0.200%	0.150%	0.035%
56	0.220%	0.160%	0.036%
57	0.240%	0.170%	0.037%
58	0.260%	0.180%	0.038%
59	0.280%	0.190%	0.039%
60	0.300%	0.200%	0.040%
61	0.320%	0.220%	0.041%
62	0.340%	0.240%	0.042%
63	NA	NA	NA

Table XI-5
Service Retiree Mortality

NEW YORK CITY POLICE PENSION FUND					
PROBABILITIES OF MORTALITY IN THE NEXT YEAR FOR SERVICE RETIREES IN THE JUNE 30, 2016 (LAG) VALUATION					
Age	Males	Females	Age	Males	Females
19	0.0201%	0.0121%	68	1.4111%	0.9860%
20	0.0211%	0.0122%	69	1.5882%	1.0799%
21	0.0227%	0.0130%	70	1.7737%	1.1725%
22	0.0241%	0.0138%	71	1.9680%	1.3541%
23	0.0258%	0.0149%	72	2.1713%	1.5452%
24	0.0272%	0.0160%	73	2.4162%	1.7447%
25	0.0284%	0.0174%	74	2.6714%	1.9540%
26	0.0300%	0.0189%	75	2.9373%	2.1858%
27	0.0314%	0.0204%	76	3.2148%	2.4470%
28	0.0333%	0.0223%	77	3.5041%	2.7022%
29	0.0357%	0.0242%	78	3.9641%	2.9995%
30	0.0391%	0.0263%	79	4.4446%	3.2900%
31	0.0454%	0.0317%	80	4.9441%	3.6096%
32	0.0515%	0.0364%	81	5.3726%	4.1073%
33	0.0573%	0.0404%	82	5.8075%	4.6242%
34	0.0626%	0.0433%	83	6.6015%	5.1609%
35	0.0678%	0.0460%	84	7.4033%	5.6226%
36	0.0706%	0.0477%	85	8.2128%	6.0537%
37	0.0726%	0.0496%	86	9.0318%	6.8113%
38	0.0747%	0.0514%	87	9.8575%	7.6037%
39	0.0774%	0.0536%	88	11.1716%	8.4026%
40	0.0817%	0.0562%	89	12.4980%	9.1475%
41	0.0901%	0.0597%	90	13.8437%	10.0064%
42	0.0985%	0.0653%	91	15.4068%	11.3729%
43	0.1072%	0.0729%	92	17.0051%	12.6896%
44	0.1164%	0.0828%	93	18.6274%	14.0272%
45	0.1264%	0.0959%	94	20.3158%	15.5173%
46	0.1372%	0.1120%	95	22.1014%	16.7734%
47	0.1488%	0.1307%	96	23.9542%	18.0286%
48	0.1612%	0.1522%	97	25.7511%	19.1941%
49	0.1744%	0.1735%	98	27.5665%	20.1367%
50	0.1885%	0.1876%	99	29.2540%	20.8473%
51	0.2539%	0.2008%	100	30.7448%	21.2257%
52	0.3215%	0.2114%	101	32.3665%	22.1344%
53	0.3905%	0.2201%	102	33.7861%	23.1735%
54	0.4604%	0.2827%	103	35.0826%	24.4013%
55	0.5030%	0.3385%	104	36.1722%	25.7784%
56	0.5620%	0.3893%	105	36.9822%	27.2744%
57	0.6185%	0.4353%	106	37.4491%	28.8471%
58	0.6702%	0.4570%	107	37.7175%	30.4676%
59	0.7164%	0.4923%	108	38.0028%	32.0883%
60	0.7570%	0.5259%	109	38.2863%	33.6686%
61	0.8264%	0.5588%	110	36.4196%	36.4583%
62	0.8929%	0.5885%	111	37.1087%	39.1672%
63	0.9590%	0.6198%	112	37.8219%	41.8611%
64	1.0252%	0.6850%	113	38.5792%	44.5792%
65	1.0936%	0.7510%	114	39.2823%	47.2823%
66	1.1657%	0.8271%	115	100.0000%	100.0000%
67	1.2419%	0.9039%			

Mortality Improvement Scale MP-2015 is applied to these rates to estimate future mortality improvement.

Table XI-6
Disabled Retiree Mortality

NEW YORK CITY POLICE PENSION FUND					
PROBABILITIES OF MORTALITY IN THE NEXT YEAR FOR DISABLED RETIREES IN THE JUNE 30, 2016 (LAG) VALUATION					
Age	Males	Females	Age	Males	Females
19	0.0288%	0.0141%	68	1.7829%	1.1608%
20	0.0300%	0.0149%	69	1.9688%	1.3301%
21	0.0323%	0.0166%	70	2.1777%	1.5158%
22	0.0352%	0.0186%	71	2.4165%	1.7109%
23	0.0380%	0.0208%	72	2.6659%	1.9155%
24	0.0415%	0.0231%	73	2.9443%	2.1421%
25	0.0451%	0.0256%	74	3.2170%	2.3993%
26	0.0492%	0.0284%	75	3.5010%	2.6837%
27	0.0536%	0.0313%	76	3.9811%	2.9817%
28	0.0586%	0.0347%	77	4.4587%	3.2541%
29	0.0636%	0.0378%	78	4.9546%	3.5753%
30	0.0689%	0.0409%	79	5.3829%	4.0741%
31	0.0742%	0.0440%	80	5.8162%	4.5929%
32	0.0793%	0.0469%	81	6.5681%	5.1337%
33	0.0862%	0.0498%	82	7.3658%	5.6004%
34	0.0899%	0.0514%	83	8.1731%	6.0712%
35	0.0939%	0.0535%	84	8.9339%	6.8738%
36	0.0983%	0.0555%	85	9.8107%	7.6781%
37	0.1036%	0.0578%	86	11.1871%	8.4328%
38	0.1099%	0.0600%	87	12.4403%	9.1758%
39	0.1215%	0.0630%	88	13.7755%	10.0374%
40	0.1325%	0.0678%	89	15.3248%	11.3305%
41	0.1436%	0.0745%	90	16.9079%	12.6282%
42	0.1552%	0.0830%	91	18.5118%	13.9489%
43	0.1677%	0.0941%	92	20.0567%	14.9678%
44	0.1812%	0.1081%	93	21.9315%	16.0409%
45	0.1965%	0.1249%	94	23.7553%	17.1707%
46	0.2061%	0.1447%	95	25.3782%	18.2303%
47	0.2162%	0.1670%	96	27.3314%	19.2382%
48	0.2267%	0.1915%	97	28.9930%	20.1699%
49	0.2964%	0.2222%	98	30.2883%	20.8495%
50	0.3648%	0.2562%	99	32.0879%	21.2940%
51	0.4317%	0.2825%	100	33.4990%	21.4632%
52	0.4961%	0.3313%	101	34.5697%	22.1344%
53	0.5288%	0.3708%	102	35.6330%	23.1735%
54	0.5702%	0.4271%	103	36.4423%	24.4013%
55	0.6129%	0.4834%	104	36.9101%	25.7784%
56	0.6741%	0.5272%	105	37.1787%	27.2744%
57	0.7274%	0.5393%	106	37.4491%	28.8471%
58	0.7748%	0.5568%	107	37.7175%	30.4676%
59	0.8606%	0.5905%	108	38.0028%	32.0883%
60	0.9374%	0.6186%	109	38.2863%	33.6686%
61	1.0101%	0.6459%	110	96.4196%	96.4583%
62	1.0794%	0.7070%	111	97.1087%	97.1672%
63	1.1410%	0.7675%	112	97.8219%	97.8611%
64	1.2164%	0.8373%	113	98.5792%	98.5792%
65	1.2874%	0.9079%	114	99.2823%	99.2823%
66	1.4359%	0.9841%	115	100.0000%	100.0000%
67	1.6055%	1.0724%			

Mortality Improvement Scale MP-2015 is applied to these rates to estimate future mortality improvement.

