City of Milwaukee Policemen's Annuity and Benefit Fund

Actuarial Valuation Report

As of January 1, 2015

June 2015

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Annuity and Pension Board
Employes' Retirement System
of the City of Milwaukee
789 N. Water Street, #300
Milwaukee, WI 53202

Members of the Board:

This report presents the results of the annual actuarial valuation of the assets and liabilities of the Policemen's Annuity and Benefit Fund of Milwaukee (PABF) as of January 1, 2015, prepared in accordance with Chapter 36, Part 15(15) of the Milwaukee City Charter. The valuation takes into account all of the promised benefits to which members were entitled as of January 1, 2015.

The valuation was based on the actuarial assumptions and methods as adopted by the Board of Trustees, and as specified by the Charter. Actuarial Standards of Practice now require that the likelihood and extent of future mortality improvements be considered for valuations performed on or after June 30, 2011. We have reflected future mortality improvements in this valuation.

Assets and Membership Data

The individual data for members of the PABF as of the valuation date were reported to the actuary by the Employes' Retirement System (ERS). While we did not verify the data at their source, we did perform tests for internal consistency and reasonability. The amount of assets in the trust fund taken into account in the valuation was based on statements prepared for us by the ERS.

Financing Objective and Employer Contribution

The results of the January 1, 2015 valuation determine the employer contribution for the year ending December 31, 2015.

Based on the provisions of Chapter 35, the annual contribution consists of an amount sufficient to amortize the unfunded actuarial liability (the amount by which the actuarial liability exceeds the assets on the valuation date) over a ten-year period with a series of level dollar payments; plus budgeted administrative expenses for the year.

On this basis, the contribution for the 2015 plan year, to be paid January 31, 2016, would amount to $188,214, plus budgeted administrative expenses for the year.

Financial Results and Membership Data

Detailed summaries of the financial results of the valuation, including a 20-year projection of assets, liabilities, benefit payments and contribution requirements (excluding future administrative expense requirements), and of the membership data used in preparing the valuation are shown in the valuation report.

As shown in Table 7, the Fund is projected to become insolvent sometime in 2015, which is in concurrence with the insolvency date determined in the January 1, 2014 actuarial valuation.

It is not uncommon for a fund that is closed to new entrants where a large percentage of the assets are paid out in benefits to become insolvent before all benefit payments are made. That is the case for the PABF. For PABF, the insolvency was exacerbated by the downturn in asset values during calendar year 2008. Consideration could be given to reviewing the current funding policy to ensure that it is still in line with the Board's funding and solvency objectives. Given the small magnitude of the benefit payments to be made after the projected insolvency date in 2015, it would not be unreasonable to consider allowing the plan sponsor to fund the plan as benefit payments come due. An illustration of fund on a PAYGO approach is shown in Table 8.

To the best of our knowledge, this report is complete and accurate and has been prepared in accordance with generally accepted actuarial principles and practice.

Respectfully submitted,

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Introduction

The law governing the Policemen's Annuity and Benefit Fund (PABF) requires the Actuary, as the technical advisor to the Annuity and Pension Board, to make an annual valuation of the funds and liabilities of the Fund, and to determine and certify the annual contribution to be derived from the tax levy. {Chapter 35, Part 1(12)}. Buck Consultants, as Actuary, has completed the annual actuarial valuation of the System as of January 1, 2015.

In this report we present the results of the January 1, 2015 valuation and the contribution to be derived from the tax levy for the year ending December 31, 2015. For purposes of disclosure, the report also includes the schedule of funding progress as required by GASB Statement No. 25. – only to be used for comparison of relevant Statement No. 67 information. The benefit provisions recognized in this valuation are those in place as of the valuation date.

The valuation was completed based upon membership and financial data provided by the administrative staff of the System. The mortality and investment return assumptions used to prepare the valuation were adopted as of January 1, 2013, and are based on the experience study prepared by the Actuary and approved by the Board for the City of Milwaukee Employes' Retirement System for the five-year period ended December 31, 2011. The actuarial asset valuation method was adopted as of January 1, 2005.

Changes Since Last Year

There were no changes in actuarial assumptions and methods or plan provisions since the prior valuation.

Summary of Principal Results

Summarized below are the principal financial results for the Policeman's Annuity and Benefit Fund of Milwaukee based upon the actuarial valuation as of January 1, 2015. Comparable results from the January 1, 2014 valuation are also shown.

