Employees' Retirement System of Jersey City

Report of the Actuary

Prepared as of January 1, 2016

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Pension Commission
Employees' Retirement System
of Jersey City
City Hall
Jersey City, New Jersey

Members of the Pension Commission:

Section 15 of City Ordinance G-145 governing the operation of the Employees' Retirement System of Jersey City provides for actuarial valuations of the system. The results of the actuarial valuation, prepared as of January 1, 2016, are submitted in this report.

The valuation shows the financial condition of the system as of January 1, 2016 and gives a basis for determining the contributions payable by the City. On the basis of the valuation, it is recommended that the City contribute to the system 4.45% of the salaries of members as well as an accrued liability contribution of $5,714,959 for 2016 payable as of December 31, 2016. The accrued liability contribution will increase 4% per year.

The valuation reflects the benefit and funding reforms under Chapter 282, P.L. 2013. The legislation amends Section 43:13-22.73 to decrease retirants' Cost-of-Living Adjustments from 100% to 50% of the percentum of change in the Department of Labor's Consumer Price Index. However, in accordance with the Pension Commission's proposed administrative procedure regarding the implementation funding provision under Section 11 of the legislation, effective with the January 1, 2014 valuation, the City shall pay an additional normal cost and an additional unfunded accrued liability contribution amount which are determined to be the difference assuming future pension adjustments in the retirement allowances continue to reflect a Cost-of-Living Adjustment of 100% of the percentum of change in the Department of Labor's Consumer Price Index and the revised 50% percentum of change in the same Consumer Price Index.

As required under Section 43:13-22.64 of the New Jersey Statutes, experience studies are performed once in every five-year period. This valuation was prepared on the basis of the demographic assumptions that were determined from the January 1, 2006 – December 31, 2010 Experience Study which were approved by the Pension Commission during the May 16, 2012 Pension Commission meeting. As mandated by the statute, these assumptions will remain in effect for valuation purposes until such time the Pension Commission adopts revised assumptions. The next experience study would be scheduled to review the experience of the System for the period January 1, 2011 to December 31, 2015 and any changes in assumptions would be implemented with the January 1, 2018 valuation of the System.

However, a recent modification to the Actuarial Standards of Practice No. 35 (ASOP#35) requires that the actuary should "include an assumption as to expected mortality improvement after the measurement date". Based on the January 1, 2006 – December 31, 2010 Experience Study, the mortality assumption to be used for the January 1, 2016 valuation is the IRS 2016 mortality table. This mortality table is a static table, which projects mortality improvement for 15 years for plan members not in receipt of a benefit and for seven years for plan members receiving a benefit but does not project mortality improvement past those designated years or the measurement date. For this reason, the Pension Commission, during its May 25, 2016 meeting, approved the use of the following mortality assumptions effective with the January 1, 2016 valuation:

- The same base mortality tables used by the Public Employees' Retirement System of New Jersey (PERS) for its Local employers' portion of the annual actuarial valuation. We believe this is an appropriate assumption since the mortality experience for the Employees' Retirement System of Jersey City is too small to be considered credible and the characteristics of the PERS Local employers is similar to the population covered by the Employees' Retirement System of Jersey City.

- The base mortality tables were then projected for expected mortality improvement based on the Buck Modified 2015 projection scale. The Buck Modified 2015 projection scale uses the same data and algorithm as the MP-2015 Projection Scale published by the Society of Actuaries but trends to an ultimate improvement rate of 0.75% at most ages, achieving the ultimate rate over a 15-year period following the end of the historic data used to construct MP-2015. The change was made to bring the ultimate rate of improvement more in line with recent data published by the Social Security Administration (SSA), including the SSA's Intermediate Alternative for mortality improvement from the 2015 Trustee's Report. The SSA data and assumptions indicate a lower level of improvement than was forecasted by the MP-2015 projection scale.

The revised mortality assumptions are appropriate for purposes of the valuation and are reasonably related to the experience of the system and to reasonable long-term expectations. Moreover, the assumptions are in compliance with ASOP# 35. The change in the mortality assumptions increased the Retirement System's accrued liability and normal cost.

This valuation was performed using employee and financial data supplied by the City. The census data was received as of January 1, 2016. Buck did not audit this data, although it was reviewed for reasonableness and consistency with the prior year's information. The results of the valuation are dependent on the accuracy of the data. Schedule D provides a summary of the data used in the valuation.

This actuarial valuation was prepared under our direct supervision and we acknowledge responsibility for the results. To the best of our knowledge, the results are complete and accurate and, in our opinion, the techniques and assumptions used are reasonable and meet the funding requirements and intent of Section 43:13-22.59 of the New Jersey Statutes. There is no benefit or expense to be provided by the Retirement System and/or paid from the Retirement System's assets for which liabilities or current costs have not been established or otherwise taken into account in the valuation. All known events or trends which may require a material increase in Retirement System costs or required contribution rates have been taken into account in the valuation.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. An analysis of the potential range of future results is beyond the scope of this valuation.

Use of these results for any other reason or by anyone other than the Pension Committee may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the results for that purpose. You should ask Buck to review any statement you wish to make on the results contained in this letter. Buck will accept no liability for any such statement made without prior review by Buck.

