Gabriel Roeder Smith & Company
Consultants & Actuaries

THE POLICE AND FIRE RETIREMENT SYSTEM OF THE CITY OF DETROIT

72ND ANNUAL ACTUARIAL VALUATION

JUNE 30, 2013

OUTLINE OF CONTENTS

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April 4, 2014

Board of Trustees
The Police and Fire Retirement System of the City of Detroit

The results of the **72nd Annual Actuarial Valuation** of the annuity and pension liabilities of the Police and Fire Retirement System of the City of Detroit are presented in this report. The purpose of the valuation was to measure the System's funding progress, to determine contribution rates for the 2015 fiscal year in accordance with the established funding policy, and to determine actuarial information for Governmental Accounting Standards Board (GASB) Statements No. 25 and No. 27 for FY 2014. The results of the valuation may not be applicable for other purposes.

The date of the valuation was **June 30, 2013**.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as: plan experience differing from that anticipated by the economic and 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. Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements.

The actuarial assumptions used in the valuation are summarized in the Appendix. Benefit provisions are summarized on pages 15-17. System asset information was provided by retirement system staff. It was reviewed for general reasonableness, but not otherwise audited by the actuary.

Participant data concerning the active, inactive and retired persons covered by the System was furnished by the retirement system staff, together with needed financial information. Data was checked for year to year consistency, but was not otherwise audited by the actuary. The actuary is not responsible for the accuracy of the data provided by the System. Please see the assumptions section (page 33) which shows that there is a load for "missing or incomplete data".

We presented preliminary valuation results at the March 20, 2014 Board meeting. Subsequent to that meeting, the Retirement System provided additional information for certain members previously excluded from the valuation data files. Based on our analysis, the impact of this additional information was less than our adjustment for missing or incomplete data in our original results. Therefore, we have not incorporated the revised data and results in this final report are unchanged from our March presentation. We recommend staff continue their data cleanup efforts and consider the value of a data audit prior to the next valuation.

Your attention is directed particularly to the employer contribution rates on page 3 and the comments on pages 13 and 14.

This report has been prepared by actuaries who have substantial experience valuing public sector retirement systems. To the best of our knowledge, this report is complete and accurate and was made in accordance with standards of practice promulgated by the Actuarial Standards Board of the American Academy of Actuaries. The actuarial assumptions used for the valuation produce results which, individually and in the aggregate, are reasonable.

The signing actuaries are independent of the plan sponsor.

David Kausch and Judith Kermans are Members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

The intended audience is the Board of Trustees for the Police and Fire Retirement System of the City of Detroit and their staff. If supplied to other parties, the report should be supplied in its entirety. The authors of this report are available to answer questions from the Board and Staff as needed.

The plan sponsor (City of Detroit) is currently in Chapter 9 Bankruptcy. Due to this situation there is a great deal of uncertainty regarding the structure of the Plan. If the Plan structure changes as a result of the bankruptcy, the Board should consider having this report re-issued to account for those changes. This report does not evaluate the plan sponsor's ability to make the required contributions when due. Such an analysis is not within the scope of our assignment. Failure to receive employer contributions on a timely basis could jeopardize the sustainability of the fund.

Respectfully submitted,

David T. Kausch

David T. Kausch, FSA, EA, MAAA

Judith A. Kermans

Judith A. Kermans, EA, MAAA

Kenneth G. Alberts

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VALUATION RESULTS

EMPLOYER CONTRIBUTION RATES
COMPUTED PAYABLE LAST DAY OF FISCAL YEAR
EXPRESSED AS PERCENTS OF ACTIVE MEMBER PAYROLL
2014-2015 FISCAL YEAR

Valuation Date June 30	**2013**	**2013**	**2012**
Contribution for Fiscal Year	**2015**	**2015**	**2014**
	Includes Payment of Required Contributions Prior to FY 2015	**Assuming No Payment of Required Contributions Prior to FY 2015**	
Normal Cost			
Age & service allowances	21.03 %	21.03 %	19.78 %
Disability allowances	3.81 %	3.81 %	3.56 %
Death-in-service allowances	0.43 %	0.43 %	0.40 %
Administrative Expenses	3.00 %	3.00 %	2.50 %
Total	28.27 %	28.27 %	26.24 %
Members current contributions #	3.93 %	3.93 %	3.88 %
(Future refunds)	(0.41)%	(0.41)%	(0.38)%
Available for monthly benefits	3.52 %	3.52 %	3.50 %
Employer Normal Cost	**24.75 %**	**24.75 %**	**22.74 %**
Actuarial Accrued Liabilities			
Total ($ millions)	$3,890.1	$3,890.1	$3,822.7
Funding Value of Assets	3,545.5	3,474.5	3,675.5
Unfunded Actuarial Accrued Liabilities			
- dollar (millions)	$ 344.6	$ 415.6	$ 147.2
- amortization percent +	18.48 %	24.70 %	6.70 %
Computed Employer Rate	**43.23 %**	**49.45 %**	**29.44 %**
Computed Employer Rate with Interest Adjustment *	**44.93 %**	**51.39 %**	**30.59 %**
Estimated Dollar Contributions for FY			
Employer Normal Cost ($ million)	**$ 44.8**	**$ 44.8**	**$ 48.7**
Actuarial Accrued Liabilities ($ million)	**33.4**	**44.7**	**14.3**
Total ($ million) @	**$ 78.2**	**$ 89.4**	**$ 63.0**
Past Due Payments of FY 2013	**$ 71.0**	**$ -**	
Currently Due for FY 2014	**$ 63.0**	**$ -**	

Member statutory contributions of 5% to the Annuity Savings Fund are not payable during all periods of covered employment. The rate shown is the weighted average of expected contributions divided by expected pay in the upcoming fiscal year.

+ *Based on the Board of Trustees funding policy to continue full normal cost contributions when valuation assets exceed accrued liabilities and the use of a closed 28-year level dollar amortization period when accrued liabilities exceed assets.*

* *Computed Employer Rate if paid at end of year.*

We understand that the FY2013 employer contributions have not been made and the FY2014 employer contributions are not being made due to the City's Chapter 9 bankruptcy. The FY2015 contributions are shown under two scenarios. One assumes the FY2013 and FY2014 would be made, the other assumes they would be made. The reported assets as of June 30, 2013 include zero receivable contributions.