Item	January 1, 2015	January 1, 2014
Number of Participants		
➢ Active Members	0	0
➢ Annuitants	11	13
➢ Widow Annuitants	32	40
➢ Total Number of Participants	43	53
Benefits Paid in the Prior Year	$ 492,713	$ 589,196
Asset Values (includes contributions receivable)		
➢ Actuarial Value	$ 146,998	$ 412,093
➢ Market Value	$ 146,998	$ 412,093
Actuarially Determined Employer Contribution	Due 1/31/2016	Due 1/31/2015
➢ Annual Cost*	$ 188,214	$ 207,199
➢ As % of Prior Year Benefits Paid	38.20%	35.17%
*Plus budgeted administrative expenses		
Funded Status		
➢ Accrued Liability	$ 1,387,588	$ 1,777,824
➢ Actuarial (and Market) Value of Assets	146,998	412,093
➢ Unfunded (Overfunded) Accrued Liability	$ 1,240,590	$ 1,365,731
➢ Funded Ratio Based on Actuarial Value of Assets	10.6%	23.2%

Reasons for Change in the Funded Ratio

The funded ratio decreased from 23.2% as of January 1, 2014 to 10.6% as of January 1, 2015. The funded ratio was expected to decrease from 23.2% to 10.1% as of January 1, 2015 based on the results of the January 1, 2014 actuarial valuation. Participant mortality experience in the form of less benefits being payable as of January 1, 2015 increased the funded ratio from 10.1% to 10.3%. Asset experience in the form of actual returns of 11.72%, which was higher than the assumed return of 8.25%, then increased the funded ratio from 10.3% to 10.6%.

Schedule of Funding Progress

The "Schedule of Funding Progress" shows historical trend information about the Fund's actuarial value of assets, the actuarial accrued liability and the unfunded actuarial accrued liability. The actuarial funded status is measured by comparing the actuarial value of assets (based on market value) with the accrued liability. The accrued liability is the present value of benefits accumulated to date under the PABF's funding method. On this basis, the PABF's funded ratio is 10.6% as of January 1, 2015. The funded ratio is based on an actuarial value of assets of $146,998 including a $207,199 receivable contribution for the 2014 plan year, and an accrued liability of $1,387,588.

Valuation as of January 1	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL)	Unfunded AAL (UAAL) (a-AAL)	Funded Ratio (a/AAL)	Annuity Payroll (b)	UAAL as a Percentage of Annuity Payroll (UAAL / b)
2015	$ 146,998	$1,387,588	$1,240,590	10.6%	$ 492,713	251.8%
2014	$ 412,093	$1,777,824	$1,365,731	23.2%	$ 589,196	231.8%
2013	$ 650,910	$2,152,402	$1,501,492	30.2%	$ 715,206	209.9%
2012	$1,007,534	$2,451,276	$1,443,742	41.1%	$ 765,365	188.6%
2011	$1,584,173	$2,945,917	$1,361,744	53.8%	$ 894,264	152.3%

TABLE 1 - Summary of Market Value of Plan Assets As of January 1, 2015 (in dollars)

Item		Amount
1. Market Value of Assets as of January 1, 2014	$	412,093
2. Contributions During Year		
a. Member		-
b. Administrative Expenses		33,929
c. Tax Levy (receivable 1/31/2015)		207,388
d. Total		241,317
3. Disbursements During Year		
a. Benefit Payments and Refunds During Year		492,713
b. Admimistrative Expenses		33,929
c. Total		526,642
4. Investment Return		
a. Net Appreciation, Interest and Dividends		20,230
5. Market Value of Assets as of 1/1/2015 (Unaudited) (1) + (2d) - (3c) + (4)	$	146,998
6. Net Rate of Return		
a. Actual		11.72%
b. Expected		8.25%
c. Rate of Return Greater Than / (Less Than) Expected (a - b)		3.47%
d. Dollar Amount of Gain / (Loss) on Assets	$	6,154

Note:
These figures do not reflect the non-contractual ad hoc payments to the fund provided by the City.