This valuation was prepared in accordance with the standards of practice prescribed by the Actuarial Standards Board, based on the current provisions of the Plan and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the Plan. We are members of the American Academy of Actuaries and meet the Academy's qualification standards to issue this Statement of Actuarial opinion. We are available to answer questions regarding any of the content within this report.

Respectfully submitted,

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SECTION I – SUMMARY OF PRINCIPAL RESULTS

1. For convenience of reference, the principal results of the valuation and a comparison with the preceding valuation results are summarized below:

Valuation Date	1/1/2016	1/1/2014
Number of active members	745	684
Annual salaries	$ 33,421,968	$ 30,901,289
Number of retired members and eligible Survivors [1]	346	345
Annual retirement allowances	$ 10,679,816	$ 10,102,294
Number of former members entitled to vested benefits at age 60 [2]	19	27
Annual vested benefits	$ 290,232	$ 291,697
Assets for valuation purposes	$ 99,943,507	$ 100,289,274
Unfunded accrued liability	$ 94,031,846	$ 80,838,623
Funded ratio	51.5%	55.4%
Normal contribution rate	4.45%	4.35%
Accrued liability contribution [3]	$ 5,714,959	$ 4,913,116
Annual Recommended Contribution	$ 7,202,237	$ 6,257,322
Chapter 282, P.L. 2013 Additional Contribution	1,639,096	1,225,681
Total Recommended Contribution	$ 8,841,332	$ 7,483,003

1. In addition, as of January 1, 2016, there were three minor children receiving temporary pensions of $24,492. As of January 1, 2014 there were five minor children receiving temporary pensions of$40,906.
2. In addition, as of January 1, 2016, there were 73 former active members who are valued for their accumulated contributions. As of January 1, 2014, there were 87 former active members who were valued for their accumulated contributions.
3. The accrued liability contribution amount is to increase 4% per year.

Reporting requirements of GASB Statements No. 67 are effective as of the December 31, 2013 reporting date. These requirements are provided under separate report.

2. Comments on the valuation results as of January 1, 2016 are given in Section IV and further discussion of the contribution levels is set out in Section V.

3. A summary of the main benefit and contribution provisions of the system as interpreted for the valuation is given in Schedule C of this report. There have been no other changes in benefit and contribution provisions since the preceding valuation.

4. For the January 1, 2016 valuation, the interest rate and salary scale assumptions have all remained the same as the assumptions used in the prior valuation. The valuation was prepared on the basis of the revised demographic assumptions that were determined from the January 1, 2006 – December 31, 2010 Experience Study and were approved by the Pension Commission during the May 16, 2012 Pension Commission meeting.

   However, a recent modification to the Actuarial Standards of Practice No. 35 (ASOP#35) requires that the actuary should “include an assumption as to expected mortality improvement after the measurement date”. Based on the January 1, 2006 – December 31, 2010 Experience Study, the mortality assumption to be used for the January 1, 2016 valuation is the IRS 2016 mortality table. This mortality table is a static table, which projects mortality improvement for 15 years for plan members not in receipt of a benefit and for seven years for plan members receiving a benefit but does not project mortality improvement past those designated years or the measurement date. For this reason, the Pension Commission, during its May 25, 2016 meeting, approved the use of the following mortality assumptions effective with the January 1, 2016 valuation:

   - The following base mortality tables used by the Public Employees’ Retirement System of New Jersey (PERS) for its Local employers’ portion of the annual actuarial valuation:

     a. Active membership: The RP2000 Employee Preretirement Mortality Table for male and female active participants set back 2 years for males and 7 years for females.

     b. Healthy member retirees and beneficiaries: The RP-2000 Combined Healthy Male and Female Mortality Tables (set back 1 year for males and females) for service retirement and beneficiaries of former members and a one year static projection based on mortality improvement scale AA.

     c. Disabled member retirees: The RP-2000 Disabled Mortality Tables (set back 3 years for males and set forward 1 year for females) are used to value disabled retirees.

     We believe these tables are appropriate since the mortality experience for the Employees’ Retirement System of Jersey City is too small to be considered credible and the characteristics of the PERS Local employers is similar to the population covered by Employees’ Retirement System of Jersey City.

   - The base mortality tables were then projected from the base year 2013 for expected mortality improvement based on the Buck Modified 2015 projection scale. The Buck Modified 2015 projection scale uses the same data and algorithm as the MP-2015 Projection Scale published by the Society of Actuaries but trends to an ultimate improvement rate of 0.75% at most ages, achieving the ultimate rate over a 15-year period following the end of the historic data used to construct MP-2015. The change was made to bring the ultimate rate of improvement more in line with recent data published by the Social Security Administration (SSA), including the SSA’s Intermediate Alternative for mortality improvement from the 2015 Trustee’s Report. The SSA data and assumptions indicate a lower level of improvement than was forecasted by the MP-2015 projection scale.

The revised mortality assumptions are appropriate for purposes of the valuation and are reasonably related to the experience of the system and to reasonable long-term expectations. Moreover, the assumptions are in compliance with ASOP# 35.

As mandated by the statute, these assumptions will remain in effect for valuation purposes until such time the Pension Commission adopts revised assumptions. The assumptions are outlined in Schedule B.

