GRS Gabriel Roeder Smith & Company
Consultants & Actuaries

CITY OF JOLIET POLICE OFFICERS' PENSION FUND ANNUAL ACTUARIAL VALUATION

FOR THE YEAR BEGINNING JANUARY 1, 2016

CONTENTS

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October 14, 2016

The Pension Board
City of Joliet Police Officers' Pension Fund
Joliet, Illinois

Dear Board Members:

We are pleased to provide our formal annual Actuarial Valuation Report as of January 1, 2016, covering the City of Joliet Police Officers' Pension Fund. This report provides, among other things, the minimum annual contribution requirements of the Plan for the Plan Year commencing January 1, 2016, and ending on December 31, 2016 (which directly affects the City's tax levy in the 2017 fiscal year that is collected and deposited into the Pension Trust in fiscal year 2017). This actuarial valuation was based on the plan provisions as outlined in Section C of this report, the Plan participant data as provided by the City of Joliet (i.e., Plan Sponsor) and on the actuarial cost method and the set of actuarial assumptions as described in Section D of the report.

Beginning with the January 1, 2015, actuarial valuation, the Board approved a modified funding policy that shortened the amortization period used to finance the unfunded actuarial accrued liability from 31 years as of January 1, 2015, to 29 years. The modified funding policy is equal to the sum of: (a) annual normal cost plus (b) amortization of unfunded liability as a level percent of pay between January 1, 2015, and January 1, 2044, plus (c) interest on (a) and (b) to date of payment, that is projected to produce a funded ratio of 100 percent by January 1, 2044. The contribution under this modified funding policy satisfies the statutory minimum funding requirements found in Public Act 96-1495.

The assumptions used in this actuarial valuation are the same as those used in the previous actuarial valuation.

The assumptions and methods used in this actuarial valuation, with the exception of the discount rate, are based on an experience review performed using census information from the period January 1, 2005, to January 1, 2010, which first became effective for the January 1, 2011, actuarial valuation. The discount rate of 6.75 percent was adopted prior to the January 1, 2014, actuarial valuation. We have performed an experience review based on census data from the period January 1, 2010, to January 1, 2015. As part of this study, we reviewed all economic and demographic assumptions, including the investment and mortality assumptions, and provided recommended assumption changes. The recommended assumptions and methods, pending Board approval, are expected to be implemented beginning with the January 1, 2017, actuarial valuation.

Chapter 40, Act 5, Article 3 of the Illinois Compiled Statutes requires an actuarial balance sheet (i.e., actuarial valuation) be prepared by a qualified actuary in order to determine the annual tax levy to meet the annual actuarial requirements of the Pension Fund. Alex Rivera and Lance J. Weiss of Gabriel, Roeder, Smith & Company have the following qualifications:

> **Alex Rivera** is a Fellow of the Society of Actuaries, a Member of the American Academy of Actuaries and an Enrolled Actuary with over 25 years of responsible experience in the actuarial and pension consulting field.
>
> **Lance J. Weiss** is a Fellow of the Conference of Consulting Actuaries, a Member of the American Academy of Actuaries and an Enrolled Actuary with over 30 years of responsible experience in the actuarial and pension consulting field.

It is our understanding, in accordance with the Illinois Compiled Statutes, that the undersigned more than satisfy the minimum requirements as set forth in the referenced Pension Code as recently amended.

In addition, it is also our understanding that the Pension Code requires that a Member of the American Academy of Actuaries perform the required annual actuarial valuation and does not mandate that the Illinois Department of Insurance's annual actuarial valuation of the Pension Fund be controlling or that the Department of Insurance accept or approve another actuarial valuation of the Pension Fund.

Alex Rivera and Lance J. Weiss are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

We will be pleased to review this report with you at your convenience.

Sincerely,

Alex Rivera

Alex Rivera, F.S.A., E.A., M.A.A.A., F.C.A.
Senior Consultant

Lance J. Weiss

Lance J. Weiss, E.A., M.A.A.A., F.C.A.
Senior Consultant

AR/LW:rg

Additional Disclosures Required by Actuarial Standards of Practice

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

This report should not be relied on for any purpose other than the purpose stated.

The signing actuaries are independent of the plan sponsor.

SECTION A

VALUATION RESULTS

SUMMARY OF ACTUARIAL VALUATION RESULTS

	Valuation Date as of	January 1, 2015	January 1, 2016
Employee Data	Number of Active Police Officers	262	269
	Number of Service Retirees	127	130
	Number of Disabled Lives	13	14
	Number of Widow Beneficiaries	27	27
	Number of Children Beneficiaries	0	0
	Number of Separated Deferred Police Officers	8	10
	Number of Handicapped Beneficiaries	2	2
	TOTAL	439	452
	Total Annual Salaries of Police Officers	$ 26,720,995	$ 27,759,332
Plan Liabilities	Gross Actuarial Accrued Liability:		
	Active Police Officers	$ 160,195,428	$ 168,526,708
	Retirees, Beneficiaries & Disabled	168,422,325	176,938,927
	TOTAL	$ 328,617,753	$ 345,465,635
	Actuarial Value of Assets at Valuation Date	$ 184,130,516	$ 198,940,171
	Unfunded/(Overfunded) Actuarial Accrued Liability	$ 144,487,237	$ 146,525,464
	Funded Position of Plan's Gross Actuarial Accrued Liability [a]	56.0 %	57.6 %

		For the 2015 Fiscal Year	For the 2016 Fiscal Year
Normal Cost	Gross Annual Normal Cost	$ 8,669,493	$ 8,813,638
	Less Expected Member Contributions (for Applicable Plan Year)	2,648,051	2,750,950
	Net Annual Normal Cost (Municipality Paid)	$ 6,021,442	$ 6,062,688
	Net Annual Normal Cost (As a percentage of pay) [b]	22.5 %	21.8 %

[a] *Equals the ratio of the actuarial value of assets to the total gross actuarial accrued liability.*
[b] *Percents shown represent annual plan contributions expressed as percentages of covered Police Officers' salaries.*

SUMMARY OF ACTUARIAL VALUATION RESULTS (CONTINUED)

Annual Contribution Requirements Plan Year End	December 31, 2015 [a]	December 31, 2016 [b]
Net Annual Normal Cost (Municipality Paid)	$6,021,442	$6,062,688
Annual Amortization Payments for Funding Unfunded Actuarial Accrued Liability as a level percentage of payroll	7,011,468	7,280,505
Interest Adjustment to Expected Date of Payment into the Fund (Optional)	1,341,606	1,373,546
Total Minimum Annual Contribution Requirement for the Current Plan Year	$14,374,516	$14,716,739
Minimum Annual Contribution (As a percentage of pay)	53.8%	53.0%

[a] Unfunded Actuarial Accrued Liability is amortized over a 29-year closed period.
[b] Unfunded Actuarial Accrued Liability is amortized over a 28-year closed period.