ACTUARIAL ACCRUED LIABILITIES AS OF JUNE 30, 2013

Present Value, June 30	Amount
Accrued Pension Liabilities	
Retirees and beneficiaries	$2,911,280,932
Inactive members future deferred pensions	28,044,895
Active members	749,847,358
Total accrued pension liabilities	3,689,173,185
Pension fund balances	3,273,567,865
Unfunded accrued pension liabilities	$ 415,605,320
Accrued Annuity Liabilities	
Retirees and beneficiaries	
Future annuities	$ 3,865,681
Reserve for outstanding refunds & contingencies	18,872,770
Total	$ 22,738,451
Members annuities & future refunds	178,231,705
Total accrued annuity liabilities	200,970,156
Annuity fund balances	200,970,156
Unfunded accrued annuity liabilities	$ 0
System Totals	
Actuarial accrued liabilities	$3,890,143,341
Accrued assets#	3,474,538,021
Unfunded actuarial accrued liabilities#	$ 415,605,320

*Assumes past due contributions of $71 million are **NOT MADE**.*

VALUATION RESULTS - COMPARATIVE STATEMENT
- - $ IN MILLIONS - -

June 30	Active Payroll Total	Active Payroll Average	Actuarial Accrued Liabilities Computed Total	Actuarial Accrued Liabilities Valuation Assets	Actuarial Accrued Liabilities Unfunded	Unfunded / Active Pays	Employer Contributions % of Pays
1994	$ 199.7	$38,693	$2,486.2	$2,304.4	$ 181.8	0.9	27.64%
1995(a)	209.7	39,692	2,574.2	2,443.0	131.2	0.6	25.90%
1996	212.7	39,965	2,633.4	2,628.6	4.8	0.0	21.81%
1997(b)	217.6	40,145	2,724.1	2,944.2	(220.1)	-	7.32%
1998*#	217.5	40,772	2,976.8	3,325.9	(349.1)	-	26.16%
1999#@	216.0	40,542	3,274.1	3,668.4	(394.3)	-	26.17%
2000*#	237.7	43,376	3,342.1	3,964.2	(622.1)	-	27.25%
2001#	253.3	45,353	3,463.2	3,900.0	(436.8)	-	27.22%
2002(a)#	248.7	46,203	3,632.0	3,635.1	(3.1)	-	23.39%
2003	248.7	47,305	3,721.6	3,205.5	516.1	2.1	43.89%
2004	258.7	51,126	3,857.5	3,074.5	783.0	3.0	54.36%
2005	250.5	52,197	3,780.4	3,757.9	22.5	0.1	25.98%
2006+&	228.1	52,908	3,809.0	3,980.3	(171.3)	-	25.09%
2007+	230.2	54,647	3,870.7	4,307.2	(436.5)	-	25.16%
2007+*	230.2	54,647	3,896.8	4,307.2	(410.4)	-	26.71%
2008+	232.8	57,090	3,992.4	4,316.3	(323.9)	-	26.75%
2008+(a)	232.8	57,090	4,071.1	4,316.3	(245.2)	-	26.27%
2009	231.8	57,418	4,221.3	3,945.2	276.1	1.2	35.22%
2010	228.8	57,322	4,180.1	3,412.8	767.3	3.4	49.75%
2010(a)	228.8	57,322	3,987.5	3,853.3	134.2	0.6	28.90%
2010(a)*	228.8	57,322	3,767.4	3,853.3	(85.9)	-	23.02%
2011	220.5	57,773	3,808.6	3,804.8	3.8	0.0	23.14%
2012(a)	205.8	57,374	3,822.7	3,675.5	147.2	0.7	30.59%
2013(c)	186.7	57,163	3,890.1	3,474.5	415.6	2.2	51.39%
2013(d)	186.7	57,163	3,890.1	3,545.5	344.6	1.8	44.93%

(a) After changes in actuarial assumptions and/or methods.
(b) After changes in actuarial assumptions and a temporary full funding credit.
** After Plan Amendments.*
 # Employer normal cost before full funding credit.
@ After $55.4 million reserve for 1998-1999 13th check and ASF distributions.
+ Based on the Board of Trustees funding policy to continue full normal cost contributions when valuation assets exceed accrued liabilities.
& 2006 assets were revised following the 6/30/2006 valuation.
(c) Based on 28-year amortization of missed contributions.
(d) Assumes past due contributions of $71 million are made.

SOLVENCY TESTS

The Police and Fire Retirement System of the City of Detroit funding objective is to meet long-term benefit promises through contributions that remain approximately level from year to year as a percent of member payroll. If the contributions to the System are level in concept and soundly executed, the System will pay all promised benefits when due -- the ultimate test of financial soundness. Testing for level contribution rates is ***the long-term solvency test***.

A short-term solvency test is one means of checking a System's progress under its funding program. In a short-term solvency test, the plan's present assets (cash and investments) are compared with:

1) Active member contributions on deposit;
2) The liabilities for future benefits to present retired lives;
3) The liabilities for service already rendered by active members.