Table XI-7
Beneficiary Mortality

NEW YORK CITY POLICE PENSION FUND					
PROBABILITIES OF BENEFICIARY MORTALITY IN THE NEXT YEAR IN THE JUNE 30, 2016 (LAG) VALUATION					
Age	Males	Females	Age	Males	Females
19	0.0201%	0.0121%	68	1.7189%	1.2370%
20	0.0211%	0.0122%	69	1.8200%	1.3031%
21	0.0227%	0.0130%	70	1.9248%	1.3660%
22	0.0241%	0.0138%	71	2.0926%	1.5265%
23	0.0258%	0.0149%	72	2.2666%	1.6863%
24	0.0272%	0.0160%	73	2.4473%	1.8449%
25	0.0284%	0.0174%	74	2.6339%	2.0027%
26	0.0300%	0.0189%	75	2.8272%	2.1592%
27	0.0314%	0.0204%	76	3.2696%	2.4549%
28	0.0333%	0.0223%	77	3.7263%	2.7536%
29	0.0357%	0.0242%	78	4.1972%	3.0540%
30	0.0391%	0.0263%	79	4.6851%	3.3564%
31	0.0456%	0.0325%	80	5.1881%	3.6583%
32	0.0521%	0.0381%	81	5.7341%	4.1289%
33	0.0582%	0.0430%	82	6.2881%	4.6076%
34	0.0638%	0.0469%	83	6.8485%	5.0947%
35	0.0696%	0.0507%	84	7.4144%	5.5889%
36	0.0730%	0.0535%	85	7.9854%	6.0929%
37	0.0762%	0.0566%	86	9.0625%	6.9582%
38	0.0796%	0.0597%	87	10.1865%	7.8220%
39	0.0840%	0.0634%	88	11.3608%	8.6925%
40	0.0904%	0.0674%	89	12.5840%	9.5648%
41	0.1253%	0.0716%	90	13.8632%	10.4405%
42	0.1580%	0.0783%	91	15.4852%	11.9474%
43	0.1896%	0.0873%	92	17.1034%	13.4176%
44	0.2207%	0.0994%	93	18.7153%	14.8777%
45	0.2524%	0.1151%	94	20.3691%	16.2589%
46	0.2813%	0.1343%	95	22.2136%	17.6157%
47	0.3105%	0.1569%	96	24.0153%	18.7657%
48	0.3396%	0.1825%	97	25.7797%	19.7956%
49	0.3686%	0.2116%	98	27.5766%	20.5720%
50	0.3971%	0.2431%	99	29.2286%	21.0838%
51	0.4672%	0.2806%	100	30.7448%	21.2423%
52	0.5435%	0.3201%	101	32.3665%	22.1344%
53	0.6253%	0.3608%	102	33.7861%	23.1735%
54	0.7119%	0.4018%	103	35.0826%	24.4013%
55	0.8014%	0.4420%	104	36.1722%	25.7784%
56	0.8681%	0.5009%	105	36.9822%	27.2744%
57	0.9299%	0.5593%	106	37.4491%	28.8471%
58	0.9847%	0.6169%	107	37.7175%	30.4676%
59	1.0316%	0.6732%	108	38.0028%	32.0883%
60	1.0706%	0.7296%	109	38.2863%	33.6686%
61	1.1588%	0.7888%	110	96.4196%	96.4583%
62	1.2363%	0.8354%	111	97.1087%	97.1672%
63	1.3067%	0.8825%	112	97.8219%	97.8611%
64	1.3714%	0.9360%	113	98.5792%	98.5792%
65	1.4334%	0.9970%	114	99.2823%	99.2823%
66	1.5265%	1.0662%	115	100.0000%	100.0000%
67	1.6211%	1.1477%			

Mortality Improvement Scale MP-2015 is applied to these rates to estimate future mortality improvement.

Table XI-8
Salary Scale

NEW YORK CITY POLICE PENSION FUND		
ANNUAL RATES OF SALARY INCREASE		
Years of Service	Merit Increase	Salary Scale
0	0.00%	3.00%
1	4.00%	7.00%
2	10.00%	13.00%
3	12.00%	15.00%
4	18.00%	21.00%
5	33.00%	36.00%
6	1.40%	4.40%
7	1.60%	4.60%
8	1.80%	4.80%
9	3.20%	6.20%
10	2.00%	5.00%
11	1.90%	4.90%
12	1.80%	4.80%
13	1.70%	4.70%
14	2.90%	5.90%
15	1.50%	4.50%
16	1.40%	4.40%
17	1.30%	4.30%
18	1.20%	4.20%
19	2.40%	5.40%
20	1.00%	4.00%
21	0.90%	3.90%
22	0.80%	3.80%
23	0.70%	3.70%
24	0.60%	3.60%
25	0.50%	3.50%
26	0.50%	3.50%
27	0.50%	3.50%
28	0.50%	3.50%
29	0.50%	3.50%
30+	0.50%	3.50%

**Table XI-9
Overtime Assumptions**

NEW YORK CITY POLICE PENSION FUND					
OVERTIME					
Years of Service	All Tiers Baseline	Tier 1/2 Dual Service	Tier 1/2 Dual Disability	Tier 3/ Tier 3 Revised Dual Service	Tier 3/ Tier 3 Revised Dual Disability
0	15.00%	18.00%	8.00%	17.00%	12.00%
1	15.00%	18.00%	8.00%	17.00%	12.00%
2	15.00%	18.00%	8.00%	17.00%	12.00%
3	15.00%	18.00%	8.00%	17.00%	12.00%
4	15.00%	18.00%	8.00%	17.00%	12.00%
5	15.00%	18.00%	8.00%	17.00%	12.00%
6	15.00%	18.00%	8.00%	17.00%	12.00%
7	15.00%	18.00%	8.00%	17.00%	12.00%
8	15.00%	18.00%	8.00%	17.00%	12.00%
9	15.00%	18.00%	8.00%	17.00%	12.00%
10	15.00%	18.00%	8.00%	17.00%	12.00%
11	15.00%	18.00%	8.00%	17.00%	12.00%
12	15.00%	18.00%	8.00%	17.00%	12.00%
13	15.00%	18.00%	8.00%	17.00%	12.00%
14	15.00%	18.00%	8.00%	17.00%	12.00%
15	15.00%	18.00%	8.00%	17.00%	12.00%
16	15.00%	18.00%	9.00%	17.00%	12.00%
17	15.00%	18.00%	10.00%	17.00%	13.00%
18	15.00%	18.00%	11.00%	17.00%	13.00%
19	15.00%	18.00%	12.00%	17.00%	14.00%
20	15.00%	18.00%	12.00%	17.00%	14.00%
21	15.00%	18.00%	12.00%	17.00%	14.00%
22	15.00%	18.00%	12.00%	17.00%	14.00%
23	14.00%	17.00%	11.00%	16.00%	13.00%
24	13.00%	16.00%	10.00%	15.00%	12.00%
25	12.00%	15.00%	9.00%	14.00%	11.00%
26	11.00%	14.00%	8.00%	13.00%	10.00%
27	10.00%	13.00%	7.00%	12.00%	9.00%
28	9.00%	12.00%	6.00%	11.00%	8.00%
29	8.00%	11.00%	6.00%	10.00%	7.00%
30	7.00%	10.00%	6.00%	9.00%	6.00%
31	6.00%	9.00%	6.00%	8.00%	6.00%
32	6.00%	8.00%	6.00%	7.00%	6.00%
33	6.00%	8.00%	6.00%	7.00%	6.00%
34	6.00%	8.00%	6.00%	7.00%	6.00%
35	6.00%	8.00%	6.00%	7.00%	6.00%
36	6.00%	8.00%	6.00%	7.00%	6.00%
37	6.00%	8.00%	6.00%	7.00%	6.00%
38	6.00%	8.00%	6.00%	7.00%	6.00%
39	6.00%	8.00%	6.00%	7.00%	6.00%
40	6.00%	8.00%	6.00%	7.00%	6.00%
41	6.00%	8.00%	6.00%	7.00%	6.00%
42	6.00%	8.00%	6.00%	7.00%	6.00%
43	6.00%	8.00%	6.00%	7.00%	6.00%
44	6.00%	8.00%	6.00%	7.00%	6.00%
45	6.00%	8.00%	6.00%	7.00%	6.00%

Additional Assumptions and Methods

1. **Marital Assumption:** All active members are assumed to be married and females are assumed to be three years younger than their male spouses.
2. **Credited Service:** Calculated in whole year increments for valuation purposes.
3. **Loans:** Except for Death Benefits, it is assumed that eligible members take the maximum allowable loan at retirement.
4. **Actuarial Interest Rate:** 7.0% per annum, net of investment expenses.
5. **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.
6. **Actuarial Asset Valuation Method (AAVM):**

The Actuary reset the Actuarial Value of Assets to market value as of June 30, 2011.