The contributions shown above satisfy the statutory minimum funding requirements found in Public Act 96-1495 that employer contribution produces 90 percent funding by the end of fiscal year 2040. The statutory minimum funding requirement produces a contribution of $13,397,518 or 44.85 percent of projected pay for the plan year ending December 31, 2016.

DERIVATION OF EXPERIENCE GAIN/(LOSS)
YEAR ENDED JANUARY 1, 2016

Actual experience will never (except by coincidence) coincide exactly with assumed experience. It is expected that gains and losses will cancel each other out over time, but year-to-year fluctuations are not uncommon. Detail on the derivation of the experience gain/(loss) is shown below, along with a year-by-year comparative schedule.

1.	Unfunded Actuarial Accrued Liability at 01/01/2015	$ 144,487,237
2.	Normal Cost Due at 01/01/2015	8,669,493
3.	Interest on (1) and (2) to 12/31/2015 (at 6.75% per annum)	10,338,079
4.	Contributions (Employer and Employee) applicable to the 2015 Plan Year, with interest to 12/31/2015	17,610,253
5.	Expected Unfunded Actuarial Accrued Liability at 01/01/2016 [(1) + (2) + (3) - (4)]	$ 145,884,556
6.	Actual Unfunded Actuarial Accrued Liability at 01/01/2016	$ 146,525,464
7.	Gain/(Loss) for the 2015 Plan Year [(5) - (6)]	$ (640,908)

Valuation Date January 01	Experience Gain/(Loss) As % of Accrued Liability at the Prior Valuation Date[a]
2004	(2.50) %
2005	(5.28)
2006	2.11
2007	(13.32)
2008	1.38
2009	(1.33)
2010	(8.87)
2011	(4.14)
2012	(4.27)
2013	1.56
2014	0.58
2015	0.73
2016	(0.20)

[a]*Excluding Plan and assumption changes.*

The valuation results pertaining to the current Plan Year are analyzed and discussed below.

Plan History

The following table provides a summary of the Plan's rate of return on assets and salary increase experience over the last 20 actuarial valuations performed by Gabriel, Roeder, Smith & Company:

Plan Year Ending	Rate of Return On Plan Assets	Salary Scale Increase
12/31/1996	3.4 %	8.7 %
12/31/1997	7.1	3.6
12/31/1998	8.8	5.8
12/31/1999	5.5	8.7
12/31/2000	6.9	6.0
12/31/2001	3.4	5.4
12/31/2002	(0.3)	7.6
12/31/2003	9.4	7.4
12/31/2004	4.9	9.9
12/31/2005	3.8	2.7
12/31/2006	9.0	22.0
12/31/2007	7.1	6.5
12/31/2008	(8.6)	1.6
12/31/2009	7.7	6.4
12/31/2010	6.3	10.2
12/31/2011	0.2	9.3
12/31/2012	7.4	0.8
12/31/2013	12.1	2.2
12/31/2014	4.4	2.2
12/31/2015	(0.8)	4.3

The Salary Scale increase has averaged 6.5% over the last 20 years. The current assumption of 5.25% continues to be a reasonable long-term assumption; however, we have reviewed the salary increase assumption as part of the experience review performed for the period January 1, 2010, to January 1, 2015, and intend to implement the recommended assumptions, pending Board approval, with the next actuarial valuation. As part of each annual valuation, we will review salary scale increases and determine whether the current assumption continues to be appropriate.

Over the same 20-year period, the Plan's assets have averaged an annual rate of investment return of 4.6%. We believe the 6.75% annual rate of return on Plan assets is within the range of reasonable assumptions; however, we have reviewed the investment return assumption as part of the experience review performed for the period January 1, 2010, to January 1, 2015, and intend to implement the recommended assumptions, pending Board approval, with the next actuarial valuation. We recommend that the City continue to monitor this assumption for continuing reasonableness at each future valuation.

Analysis of the Experience Gain/ (Loss)

The experience gain/(loss) reported on page A-3, is the net result of the following:

(a) From plan asset performance	$	(2,657,758)
(b) Other sources ("net effect" of salary increases, terminations, new entrants, retirements, etc.)		2,016,850
Total Gain/(Loss): [(a) + (b)]	$	(640,908)

Changes in the Annual Contribution Magnitude

The dollar amount of the plan's annual minimum required contribution of $14,716,739 is approximately 2.4% higher than the level for the prior plan year of $14,374,516. As a percentage of payroll, the contribution requirement is lower than last year (i.e., decreasing from 53.8% to 53.0%). The important factors producing this change are summarized as follows:

1. Minimum Annual Contribution Requirement for prior plan year	$	14,374,516
2. Actual Asset Performance (based on actuarial value of assets)		142,248
3. Increase in Normal Cost and Amortization Amount due to anticipated pay increases		574,981
4. Other Sources (demographic and salary (gains)/losses)		(375,006)
5. Minimum Annual Contribution Requirement for current plan year (sum of items 1 through 4)	$	14,716,739