GASB No. 67/68 Disclosure

GASB Statement No. 25 is no longer applicable beginning with the January 1, 2014 valuation and will be replaced by Statement No. 67. GASB Statement No. 27 is applicable for fiscal years ending prior to 2015 and has been replaced by Statement No. 68 for fiscal year ending 2015 and later. The disclosure under GASB 67/68 is to be determined as of the end of the Governmental Employers' fiscal year. It is permissible for the actuary to project the total pension liability to the end of year, based on beginning of the year results; however, the actuary should take into account any significant events that occurred during the year, such as plan changes. The plan fiduciary net position under GASB 67/68 disclosure should be the actual market value of assets as of the end of the year. The Actuarial cost method for GASB 67/68 disclosure is Entry Age Normal Cost Method.

Tables 2 through 6 show the required accounting and financial reporting and disclosure items for fiscal year ending 12/31/2014 prepared based on data as of 1/1/2014.

TABLE 2 – Actuarial Methods and Assumptions for GASB 67/68 Disclosure Purposes

The total pension liability as of December 31, 2014 was determined by rolling forward the total pension liability as of January 1, 2014 to December 31, 2014 using the following actuarial methods and assumptions, applied to all periods included in the measurement.

Valuation Date	January 1, 2014
Actuarial Cost Method	Entry Age Normal – Level dollar amount
Amortization Method	For pension expense; the difference between expected and actual liability experience and changes of assumptions are recognized immediately. The differences between projected and actual earnings are amortized over a closed period of five years.
Asset Valuation Method	Market Value
Actuarial Assumptions:	
Investment Rate of Return	8.25% for calendar years through 2017, and 8.50% beginning with calendar year 2018
Projected Salary Increases	None - The Plan is Closed
Inflation Assumption	3.00%
Mortality Table	For regular retirees and for survivors, the RP-2000 Combined Mortality Table with nine years of projected improvements for males and females, include full generational projection using mortality improvement Scale AA.
Experience Study	The actuarial assumptions used in the December 31, 2014 valuation were based on the results of an actuarial experience study for the period January 1, 2007-December 31, 2011.

TABLE 3 – Schedule of the Net Pension Liability
(in thousands)

Total pension liability	$	1,631
Plan fiduciary net position		146
Net pension liability (asset)	$	1,485

Plan fiduciary net position as a percentage of total pension liability		8.95%	
Covered employee payroll	$	-	(Plan closed)
Net pension liability (asset) as a percentage of covered employee payroll		N/A	

Discount rate: The discount rate used to measure the total pension liability was 3.34 percent. Since the PABF is closed to new members and PABF's fiduciary net position was projected to be insufficient to make all projected future benefit payments of current annuitants. Therefore, the 20 year Municipal Bond Rate was applied to all periods of projected benefit payments to determine the total pension liability.

Sensitivity of the net pension liability to changes in the discount rate. The following presents the net pension liability of the PABF calculated using the discount rate of 3.34 percent, as well as what the PABF's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (2.34 percent) or 1-percentage-point higher (4.34 percent) than the current rate:

	1% Decrease (2.34%)	Current Discount (3.34%)	1% Increase (4.34%)
PABF's net pension liability	$ 1,539	$ 1,485	$ 1,435

TABLE 4 – Schedule of Changes in the Net Pension Liability

($ in thousands)

Total pension liability		
Service cost	$	0
Interest		61
Changes in benefit items		0
Differences between expected and actual experience		0
Changes of assumptions		0
Benefit payments including refunds of member contributions		(493)
Net change in total pension liability		(432)
Total pension liability - beginning		2,063
Total pension liability - ending	$	1,631
Plan fiduciary net position		
Contributions - employer	$	241
Contributions - member		0
Net investment income		20
Benefit payments, including refunds of member contributions		(493)
Administrative expense		(34)
Other		0
Net change in plan fiduciary net pension		(266)
Plan fiduciary net position - beginning		412
Plan fiduciary net position - ending	$	146
Net pension liability (asset) - ending	$	1,485

Table 5 – Schedule of Employes' Retirement Systems' Contributions

($ in thousands)

Last 10 Fiscal Years
(Dollar Amounts in thousands)

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Actuarially Determined Contributions	$ 207	$ 228	$ 222	$ 209	$ 269	$ 330	$ 41	$ 57	$ 308	$ 296
Contributions in relation to the actuarially determined contribution	207	228	222	209	269	330	41	57	308	296
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Covered Employee Payroll	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contributions as a percentage of covered-employee payroll	-	-	-	-	-	-	-	-	-	-

GASB 67 is applicable for fiscal years ending 2014 and later.
The information presented above was determined as part of the actuarial valuation as of one year prior to the dates indicated
(i.e., the contribution determined by the valuation completed as of January 1, 2014 was contributed for the fiscal year ending December 31, 2014).