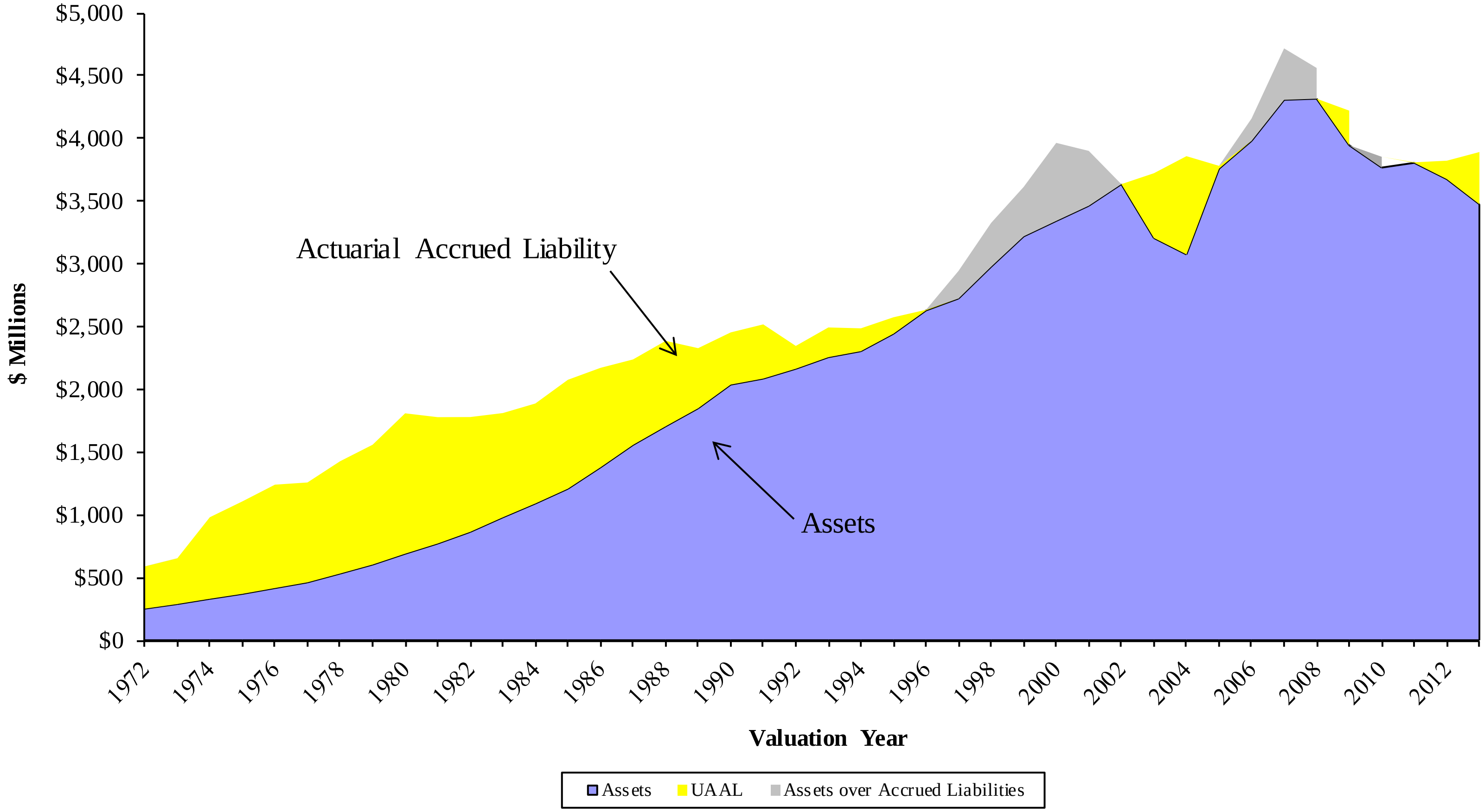
In a System that has been following the discipline of level percent-of-payroll financing, the liabilities for active member contributions on deposit (liability 1) and the liabilities for future benefits to present retired lives (liability 2) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by active members (liability 3) will often be partially covered by the remainder of present assets. The larger the funded portion of liability 3, the stronger the condition of the System.

Short-Term Solvency Test
5-Year Comparative Statement
($ millions)

	Actuarial Accrued Liabilities							
	(1) Active Member Contr. (ASF)	(2) Retirees and Benef.	(3) Present Members (Employer Financed Portion)	Funding Value of Assets	Portion of Accrued Liabilities Covered by Assets			
June 30					(1)	(2)	(3)	Total
		------------ $ Millions ------------						
2009	$ 301	$ 2,837	$ 1,083	$ 3,945	100%	100%	75%	93%
2010#(a)	298	2,743	726	3,853	100%	100%	112%	102%
2011	230	2,717	861	3,805	100%	100%	100%	100%
2012#	199	2,822	801	3,675	100%	100%	82%	96%
2013*	178	2,934	777	3,475	100%	100%	47%	89%

(a) After changes in benefit provisions.
 # After changes in actuarial assumptions and/or methods.
** Assumes past due contributions of $71 million are **NOT MADE**.*

ASSETS AND ACCRUED LIABILITIES



DERIVATION OF EXPERIENCE GAIN (LOSS)
YEAR ENDED JUNE 30, 2013

Actual experience will never (except by coincidence) coincide exactly with assumed experience. Gains and losses will often cancel each other over a period of years, but sizable year to year fluctuations are common. Detail on the derivation of the experience gain (loss) is shown below.

(1)	UAAL* at start of year	$ 147,216,398
(2)	Employer and employee normal cost from last valuation	52,726,031
(3)	Actual employer and employee contributions	7,799,790
(4)	Interest accrual: (1) x .080	11,777,312
(5)	Expected UAAL before changes: (1) + (2) - (3) + (4)	203,919,951
(6)	Change due to benefit provision modifications	0
(7)	Change due to revised actuarial methods and/or assumptions	0
(8)	Other: Missed FY 2013 Contributions	71,000,000
(9)	Expected UAAL after changes: (5) + (6) + (7) + (8)	274,919,951
(10)	Actual UAAL at end of year	415,605,320
(11)	Experience gain (loss): (9) - (10)	(140,685,369)
(12)	Experience gain (loss) as a % of beginning of year accrued liability	(3.7)%
(13)	Experience gain (loss)	(140,685,369)
(14)	Gain (loss) due to investment experience	(138,144,755)
(15)	Gain (loss) from other sources	(2,540,614)