5. The valuation liabilities were determined using the Projected Unit Credit Funding Method. Under this method, the City is required to make two contributions to the Retirement System, a normal contribution and, if applicable, an accrued liability contribution. The normal contribution is defined under the Projected Unit Credit Funding Method as the present value of the benefits accruing during the current year. The unfunded accrued liability is determined as the difference between the accrued liability and the actuarial value of assets. If there was no unfunded accrued liability for the valuation period immediately preceding the current valuation period, the current year's accrued liability contribution is determined as a level percentage of pay required to liquidate the unfunded accrued liability in annual payments, increasing at 4% per year, over a 30 year period. Thereafter, any increase or decrease in the unfunded accrued liability as a result of actuarial losses or gains for subsequent valuation years will increase or decrease the unfunded accrued liability contribution. In accordance with the Pension Commission's administrative procedure on the funding provisions of Chapter 282, P.L. 2013, the City shall pay an additional normal cost and an additional unfunded accrued liability contribution amount assuming future COLA adjustments in retirement allowances continued to be 100% of the percentum of change in the Department of Labor's Consumer Price Index.

   It should be noted that employer contributions based on the statutory 30-year open increasing amortization method together with the additional Chapter 282 employer contributions may result in upward pressure on actuarially determined contribution requirements in future years. Moreover, absent favorable experience or actual contributions being made greater than the actuarially determined contribution the open period amortization approach may result in the unfunded accrued liability not being amortized.

SECTION II - MEMBERSHIP DATA

1. Membership data were furnished by the Plan administrator.

2. Schedule D provides tables summarizing the system's membership data used for the January 1, 2016 valuation. Table 1 shows a reconciliation of the system's membership from January 1, 2014 to January 1, 2016. Tables 2 and 3 show the number and annual rates of salary of active members that were included in the valuation, while Tables 4, 5, 6 and 7 show the number and annual pensions of retired members, eligible survivors and members entitled to vested benefits included in the valuation.

SECTION III – ASSETS

1. The amount of the assets taken into account in this valuation is based on information reported in the financial statement.

2. For actuarial purposes, assets are valued at market value, which totaled $99,943,507 as of January 1, 2016.

SECTION IV - COMMENTS ON VALUATION

Schedule A of this report contains the valuation balance sheet, which shows the present and prospective assets and liabilities of the Retirement System as of January 1, 2016. The following comments on the valuation are pertinent:

1. The Retirement System has a total accrued liability of $193,975,353 of which $112,621,864 is for the accrued benefits payable on account of present retired members, members entitled to receive deferred pensions and eligible survivors and $81,353,489 is for the accrued benefits payable on account of present active members.

2. The Retirement System has present assets of $99,943,507. When this amount is subtracted from $193,975,353, the total accrued liability of the Retirement System, the balance of $94,031,846 is the unfunded accrued liability of the Retirement System.

3. The Retirement System is supported by the joint contributions of the members and the City. The expected member contributions for 2016 are $2,185,739. When this amount is brought forward half a year with interest and subtracted from $3,761,392, the gross normal cost of the Retirement System brought forward one year with interest, the balance of $1,487,278 is the net normal cost payable as of December 31, 2016 by the City. This amount divided by the total annual compensation of active members of $33,421,968 determines a net normal cost of 4.45% of salaries.

4. As mentioned above, the current valuation indicates that a normal contribution payable by the City at a rate of 4.45% of annual salaries would be required to cover the City's cost of benefit increases in the year following the valuation. This rate multiplied by the annual compensation of $33,421,968 produces a net normal cost to be paid by the City of $1,487,278. The accrued liability contribution is determined by amortizing the unfunded accrued liability of $94,031,846 over 30 years with an 8.25% interest rate and increasing payments of 4% per year. The accrued liability contribution is $5,714,959. Therefore, the total annual contribution payable by the City as of December 31, 2014, prior to Chapter 282, P.L. 2013, is $7,202,237.

5. In accordance with the Pension Commission's administrative procedure on the funding provisions of Chapter 282, P.L. 2013, the Retirement System has a total accrued liability of $217,974,916 and a gross normal cost of $3,941,870 assuming continuation of the 100% COLA adjustment for future retirement allowances. The accrued liability contribution is determined by amortizing the unfunded accrued liability of $118,031,409 over 30 years with an 8.25% interest rate and increasing payments of 4% per year. Under Chapter 282, P.L. 2013, an additional net normal cost of $180,478 (0.54% of salaries) and accrued liability contribution of $1,458,618 (4.36% of salaries) are also payable as of December 31, 2016 by the City. Therefore, the total annual contribution payable by the City as of December 31, 2016 is $8,841,332.

SECTION V - CONTRIBUTIONS REQUIRED TO SUPPORT THE SYSTEM

1. The present actuarial valuation of the Retirement System indicates that a normal contribution rate of 4.45% to cover the City's cost of benefit increases in the year following the valuation and an accrued liability contribution of $5,714,959 due to the existing unfunded accrued liability is

recommended. In accordance with the Pension Commission's administrative procedure on the funding provisions under Chapter 282, P.L. 2013, an additional normal contribution rate of 0.54% and accrued liability contribution of $1,458,618 are also payable by the City.

2. The following table summarizes the contribution recommended for payment by the City on the basis of the salaries of members as of January 1, 2016 of $33,421,968 and estimated salaries as of January 1, 2017 of $34,758,847 in order to fund the Retirement System on a sound actuarial basis and comply with legislation.