Beginning with the June 30, 2012 (Lag) actuarial valuation, the AAVM recognizes investment returns greater or less than expected over a period of six years.

In accordance with this AAVM, actual Unexpected Investment Returns (UIR) are phased into the Actuarial Value of Assets (AVA) at rates of 15%, 15%, 15%, 15%, 20%, and 20% per year (i.e. cumulative rates of 15%, 30%, 45%, 60%, 80%, and 100% over a period of six years).

Beginning with the June 30, 2014 (Lag) actuarial valuation, the AVA is constrained to be within a corridor of 80% to 120% of the market value.

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

7. **Actuarial Cost Method:** Beginning with the June 30, 2010 (Lag) actuarial valuation, the Entry Age Normal (EAN) cost method of funding is used by the Actuary to calculate the contribution required of the employer under the 2016 A&M.

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 between the age a member enters the plan 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.

Under EAN, the explicit UALs that are developed each year are generally financed over fixed periods. Ideally, these periods are reasonably consistent with the expected future working lifetimes of all active participants. For more information, see Page 12.

Under EAN, the employer normal cost remains constant as a percentage of payroll and changes gradually over time for the entire Plan as the characteristics of the members change (e.g. more Tier 3 Revised active members decrease the average employer normal cost).

8. **Lump Sum Death Benefits:** Liabilities for group life lump sum death benefits are calculated under the One-Year Term Cost method.
9. **Allowances for Administrative Expenses:** The Employer Contribution for a fiscal year is increased by the interest-adjusted amount of administrative expenses paid from POLICE during the second prior fiscal year.
10. **WTC Disability and Death Benefits:** For actuarial valuations beginning June 30, 2014 and after, obligations attributable to the WTC Disability Law and to the WTC Death Benefits Law are determined through the use of explicit assumptions in the 2016 A&M, and through estimation techniques for post-retirement reclassifications.
11. **One-year Lag Methodology (OLYM):** One year Lag Methodology uses a June 30, XX-2 valuation date to determine Fiscal Year XX employer contributions.

This methodology requires adjustments to determine the Fiscal Year XX employer contributions as follows:

Present Value of Future Salary (PVFS): The PVFS at June 30, XX-2 is reduced by the value of salary projected to be paid during Fiscal Year XX-1.

Salary for Determining Employer Normal Contributions: Salary used to determine the employer Normal Contribution is the salary projected to be paid during Fiscal Year XX to members on payroll at June 30, XX-2.

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 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, 2016 (Lag) and June 30, 2015 (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, 2016 and June 30, 2015.

Consistent with the 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/ Inactive	(3) Deferred Vested	(4) Service Pension	(5) Ordinary Disability	(6) Accidental Disability	(7) Accidental Death	(8) Other Beneficiary	(9) Pensioners Subtotal (4) to (8)	(10) Grand Total (1) + (2) + (3) + (9)
Number at June 30, 2015	34,435	1,484	546	32,148	3,068	12,298	367	822	48,703	85,168
New Entrants	3,215	118	0	2	0	0	18	7	27	3,360
Rehires	89	(82)	0	(5)	0	0	0	0	(5)	2
Leaving Active Payroll	(260)	260	0	0	0	0	0	0	0	0
Vested Termination	(55)	(3)	58	0	0	0	0	0	0	0
Non-Vested Termination / Cashout	(203)	(115)	(3)	0	0	0	0	0	0	(321)
Accidental Death (from Active)	(2)	0	0	0	0	0	2	0	2	0
Ordinary Death (from Active)	(12)	0	0	0	0	0	0	0	0	(12)
Service Retirement	(961)	(2)	(25)	981	0	0	0	7	988	0
Ordinary Disability Retirement	(39)	0	(1)	0	40	0	0	0	40	0
Accidental Disability Retirement	(246)	(1)	(1)	0	0	248	0	0	248	0
Reclassifications	0	0	0	(88)	(5)	91	6	(4)	0	0
Death with Beneficiary	0	0	0	(43)	(2)	(8)	0	53	0	0
Death without Beneficiary	0	0	0	(504)	(105)	(199)	(4)	(39)	(851)	(851)
Off Pension Payroll	0	0	0	0	0	0	0	(1)	(1)	(1)
Net Change	1,526	175	28	343	(72)	132	22	23	448	2,177
Number at June 30, 2016	35,961	1,659	574	32,491	2,996	12,430	389	845	49,151	87,345