* *Unfunded actuarial accrued liability.*

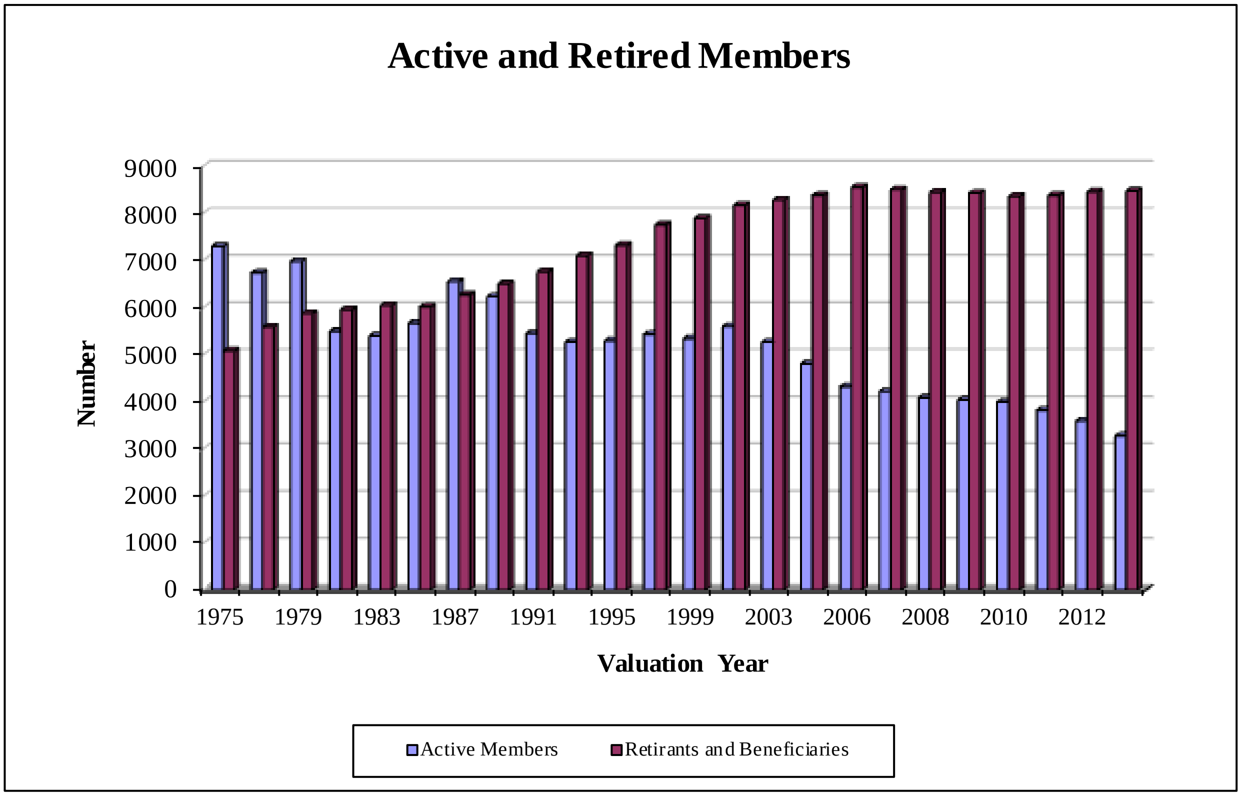
COMPARATIVE STATEMENT OF ACTIVE MEMBERS AND VALUATION PAYROLL

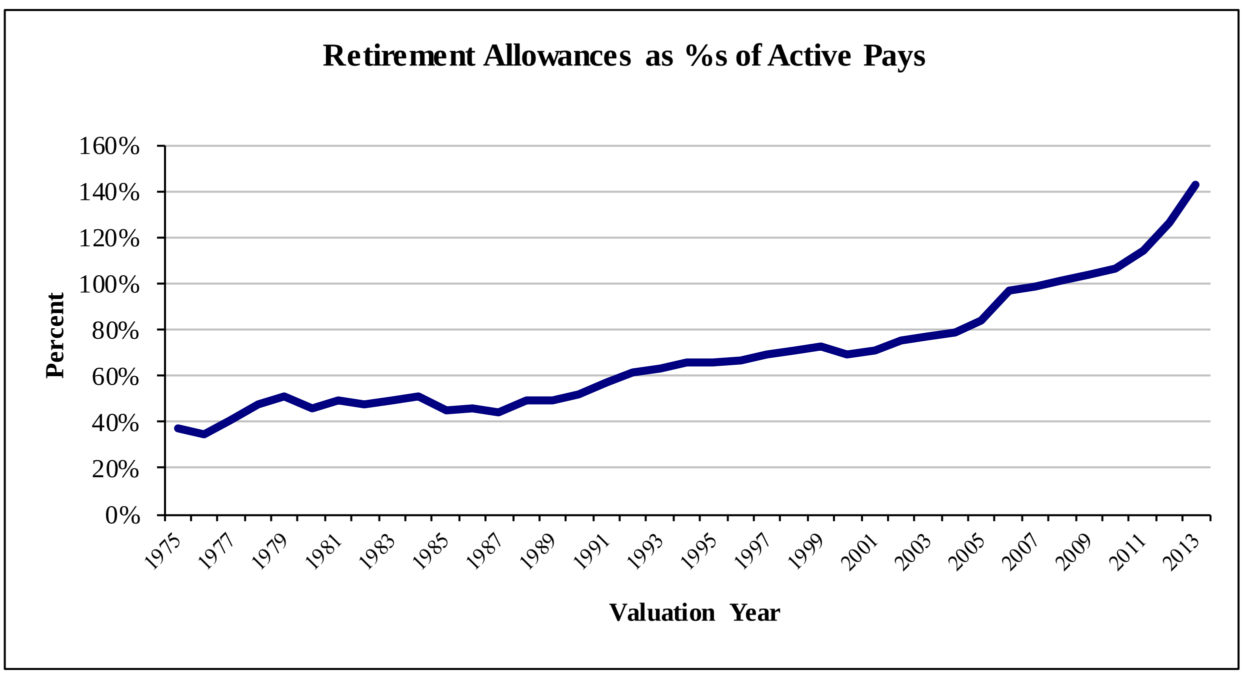
June 30	No. of Members 1969 Plan	No. of Members Pre-1969	Total Members No.	% Change	Ratio of Active to Retired	Annual Payroll	Average Pay $	Average Pay Change
1979	4,230	2,739	6,969	(5)%	1.2	$175,174,674	$25,136	11.9 %
1980	3,719	2,640	6,359	(9)%	1.1	178,004,349	27,993	11.4 %
1981	2,991	2,491	5,482	(14)%	0.9	155,849,804	28,429	1.6 %
1982	3,185	2,299	5,484	0 %	0.9	155,372,732	28,332	(0.3)%
1983	3,176	2,214	5,390	(2)%	0.9	153,347,716	28,450	0.4 %
1984	3,070	2,139	5,209	(3)%	0.9	148,223,416	28,455	0.0 %
1985	3,657	1,998	5,655	9 %	0.9	171,357,741	30,302	6.5 %
1986	4,463	1,879	6,342	12 %	1.0	185,312,563	29,220	(3.6)%
1987	4,918	1,627	6,545	3 %	1.0	202,277,028	30,906	5.8 %
1988	4,776	1,447	6,223	(5)%	1.0	206,107,980	33,120	7.2 %
1989	4,942	1,338	6,280	1 %	1.0	208,361,567	33,179	0.2 %
1990	4,834	1,174	6,008	(4)%	0.9	221,538,387	36,874	11.1 %
1991	4,372	1,066	5,438	(9)%	0.8	213,072,553	39,182	6.3 %
1992	4,411	850	5,261	(3)%	0.8	205,681,412	39,095	(0.2)%
1993	4,534	725	5,259	0 %	0.7	204,289,195	38,846	(0.6)%
1994	4,578	584	5,162	(2)%	0.7	199,734,550	38,693	(0.4)%
1995	4,779	505	5,284	2 %	0.7	209,733,734	39,692	2.6 %
1996	4,889	432	5,321	1 %	0.7	212,656,401	39,965	0.7 %
1997	5,049	371	5,420	2 %	0.7	217,585,229	40,145	0.5 %
1998	5,018	316	5,334	(2)%	0.7	217,479,443	40,772	1.6 %
1999	5,099	230	5,329	0 %	0.7	216,049,687	40,542	(0.6)%
2000	5,291	190	5,481	3 %	0.7	237,741,560	43,376	7.0 %
2001	5,453	132	5,585	2 %	0.7	253,297,027	45,353	4.6 %
2002	5,290	92	5,382	(4)%	0.7	248,663,133	46,203	1.9 %
2003	5,181	76	5,257	(2)%	0.6	248,681,461	47,305	2.4 %
2004	5,007	53	5,060	(4)%	0.6	258,699,581	51,126	8.1 %
2005	4,768	31	4,799	(5)%	0.6	250,491,872	52,197	2.1 %
2006	4,298	14	4,312	(10)%	0.5	228,140,160	52,908	1.4 %
2007	4,204	8	4,212	(2)%	0.5	230,173,964	54,647	3.3 %
2008	4,071	7	4,078	(3)%	0.5	232,812,606	57,090	4.5 %
2009	4,030	7	4,037	(1)%	0.5	231,795,528	57,418	0.6 %
2010	3,985	7	3,992	(1)%	0.5	228,829,999	57,322	(0.2)%
2011	3,809	7	3,816	(4)%	0.5	220,461,691	57,773	0.8 %
2012	3,580	7	3,587	(6)%	0.4	205,800,278	57,374	(0.7)%
2013@	3,260	6	3,266	(9)%	0.4	186,694,166	57,163	(0.4)%