ANNUAL CONTRIBUTION RECOMMENDED FOR PAYMENT BY THE CITY

	Annual Percentage of Salaries			Annual Amount		
	Actual Cost Reflecting 50% CPI for COLA	Additional Amount to Reflect 100% CPI for COLA	Total	Actual Cost Reflecting 50% CPI for COLA	Additional Amount to Reflect 100% CPI for COLA	Total
	Payable December 31, 2016 for 2016 Calendar Year					
Normal Contribution	4.45%	0.54%	4.99%	$1,487,278	$ 180,478	$1,667,756
Accrued Liability Contribution	17.10%	4.36%	21.46%	$5,714,959	$1,458,618	$7,173,577
Total Contribution	21.55%	4.90%	26.45%	$7,202,237	$1,639,096	$8,841,333
	Payable December 31, 2017 for 2017 Calendar Year					
Normal Contribution	4.45%	0.54%	4.99%	$1,546,769	$ 187,698	$1,734,467
Accrued Liability Contribution	17.10%	4.36%	21.46%	$5,943,763	$1,515,486	$7,459,249
Total Contribution	21.55%	4.90%	26.45%	$7,940,532	$1,703,184	$9,193,716

3. As stated above, the foregoing table shows the annual contribution payable by the City on the basis of the salaries of members as of January 1, 2016 and the estimated salaries as of January 1, 2017. However, it is recommended that the actual normal contribution to be made be determined by applying the normal contribution rate of 4.99% to the actual salaries that will be paid during the period for which the contributions are to be made.

SECTION VI - EXPERIENCE

Records are being maintained whereby the actual experience of active members, retired members and eligible survivors are compared with that expected on the basis of the tables adopted by the Pension Commission. In this way, deviations in the experience from that anticipated will be noted and any adjustments believed necessary brought to the attention of the Pension Commission.

SECTION VII – ACTUARIAL PRESENT VALUE OF ACCRUED BENEFITS

Presented below is a comparison of the actuarial present value of accrued benefits with the market value of the assets as of the valuation date. The relevant amounts as of January 1, 2016 are:

Actuarial present value of accrued benefits:	
Vested benefits	
Members and survivors currently receiving payments	$ 110,101,000
Other members	69,918,000
	$ 180,019,000
Non-vested benefits	10,336,000
Total	$ 190,355,000
Assets at market value	$ 99,944,000

The actuarial present value of vested and non-vested accrued benefits is based on an assumed interest rate of 8.25%. As of January 1, 2014 the interest rate was 8.25%.

The statement of changes in the present value of accrued benefits is as follows:

Actuarial present value benefits as of January 1, 2014	$ 174,528,000
Increase (decrease) during the year attributable to:	
Change in actuarial assumptions	$ 3,838,000
Benefits accumulated	5,016,000
Interest for 24 months	29,029,000
Benefits paid	(22,056,000)
Net Increase	$ 15,827,000
Actual present value of accrued benefits as of January 1, 2016	$ 190,355,000

SCHEDULE A

VALUATION BALANCE SHEET
SHOWING THE ASSETS AND LIABILITIES OF THE
EMPLOYEES' RETIREMENT SYSTEM OF JERSEY CITY
PREPARED AS OF JANUARY 1, 2016

ASSETS

Present assets of the system		$ 99,943,507
Unfunded accrued liability (surplus)		94,031,846
Total Assets		$ 193,975,353

LIABILITIES

Present value of prospective benefits payable on account of present retired members, members entitled to receive deferred pensions and eligible survivors		$ 112,621,864
Present value of accrued benefits payable on account of present active members:		
Service retirement benefits	$ 71,611,620	
Disability retirement benefits	1,475,659	
Benefits on death in service and after retirement	5,688,258	
Return of members' contributions upon withdrawal before retirement	2,577,952	
Total on account of active members		$ 81,353,489
Total Accrued Liabilities		$ 193,975,353

SCHEDULE B

OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS

VALUATION INTEREST RATE: 8.25% per annum, compounded annually. The valuation interest rate is based on the Retirement System's asset allocation and forward-looking expected rates of return by asset category provided by the Retirement System's investment consultant.

SEPARATIONS FROM SERVICE: Representative values of the assumed annual rates of separation are as follows:

Age	Prior to Eligibility For Benefit [1]		After Eligibility For Benefit [2]		After Eligibility for Service Retirement
	Male	**Female**	**Male**	**Female**	
20	9.31%	8.98%			
25	8.82	8.51			
30	7.35	7.09	7.60%	7.33%	
35	4.90	4.73	5.28	5.10	
40	4.41	4.25	4.85	4.67	
45	3.92	3.78	4.42	4.27	0.36%
50	2.94	2.84	3.95	3.81	0.72
55	2.94	2.84	4.45	4.30	6.00
60					24.00
62					8.00
65					21.00
69					15.00

1. Prior to 3 years of service, higher rates of termination are used.
2. The differences between the rates of termination after eligibility for a benefit and those prior to eligibility of a refund of contributions are the rates assumed for members electing a deferred benefit instead.