Comments on Actuarial Value of Assets	The Pension Fund uses market-related value of assets for funding purposes. This market-related value of assets will recognize gains and losses due to return on plan assets over a four-year period. Hence, only a portion of this year's investment loss (see Section B for details) is included in the current year actuarial value of assets. The remainder of the gain or loss will be incorporated into Pension Fund assets over the next three years. The purpose of this technique is to minimize contribution volatility due to fluctuations in the market value of assets. Finally, receivables for plan years prior to the current plan year which are not in Plan assets by December 31, 2015, are included in assets for funding purposes.
GASB Statements Nos. 67 and 68	Effective with Fiscal Year Ending December 31, 2014, GASB No. 67 replaced GASB No. 25 for pension plan financial reporting requirements. GASB No. 68 replaced GASB No. 27 for employer financial reporting effective with fiscal year ending December 31, 2015. The discount rate used for GASB No. 67 and No. 68 reporting purposes will produce a single equivalent discount rate based on (1) 6.75 percent for the projected benefits for all current members that can be paid from current assets and projected investment return, future employee contributions from current members, and future employer contributions attributable to current members, and (2) a municipal bond rate for the portion of the projected benefits after assets are depleted. The municipal bond rate is based on a yield or index rate for 20-year, tax exempt general obligation municipal bonds with an average rating of AA/Aa or higher (or equivalent quality on another rating scale). The measurements required under GASB Statements Nos. 67 and 68 are provided in a separate report.

SECTION B
PROJECTIONS

City of Joliet Police Officers' Pension Fund
Actuarial Valuation Projection Results Based on P.A. 96-1495 as of January 1, 2016 (Based on Projected Unit Credit Cost Method)
($ in Thousands)

Jan. 1,	Actuarial Accrued Liability	Market Value of Assets	Actuarial Value of Assets	Unfunded Liability	Actuarial Value Funded Ratio	Uncapped Payroll	Capped Payroll	Employer Normal Cost	Statutory Minimum Contribution[a]	Statutory Contribution % of Projected Pay	Employee Contributions	Benefit Payments
2016	$336,707	$175,143	$185,028	$151,680	54.95%	$27,759	$27,759	$6,516	$13,398	44.85%	$2,751	$12,464
2017	356,452	191,781	199,243	157,209	55.90%	28,779	28,779	6,684	13,917	44.85%	2,852	13,392
2018	376,858	207,679	210,942	165,916	55.97%	29,873	29,869	6,824	14,455	44.85%	2,960	14,358
2019	397,909	224,300	224,300	173,609	56.37%	31,031	31,012	6,938	14,993	44.85%	3,073	15,426
2020	419,520	241,613	241,613	177,907	57.59%	32,231	32,172	7,009	15,513	44.85%	3,188	16,600
2021	441,576	259,556	259,556	182,020	58.78%	33,430	33,284	7,021	16,032	44.85%	3,298	17,914
2022	463,892	278,003	278,003	185,890	59.93%	34,590	34,303	6,975	16,578	44.85%	3,399	19,384
2023	486,256	296,816	296,816	189,439	61.04%	35,746	35,243	6,897	17,129	44.85%	3,493	20,978
2024	508,498	315,913	315,913	192,584	62.13%	36,964	36,161	6,770	17,716	44.85%	3,584	22,703
2025	530,420	335,181	335,181	195,240	63.19%	38,193	36,995	6,612	18,323	44.85%	3,666	24,480
2026	551,908	354,606	354,606	197,302	64.25%	39,503	37,807	6,425	18,959	44.85%	3,747	26,361
2027	572,788	374,108	374,108	198,680	65.31%	40,856	38,546	6,209	19,629	44.85%	3,820	28,282
2028	592,939	393,674	393,674	199,265	66.39%	42,273	39,207	5,974	20,363	44.85%	3,885	30,242
2029	612,246	413,296	413,296	198,950	67.50%	43,768	39,803	5,744	21,111	44.85%	3,944	32,212
2030	630,637	433,027	433,027	197,611	68.66%	45,404	40,403	5,491	21,918	44.85%	4,004	34,227
2031	647,982	452,842	452,842	195,141	69.88%	47,072	40,884	5,235	22,763	44.85%	4,052	36,275
2032	664,159	472,761	472,761	191,398	71.18%	48,872	41,347	4,974	23,639	44.85%	4,097	38,320
2033	679,085	492,832	492,832	186,254	72.57%	50,756	41,738	4,700	24,607	44.85%	4,136	40,364
2034	692,656	513,092	513,092	179,564	74.08%	52,710	42,049	4,446	25,607	44.85%	4,167	42,341
2035	704,862	533,708	533,708	171,153	75.72%	54,868	42,403	4,189	26,682	44.85%	4,202	44,294
2036	715,636	554,767	554,767	160,869	77.52%	57,096	42,657	3,947	27,832	44.85%	4,227	46,249
2037	724,885	576,365	576,365	148,520	79.51%	59,494	42,910	3,743	29,055	44.85%	4,252	48,079
2038	732,678	598,744	598,744	133,933	81.72%	62,058	43,208	3,586	30,374	44.85%	4,282	49,727
2039	739,156	622,225	622,225	116,931	84.18%	64,786	43,545	3,482	31,758	44.85%	4,315	51,213
2040	744,462	647,153	647,153	97,309	86.93%	67,725	43,943	3,425	8,243	11.13%	4,355	52,555
2041	748,719	673,847	673,847	74,872	90.00%	70,811	44,374	3,410	8,375	10.81%	4,397	53,793
2042	752,014	676,813	676,813	75,201	90.00%	74,033	44,823	3,444	8,527	10.52%	4,442	54,835
2043	754,538	679,084	679,084	75,454	90.00%	77,451	45,342	3,520	8,692	10.26%	4,493	55,690
2044	756,486	680,837	680,837	75,649	90.00%	81,033	45,923	3,625	8,859	10.01%	4,551	56,411
2045	757,992	682,193	682,193	75,799	90.00%	84,729	46,524	3,739	9,026	9.78%	4,611	57,058
2046	759,117	683,205	683,205	75,912	90.00%	88,466	47,104	3,862	9,186	9.55%	4,668	57,640
2047	759,908	683,917	683,917	75,991	90.00%	92,305	47,695	3,984	9,339	9.32%	4,727	58,152
2048	760,415	684,374	684,374	76,042	90.00%	96,220	48,295	4,104	9,479	9.08%	4,786	58,612
2049	760,672	684,605	684,605	76,067	90.00%	100,246	48,914	4,214	9,603	8.85%	4,847	59,026
2050	760,703	684,632	684,632	76,070	90.00%	104,353	49,533	4,311	9,713	8.61%	4,909	59,417