@ *Payroll used was the greater of the payroll reported for the current and prior fiscal years.*

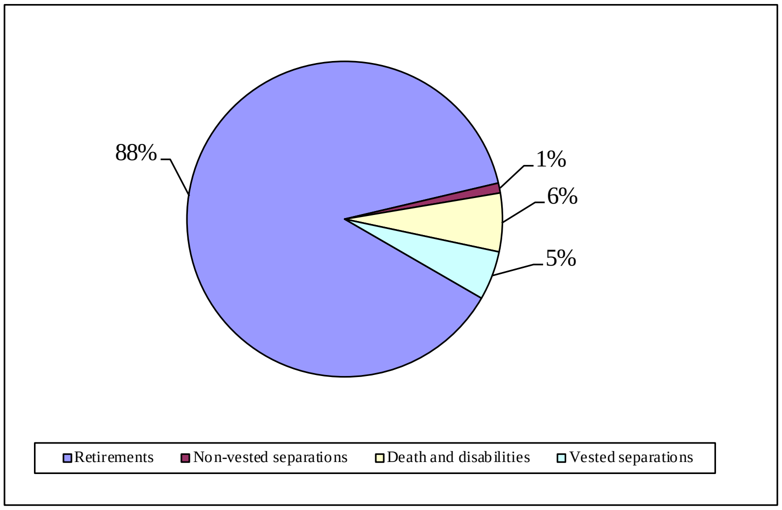
COMPARATIVE STATEMENT OF ANNUAL RETIREMENT ALLOWANCES BEING PAID RETIREES AND BENEFICIARIES

June 30	No. Retired		% of Current Allowances			Current Allowances		Allowances as a % of Payroll
	Pre-69	Total	Annuities	Pensions	Escalators	Total	Average	
1979	5,869	5,869	2.6%	51.3%	46.1%	$ 61,355,273	$ 10,454	35%
1980	5,676	5,911	2.1%	45.3%	52.6%	72,671,386	12,294	41%
1981	5,691	5,951	2.0%	46.7%	51.3%	74,565,233	12,530	48%
1982	5,709	6,006	2.0%	49.0%	49.0%	75,348,490	12,545	48%
1983	5,705	6,038	2.0%	50.8%	47.2%	75,774,552	12,550	49%
1984	5,641	5,986	1.9%	51.7%	46.4%	76,126,476	12,717	51%
1985	5,581	6,011	1.9%	54.0%	44.1%	70,776,660	12,773	45%
1986	5,585	6,117	1.6%	52.5%	45.9%	85,409,280	13,962	46%
1987	5,486	6,264	1.5%	53.5%	45.0%	88,608,492	14,146	44%
1988	5,442	6,416	1.3%	53.9%	44.8%	100,659,780	15,689	49%
1989	5,415	6,496	1.3%	55.7%	43.0%	103,122,696	15,875	49%
1990	5,412	6,660	1.1%	54.3%	44.6%	114,650,196	17,215	52%
1991	5,361	6,754	1.1%	54.3%	44.6%	121,715,028	18,021	57%
1992	5,342	6,899	1.0%	57.0%	42.0%	124,835,208	18,095	61%
1993	5,349	7,091	1.0%	59.5%	39.5%	129,027,970	18,196	63%
1994	5,249	7,169	0.9%	61.7%	37.4%	131,595,379	18,356	66%
1995	5,161	7,311	0.9%	61.3%	37.8%	138,959,417	19,007	66%
1996	5,049	7,469	0.8%	62.6%	36.6%	143,536,485	19,218	67%
1997	5,012	7,743	0.8%	63.3%	35.9%	150,843,744	19,481	69%
1998	4,719	7,750	0.7%	65.8%	33.5%	154,226,437	19,900	71%
1999	4,573	7,883	0.7%	68.4%	30.9%	158,523,816	20,110	73%
2000	4,498	8,079	0.6%	70.0%	29.4%	164,279,376	20,334	69%
2001	4,394	8,166	0.6%	67.4%	32.0%	180,239,652	22,072	71%
2002	4,229	8,179	0.5%	68.4%	31.1%	185,658,396	22,699	75%
2003	4,104	8,277	0.5%	69.8%	29.7%	191,634,636	23,153	77%
2004	3,961	8,328	0.4%	68.5%	31.1%	203,083,524	24,386	79%
2005	3,791	8,376	0.4%	69.5%	30.1%	211,114,020	25,205	84%
2006	3,666	8,550	0.4%	70.9%	28.7%	222,357,372	26,007	97%
2007	3,501	8,498	0.3%	70.6%	29.1%	227,671,788	26,791	99%
2008	3,318	8,442	0.3%	70.0%	29.7%	234,223,368	27,745	101%
2009	3,168	8,424	0.3%	70.1%	29.6%	240,094,968	28,501	104%
2010	3,035	8,356	0.3%	70.3%	29.4%	243,688,596	29,163	106%
2011	2,861	8,379	0.2%	71.6%	28.2%	250,376,700	29,881	114%
2012	2,723	8,451	0.2%	72.2%	27.6%	258,660,084	30,607	126%
2013	2,544	8,476	0.2%	72.9%	26.9%	266,438,460	31,434	143%