Table 6 – Schedule of Pension Amounts by Employer

($ in thousands)

Policemen's Annuity and Benefit Fund
Schedule of Pension Amounts by Employer
As of and for the year ended

		Deferred Outflows of Resources					Deferred Inflows of Resources					Pension Expense	
Entity	Net Pension Liability	Difference Between Expected and Actual Experience	Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	Changes of Assumptions	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Deferred Outflows of Resources	Difference Between Expected and Actual Experience	Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	Changes of Assumptions	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Deferred Outflows of Resources	Proportionate Share of Plan Pension Expense	Net Amortization Deferred Amount from Changes in Proportion and Differences Between Employer Contributions and Proportional Share of Contributions
Police	1,485	-	2			2		-	-	-	-	73	
Total for all entities	$ 1,485	-	2	-	-	2	-	-	-	-	-	73	-

TABLE 7 - Projection Of Actuarial Liability And Assets
From January 1, 2015 To December 31, 2034
Based On Rolling 10-Year Level Dollar Amortization Of Unfunded Actuarial Liability
And 8.25% - 8.50%* Per Annum Investment Returns

Calendar Year	(A) Beg.-of-Year (BOY) Assets	(B) BOY Actuarial Liability	(C) Unfunded Actuarial Liability (B) - (A)	(D) Expected Benefit Payments	(E) Investment Earnings at 8.25%	(F) Contribution Receivable Jan 31 Next Year	(G) End-of-Year Assets (A) - (D) + (E) + (F)
2015	$ 146,998	$ 1,387,588	$ 1,240,590	$ 394,269	$ (5,534)	$ 188,214	$ (64,591)
2016	(64,591)	1,091,854	1,156,445	321,341	(19,663)	175,448	(230,147)
2017	(230,147)	847,598	1,077,745	257,012	(30,629)	163,508	(354,280)
2018	(354,280)	650,121	1,004,401	202,252	(38,571)	152,381	(442,722)
2019	(442,722)	493,326	936,048	156,964	(43,957)	142,011	(501,632)
2020	(501,632)	370,715	872,347	120,339	(47,262)	132,347	(536,886)
2021	(536,886)	276,094	812,980	91,317	(48,929)	123,340	(553,792)
2022	(553,792)	203,863	757,655	68,702	(49,345)	114,946	(556,893)
2023	(556,893)	149,202	706,095	51,284	(48,836)	107,124	(549,889)
2024	(549,889)	108,154	658,043	37,999	(47,666)	99,834	(535,720)
2025	(535,720)	77,541	613,261	27,895	(46,036)	93,040	(516,611)
2026	(516,611)	54,915	571,526	20,090	(44,096)	86,708	(494,089)
2027	(494,089)	38,543	532,632	14,367	(41,961)	80,807	(469,610)
2028	(469,610)	26,775	496,385	10,279	(39,734)	75,308	(444,315)
2029	(444,315)	18,289	462,604	7,187	(37,483)	70,183	(418,802)
2030	(418,802)	12,320	431,122	4,979	(35,253)	65,407	(393,627)
2031	(393,627)	8,156	401,783	3,412	(33,078)	60,956	(369,161)
2032	(369,161)	5,279	374,440	2,266	(30,982)	56,807	(345,602)
2033	(345,602)	3,357	348,959	1,429	(28,975)	52,942	(323,064)
2034	(323,064)	2,147	325,211	903	(27,067)	49,339	(301,695)

* The interest rate is 8.25% for calender years 2013 through 2017 and 8.50% beginning with calender year 2018.