[a] *Statutory minimum contribution deposited in the following fiscal year.*

City of Joliet Police Officers' Pension Fund
Actuarial Valuation Projection Results Based on 28 Years Closed Amortization as of January 1, 2016 (Based on Entry Age Normal Cost Method)
($ in Thousands)

Jan. 1,	Actuarial Accrued Liability	Market Value of Assets	Actuarial Value of Assets	Unfunded Liability	Actuarial Value Funded Ratio	Uncapped Payroll	Capped Payroll	Employer Normal Cost	City Contribution[a]	City Contribution % of Pay	Employee Contributions	Benefit Payments
2016	$345,466	$175,143	$198,940	$146,525	57.59%	$27,759	$27,759	$6,063	$14,717	53.02%	$2,751	$12,464
2017	365,318	191,781	213,486	151,831	58.44%	28,779	28,779	6,161	15,326	53.25%	2,852	13,392
2018	385,765	209,042	227,139	158,626	58.88%	29,873	29,869	6,252	16,044	53.71%	2,960	14,358
2019	406,806	227,211	242,740	164,066	59.67%	31,031	31,012	6,329	16,708	53.84%	3,073	15,426
2020	428,368	246,362	262,533	165,835	61.29%	32,231	32,172	6,379	17,158	53.23%	3,188	16,600
2021	450,348	266,397	283,004	167,344	62.84%	33,430	33,284	6,389	17,581	52.59%	3,298	17,914
2022	472,582	287,006	304,022	168,560	64.33%	34,590	34,303	6,360	17,979	51.98%	3,399	19,384
2023	494,875	308,028	325,429	169,446	65.76%	35,746	35,243	6,310	18,370	51.39%	3,493	20,978
2024	517,073	329,329	347,109	169,963	67.13%	36,964	36,161	6,225	18,741	50.70%	3,584	22,703
2025	538,992	350,785	368,923	170,069	68.45%	38,193	36,995	6,117	19,106	50.03%	3,666	24,480
2026	560,529	372,321	390,814	169,716	69.72%	39,503	37,807	5,984	19,464	49.27%	3,747	26,361
2027	581,521	393,829	412,667	168,854	70.96%	40,856	38,546	5,825	19,813	48.50%	3,820	28,282
2028	601,852	415,248	434,424	167,428	72.18%	42,273	39,207	5,646	20,162	47.70%	3,885	30,242
2029	621,409	436,516	456,031	165,378	73.39%	43,768	39,803	5,464	20,532	46.91%	3,944	32,212
2030	640,121	457,607	477,479	162,642	74.59%	45,404	40,403	5,259	20,899	46.03%	4,004	34,227
2031	657,858	478,483	498,710	159,148	75.81%	47,072	40,884	5,048	21,284	45.22%	4,052	36,275
2032	674,502	499,079	519,679	154,822	77.05%	48,872	41,347	4,827	21,684	44.37%	4,097	38,320
2033	689,969	519,399	540,386	149,583	78.32%	50,756	41,738	4,593	22,097	43.54%	4,136	40,364
2034	704,160	539,432	560,818	143,342	79.64%	52,710	42,049	4,373	22,554	42.79%	4,167	42,341
2035	717,065	559,232	581,061	136,004	81.03%	54,868	42,403	4,143	23,028	41.97%	4,202	44,294
2036	728,613	578,860	601,148	127,465	82.51%	57,096	42,657	3,916	23,539	41.23%	4,227	46,249
2037	738,706	598,308	621,091	117,615	84.08%	59,494	42,910	3,709	24,105	40.52%	4,252	48,079
2038	747,395	617,733	641,063	106,332	85.77%	62,058	43,208	3,529	24,735	39.86%	4,282	49,727
2039	754,806	637,381	661,321	93,485	87.61%	64,786	43,545	3,376	25,435	39.26%	4,315	51,213
2040	761,055	657,506	682,123	78,931	89.63%	67,725	43,943	3,244	26,201	38.69%	4,355	52,555
2041	766,238	678,366	703,725	62,514	91.84%	70,811	44,374	3,134	27,042	38.19%	4,397	53,793
2042	770,422	700,191	726,364	44,058	94.28%	74,033	44,823	3,051	27,979	37.79%	4,442	54,835
2043	773,769	723,327	750,407	23,362	96.98%	77,451	45,342	2,993	29,227	37.74%	4,493	55,690
2044	776,452	748,163	776,452	-	100.00%	81,033	45,923	2,954	3,419	4.22%	4,551	56,411
2045	778,590	775,281	778,590	-	100.00%	84,729	46,524	2,927	3,390	4.00%	4,611	57,058
2046	780,238	776,957	780,238	-	100.00%	88,466	47,104	2,915	3,379	3.82%	4,668	57,640
2047	781,444	778,174	781,444	-	100.00%	92,305	47,695	2,915	3,381	3.66%	4,727	58,152
2048	782,265	778,993	782,265	-	100.00%	96,220	48,295	2,928	3,397	3.53%	4,786	58,612
2049	782,742	779,455	782,742	-	100.00%	100,246	48,914	2,946	3,418	3.41%	4,847	59,026
2050	782,908	779,600	782,908	-	100.00%	104,353	49,533	2,969	3,274	3.14%	4,909	59,417

[a] *City contribution deposited in the following fiscal year.*

SECTION C

BENEFIT PROVISIONS AND ACTUARIAL VALUATION DATA

BRIEF SUMMARY OF PLAN PROVISIONS
(JANUARY 1, 2016)