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

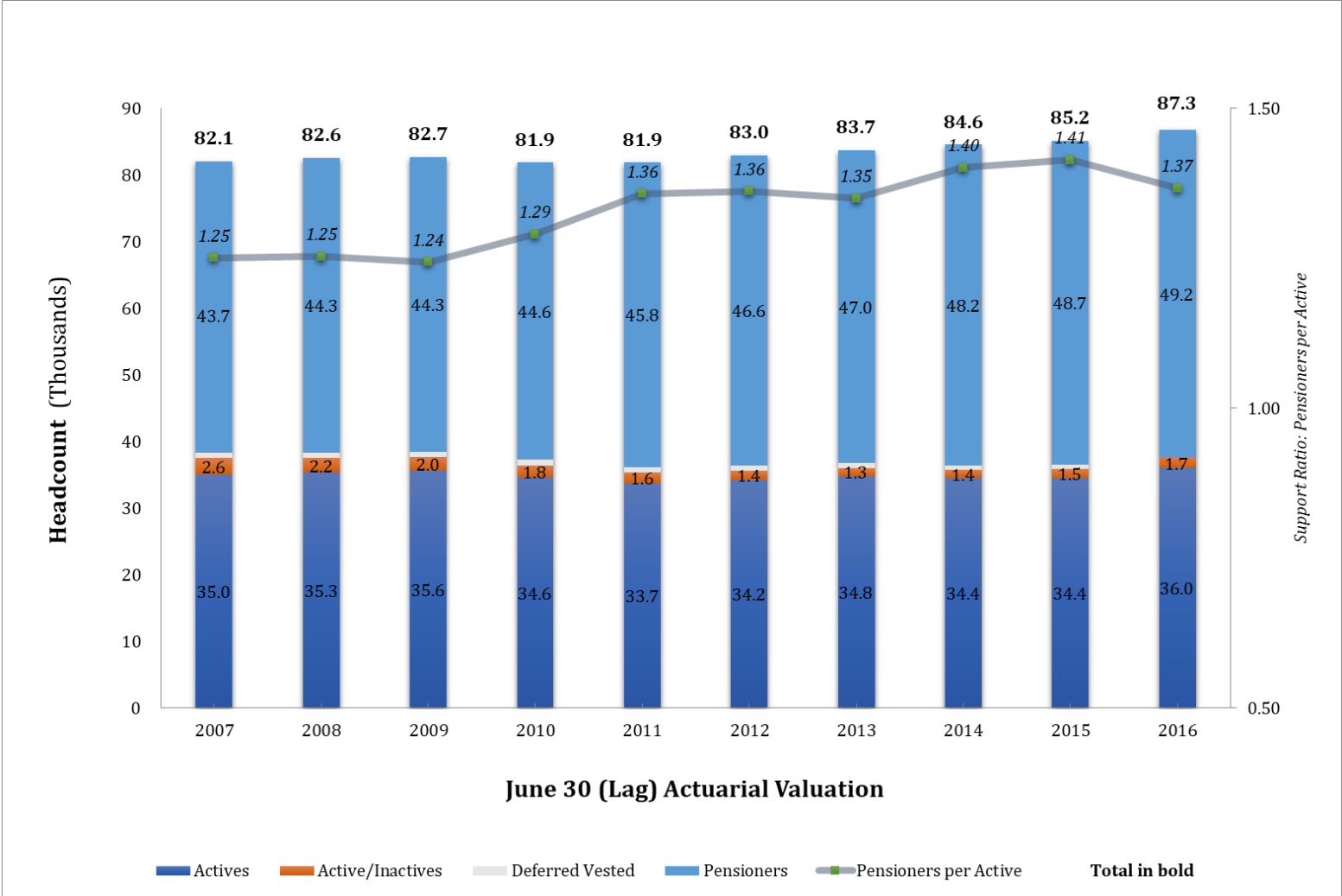


Table XII-3
Summary of Active Membership

NEW YORK CITY POLICE PENSION FUND		
ACTIVE MEMBERS INCLUDED IN THE JUNE 30, 2016 (LAG) AND THE JUNE 30, 2015 (LAG) ACTUARIAL VALUATIONS		
	June 30, 2016 (Lag)	June 30, 2015 (Lag)
Number		
Males	29,770	28,637
Females	6,191	5,798
Total	35,961	34,435
Annual Salary ¹		
Males	\$ 3,098,053,696	\$ 2,979,452,953
Females	619,371,543	584,576,706
Total	\$ 3,717,425,239	\$ 3,564,029,659
Average Salary ¹		
Males	\$ 104,066	\$ 104,042
Females	100,044	100,824
Total Average	\$ 103,374	\$ 103,500
Average Age (Years)		
Males	37.5	37.8
Females	37.4	37.7
Total Average	37.5	37.8
Average Past Service (Years)		
Males	11.5	11.8
Females	10.7	11.1
Total Average	11.4	11.7

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

Graph XII-4
Active Membership by Tier

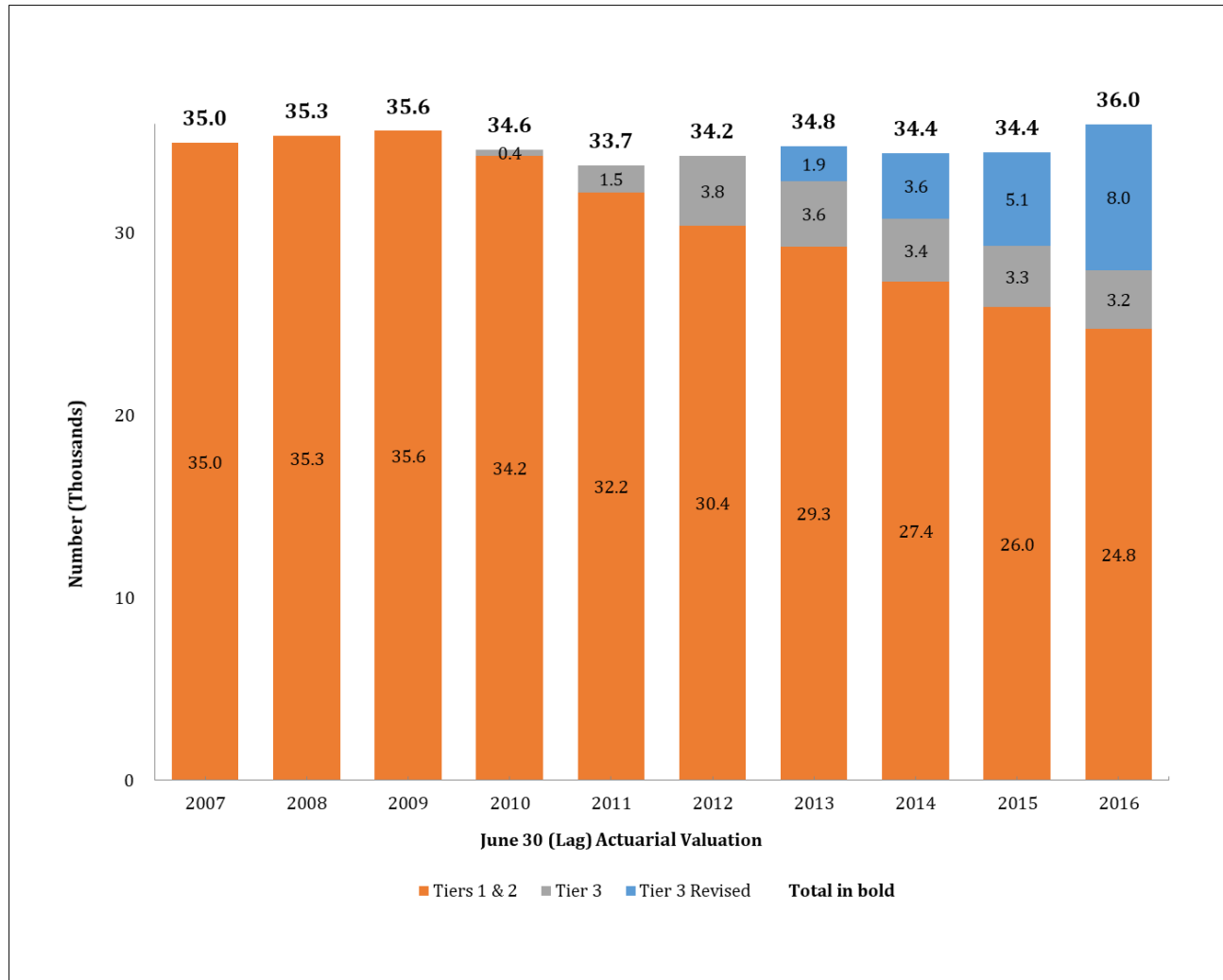


Table XII-5
Schedule of Active Member Salary Data

June 30 (Lag) Actuarial Valuation	Number	Annual Salary	Average Annual Salary	Percentage Increase/ (Decrease) In Avg. Salary
2007	34,956	\$2,961,649,327	\$84,725	5.9%
2008	35,337	3,095,903,827	87,611	3.4%
2009	35,608	3,261,118,111	91,584	4.5%
2010	34,597	3,464,096,750	100,127	9.3%
2011	33,705	3,480,066,072	103,251	3.1%
2012	34,240	3,478,153,934	101,582	(1.6%)
2013	34,775	3,607,606,894	103,741	2.1%
2014	34,402	3,618,095,284	105,171	1.4%
2015	34,435	3,564,029,659	103,500	(1.6%)
2016	35,961	3,717,425,239	103,374	(0.1%)

Annualized covered payrolls used for the Fiscal Year 2012 Employer Contributions and subsequent years are based on revised actuarial assumptions enacted by Chapter 3/13 (i.e. the 2012 A&M).

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

Table XII-6
Detailed Active Membership and Salaries as of June 30, 2016

ALL TIERS: MALES										
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	1,403	0	0	0	0	0	0	0	0	1,403
25 TO 29	4,162	844	3	0	0	0	0	0	0	5,009
30 TO 34	1,966	2,837	1,600	3	0	0	0	0	0	6,406
35 TO 39	727	1,005	3,100	882	2	0	0	0	0	5,716
40 TO 44	146	402	1,282	2,453	559	4	0	0	0	4,846
45 TO 49	4	54	564	1,337	1,500	631	3	0	0	4,093
50 TO 54	2	0	53	398	538	494	254	0	0	1,739
55 TO 59	2	1	3	60	59	99	183	58	0	465
60 TO 64	0	1	2	5	6	5	41	18	2	80
65 TO 69	0	3	1	3	2	0	0	0	0	9
70 & UP	0	0	1	0	0	1	0	0	2	4
TOTAL	8,412	5,147	6,609	5,141	2,666	1,234	481	76	4	29,770

<i>SALARIES (IN THOUSANDS):</i>										
UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	74,762	0	0	0	0	0	0	0	0	74,762
25 TO 29	259,424	90,733	279	0	0	0	0	0	0	350,436
30 TO 34	129,043	310,134	184,821	346	0	0	0	0	0	624,344
35 TO 39	47,401	109,636	360,901	108,798	287	0	0	0	0	627,023
40 TO 44	10,224	43,739	147,140	308,835	76,339	562	0	0	0	586,839
45 TO 49	278	5,889	64,997	164,731	200,326	90,588	482	0	0	527,291
50 TO 54	259	0	6,091	48,935	69,003	67,167	36,854	0	0	228,309
55 TO 59	243	142	397	7,351	7,480	12,519	26,969	10,085	0	65,186
60 TO 64	0	142	297	647	915	656	5,943	3,104	261	11,967
65 TO 69	0	423	143	380	361	0	0	0	0	1,308
70 & UP	0	0	143	0	0	145	0	0	301	589
TOTAL *	521,635	560,838	765,209	640,024	354,711	171,636	70,248	13,190	563	3,098,054