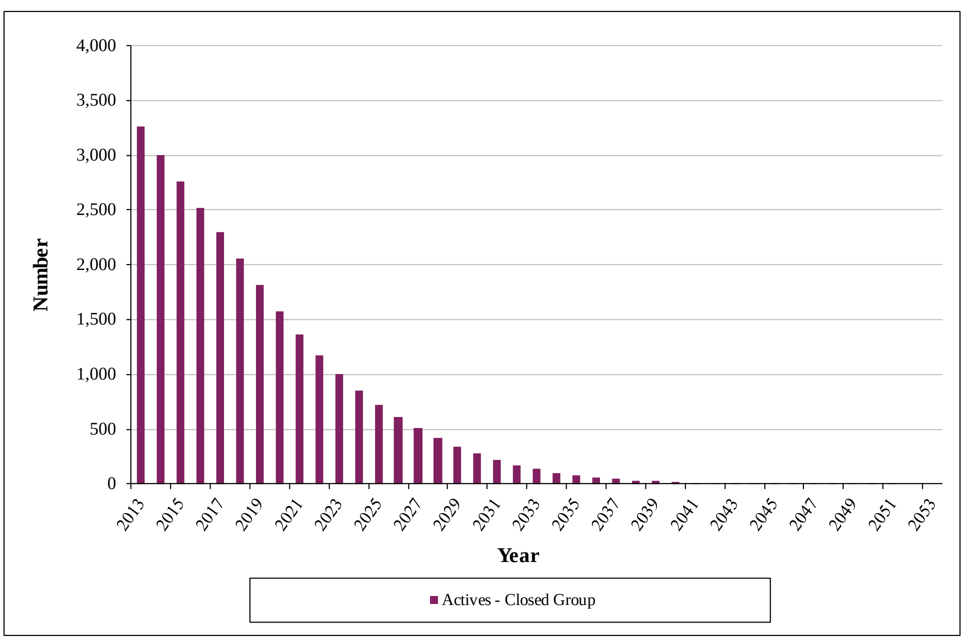

Active and Retired Members
Number
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1975
1979
1983
1987
1991
1995
1999
2003
2006
2008
2010
2012
Valuation Year
Active Members
Retirants and Beneficiaries


Retirement Allowances as %s of Active Pays
Percent
160%
140%
120%
100%
80%
60%
40%
20%
0%
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
Valuation Year

EXPECTED TERMINATIONS FROM ACTIVE EMPLOYMENT FOR CURRENT ACTIVE MEMBERS



The chart above shows the expected future development of the present population in simplified terms. The Retirement System presently covers 3,266 active members. Eventually, 48 members are expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. 3,033 members are expected to receive monthly retirement benefits either by retiring directly from active service, or by retiring from vested deferred status. 185 members are expected to become eligible for death-in-service or disability benefits. Shown below is a graph of projected active members remaining in the Retirement System. It is projected that less than half of the current active population will be active by 2020.



COMMENTS AND CONCLUSION

The purpose of this report is to measure the funding progress and establish the computed employer contribution rate for Fiscal Year 2015 in an ongoing but closed pension plan. This actuarial valuation does not take into account any of the changes being discussed as part of the Bankruptcy mediation process but presents the results based on plan provisions and actuarial assumptions as they were pre-bankruptcy including a plan closure with an unknown effective date. This report was prepared for the Police and Fire Retirement System Board of Trustees and should not be used by any other party or for any other purpose than as described in this paragraph.

Experience during the Past Year

Investment experience for the year ended June 30, 2013 was favorable with a market rate of return of 14.4% which is 6.4% above the assumed 8.00% investment rate of return. However, because of the 7-year smoothing of the current gain (as well as prior gains and losses), the recognized rate of return on the funding value of assets was only 4.1%. Because of the past unfavorable market returns and the 7-year smoothing, the funding value of assets exceeds the market value by $440 million. Substantial upward pressure on the employer rate can be expected in each of the next three years unless offset by investment or other gains.

Annuity Reserve Fund

The Annuity Reserve Fund (ARF), as reported, was $19 million higher than the related accrued liabilities for Retirees and Beneficiaries. The Board approved a transfer of $12 million from the Annuity Reserve Fund to the Pension Accumulation Fund in 2001, a transfer of $5 million in 2005 and a transfer of $22 million in 2011.

Employer Contribution Rate

The employer contribution rate increased from 30.59% of covered payroll last year to 51.39% of covered payroll this year (if missing contributions are ignored). As already discussed, the System experienced actuarial losses this year primarily due to lower than assumed investment return on a funding (smoothed) value of assets basis. The Boards' funding policy is: 1) to require full normal cost contributions when valuation assets exceed accrued liabilities and 2) to require the normal cost plus an amortization payment on the UAAL (based on a closed 28-year period) when accrued liabilities exceed valuation assets. As of June 30, 2013, the System is 89.3% funded so the computed employer contribution is above the employer normal cost. There are approximately $440 million in net investment losses scheduled to be recognized over the next 5 years. On a market value basis, the fund is approximately 78.0% funded and would be approximately 79.8% funded if it had received the proper amounts of employer contributions. If the market value of assets were used to determine the employer contribution rate as of June 30, 2013, the computed employer contribution rate would have been 76.09% of covered payroll. That rate is an estimate of where the employer contribution rate would be at the end of the asset smoothing period (in 6 years), if there are no other gains or losses and the payroll remains stable. When the Plan is finally closed, the payroll will decline, and the contribution rate will increase to obtain the same contribution dollars – see discussion on page 14 regarding closed plans and the computation of the required employer contributions).

Payroll

Pay was temporarily decreased for members during 2013. As we understand it, the decrease in pay is temporary and will not impact Average Final Pay at retirement.

COMMENTS AND CONCLUSION

Assets and Accrued Contributions

As of June 30, 2013, the annual benefits were approximately 9% of the market value of assets. Failure to receive employer contributions on a timely basis could jeopardize the sustainability of the fund. **We recommend that all previously computed employer contributions be deposited into the fund as soon as possible.**

Methods and Assumption Review

Actuarial methods and assumptions were last formally reviewed (in aggregate) for the 5-year period ending June 30, 2007. The next review was scheduled to be completed after the June 30, 2012 valuation to cover the 5-year period ending June 30, 2012. The City Ordinance requires a formal review be performed every 5 years. The review was suspended due to more urgent projects resulting from the Bankruptcy proceedings as well as the uncertainty of the structure of the plan as a result of the Bankruptcy. We recommend that work on this review be authorized once the bankruptcy issues related to this plan are settled.

Plan Closure

After completion of the June 30, 2012 valuation, we learned that the plan closure date is contingent upon the opening of the new DC replacement plan. Since the replacement plan has not been established, new members continue to enter this plan. For purposes of this valuation we have assumed the plan closure date will occur after FY 2015 (the contribution effective date). If the plan does not close, level percent of payroll financing could be used for financing the UAAL, which would reduce the employer contribution rate by approximately 7%-8% of payroll.

Conclusion

Based upon the funding policy established by the Board, the data furnished by the Retirement System and the actuarial assumptions shown in the Appendix, the recommended employer contribution rate for the 2014-2015 fiscal year is 51.39% of covered payroll assuming missed contributions will not be re-paid and 44.93% of covered payroll if they are re-paid/paid.