Plan	Police Pension Fund as Incorporated in Chapter 40, Act 5, Article 3 of the Illinois Compiled Statutes
Effective Date	Enacted: July 25, 1963 Last Amended Effective: July 9, 2015
Eligibility to Participate	Generally, any person who is in the Police Department of a city, village or incorporated town (whose population is 500,000 or less) which has adopted the provisions of Chapter 40, Act 5, Article 3 of the Illinois Compiled Statutes concerning Police Officers' pensions, is eligible to participate, subject to the following: (a) The person has been appointed to the Police force of a Police Department and sworn and commissioned to perform Police duties; and (b) Within three months after receiving his/her first appointment (or within three months after any re-appointment) the person makes written application to the Board to be covered under the provisions of the Article; and (c) The person is found to be physically and mentally fit to perform the duties of a Police Officer. Notwithstanding, the following persons are <u>not</u> considered eligible for participation in this Fund: part-time Police Officers, special Police Officers, night watchmen, temporary employees, traffic guards, or auxiliary Police Officers (specially appointed to aid or direct traffic at or near schools or public functions, or to aid in civil defense), municipal parking lot attendants, clerks or other civilian employees of a Police Department who perform clerical duties exclusively.

Employee Contributions (Mandatory)

In order to participate in the plan, each Police Officer must contribute 9.910% of his/her regular salary. "Salary" in this instance means annual salary and includes longevity pay attached to the Police Officer's rank but excludes overtime pay, holiday pay, bonus pay, merit pay or any other cash benefit over and above the salary established by the appropriation ordinance.

Creditable Service

"Creditable Service" is the time period during which a person serves as a Police Officer of a regularly constituted Police force of a municipality. Furloughs without pay exceeding 30 days in any one year shall not be counted, but all leaves of absence for illness or accident, regardless of length, shall be counted. Also, time attributable to disability for which the Police Officer does not receive disability pension benefits under this Article shall be counted as "Creditable Service."

In addition, Creditable Service includes all periods of service in the Military, Naval or Air Forces of the United States of America, entered into when the person was an active Police Officer, provided that the Police Officer contributes to the Fund the amount that he/she would have paid had he/she been a regular contributor during such Military service. Not more than five years may be counted under this provision.

Eligibility For and Amount of Regular Retirement Benefits

I. Age 50 (or More) and 20 or More Years of Creditable Service

Benefit: A Police Officer who is age 50 (or more) and has 20 years (or more) of Creditable Service and is no longer in service as a Police Officer is entitled to a pension payable for life equal to 50% of his/her monthly salary attached to the rank held by the Officer one year immediately prior to retirement.

Effective July 1, 1987, for persons terminating service on or after that date, the applicable salary will be the greater of: (1) the salary attached to the rank held on the last day of service; or (2) the salary one year prior to the last day of service.

For Creditable Service over 20 years, the pension is increased as follows:

- 2.5% of the Police Officer's monthly salary for each additional year over 20 to the limitation that the monthly pension does not exceed 75% of his/her monthly salary.

Notwithstanding the above, no Pension in effect or granted for a Police Officer with 20 or more years of service after January 1999 is to be less than $600.00 per month. This increases to $800.00 per month on January 1, 2000, and $1,000.00 per month on January 1, 2001.

II. Eligibility—Age 60 (or More) and 8 (but Less than 20) Years of Creditable Service

Benefit: A Police Officer who retires or is separated from service having at least 8 years (but less than 20) of Creditable Service and who does not apply for a refund of contributions at separation from service, is entitled to a monthly pension upon attaining age 60, payable for life, equal to years of Creditable Service multiplied by 2½% of the salary attached to the rank he/she held in the Police force one year prior to retirement. Effective July 1, 1987, for persons terminating service on or after that date, the applicable salary will be the greater of: (1) the salary attached to the rank held on the last day of service; or (2) the salary one year prior to the last day of service.

A Police Officer who is mandatorily retired from service by reason of age through an operation of law, and has accumulated at least 8 years (but less than 20 years) of Creditable Service, is entitled to a pension payable for life equal to years of Creditable Service multiplied by 2½% of the salary attached to the rank he/she held on the Police force one year immediately prior to retirement. Effective July 1, 1987, for persons terminating service on or after that date, the applicable salary will be the greater of: (1) the salary attached to the rank held on the last day of service; or (2) the salary one year prior to the last day of service.

III. Pension Allowance Increases

- A Police Officer who retired from service with 20 or more years of Creditable Service on or before July 1, 1971, is entitled to an increase of 3% of his/her original monthly pension for each year the Police Officer was in receipt of pension payments; such increase takes effect in the January of the year following the year in which he/she attains age 65, or January of 1972, if then age 65. Each subsequent January thereafter, the monthly pension is increased by 3% of the original monthly pension amount.

- A Police Officer who retired from service after July 1, 1971, and prior to January 1, 1986, is entitled to an increase of 3% of his/her original monthly pension either upon: (a) the first of the month following the first anniversary of his/her date of retirement if he/she was age 60 or more on the retirement date, or (b) the first of the month following the Police Officer's attainment of age 60 (if such occurs after the first anniversary of his/her retirement date). Each subsequent January thereafter, the monthly pension is increased by 3% of the original monthly pension amount.

- A Police Officer who retired from service on or after January 1, 1986, is entitled to an increase of 3% of his/her original monthly pension for each full year that has elapsed since the pension began. This occurs upon either: (a) the first of the month following the anniversary of his/her date of retirement if he/she was age 55 or older on the retirement date, or (b) the first of the month following the Police Officer's attainment of age 55 (if such occurs after the first anniversary of his/her retirement date). Each subsequent January thereafter, the monthly pension is increased by 3% of the original monthly pension amount.

- Notwithstanding the provisions of the second paragraph listed above, a Police Officer who retired from service after January 1, 1977, and prior to January 1, 1986, and did not receive a pension increase before July 1, 1987, is entitled to a 3% increase of his/her original monthly pension for each full year that has elapsed since the pension began. This occurs on the first day of the month following the later of either: (a) the first anniversary of the date of retirement, or (b) the attainment of age 55, or (c) July 1, 1987. Each subsequent January thereafter, the monthly pension is increased by 3% of the original pension amount.