Age	Ordinary Death [1]		Accidental Death	Ordinary Disability	Accidental Disability
	Male	**Female**			
20	.03%	.02%	.001%	.010%	.001%
25	.04	.02	.001	.010	.001
30	.04	.02	.001	.020	.001
35	.06	.02	.001	.030	.002
40	.10	.04	.001	.080	.007
45	.13	.06	.002	.090	.007
50	.19	.09	.002	.150	.007
55	.26	.14	.002	.350	.007
60	.40	.21	.002		.008
62	.49	.25	.002		.009
65	.65	.33	.002		.009
69	.86	.47	.002		.010

1. Based on the RP2000 Employee Preretirement Mortality Table for male and female active participants set back 2 years for males and 7 years for females. In addition, the tables provide for future improvements in mortality from the base year of 2013 using a generational approach based on Buck Modified MP2015. Rates shown above are unadjusted for Buck Modified MP2015.

SALARY INCREASES: Representative values of the assumed annual rates of future salary increases are as follows:

Age	Annual Rate of Salary Increase
20	4.91%
25	5.00
30	4.86
35	4.50
40	4.23
45	3.85
50	3.57
55	3.09
60	2.74
62	2.57
65	2.30
69	1.86

SERVICE RETIREMENT: Assumed to occur between the age first eligible and age 70.

COST-OF-LIVING INCREASES: The COLA increase is 50% of the cumulative increase in the Consumer Price Index, which is assumed to increase at 3% per year.

SPOUSES: 85% of active members assumed to be married.

DEATHS AFTER RETIREMENT:

SERVICE: The RP-2000 Combined Healthy Male and Female Mortality Tables (set back 1 year for males and females) for service retirement and beneficiaries of former members and a one year static projection based on mortality improvement scale AA. In addition, the tables for service retirement provide for future improvements in mortality from the base year of 2013 using a generational approach based on the Buck Modified 2015 projection scale.

BENEFICIARIES: The RP-2000 Combined Healthy Male and Female Mortality Tables (set back 1 year for males and females) for service retirement and beneficiaries of former members and a one year static projection based on mortality improvement scale AA. In addition, the tables for beneficiaries of former members provide for future improvements in mortality from the base year of 2013 using a generational approach based on the Buck Modified 2015 projection scale.

DISABILITY: The RP-2000 Disabled Mortality Tables (set back 3 years for males and set forward 1 year for females) are used to value disabled retirees. In addition, the tables for disability retirement provide for future improvements in mortality from the base year of 2013 using a generational approach based on the Buck Modified 2015 projection scale.

Representative values of the assumed annual rates of mortality unadjusted for the Buck Modified 2015 projection scale are as follows:

Age	Service Retirements & Beneficiaries		Age	Disability Retirements	
	Male	Female		Male	Female
55	.31%	.24%	35	2.26%	.75%
60	.59	.44	40	2.26	.75
65	1.11	.86	45	2.26	.82
70	1.95	1.48	50	2.51	1.25
75	3.34	2.53	55	3.16	1.76
80	5.73	4.12	60	3.80	2.29
85	9.91	6.90	65	4.50	2.96

LOADING OR CONTINGENCY RESERVES: None.

VALUATION METHOD: Projected Unit Credit.

ASSET VALUATION METHOD: Market value.

PRESENT VALUE OF ACCRUED VESTED AND NONVESTED BENEFITS: The calculation of the present value of accrued vested and non-vested benefits has been made on the basis of the same assumptions as used in the valuation except that no salary increases are assumed.

MISCELLANEOUS: The valuation was prepared on an on-going plan basis. The valuation was based on members of the Retirement System as of the valuation date and did not take future members into account. No provision has been made for contingent liabilities with respect to non-vested terminated members who may be reemployed. The valuation assumptions anticipate a modest rate of future inflation. In accordance with Chapter 282, P.L. 2013 and the Pension Commission's administrative procedure, the City shall pay an additional normal cost and an additional unfunded accrued liability contribution amount assuming the cost of the adjustment in future retirement allowances assuming 100% (instead of 50%) of the percentum of change in the Department of Labor's Consumer Price Index.

SUMMARY OF CHANGES FROM THE JANUARY 1, 2014 VALUATION:

The active and pensioner mortality assumptions were changed from the 2014 IRS Static Non-Annuitant and Annuitant mortality tables to:

a. Active membership: The RP2000 Employee Preretirement Mortality Table for male and female active participants set back 2 years for males and 7 years for females.

b. Healthy member retirees and beneficiaries: The RP-2000 Combined Healthy Male and Female Mortality Tables (set back 1 year for males and females) for service retirement and beneficiaries of former members and a one year static projection based on mortality improvement scale AA.

c. Disabled member retirees: The RP-2000 Disabled Mortality Tables (set back 3 years for males and set forward 1 year for females) are used to value disabled retirees.

d. The base mortality tables were then projected from the base year 2013 for expected mortality improvement based on the Buck Modified 2015 projection scale. The Buck Modified 2015 projection scale uses the same data and algorithm as the MP-2015 Projection Scale published by the Society of Actuaries but trends to an ultimate improvement rate of 0.75% at most ages, achieving the ultimate rate over a 15-year period following the end of the historic data used to construct MP-2015. The change was made to bring the ultimate rate of improvement more in line with recent data published by the Social Security Administration (SSA), including the SSA's Intermediate Alternative for mortality improvement from the 2015 Trustee's Report. The SSA data and assumptions indicate a lower level of improvement than was forecasted by the MP-2015 projection scale.