<i>AVERAGE SALARIES: **</i>										
UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	53,287	0	0	0	0	0	0	0	0	53,287
25 TO 29	62,332	107,503	93,155	0	0	0	0	0	0	69,961
30 TO 34	65,637	109,318	115,513	115,484	0	0	0	0	0	97,462
35 TO 39	65,201	109,091	116,420	123,353	143,553	0	0	0	0	109,696
40 TO 44	70,030	108,805	114,774	125,901	136,563	140,416	0	0	0	121,098
45 TO 49	69,608	109,052	115,243	123,210	133,551	143,562	160,516	0	0	128,827
50 TO 54	129,577	0	114,923	122,952	128,258	135,965	145,095	0	0	131,287
55 TO 59	121,622	141,605	132,436	122,511	126,785	126,455	147,372	173,882	0	140,186
60 TO 64	0	141,605	148,681	129,458	152,501	131,231	144,961	172,472	130,743	149,585
65 TO 69	0	141,166	142,629	126,790	180,656	0	0	0	0	145,312
70 & UP	0	0	142,629	0	0	144,675	0	0	150,727	147,189
TOTAL	62,011	108,964	115,783	124,494	133,050	139,089	146,046	173,548	140,735	104,066

Note: Age is last birthday. Service is completed years.

* 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, 2016 (cont'd)

ALL TIERS: FEMALES										
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	223	0	0	0	0	0	0	0	0	223
25 TO 29	854	164	0	0	0	0	0	0	0	1,018
30 TO 34	437	562	311	2	0	0	0	0	0	1,312
35 TO 39	208	296	700	201	0	0	0	0	0	1,405
40 TO 44	29	102	370	530	76	0	0	0	0	1,107
45 TO 49	0	18	146	342	181	57	0	0	0	744
50 TO 54	0	0	8	104	108	75	15	0	0	310
55 TO 59	0	1	0	11	13	23	16	5	0	69
60 TO 64	0	0	0	0	0	0	2	1	0	3
65 TO 69	0	0	0	0	0	0	0	0	0	0
70 & UP	0	0	0	0	0	0	0	0	0	0
TOTAL	1,751	1,143	1,535	1,190	378	155	33	6	0	6,191

<i>SALARIES (IN THOUSANDS):</i>										
UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	11,850	0	0	0	0	0	0	0	0	11,850
25 TO 29	51,307	17,580	0	0	0	0	0	0	0	68,886
30 TO 34	27,158	60,133	35,064	228	0	0	0	0	0	122,583
35 TO 39	12,967	31,393	79,657	24,099	0	0	0	0	0	148,115
40 TO 44	1,994	10,879	41,279	65,077	9,876	0	0	0	0	129,106
45 TO 49	0	1,930	16,297	41,392	23,106	7,824	0	0	0	90,549
50 TO 54	0	0	862	12,282	13,834	9,755	2,108	0	0	38,842
55 TO 59	0	163	0	1,211	1,570	2,924	2,344	821	0	9,032
60 TO 64	0	0	0	0	0	0	265	143	0	408
65 TO 69	0	0	0	0	0	0	0	0	0	0
70 & UP	0	0	0	0	0	0	0	0	0	0
TOTAL *	105,275	122,077	173,159	144,290	48,386	20,503	4,717	964	0	619,372

<i>AVERAGE SALARIES: **</i>										
UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	53,141	0	0	0	0	0	0	0	0	53,141
25 TO 29	60,078	107,193	0	0	0	0	0	0	0	67,668
30 TO 34	62,145	106,999	112,747	113,986	0	0	0	0	0	93,432
35 TO 39	62,340	106,056	113,795	119,895	0	0	0	0	0	105,420
40 TO 44	68,742	106,660	111,566	122,788	129,947	0	0	0	0	116,627
45 TO 49	0	107,212	111,622	121,029	127,656	137,266	0	0	0	121,705
50 TO 54	0	0	107,727	118,101	128,092	130,072	140,566	0	0	125,297
55 TO 59	0	162,846	0	110,112	120,763	127,110	146,489	164,193	0	130,903
60 TO 64	0	0	0	0	0	0	132,542	142,940	0	136,008
65 TO 69	0	0	0	0	0	0	0	0	0	0
70 & UP	0	0	0	0	0	0	0	0	0	0
TOTAL	60,123	106,804	112,807	121,252	128,004	132,278	142,952	160,651	0	100,044

Note: Age is last birthday. Service is completed years.

* 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, 2016 (cont'd)

ALL TIERS: ALL MEMBERS										
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	1,626	0	0	0	0	0	0	0	0	1,626
25 TO 29	5,016	1,008	3	0	0	0	0	0	0	6,027
30 TO 34	2,403	3,399	1,911	5	0	0	0	0	0	7,718
35 TO 39	935	1,301	3,800	1,083	2	0	0	0	0	7,121
40 TO 44	175	504	1,652	2,983	635	4	0	0	0	5,953
45 TO 49	4	72	710	1,679	1,681	688	3	0	0	4,837
50 TO 54	2	0	61	502	646	569	269	0	0	2,049
55 TO 59	2	2	3	71	72	122	199	63	0	534
60 TO 64	0	1	2	5	6	5	43	19	2	83
65 TO 69	0	3	1	3	2	0	0	0	0	9
70 & UP	0	0	1	0	0	1	0	0	2	4
TOTAL	10,163	6,290	8,144	6,331	3,044	1,389	514	82	4	35,961

<i>SALARIES (IN THOUSANDS):</i>										
UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	86,613	0	0	0	0	0	0	0	0	86,613
25 TO 29	310,731	108,312	279	0	0	0	0	0	0	419,323
30 TO 34	156,200	370,267	219,885	574	0	0	0	0	0	746,927
35 TO 39	60,368	141,029	440,558	132,896	287	0	0	0	0	775,138
40 TO 44	12,218	54,619	188,419	373,913	86,215	562	0	0	0	715,945
45 TO 49	278	7,819	81,294	206,123	223,432	98,412	482	0	0	617,840
50 TO 54	259	0	6,953	61,217	82,837	76,922	38,963	0	0	267,151
55 TO 59	243	304	397	8,562	9,050	15,443	29,313	10,906	0	74,219
60 TO 64	0	142	297	647	915	656	6,208	3,247	261	12,375
65 TO 69	0	423	143	380	361	0	0	0	0	1,308
70 & UP	0	0	143	0	0	145	0	0	301	589
TOTAL *	626,910	682,915	938,368	784,314	403,097	192,139	74,966	14,154	563	3,717,425

<i>AVERAGE SALARIES: **</i>										
UNDER 20	0	0	0	0	0	0	0	0	0	0
20 TO 24	53,267	0	0	0	0	0	0	0	0	53,267
25 TO 29	61,948	107,453	93,155	0	0	0	0	0	0	69,574
30 TO 34	65,002	108,934	115,063	114,885	0	0	0	0	0	96,777
35 TO 39	64,564	108,400	115,936	122,711	143,553	0	0	0	0	108,852
40 TO 44	69,817	108,371	114,055	125,348	135,771	140,416	0	0	0	120,266
45 TO 49	69,608	108,592	114,498	122,766	132,916	143,041	160,516	0	0	127,732
50 TO 54	129,577	0	113,979	121,947	128,230	135,188	144,843	0	0	130,381
55 TO 59	121,622	152,226	132,436	120,590	125,698	126,578	147,301	173,113	0	138,986
60 TO 64	0	141,605	148,681	129,458	152,501	131,231	144,383	170,918	130,743	149,094
65 TO 69	0	141,166	142,629	126,790	180,656	0	0	0	0	145,312
70 & UP	0	0	142,629	0	0	144,675	0	0	150,727	147,189
TOTAL	61,686	108,572	115,222	123,885	132,423	138,329	145,847	172,604	140,735	103,374

Note: Age is last birthday. Service is completed years.