- Notwithstanding the provisions of the previous paragraphs, beginning with increases granted on or after July 1, 1993, the second and all subsequent automatic annual increases under these provisions shall be calculated as 3% of the amount of pension payable at the time of the increase, including any increases previously granted under the prior provisions, rather than 3% of the originally granted pension amount.

Eligibility For and Amount of Disability Benefits

I. *Disability Incurred in the Line of Duty*

If a Police Officer is injured or suffers an accident or sickness as the result of carrying out his/her duties as a Police Officer (even if those duties take him/her to a place away from the municipality in which he/she serves as a Police Officer, and assuming such duties are related to the Police protection service of such municipality), then such a disabled Police Officer is entitled to a disability retirement pension equal to the maximum of: (a) 65% of the monthly salary attached to the rank held by the officer in the Police Department at the date of suspension of duty or retirement, or (b) his/her accrued benefit.

II. *Disability on Account of Occupational Hazards*

If a Police Officer suffers a heart attack as a result of the performance and discharge of duties as a Police Officer, then he/she is eligible for any benefits provided under this Article for Police Officers who are injured in the performance of an act of duty.

III. *Disability Due to Occurrences Unrelated to Duties*

If a Police Officer becomes mentally or physically disabled as the result of any cause other than the performance of an act of duty, he/she is entitled to a disability pension equal to 50% of the monthly salary attached to the rank held by the officer in the Police Department at the date of suspension of duty or retirement.

Notwithstanding the provisions of I, II and III above, no disability pension in effect or granted after January 1, 1987, is to be less than $600.00 per month. This increases to $800.00 per month on January 1, 2000, and $1,000.00 per month on January 1, 2001.

IV. *Special Disability Pension Option*

A Police Officer, age 50 or more, who is receiving a disability pension and who has completed 20 years of service may apply for a retirement pension equal to 1/2 of the monthly salary attached to his/her rank on the Police force at the date of his/her retirement for disability. In computing years of service for this benefit option, the period during which the Police Officer received a disability pension should be added to his/her period of active service.

V. *Disability Pension Allowance Increase*

A Police Officer who is receiving a disability pension is entitled to receive an automatic increase upon the attainment of age 60. At this date, the monthly pension is increased by 3% of the original monthly pension <u>for each year the Police Officer was in receipt of monthly pension payments</u>. Each subsequent January thereafter, the monthly pension is again increased by 3% of the <u>original</u> monthly pension amount.

Death Benefits to Surviving Spouse or Dependents

I. Death in Line of Duty	If a Police Officer dies while in the line of duty as a result of any injuries or if a Police Officer sustains injuries from which he/she thereafter dies, then the surviving spouse is entitled to a pension equal to 100% of the monthly salary attached to the rank the Police Officer held for one year immediately prior to his/her death. This benefit is payable to the survivors in the sequence noted in Section VI — Rights on Death of a Pensioner.
II. Death in Service With 10 or More but Less than 20 Years of Creditable Service	If a Police Officer dies while in service after having at least 10 but less than 20 years of Creditable Service, then his/her surviving spouse is entitled to a pension equal to 50% of the monthly salary attached to the rank held by the Police Officer for one year immediately prior to his/her death. Such benefit is payable to the survivors in the sequence noted in Section VI — Rights on Death of a Pensioner.
III. Death in Service With 20 or More Years of Creditable Service	If a Police Officer dies while in service after having at least 20 years of Creditable Service (regardless of age), then the surviving spouse is entitled to the pension earned by the Police Officer as of the date of death. Such benefit is payable to the survivors in the sequence noted in Section VI — Rights on Death of a Pensioner.
IV. Death While on Disability	If a Police Officer who is receiving a disability pension dies while still disabled, his/her disability pension shall continue to be paid to the surviving spouse or dependents in the sequence noted in Section VI — Rights on Death of a Pensioner. Notwithstanding the provisions of I, II, III or IV above, effective January 1, 1999, the minimum death benefit payable to the surviving spouse or dependents is $400.00 per month. This increases to $800.00 per month on January 1, 2000, and $1,000 per month on January 1, 2001.

V. Less than 10 Years of Creditable Service

If a Police Officer dies before he/she has 10 years of Creditable Service, all contributions made by the Officer shall be refunded to the surviving spouses without interest.

VI. Rights on Death of a Pensioner

If a Police Officer who was receiving or was entitled to receive a monthly pension dies, the surviving spouse is entitled to the pension to which the Police Officer was then entitled. Upon the surviving spouse's death or re-marriage, the Police Officer's unmarried children (under age 18) or unmarried children who are dependent because of a physical or mental disability are entitled to equal shares of the pension. If there is no eligible surviving spouse and no eligible children, the dependent parent or parents of the Police Officer are entitled to receive or share such pension until their death, or marriage, or remarriage.

Special Note: If a Police Officer marries subsequent to retirement on any pension, the surviving spouse and the children of such surviving spouse shall receive no pension upon the death of the Officer.

Termination of Employment Benefits

Refund of Employee Contributions

A Police Officer who has less than 20 Years of Creditable Service and who resigns or is discharged (and has not received any disability payments) is entitled to a refund of his/her total amount contributed to the Police Pension Fund during his/her period of service. If the Police Officer should be subsequently re-employed, he/she must repay to the fund the amount of refund which was received, plus interest at 2% per annum from the date of refund to the date of repayment, before commencing service. When repayment is made, the Police Officer will receive credit for the previous years of service for which the refund was received.

Financing of Pension Benefits	Pension benefits are to be funded by "employee" deductions from wages and salaries of Police Officers and by a property tax levied by the Municipality. The amount derived from these two sources should equal the sum sufficient to meet the annual actuarial requirements of the pension fund as stated below: (1) Provide a reserve for the pensions and benefits earned by the Police Officers and all beneficiaries — provided that the reserve to be accumulated shall not exceed the estimated total actuarial requirements of the fund, and (2) In a municipality that has a reserve less than the actuarial requirements of the fund, the Board of the Pension Fund shall designate the proportionate amount needed annually to insure the accumulation of such actuarial reserve over a period of 35 years subsequent to January 1, 2011, in the case of pension funds in operation on that date. The minimum funding requirements under P.A. 96-1495 are disclosed on the following page.
Administration	The Police Pension Fund is administered by a Board of Trustees located in each municipality maintaining a Pension Fund for its Police Officers. Its duties are: to control and manage the pension fund, to enforce the collection of the contributions, to hear and determine applications for pensions, to authorize payment of pensions to establish rules, to pay expenses, to invest funds and to keep records.