SCHEDULE C

SUMMARY OF MAIN SYSTEM PROVISIONS AS INTERPRETED FOR VALUATION PURPOSES

The Employees' Retirement System of Jersey City, which became effective February 22, 1965, was established under City Ordinance G-145 in accordance with the provisions of Chapter 275 of the Laws of New Jersey 1964. It supersedes any pension system existing in the City pursuant to Article 2, Chapter 13, Title 43 of the Revised Statutes. Legislation signed on August 19, 1996 revised the retirement and survivorship benefits payable to retirants and beneficiaries. Chapter 167, P.L. 2003 increased retirement allowances by 100% of the calculated increase in the CPI instead of the previous 60%. Chapter 247, P.L. 2005 decreased the early retirement factor from 2/12 of 1% to 1/12 of 1% per month for retirees prior to age 60. Chapter 128, P.L. 2003 allowed 39 employees to retire with enhanced benefits. Chapter 282, P.L. 2013, which was approved January 17, 2014, decreased the percentage of adjustment in the retirement allowances, pensions and survivorship benefits to 50% of the calculated increase in the CPI instead of the previous 100%.

1 – DEFINITION

“Final Salary" means the average annual salary received by a member for the three years immediately preceding his death or retirement or it means the average annual salary earned by a member for any 3 fiscal years of membership providing the largest possible benefit to the member or his beneficiary; provided, however, that as to any member employed by the City prior to January 12, 1965, salary received by such member at the time of his death or retirement. Chapter 282, P.L. 2013 changed the definition of final salary for members hired on or after January 17, 2014 to be the average annual compensation for any five fiscal years of membership providing the largest possible benefit.

2 – MEMBERSHIP IN PLAN

Employees who were members of the former pension systems on the effective date automatically became members of the Retirement System. After the effective date membership is a condition of employment for those who become employees prior to the attainment of age 40. Those employees who became such prior to February 22, 1965, who were not members of a former pension system and who had become employees prior to the attainment of age 40, were allowed to join the Retirement System within 6 months after the effective date and were permitted to purchase credit for prior service. Provision was made in the ordinance for a possible transfer to the Retirement System of certain members of the State Retirement Systems within this same 6 month period. Under the provisions of Chapter 158, P.L. 1966, employees who were not covered under a former pension system and who were employed on or before February 22, 1965 and after attainment of age 40 but prior to the attainment of age 50 were allowed to become members within 6 months after the effective date of the amendment and were permitted to purchase credit for prior service. Members of the police and fire departments and employees of the board of education are not included as employees eligible to become members. All pensions and benefits on account of pensioners and beneficiaries of the former pension systems are continued under the Retirement System.

Effective October 7, 1984 temporary employees with one year's continuous service are required to become members of the Retirement System. Under the provisions of Chapter 282, P.L. 2013, effective January 17, 2014, persons employed by Jersey City under age 40 will continue membership in the State administered Public Employees’ Retirement System (PERS) if they were PERS members at the time they were employed by Jersey City.

3 – BENEFITS

Retirement for Age and Service With 20 (25 years for members hired on or after January 17, 2014) or More Years of Creditable Service

Conditions for Retirement	Any member who has 20 years of creditable service in the employ of the City and has attained age 60 (25 years of creditable service and age 65 for members hired on or after January 17, 2014) may retire for age and service upon his application.
Amount of Pension	The pension payable upon retirement is equal to 55% of his final salary plus 1% of such salary for each year of creditable service in excess of 20 years (25 years for members hired on or after January 17, 2014). The minimum annual pension is $3,600.

Retirement for Age and Service With Less Than 20 Years of Creditable Service

Conditions for Retirement	Any member who has attained age 60 but with less than 20 years of creditable service in the employ of the City may retire under this provision.
Amount of Pension	The pension payable is equal to 2% of his final salary for each year of creditable service. The annual pension, however, is never less than $3,600.

Early Service Retirement

Conditions for Retirement	If a member resigns prior to age 60 (age 65 for members hired on or after January 17, 2014) after having completed 25 years (30 years for members hired on or after January 17, 2014) of creditable service, he may elect to receive a pension.
Amount of Pension	The pension payable is equal 55% of his final salary plus 1% of such salary for each year of service in excess of 20 years (in excess of 25 years for members hired on or after January 17, 2014), reduced by 1/12 of 1% for each month he is less than age 60 (3/12 of 1% for each month he is less than age 65 for members hired on or after January 17, 2014), but not less than $3,600 per annum.

Termination of Service

Conditions for Pension	If a member has completed 10 years of creditable service and is separated from service either voluntarily or involuntarily prior to age 60 (age 65 for members hired on or after January 17, 2014), he may elect to receive a deferred pension commencing at age 60 (age 65 for members hired on or after January 17, 2014).
Amount of Pension	A deferred pension in an amount equal to the proportional relation which his years of service credited in the fund bear to the years of service which he would have had had he continued in

service to age 60 (age 65 for members hired on or after January 17, 2014), multiplied by one-half of his final salary at the time he elected the deferred pension. The minimum annual pension is $3,600.

Retirement for Ordinary Disability

Conditions for Retirement

Any member who has 5 or more years of creditable service and who has become permanently disabled for the further performance of his duty may be retired on a disability pension.

Amount of Pension

The pension is equal to one-half of his final salary plus 1% for each year of creditable service in excess of 20 years, never less than $3,600 per annum.