TABLE 8 - Projection Of Actuarial Liability And Assets
From January 1, 2015 To December 31, 2034
Based On PAY-AS-YOU-GO BASIS
And 8.25% - 8.50%* Per Annum Investment Returns

Calendar Year	(A) Beg.-of-Year (BOY) Assets	(B) BOY Actuarial Liability	(C) Unfunded Actuarial Liability (B) - (A)	(D) Expected Benefit Payments	(E) Investment Earnings at 8.25%	(F) Contribution Receivable	(G) End-of-Year Assets (A) - (D) + (E) + (F)
2015	$ 146,998	$ 1,387,588	$ 1,240,590	$ 394,269	$ -	286,698	$ 39,427
2016	39,427	1,091,854	1,052,427	321,341	-	314,048	32,134
2017	32,134	847,598	815,464	257,012	-	250,579	25,701
2018	25,701	650,121	624,420	202,252	-	196,776	20,225
2019	20,225	493,326	473,101	156,964	-	152,435	15,696
2020	15,696	370,715	355,019	120,339	-	116,677	12,034
2021	12,034	276,094	264,060	91,317	-	88,415	9,132
2022	9,132	203,863	194,731	68,702	-	66,441	6,870
2023	6,870	149,202	142,332	51,284	-	49,542	5,128
2024	5,128	108,154	103,026	37,999	-	36,671	3,800
2025	3,800	77,541	73,741	27,895	-	26,885	2,790
2026	2,790	54,915	52,126	20,090	-	19,310	2,009
2027	2,009	38,543	36,534	14,367	-	13,795	1,437
2028	1,437	26,775	25,338	10,279	-	9,870	1,028
2029	1,028	18,289	17,261	7,187	-	6,878	719
2030	719	12,320	11,601	4,979	-	4,758	498
2031	498	8,156	7,658	3,412	-	3,255	341
2032	341	5,279	4,938	2,266	-	2,151	227
2033	227	3,357	3,130	1,429	-	1,345	143
2034	143	2,147	2,004	903	-	850	90

* The interest rate is 8.25% for calender years 2013 through 2017 and 8.50% beginning with calender year 2018.

DESCRIPTION OF ACTUARIAL METHODS AND ASSUMPTIONS FOR PENSION FUNDING PURPOSES

Actuarial Cost Method

The method of financing the System is prescribed in Chapter 35, Part 1(12) of the Milwaukee City Charter.

Method: Projected Unit Credit

Since the Fund is closed to new participants and all participants are retired, the Actuarial Accrued Liability (AAL) is equal to the Actuarial Present Value of benefits expected to be paid to and on behalf of current Annuitants and Widow Annuitants. The Unfunded Actuarial Accrued Liability (UAAL) is the difference between the AAL and the Actuarial Value of Assets. Based on the provisions of Chapter 35, the annual contribution consists of an amount sufficient to amortize the UAAL over a ten-year period with a series of level dollar payments, plus budgeted administrative expenses for the year. This funding method was adopted effective January 1, 2006.

Actuarial Value of Assets

The market value of assets is the value of investments if they were to be sold currently, plus the contribution receivable for the plan year just ended. The actuarial value of assets is equal to the market value of assets. This definition of the actuarial value of assets was adopted in 2005.

Amortization Method

Open; Level dollar

Remaining Amortization Period

10 years

Actuarial Assumptions
Adopted Effective January 1, 2013

Interest Rate and Inflation

Interest: 8.50% return for calendar years 2000 through 2012, 8.25% for calendar years 2013 through 2017, and 8.50% beginning with calendar year 2018 (adopted 1/1/2013)

Inflation: 3.0% per annum

Post-Retirement Mortality

Male and Female: RP-2000 Combined Mortality Table with nine years of projected improvements, include full generational projection using mortality improvement Scale AA.

TABLE 8 – The Number and Annual Benefits Payable to Annuitants and widows As of January 1, 2015

Age	Annuitants		Widows		Totals	
	Number	Annuities	Number	Annuities	Number	Annuities
82		$	1	$ 6,000	1	$ 6,000
86			2	12,000	2	12,000
88			2	12,000	2	12,000
89			1	12,932	1	12,932
91			1	9,569	1	9,569
92			7	42,898	7	42,898
93	2	74,861	4	27,198	6	102,059
94	2	26,089	2	16,366	4	42,455
95	3	37,460	2	12,000	5	49,460
96	1	12,364	3	20,103	4	32,467
97	2	48,945	2	12,000	4	60,945
98			1	6,082	1	6,082
99	1	18,907	3	18,918	4	37,825
100			1	6,000	1	6,000
Total	11	$ 218,626	32	$ 214,066	43	$ 432,692