Benefits Under P.A. 96-1495

Under P.A. 96-1495, members of the City of Joliet Police Officers' Pension Fund hired after December 31, 2010, are eligible for the following tier-two benefits:

- Minimum retirement eligibility at age 55 with 10 years of Creditable Service with annuity based on accrual rate of 2.5 percent for each year of such service, subject to a maximum of 75 percent.
- Minimum retirement eligibility at age 50 with 10 years of Creditable Service with annuity based on accrual rate of 2.5 percent, reduced by ½ of a percent per month for retirement prior to age 55, subject to a maximum of 75 percent.
- Final average salary based on 96 consecutive months within last 120 months.
- Annual salary capped at $106,800, indexed annually at lesser of 3.0 percent and 50 percent of CPI-U. For the January 1, 2016, valuation, annual salary is capped at $111,571.63.
- COLA equal to lesser of 3.0 percent and 50 percent of CPI-U, commencing at age 60, with no cap, applied to originally granted retirement annuity.

- Widow benefits at 66-2/3 percent of retiree's benefit.
- Widow COLAs equal to the lesser of 3.0 percent and 50 percent of CPI-U, commencing when the survivor reaches age 60 and applied to originally granted retirement annuity.

Minimum Funding Requirements under P.A. 96-1495

P.A. 96-1495 includes the following changes to the statutory funding requirements:

- Employer contribution (combined with members contributions and other fund revenue) produces 90 percent funding by the end of fiscal year 2040.
- Contributions based on open group projection and level percent of pay financing.
- Actuarial liabilities based on projected unit credit cost method.
- Assets marked to market at March 30, 2011. For fiscal years after March 30, 2011, actuarial value of assets based on 5-year smoothing.

If the City does not make the statutorily required contributions, then the State, starting in FY 2016, could withhold State grants to the City, and directly deposit the withheld funds into the City of Joliet Police Officers' Pension Fund. The withheld funds are limited to 33 percent of total State grants to the City in FY 2016, 67 percent in FY 2017, and 100 percent on and after FY 2018.

The contribution determined in accordance with P.A. 96-1495 serves as a minimum contribution requirement. The funding policy adopted for this valuation exceeds the minimum contribution established under this Public Act.

ACTIVE MEMBERS AS OF JANUARY 1, 2016
BY ATTAINED AGE AND YEARS OF SERVICE

Attained Age	Years of Service to Valuation Date 0	1-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 35	Totals	Totals Valuation Payroll
Under 20										**0**	**$ 0**
20-24	3									**3**	**158,463**
25-29	7	1	3							**11**	**730,973**
30-34	4	10	26	7						**47**	**3,957,829**
35-39		3	18	21	7					**49**	**4,890,170**
40-44			7	18	28	10				**63**	**6,821,607**
45-49				5	20	28	8			**61**	**7,135,931**
50-54				1	3	12	10			**26**	**2,902,189**
55-59						1	3	2	1	**7**	**905,631**
60-64					1				1	**2**	**256,539**
65-69										**0**	**0**
Over 70										**0**	**0**
Total	**14**	**14**	**54**	**52**	**59**	**51**	**21**	**2**	**2**	**269**	**$27,759,332**

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age:	41.5	years
Service:	14.9	years
Annual Pay:	$103,195	

DEVELOPMENT OF ACTUARIAL (MARKET-RELATED) VALUE OF ASSETS

Year Ending December 31,	**2015**	**2016**	**2017**	**2018**
Beginning of Year:				
(1) Market Value of Assets, Restated	$ 171,648,776			
(2) Actuarial Value of Assets Including Contribution Receivable, Restated	184,132,554			
(3) Actuarial Value of Assets Excluding Contribution Receivable, Restated	170,773,994			
End of Year:				
(4) Market Value of Assets	175,143,050			
(5) Contributions and Disbursements				
(5a) City Contributions	13,884,298			
(5b) Member Contributions	3,160,099			
(5c) Miscellaneous Revenue	4,863			
(5d) Benefit Payouts & Refunds	(12,167,696)			
(5e) Administrative Expenses	(79,676)			
(5f) Net of Contributions and Disbursements	4,801,888			
(6) Total Investment Income				
=(4)-(1)-(5e)	(1,307,614)			
(7) Projected Rate of Return	6.75%			
(8) Projected Investment Income				
=(1)x(7)+([1+(7)]^.5-1)x(5f)	11,745,710			
(9) Investment Income in				
Excess of Projected Income	(13,053,324)			
(10) Excess Investment Income Recognized				
This Year (4-year recognition)				
(10a) From This Year	$ (3,263,331)			
(10b) From One Year Ago	(934,646)	$ (3,263,331)		
(10c) From Two Years Ago	1,774,798	(934,646)	$ (3,263,331)	
(10d) From Three Years Ago	129,126	1,774,796	(934,646)	$ (3,263,331)
(10e) Total Recognized Investment Gain	(2,294,053)	(2,423,181)	(4,197,977)	(3,263,331)
(11) Change in Actuarial Value of Assets				
=(5f)+(8)+(10e)	14,253,545			
End of Year:				
(4) Market Value of Assets	**$ 175,143,050**			
(12) Actuarial Value of Assets Excluding Contribution Receivable = (3)+(11)	**$ 185,027,539**			
(13) 2016 Tax Year Levy (i.e., the 2015 Plan Year Contributions)	**$ 14,374,516**			
(14) Interest Adjustment on item (13) to 01/01/2016	**$ (461,884)**			
(15) Actuarial Value of Plan Assets at 01/01/2016 = (12)+(13)+(14)	**$ 198,940,171**			

The actuarial value of assets is determined by adjusting the market value of assets to reflect the investment gains and losses (the difference between the actual investment return and the expected investment return) during each of the last four years at the rate of 25 percent per year. The contribution receivable for 2016 tax year levy is assumed to be collected and deposited in the Pension Fund on July 1, 2016.