Retirement for Accidental Disability

Conditions for Retirement

Any member who has become permanently and totally disabled, mentally or physically, for the further performance of his duty as a result of a traumatic event occurring during and as a result of the performance of his regular or assigned duties may be retired on a disability pension. The application to accomplish such retirement must be filed within five years of the original traumatic event.

Amount of Pension

The pension is equal to two-thirds of his final salary, never less than $3,600 per annum.

Benefits Upon Death in Service

Conditions for Benefit

Upon the death of a member in service who has paid to the system the full amount of his contributions, a death benefit is payable to the surviving widow, widower, minor children or dependent parents of the member, as the case may be, provided that:

(a) The member dies as a result of injuries or illness received or incurred in the performance of his duties, or

(b) The member has served in the employ of the City for a period of five years and dies from causes other than injuries or illness received or incurred in the performance of his duties.

In order to be eligible for the benefit, a widow or widower must have been married to the member at least 5 years prior to his death or retirement.

Amount of Pension

The death benefit payable to the surviving widow or widower is a pension of 50% of the member's final salary. If there is no surviving widow or widower or the widow or widower dies or remarries, a pension of 20% of such final salary shall be paid to one surviving child, 35% to two surviving children in equal shares and 50% to three or more children in equal shares. If there is no surviving widow, widower or child, a pension of 25% of such final salary shall be paid to one surviving dependent parent or 40% to two surviving dependent parents in equal shares.

If there are no eligible survivors, an amount equal to the member's contributions to the system, without interest, is payable to his estate.

Benefits upon Death after Retirement

Conditions for Benefit

Upon the death of a member after his retirement, a death benefit is payable to the surviving widow, widower, minor children or dependent parents of the member, as the case may be. In order to be eligible for the benefit, a widow or widower must have been married to the member at least 5 years prior to his retirement.

Amount of Pension

The death benefit payable to eligible survivors is a pension equal to 50% of the member's pension at retirement, not less than $3,600 per annum.

Form of Benefits

All benefits under the system are payable for life, except that benefits to widows and widowers and dependent parents are discontinued upon their remarriage and the benefits to minor children are discontinued upon their marriage or attainment of age 18.

If after the payment of all pension and survivorship benefits payable by the retirement system to a decedent member after retirement and his eligible survivors, the total amount paid is less than the amount of the decedent's contributions during membership in the retirement system, the amount of the difference, without interest, shall be payable to the decedent's estate.

Refund of Contributions upon Termination of Service

A member who separates from service without receiving other benefits from the system is entitled to a refund of his contributions to the system, without interest, at the expiration of 90 days plus the period of tendency of any legal proceedings.

Cost-of-Living Adjustment

A retirant or beneficiary who has been in receipt of a pension or survivorship benefit for at least two years will receive a percentage adjustment of his initial pension or survivorship benefit at the beginning of each year starting with the year 1990, or the beginning of his 25th month in receipt of a pension or survivorship benefit, if later, equal to 50% (previously 100%) of the percentum of change in the Department of Labor's Consumer Price Index from the annual average index in 1988 or year his benefits began, if later, to the date of adjustment.

4 – CONTRIBUTIONS

By Members

Each member on the effective date of the system contributes during the entire period of his service the percentage of his salary applicable to his age at the time of his appointment, as follows:

AGE AT APPOINTMENT	% RATE OF CONTRIBUTION
Not Exceeding 35 years	6%
Between 35 and 36 years	6½
Between 36 and 37 years	7
Between 37 and 38 years	7½
Between 38 and 39 years	8
39 and over	8½

Each employee who becomes a member after the effective date of the system contributes during the entire period of his service the percentage of his salary applicable to his age at the time of becoming a member. These percentages at quinquennial ages are as follows:

AGE AT BECOMING A MEMBER	% RATE OF CONTRIBUTION
20	6.20%
25	6.60
30	7.25
35	8.15
40	9.50
45	9.70
50 and over	10.15

By City

The contributions of the City consist of a normal contribution which is the present value of benefits to be accrued in the year following the valuation converted to a percentage of the annual salaries of all active members and, until the unfunded accrued liability is liquidated, an additional amount known as the accrued liability contribution which is an amount, increasing 4% per year, that will pay off the unfunded accrued liability over a period of 30 years. In accordance with Chapter 282, P.L. 2013 and the Pension Commission's administrative procedure, effective with the January 1, 2014 valuation, the City shall pay an additional normal cost and an additional unfunded accrued liability contribution amount assuming the cost of the future adjustments in retirement allowances is 100% (instead of 50%) of the percentum of change in the Department of Labor's Consumer Price Index.

Summary of Changes From the January 1, 2014 Valuation

None.