DATA FURNISHED FOR VALUATION

Age and Service Retirement

Eligibility - 25 years of service regardless of age. 20 years of service regardless of age for eligible DPOA and DFFA members. DFFA members must retire by age 60.

Annual Amount - An annuity equal to the actuarial equivalent of the member's accumulated contribution account plus a defined benefit, which, when added to the annuity will provide the following:

Pre-1969 Members - For all service earned up to April 5, 2011 for LSA and Fire equivalent members, and up to September 1, 2011 for DPOA and Fire equivalent members, 2.5% of AFC times the first 25 years of service, with a maximum allowance of 15/22 of a police officer's or firefighter's annual rate of compensation (actuarially reduced to reflect early payment).

For all service earned after April 5, 2011 for LSA and Fire equivalent members, and after September 1, 2011 for DPOA and Fire equivalent members, 2.1% of AFC times the first 25 years of service, with a maximum allowance of 15/22 of a police officer's or firefighter's annual rate of compensation.

1969 Plan Members - For all service earned up to April 5, 2011 for LSA and Fire equivalent members, and up to September 1, 2011 for DPOA and Fire equivalent members, 2.5% of AFC times the first 25 years of service plus 2.1% of AFC times each of the next 10 years of service.

For all service earned after April 5, 2011 for LSA and Fire equivalent members, and after September 1, 2011 for DPOA and Fire equivalent members, 2.1% of AFC times each year of service, up to 35 years of service.

Members may elect to receive their accumulated contribution account in a lump sum after 25 years of service (20 years of service for eligible DPOA and DFFA members). The defined benefit at retirement is then reduced by the actuarial equivalent of the amount of principal withdrawn. No reduction is made with regard to the interest portion of the withdrawal. Pre-1969 plan members may elect 1969 plan benefits at the time of retirement.

Type of Average Final Compensation (AFC) - Average of the current compensation for the ranks held in each of last 5 years (last 3 years for DPCOA, Executive Members and their Fire equivalents). Pension benefits for non-union employees may not be diminished due to a reduction in compensation because of fiscal emergency. AFC includes prior longevity distributions during the averaging period in accordance with the following schedule: 1% of compensation after 5 years of service, 2% after 11 years, 3% after 16 years and 4% after 21 years. A member may elect that upon retirement or upon death before retirement either (i) a lump sum payment equal to 85% (100% for DPOA and DPCOA members) of the amount of his or her unused accumulated sick leave bank, or (ii) to have the 3-year average of 25% of the value of the accumulated unused sick leave bank added to his or her AFC. Any member electing the AFC adjustment option will also be paid a lump sum equal to the remaining value of the sick leave bank as provided in (i) above. Lump sum payments are not paid by the retirement system.

SUMMARY OF BENEFIT PROVISIONS (CONTINUED)

Deferred Retirement (vested benefit)

Eligibility - 10 years of service for DPOA and Fire equivalents, age 40 with 8 years of service for all others.

Annual Amount - Same as regular retirement but based on average final compensation and credited service at the time of termination.

Benefit Commencement - DPOA and Fire equivalent members hired after 6/30/85: Unreduced benefit begins at age 62. ***All other members***: Unreduced benefit begins at the age when the member would have first been eligible for regular retirement had the member continued in City service. **All** members may elect a reduced benefit payable immediately.

Duty Disability Retirement

Eligibility - No age or service requirement.

Annual Amount – A basic benefit of 50% of final compensation and a supplemental benefit of 16-2/3% of final compensation is payable for 24 months. After 24 months, members disabled from any occupation continue to receive both benefits; otherwise, only the 50% benefit is then payable. Upon attaining 25 years of service, the disability benefit is 50% of final compensation. Members convert to regular retirement benefit at age 65. Worker's compensation payments are offset. Members who have already filed under the old duty disability plan will receive 66-2/3% of final compensation payable to eligibility date for regular retirement.

Non-Duty Disability Retirement

Eligibility - 5 years of service.

Annual Amount - Computed as a regular retirement benefit, but based on average final compensation and credited service at the time of disability. Minimum benefit is 20% of average final compensation.

Duty Death Before Retirement

Eligibility - No age or service requirement.

Annual Amount – Surviving spouse receives 5/11 of police officer's or firefighter's compensation and each child under age 18 receives 1/10 of such compensation with a maximum total of 7/33 of such compensation. If there is no surviving spouse, each child receives 1/4 of such compensation with a maximum total of 1/2 of such compensation. If there is no surviving spouse or children, each dependent parent receives 1/6 of such compensation. Worker's compensation payments are offset.

SUMMARY OF BENEFIT PROVISIONS (CONCLUDED)

Non-Duty Death Before Retirement

Eligibility **-** No age or service requirement.

Annual Amount **-** Same as a regular retirement benefit to a surviving spouse, but reduced in accordance with a 100% joint and survivor option election. Minimum benefit is 20% of average final compensation. Each child under 18 receives 1/7 of police officer's or firefighter's compensation with a maximum total of 2/7 of such compensation. If there is no spouse or children, each dependent parent receives 1/7 of such compensation.

Post-Retirement Cost-of-Living Adjustments

Pre-1969 Members - Allowances increase in proportion to active member compensation for the corresponding rank.

1969 Plan Members - Police retired after July 1, 2001, certain Police classes retired after July 1, 1998 and all Fire members: For all service earned up to April 5, 2011 for LSA members (September 1, 2011 for DPOA members) pensions increase by 2.25% of the **current** pension amount each July 1. No cost-of-living adjustments for service earned after April 5, 2011 for LSA members (September 1, 2011 for DPOA members).

Member Contributions

5% of covered compensation payable until first eligible for regular retirement.

DROP plan

Members with 25 years (20 years for DPOA members) of service may elect to participate in the DROP. When a DROP election is made, the member ceases to accrue any further age and service retirement benefits. Seventy five percent (75%) of the member's benefit (accrued to their DROP date) is contributed to a DROP account (a defined contribution account). At retirement the member is entitled to the balance in the DROP account and a monthly benefit equal to 100% of their benefit accrued to their DROP date, increased by any post-retirement increases that the member would have received, had the member been retired. Fire members must retire from the DROP plan at age 60. Participation in the DROP is limited to 10 years for LSA members electing to DROP after April 5, 2011.

Participation

Plan is closed to new members, effective with the opening of a replacement DC plan. The opening of the replacement DC plan is assumed to occur after FY 2015.