SECTION D

ACTUARIAL VALUATION PROCEDURES

ACTUARIAL COST METHOD

Normal cost and the allocation of benefit values between service rendered before and after the valuation date was determined using the ***individual entry-age actuarial*** *cost method* having the following characteristics:

- The annual normal costs for each individual active member, payable from the date of employment to the date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement; and
- Each annual normal cost is a constant percentage of the member's year-by-year projected covered pay.

Financing of Unfunded Actuarial Accrued Liabilities. Unfunded actuarial accrued liabilities were amortized by level (principal and interest combined) percent of payroll contributions over 28 future years.

Actuarial Value of Pension Plan Assets. The current market value of assets (including discounted contributions due for prior Plan Years and not received as of the valuation date) is reduced (increased) for the current year and each of two succeeding years, by a portion of the gain/(loss) in market value during the prior year. Such gain/(loss) is determined as the excess/(deficit) of the current market value of assets over the market value of assets as of the prior year, increased to reflect interest at the actuarial rate and adjusted to reflect contributions and benefit payments during the prior year. The portion of such gain/(loss) by which the current market value of assets is reduced (increased) shall be 75% in the current year, 50% in the first succeeding year and 25% in the second succeeding year.

ACTUARIAL ASSUMPTIONS IN THE ACTUARIAL VALUATION PROCESS

The contribution and benefit values of the System are calculated by applying actuarial assumptions to the benefit provisions and census information furnished, using the actuarial cost method described on the previous page.

The principal areas of financial risk which require assumptions about future experiences are:

- Long-term rates of investment return to be generated by the assets of the System;
- Patterns of pay increases to members;
- Rates of mortality among members, retirees and beneficiaries;
- Rates of withdrawal of active members;
- Rates of disability among members; and
- The age patterns of actual retirement.

In a valuation, the monetary effect of each assumption is calculated for as long as a present covered person survives; a period of time which can be as long as a century.

Actual experience of the System will not coincide exactly with assumed experience. Each valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experience. The result is a continual series of adjustments (usually small) to the computed contribution rate.

From time-to-time it becomes appropriate to modify one or more of the assumptions to reflect experience trends (but not random year-to-year fluctuations).

The assumptions used in this valuation are the same as those used in the previous valuation.

We have performed an experience review based on census data from the period January 1, 2010, to January 1, 2015. As part of this study, we reviewed all economic and demographic assumptions, including the investment and mortality assumptions, and provided recommended assumption changes. The recommended assumptions and methods pending Board approval, are expected to be implemented beginning with the January 1, 2017, actuarial valuation.

The assumed rate of investment return used was 6.75%, net of expenses, annually.

The assumed rate of general inflation used was 3.00%, annually.

The mortality table used to measure retirement mortality is the 1994 Group Annuity Mortality Table. This assumption is used to measure the probabilities of members dying before retirement and the probabilities of each benefit payment being made after retirement. This is a static table with no provisions for future mortality improvement.

Sample Attained Ages	Single Life Retirement Values: Present Value of $1 Monthly for Life — Men	Present Value of $1 Monthly for Life — Women	Future Life Expectancy (years) — Men	Future Life Expectancy (years) — Women
50	$ 151.44	$ 159.02	30.69	34.89
55	141.72	151.04	26.15	30.17
60	129.97	140.94	21.83	25.59
65	116.60	129.05	17.84	21.28
70	102.28	115.60	14.29	17.31
75	86.85	99.89	11.12	13.60
80	70.91	82.94	8.37	10.31

The disability retirement mortality table is based on 110% of the 1994 Group Annuity Mortality Table.

Sample Attained Ages	Single Life Retirement Values: Present Value of $1 Monthly for Life — Men	Present Value of $1 Monthly for Life — Women	Future Life Expectancy (years) — Men	Future Life Expectancy (years) — Women
50	$ 149.80	$ 157.77	29.80	34.03
55	139.70	149.44	25.29	29.34
60	127.53	138.95	21.01	24.78
65	113.79	126.67	17.08	20.51
70	99.21	112.90	13.60	16.60
75	83.63	96.91	10.51	12.96
80	67.67	79.80	7.85	9.75

Rates of separation from active membership are represented by the following table (rates do not apply to members eligible to retire and do not include separation on account of death or disability). This assumption measures the probabilities of members terminating employment.

Years of Service	Sample Employee Withdrawal Rate Per 1,000 Employees: Males	Females
0	40.0	40.0
5	24.0	24.0
10	9.0	9.0
15	9.0	9.0
20	9.0	9.0
25	6.0	6.0
30 and Over	0.0	0.0

The rates of salary increase used for individual members are in accordance with the following table, which includes a wage inflation assumption of 4.00%. This assumption is used to project a member's current salary to the salaries at the time upon which benefit amounts will be based.

Years of Service	Salary Increase Assumptions For an Individual Member: Increase
1	30.00%
2	27.50%
3	18.00%
4	8.00%
>=5	5.25%

Sample rates of disability are as follows:

Employee Disablement Rate Per 1,000 Employees		
Age	**Male**	**Female**
25	0.4	0.4
30	0.5	0.5
35	0.7	0.7
40	1.0	1.0
45	1.6	1.6
50	2.6	2.6
55	5.0	5.0
60	8.7	8.7
65	14.3	14.3

Probabilities of retirement for members eligible to retire during the next year were as follows:

Rates of Retirement			
Age	**Rate**	**Age**	**Rate**
50	7.5 %	60	25.0 %
51	7.5	61	50.0
52	15.0	62	50.0
53	15.0	63	50.0
54	15.0	64	50.0
55	25.0	65	100.0
56	25.0	66	100.0
57	25.0	67	100.0
58	25.0	68	100.0
59	25.0	69	100.0