* 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, 2016							TOTAL ACTIVE MEMBERS AS OF JUNE 30, 2015				
TIER	GENDER	NUMBER	SALARY	AVG SAL	AVG AGE	AVG SVC	NUMBER	SALARY	AVG SAL	AVG AGE	AVG SVC
I	M	3	587,746	195,915	73.0	34.0	3	573,770	191,257	72.0	32.0
I	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		3	587,746	195,915	73.0	34.0	3	573,770	191,257	72.0	32.0
II	M	20,484	2,475,613,278	120,856	41.3	15.5	21,527	2,536,639,228	117,835	40.6	14.9
II	F	4,265	493,379,104	115,681	40.9	14.3	4,444	500,718,567	112,673	40.2	13.7
		24,749	2,968,992,382	119,964	41.2	15.3	25,971	3,037,357,795	116,952	40.6	14.7
III	M	2,727	237,652,688	87,148	31.2	5.2	2,834	203,371,875	71,761	30.2	4.2
III	F	484	42,811,695	88,454	31.7	5.3	503	36,413,712	72,393	30.9	4.3
		3,211	280,464,383	87,345	31.3	5.2	3,337	239,785,587	71,857	30.3	4.2
VI	M	6,556	384,199,984	58,603	28.3	1.8	4,273	238,868,080	55,902	28.2	1.6
VI	F	1,442	83,180,744	57,684	29.0	1.7	851	47,444,427	55,751	28.8	1.6
		7,998	467,380,728	58,437	28.5	1.8	5,124	286,312,507	55,877	28.3	1.6
ALL TIERS		35,961	3,717,425,239	103,374	37.5	11.4	34,435	3,564,029,659	103,500	37.8	11.7

June 30, 2016 MEMBERS ALSO PRESENT AS OF JUNE 30, 2015							JUNE 30, 2015 MEMBERS ALSO PRESENT AS OF JUNE 30, 2016				
TIER	GENDER	NUMBER	SALARY	AVG SAL	AVG AGE	AVG SVC	NUMBER	SALARY	AVG SAL	AVG AGE	AVG SVC
I	M	3	587,746	195,915	73.0	34.0	3	573,770	191,257	72.0	32.0
I	F	0	0	0	0.0	0.0	0	0	0	0.0	0.0
		3	587,746	195,915	73.0	34.0	3	573,770	191,257	72.0	32.0
II	M	20,367	2,466,103,751	121,083	41.3	15.5	20,367	2,392,611,561	117,475	40.3	14.5
II	F	4,206	488,335,945	116,105	40.9	14.4	4,206	472,798,802	112,411	39.9	13.4
		24,573	2,954,439,696	120,231	41.2	15.3	24,573	2,865,410,363	116,608	40.2	14.3
III	M	2,721	237,208,872	87,177	31.2	5.2	2,721	195,435,463	71,825	30.2	4.2
III	F	478	42,383,957	88,669	31.7	5.3	478	34,658,293	72,507	30.7	4.3
		3,199	279,592,829	87,400	31.3	5.2	3,199	230,093,756	71,927	30.3	4.2
VI	M	4,058	256,222,836	63,140	29.2	2.6	4,058	227,021,855	55,944	28.2	1.6
VI	F	801	50,123,508	62,576	29.7	2.6	801	44,717,049	55,827	28.7	1.6
		4,859	306,346,344	63,047	29.3	2.6	4,859	271,738,904	55,925	28.3	1.6
ALL TIERS		32,634	3,540,966,615	108,505	38.5	12.5	32,634	3,367,816,793	103,200	37.5	11.4

ADDITIONS DURING THE YEAR *							SEPARATIONS FROM MEMBERSHIP DURING THE YEAR *				
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	117	9,509,527	81,278	34.8	7.2	1,160	144,027,667	124,162	46.4	21.2
II	F	59	5,043,159	85,477	36.1	8.5	238	27,919,765	117,310	44.5	18.5
		176	14,552,686	82,686	35.2	7.6	1,398	171,947,432	122,995	46.1	20.7
III	M	6	443,816	73,969	32.7	5.0	113	7,936,412	70,234	30.4	4.1
III	F	6	427,738	71,290	30.5	4.0	25	1,755,419	70,217	33.9	4.0
		12	871,554	72,630	31.6	4.5	138	9,691,831	70,231	31.0	4.1
VI	M	2,498	127,977,148	51,232	26.9	0.6	215	11,846,225	55,099	28.4	1.4
VI	F	641	33,057,236	51,571	28.1	0.6	50	2,727,378	54,548	29.8	1.3
		3,139	161,034,384	51,301	27.1	0.6	265	14,573,603	54,995	28.6	1.4
ALL TIERS		3,327	176,458,624	53,038	27.6	1.0	1,801	196,212,866	108,947	42.4	16.6

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

* Separations and additions do not include members who join after June 30, 2015 and are no longer members on June 30, 2016

Table XII-8
Summary of Non-Pensioner Membership as of June 30, 2016

STATUS	TIER 1		TIER 2		TIER 3		TIER 3 REVISED		ALL TIERS	
	NUMBER	SALARY	NUMBER	SALARY	NUMBER	SALARY	NUMBER	SALARY	NUMBER	SALARY
<i>MALES:</i>										
ACTIVES	3	587,746	20,484	2,475,613,278	2,727	237,652,688	6,556	384,199,984	29,770	3,098,053,696
INACTIVES	0	0	924	49,685,633	103	6,200,778	305	14,901,945	1,332	70,788,356
VESTED	0	0	426	34,187,527	7	519,942	0	0	433	34,707,469
ALL STATUS	3	587,746	21,834	2,559,486,438	2,837	244,373,408	6,861	399,101,929	31,535	3,203,549,521
<i>FEMALES:</i>										
ACTIVES	0	0	4,265	493,379,104	484	42,811,695	1,442	83,180,744	6,191	619,371,543
INACTIVES	0	0	190	11,154,129	26	1,560,773	111	4,992,890	327	17,707,792
VESTED	0	0	140	10,865,815	1	71,795	0	0	141	10,937,610
ALL STATUS	0	0	4,595	515,399,048	511	44,444,263	1,553	88,173,634	6,659	648,016,945
<i>TOTAL:</i>										
ACTIVES	3	587,746	24,749	2,968,992,382	3,211	280,464,383	7,998	467,380,728	35,961	3,717,425,239
INACTIVES	0	0	1,114	60,839,762	129	7,761,551	416	19,894,835	1,659	88,496,148
VESTED	0	0	566	45,053,342	8	591,737	0	0	574	45,645,079
ALL STATUS	3	587,746	26,429	3,074,885,486	3,348	288,817,671	8,414	487,275,563	38,194	3,851,566,466

Table XII-9
Summary of Pensioner Membership

Group	June 30, 2016 (LAG)				June 30, 2015 (LAG)			
	Number	Annual Amounts Payable			Number	Annual Amounts Payable		
		Plan Benefit	Supplementation	Total		Plan Benefit	Supplementation	Total
Service Pensioners	32,491	\$ 1,418,427,751	\$ 80,747,524	\$ 1,499,175,275	32,148	\$ 1,352,411,652	\$ 82,217,153	\$ 1,434,628,805
Ordinary Disability Pensioners	2,996	79,462,595	17,777,763	\$ 97,240,358	3,068	80,535,644	18,305,111	\$ 98,840,755
Accidental Disability Pensioners	12,430	662,301,712	63,117,096	\$ 725,418,808	12,298	635,005,950	63,369,742	\$ 698,375,692
Beneficiaries of Members Killed in the Line-of-Duty	389	33,631,981	2,155,970	\$ 35,787,951	367	10,833,253	2,113,918	\$ 12,947,171
Other Beneficiaries	845	18,936,804	2,252,153	\$ 21,188,957	822	17,187,292	2,287,994	\$ 19,475,286
Total	49,151	\$ 2,212,760,843	\$ 166,050,506	\$ 2,378,811,349	48,703	\$ 2,095,973,791	\$ 168,293,918	\$ 2,264,267,709