SCHEDULE D

TABLES OF MEMBERSHIP DATA

TABLE 1

RECONCILIATION OF DATA FROM JANUARY 1, 2014 TO JANUARY 1, 2016

	Actives		Deferred Vested	Retirees		Beneficiaries	Dependents	Total
	Contrib.	Noncontrib.		Service	Disabled			
Members as of January 1, 2014	684	87	27	259	14	72	5	1,148
Status Change:								
To Contributing	7	(7)						
To Noncontributing	(15)	15						
Withdrawal								
- Non-Vested & Vested Refund	(25)	(29)	(8)					(62)
- Deferred Vested	(4)		4					
Service Retirement	(30)	(2)		32				
Disabled		(1)			1			
Deferred Vesteds Now Payable			(1)	1				
Death				(26)		(12)		(38)
Beneficiaries						5		5
End of Payments							(2)	(2)
New Actives	127	10						137
Rehires								
Data Corrections/Pickups	1		(3)					(2)
Members as of January 1, 2016	745	73	19	266	15	65	3	1,186

TABLE 2

THE NUMBER AND ANNUAL RATES OF SALARIES OF MEMBERS DISTRIBUTED BY FIFTH-YEAR AGE AS OF JANUARY 1, 2016

	MEN		WOMEN	
AGE	NUMBER	AMOUNT	NUMBER	AMOUNT
Under 23	4	$ 98,400	7	$ 169,450
23 – 27	27	810,420	26	856,947
28 – 32	37	1,327,473	40	1,195,799
33 – 37	42	1,543,743	84	3,099,753
38 – 42	35	1,690,919	55	2,315,000
43 – 47	31	1,626,209	51	2,045,650
48 – 52	51	2,706,224	50	2,332,181
53 – 57	42	2,535,618	53	2,615,452
58 – 62	30	1,984,791	41	2,152,861
63 – 67	9	578,086	22	1,351,993
Over 67	5	227,290	3	157,709
TOTAL	313	$ 15,129,173	432	$ 18,292,795

TABLE 3

THE NUMBER AND ANNUAL RATES OF SALARIES OF MEMBERS DISTRIBUTED BY FIFTH-YEAR SERVICE AS OF JANUARY 1, 2016

	MEN		WOMEN	
SERVICE	NUMBER	AMOUNT	NUMBER	AMOUNT
Under 3	61	$ 2,026,108	68	$ 2,265,044
3 – 7	25	936,004	35	967,256
8 – 12	64	2,765,316	105	3,665,236
13 – 17	36	1,842,774	58	2,429,985
18 – 22	31	1,568,938	54	2,196,504
23 – 27	34	2,304,355	41	2,177,009
28 – 32	40	2,356,758	42	2,701,877
33 – 37	14	953,124	14	790,034
38 – 42	6	287,194	9	562,012
Over 42	2	88,602	6	537,838
TOTAL	313	$ 15,129,173	432	$ 18,292,795

TABLE 4

THE NUMBER AND ANNUAL PENSIONS OF RETIRED MEMBERS DISTRIBUTED BY FIFTH-YEAR AGE AS OF JANUARY 1, 2016

SERVICE RETIREMENTS				
	MEN		WOMEN	
AGE	NUMBER	AMOUNT	NUMBER	AMOUNT
Under 53	2	$ 55,648	3	$ 72,767
53 – 57	6	292,456	6	209,371
58 – 62	16	629,201	14	392,714
63 – 67	47	2,052,306	34	1,212,129
68 – 72	36	1,390,845	23	649,983
73 – 77	7	296,032	24	724,758
78 – 82	10	394,838	13	395,471
83 – 87	7	178,412	8	191,918
88 – 92	4	69,894	5	206,677
Over 92			1	29,189
TOTAL	135	$ 5,359,632	131	$ 4,084,977

TABLE 5

THE NUMBER AND ANNUAL PENSIONS OF RETIRED MEMBERS DISTRIBUTED BY FIFTH-YEAR AGE AS OF JANUARY 1, 2016

DISABILITY RETIREMENTS				
	MEN		WOMEN	
AGE	NUMBER	AMOUNT	NUMBER	AMOUNT
Under 43	1	$ 23,563		
43 – 47	1	18,109		
48 – 52				
53 – 57			5	$ 100,805
58 – 62	2	47,508	3	109,909
63 – 67			3	61,491
68 – 72				
73 – 77				
78 – 82				
83 – 87				
88 - 92				
Over 92				
TOTAL	4	$ 89,180	11	$ 272,205

TABLE 6

THE NUMBER AND ANNUAL PENSIONS OF SURVIVORS OF DECEASED ACTIVE AND RETIRED MEMBERS DISTRIBUTED BY FIFTH-YEAR AGE AS OF JANUARY 1, 2016

	MEN		WOMEN	
AGE	NUMBER	AMOUNT	NUMBER	AMOUNT
Under 53			1	$ 25,650
53 – 57			1	20,412
58 – 62	1	$ 22,736	2	28,538
63 – 67	3	51,579	5	108,852
68 – 72	2	25,416	2	30,812
73 – 77			8	155,513
78 – 82	1	5,433	8	105,794
83 – 87			14	154,682
88 – 92	1	12,026	8	54,957
Over 92			8	71,422
TOTAL	8	$ 117,190	57	$ 756,632

In addition, there are three minor children receiving temporary pensions of $24,492.

TABLE 7

THE NUMBER AND ANNUAL DEFERRED PENSIONS OF MEMBERS ENTITLED TO VESTED BENEFITS DISTRIBUTED BY FIFTH-YEAR AGE AS OF JANUARY 1, 2016

	MEN		WOMEN	
AGE	NUMBER	AMOUNT	NUMBER	AMOUNT
Under 33				
33 – 37				
38 – 42				
43 – 47	3	$ 48,264		
48 – 52	1	21,528	2	$ 35,628
53 – 57	4	74,319	5	62,364
Over 57	2	36,114	2	12,015
TOTAL	10	$ 180,225	9	$ 110,007

In addition, there were 73 former active members who have terminated employment and have not yet received a refund of contributions.