Table XII-10
Distribution of Pension Benefits by Cause and Age as of June 30, 2016

AGE	MALE			FEMALE			TOTAL		
	NUMBER	BENEFITS	AVERAGE	NUMBER	BENEFITS	AVERAGE	NUMBER	BENEFITS	AVERAGE
<i>ACCIDENTAL DISABILITY:</i>									
UNDER 30	6	352,178	58,696	1	56,969	56,969	7	409,147	58,450
30 TO 34	108	6,897,525	63,866	21	1,291,435	61,497	129	8,188,960	63,480
35 TO 39	242	16,648,076	68,794	52	3,245,086	62,406	294	19,893,162	67,664
40 TO 44	586	43,184,305	73,693	96	6,219,459	64,786	682	49,403,764	72,440
45 TO 49	1,667	126,811,975	76,072	232	14,885,866	64,163	1,899	141,697,841	74,617
50 TO 54	1,927	131,654,500	68,321	356	22,054,619	61,951	2,283	153,709,119	67,328
55 TO 59	1,387	84,860,387	61,183	233	13,335,736	57,235	1,620	98,196,123	60,615
60 TO 64	731	41,411,794	56,651	80	4,281,302	53,516	811	45,693,096	56,342
65 TO 69	1,334	61,778,699	46,311	41	1,653,505	40,329	1,375	63,432,204	46,133
70 TO 74	1,663	71,724,201	43,129	45	1,837,171	40,826	1,708	73,561,372	43,069
75 TO 79	901	38,751,786	43,010	12	496,799	41,400	913	39,248,585	42,989
80 TO 84	389	18,099,011	46,527	4	130,323	32,581	393	18,229,334	46,385
85 TO 89	226	9,982,721	44,171	5	215,897	43,179	231	10,198,618	44,150
90 & UP	83	3,472,718	41,840	2	84,765	42,383	85	3,557,483	41,853
TOTAL	11,250	655,629,876	58,278	1,180	69,788,932	59,143	12,430	725,418,808	58,360
<i>ORDINARY DISABILITY:</i>									
UNDER 30	0	0	0	1	25,320	25,320	1	25,320	25,320
30 TO 34	13	404,156	31,089	5	135,993	27,199	18	540,149	30,008
35 TO 39	50	1,749,588	34,992	21	678,680	32,318	71	2,428,268	34,201
40 TO 44	95	3,518,910	37,041	47	1,591,997	33,872	142	5,110,907	35,992
45 TO 49	232	7,967,861	34,344	121	3,932,849	32,503	353	11,900,710	33,713
50 TO 54	203	6,203,380	30,559	129	3,512,284	27,227	332	9,715,664	29,264
55 TO 59	143	3,746,392	26,199	84	2,186,492	26,030	227	5,932,884	26,136
60 TO 64	77	2,146,685	27,879	37	935,904	25,295	114	3,082,589	27,040
65 TO 69	279	7,578,574	27,163	20	442,744	22,137	299	8,021,318	26,827
70 TO 74	445	11,437,275	25,702	18	388,988	21,610	463	11,826,263	25,543
75 TO 79	321	10,473,203	32,627	7	151,343	21,620	328	10,624,546	32,392
80 TO 84	235	9,827,953	41,821	8	205,301	25,663	243	10,033,254	41,289
85 TO 89	276	12,601,328	45,657	5	215,294	43,059	281	12,816,622	45,611
90 & UP	119	5,008,144	42,085	5	173,720	34,744	124	5,181,864	41,789
TOTAL	2,488	82,663,449	33,225	508	14,576,909	28,695	2,996	97,240,358	32,457
<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	1	58,080	58,080	0	0	0	1	58,080	58,080
40 TO 44	482	27,755,798	57,585	117	5,777,404	49,380	599	33,533,202	55,982
45 TO 49	3,478	204,584,601	58,822	716	36,287,230	50,680	4,194	240,871,831	57,432
50 TO 54	5,945	322,445,809	54,238	1,325	63,157,794	47,666	7,270	385,603,603	53,040
55 TO 59	5,078	251,122,676	49,453	1,052	46,744,211	44,434	6,130	297,866,887	48,592
60 TO 64	2,528	118,642,426	46,931	436	18,317,739	42,013	2,964	136,960,165	46,208
65 TO 69	2,591	110,963,958	42,827	113	4,414,150	39,063	2,704	115,378,108	42,669
70 TO 74	3,440	130,439,074	37,918	83	2,946,979	35,506	3,523	133,386,053	37,861
75 TO 79	2,426	79,879,659	32,926	42	1,509,727	35,946	2,468	81,389,386	32,978
80 TO 84	1,311	38,475,640	29,348	32	1,106,965	34,593	1,343	39,582,605	29,473
85 TO 89	860	23,714,294	27,575	15	348,892	23,259	875	24,063,186	27,501
90 & UP	410	10,244,511	24,987	10	237,658	23,766	420	10,482,169	24,958
TOTAL	28,550	1,318,326,526	46,176	3,941	180,848,749	45,889	32,491	1,499,175,275	46,141

Table XII-10
Distribution of Pension Benefits by Cause and Age as of June 30, 2016 (cont'd)

AGE	MALE			FEMALE			TOTAL		
	NUMBER	BENEFITS	AVERAGE	NUMBER	BENEFITS	AVERAGE	NUMBER	BENEFITS	AVERAGE
<i>ACCIDENTAL DEATH:</i>									
UNDER 30	0	0	0	3	429,914	143,305	3	429,914	143,305
30 TO 34	0	0	0	3	368,941	122,980	3	368,941	122,980
35 TO 39	1	94,823	94,823	5	595,755	119,151	6	690,578	115,096
40 TO 44	1	97,905	97,905	11	1,428,845	129,895	12	1,526,750	127,229
45 TO 49	2	230,126	115,063	37	3,826,458	103,418	39	4,056,584	104,015
50 TO 54	4	459,136	114,784	49	5,755,962	117,469	53	6,215,098	117,266
55 TO 59	5	574,209	114,842	46	5,131,485	111,554	51	5,705,694	111,876
60 TO 64	1	66,642	66,642	28	2,891,505	103,268	29	2,958,147	102,005
65 TO 69	3	436,769	145,590	51	4,214,048	82,628	54	4,650,817	86,126
70 TO 74	1	157,415	157,415	62	4,885,302	78,795	63	5,042,717	80,043
75 TO 79	5	235,048	47,010	24	1,435,732	59,822	29	1,670,780	57,613
80 TO 84	2	80,250	40,125	20	1,126,043	56,302	22	1,206,293	54,832
85 TO 89	1	29,888	29,888	18	1,008,961	56,053	19	1,038,849	54,676
90 & UP	1	33,789	33,789	5	193,000	38,600	6	226,789	37,798
TOTAL	27	2,496,000	92,444	362	33,291,951	91,967	389	35,787,951	92,000
<i>OTHER BENEFICIARIES:</i>									
UNDER 30	6	166,025	27,671	7	152,624	21,803	13	318,649	24,511
30 TO 34	2	44,406	22,203	3	50,842	16,947	5	95,248	19,050
35 TO 39	1	13,585	13,585	4	119,443	29,861	5	133,028	26,606
40 TO 44	3	99,564	33,188	11	427,465	38,860	14	527,029	37,645
45 TO 49	5	219,921	43,984	28	1,148,300	41,011	33	1,368,221	41,461
50 TO 54	6	213,637	35,606	49	1,792,957	36,591	55	2,006,594	36,484
55 TO 59	2	59,376	29,688	47	1,792,953	38,148	49	1,852,329	37,803
60 TO 64	2	52,527	26,264	56	1,646,110	29,395	58	1,698,637	29,287
65 TO 69	0	0	0	83	2,282,697	27,502	83	2,282,697	27,502
70 TO 74	2	52,089	26,045	99	2,617,156	30,865	101	2,669,245	26,428
75 TO 79	1	29,448	29,448	104	2,625,469	29,860	105	2,654,917	25,285
80 TO 84	0	0	0	100	2,302,905	28,433	100	2,302,905	23,029
85 TO 89	0	0	0	92	1,765,329	25,856	92	1,765,329	19,188
90 & UP	0	0	0	132	1,514,129	22,724	132	1,514,129	11,471
TOTAL	30	950,578	31,686	815	20,238,379	24,832	845	21,188,957	25,076
<i>ALL PENSIONERS AND BENEFICIARIES:</i>									
UNDER 30	12	518,203	43,184	12	664,827	55,402	24	1,183,030	49,293
30 TO 34	123	7,346,087	59,724	32	1,847,211	57,725	155	9,193,298	59,312
35 TO 39	295	18,564,152	62,929	82	4,638,964	56,573	377	23,203,116	61,547
40 TO 44	1,167	74,656,482	63,973	282	15,445,170	54,770	1,449	90,101,652	62,182
45 TO 49	5,384	339,814,484	63,116	1,134	60,080,703	52,981	6,518	399,895,187	61,352
50 TO 54	8,085	460,976,462	57,016	1,908	96,273,616	50,458	9,993	557,250,078	55,764
55 TO 59	6,615	340,363,040	51,453	1,462	69,190,877	47,326	8,077	409,553,917	50,706
60 TO 64	3,339	162,320,074	48,613	637	28,072,560	44,070	3,976	190,392,634	47,885
65 TO 69	4,207	180,758,000	42,966	308	13,007,144	42,231	4,515	193,765,144	42,916
70 TO 74	5,551	213,810,054	38,517	307	12,675,596	41,289	5,858	226,485,650	38,663
75 TO 79	3,654	129,369,144	35,405	189	6,219,070	32,905	3,843	135,588,214	35,282
80 TO 84	1,937	66,482,854	34,323	164	4,871,537	29,704	2,101	71,354,391	33,962
85 TO 89	1,363	46,328,231	33,990	135	3,554,373	26,329	1,498	49,882,604	33,299
90 & UP	613	18,759,162	30,602	154	2,203,272	14,307	767	20,962,434	27,330
TOTAL	42,345	2,060,066,429	48,650	6,806	318,744,920	46,833	49,151	2,378,811,349	48,398

Graph XII-11
Pensioner Average Benefits

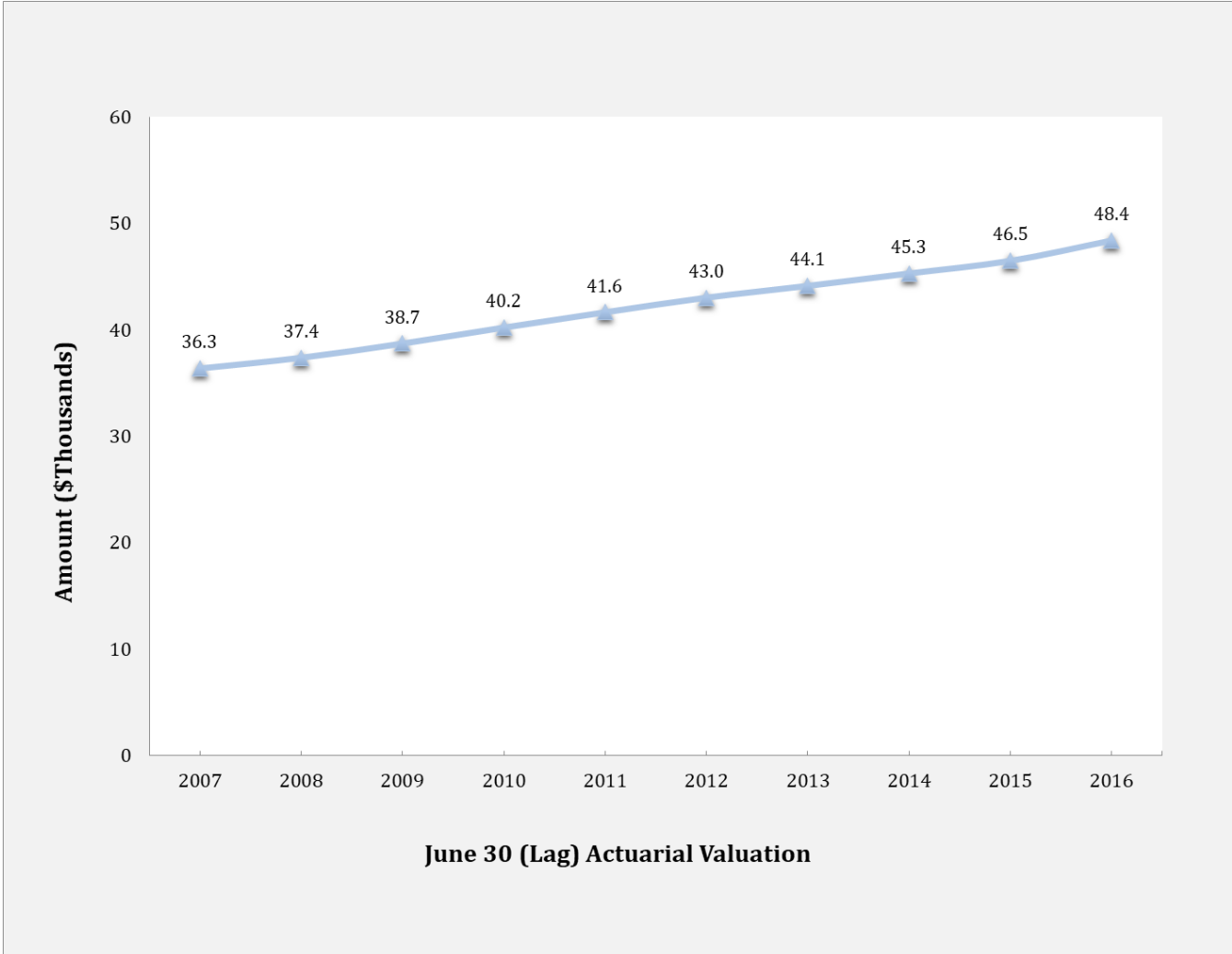


Table XII-12
Reconciliation of Pensioner and Beneficiary Data

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 ¹	Number	Annual Allowances	Number	Annual Allowances		
2007	2,268	\$ 123,856,605	1,011	\$26,869,025	43,731	\$ 1,589,281,992	6.5%	\$36,342
2008	1,541	92,191,424	982	27,012,317	44,290	1,654,461,099	4.1%	37,355
2009	1,025	89,094,934	1,030	30,086,313	44,285	1,713,469,720	3.6%	38,692
2010	1,355	110,403,824	1,006	29,554,813	44,634	1,794,318,731	4.7%	40,201
2011	2,142	141,323,253	1,021	30,315,285	45,755	1,905,326,699	6.2%	41,642
2012	1,893	133,158,449	1,010	32,287,109	46,638	2,006,198,039	5.3%	43,016
2013	1,346	99,488,158	1,034	33,621,831	46,950	2,072,064,366	3.3%	44,133
2014	2,220	144,660,995	958	32,759,640	48,212	2,183,965,721	5.4%	45,299
2015	1,574	117,371,844	1,083	37,069,856	48,703	2,264,267,709	3.7%	46,491
2016	1,458	151,061,292	1,010	36,517,652	49,151	2,378,811,349	5.1%	48,398

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

APPENDIX: ACRONYMS AND ABBREVIATIONS

2012 A&M	Actuarial Assumptions and Methods enacted by Chapter 3/13
2016 A&M	2012 A&M with changes proposed by the Actuary and adopted by Board of Trustees during Fiscal Year 2016
AAVM	Actuarial Asset Valuation Method
ABO	Accumulated Benefit Obligation
ACCNY	Administrative Code of the City of New York
AIR	Actuarial Interest Rate
AL	Accrued Liability
AVA	Actuarial Value of Assets
CAFR	Comprehensive Annual Financial Report
COLA	Cost-of-Living Adjustment
EAN	Entry Age Normal cost method
EIR	Expected Investment Return
FAS	Final Average Salary
FS	Final Salary
GASB	Governmental Accounting Standards Board
GASB5	Governmental Accounting Standards Board Statement No. 5
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
POLICE	New York City Police Pension Fund
POVSF	Police Officer's Variable Supplements Fund
PSOVSF	Police Superior Officers' Variable Supplements Fund
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