Reported Assets
(Market Value)

Market Value - June 30, 2013	
Cash & equivalents	$ 84,037,894
Receivables & accruals	18,746,570
Contributions receivable	-
Stocks	1,546,808,302
Bonds & government securities	621,018,160
Real estate	496,775,338
Private equity	85,647,423
Securities lending	299,774,500
Pooled investments	232,149,159
Capital assets	1,234,407
Accounts payable	(351,618,689)
Total Current Assets	**$ 3,034,573,064**

*Reserve Accounts**

Funds	Fund Balances June 30, 2013	Fund Balances June 30, 2012
Annuity Savings	$ 178,231,705	$ 198,566,556
Annuity Reserve	22,738,451	17,260,868
Total Annuity Funds	200,970,156	215,827,424
Pension Accumulation	(344,811,707)	(45,910,951)
Pension Reserve	2,911,280,932	2,804,974,749
Accrued Liability Fund Reserve	701,277,898	694,971,515
Survivor Benefit	5,820,742	5,596,867
Total Pension Funds	3,273,567,865	3,459,632,180
Total Fund Balances (Funding Value)	$3,474,538,021	$3,675,459,604

*Revenues and Expenditures**

	Pension Funds &	Annuity Funds +	Total Funds
Balance, July 1, 2012	$3,459,632,180	$ 215,827,424	$3,675,459,604
Prior Valuation Audit Adjustment	0	0	0
Balance July 1, 2012 after Adjustment	3,459,632,180	215,827,424	3,675,459,604
Revenues			
Member Contributions	0	7,799,790	7,799,790
Employer Contributions	0	0	0
Recognized Investment Income	129,087,870	13,080,543	142,168,413
Transfers	85,500	(85,500)	0
Total	$ 129,173,370	$ 20,794,833	$ 149,968,203
Expenditures			
Benefit Payments	279,885,732	0	279,885,732
Refund of Member Contributions	0	35,652,101	35,652,101
Adjustment (Prior Year Cont.)	29,026,800	0	29,026,800
Administrative Expenses#	6,325,153	0	6,325,153
Total	$ 315,237,685	$ 35,652,101	$ 350,889,786
Balance, June 30, 2013	$3,273,567,865	$200,970,156	$3,474,538,021
Funding Value Rate of Return	3.9%	6.5%	4.1%
Market Value Rate of Return	15.0%	6.5%	14.4%

\# *Includes approximately $930,000 of uncollectible amounts written off as of June 30, 2013.*
\+ *Reported Market Value of Annuity Savings Fund and Annuity Reserve Fund.*
* *Excludes the Market Stabilization Fund.*

FUNDING VALUE OF ASSETS

	2012	2013	2014	2015	2016	2017	2018	2019
A. Funding Value Beginning of Year	$ 3,804,759,868	$ 3,675,459,604						
B. Market Value End of Year	2,974,461,633	3,034,573,064						
C. Market Value Beginning of Year	3,380,091,601	2,974,461,633						
D. Contributions During Year:								
D1. City Contributions (End of Year)	49,760,229	0						
D2. Member Contributions	9,538,384	7,799,790						
D3. Total	59,298,613	7,799,790						
E. Expenses:								
E1. Benefits Paid During Year	321,287,496	315,537,833						
E2. Administrative Expenses	5,300,379	6,325,153						
E3. Accrued Contribution Write Off		29,026,800						
E4. Total	326,587,875	350,889,786						
F. Investment Income:								
F1. Market Total: B - C - D3 + E4	(138,340,706)	403,201,427						
F2. Assumed Rate	8.0%	8.0%						
F3. Amount for Immediate Recognition	293,689,219	280,313,168						
F4. Amount for Phased-In Recognition: F1-F3	(432,029,925)	122,888,259						
G. Phased-In Recognition of Investment Income:								
G1. Current Year: F4/7	(61,718,561)	17,555,466						
G2. 1st Prior Year	45,240,031	(61,718,561)	$ 17,555,466					
G3. 2nd Prior Year	(139,221,691)	45,240,031	(61,718,561)	$ 17,555,466				
G4. 3rd Prior Year		(139,221,691)	45,240,031	(61,718,561)	$ 17,555,466			
G5. 4th Prior Year			(139,221,691)	45,240,031	(61,718,561)	$ 17,555,466		
G6. 5th Prior Year				(139,221,691)	45,240,031	(61,718,561)	$ 17,555,466	
G7. 6th Prior Year					(139,221,691)	45,240,033	(61,718,559)	$ 17,555,463
G8. Total Recognized Investment Gain	(155,700,221)	(138,144,755)	(138,144,755)	(138,144,755)	(138,144,755)	1,076,938	(44,163,093)	17,555,463
H. Total Interest Distributed - Current Year: (F3 + G8)	137,988,998	142,168,413						
I. Funding Value End of Year:								
I1. Preliminary Funding Value End of Year: A + D - E + H	3,675,459,604	3,474,538,021						
I2. Upper Corridor Limit 130% x B	3,866,800,123	3,944,944,983						
I3. Lower Corridor Limit 70% x B	2,082,123,143	2,124,201,145						
I4. **Funding Value End of Year**	3,675,459,604	3,474,538,021						
J. Difference Between Market & Funding Value: (B - I)	(700,997,971)	(439,964,957)						
K. Recognized Rate of Return: H / [1/2 (A + I4 - H)]	3.8%	4.1%						
L. Market Rate of Return: F1 / [C - 1/2 (E - D)]	(4.3)%	14.4%						
M. Ratio of Funding Value to Market Value	123.6%	114.5%						

The Funding Value of Assets recognizes assumed investment income (line F2) fully each year. Differences between actual and assumed investment income (line F3) are phased-in over a closed 7-year period. During periods when investment performance exceeds the assumed rate, Funding Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Funding Value of Assets will tend to be greater than market value. The Funding Value of Assets is unbiased with respect to Market Value. At any time it may be either greater or less than Market Value. If assumed rates are exactly realized for six consecutive years, the Funding Value will become equal to Market Value.

RETIREES AND BENEFICIARIES JUNE 30, 2013
TABULATED BY ATTAINED AGE@

Attained Age	Age & Service No.	Age & Service Monthly Allowances	Disability No.	Disability Monthly Allowances	Death-in-Service No.	Death-in-Service Monthly Allowances	Totals No.	Totals Monthly Allowances
Under 20*	6	$ 21,132			55	$ 29,113	61	$ 50,245
20-24	2	5,115					2	5,115
25-29	2	4,166					2	4,166
30-34	3	5,025	29	$ 88,305	3	4,638	35	97,968
35-39	7	13,087	51	158,322	10	16,323	68	187,732
40-44	27	35,150	82	257,044	12	19,957	121	312,151
45-49	174	457,658	104	308,484	12	22,131	290	788,273
50-54	265	708,482	123	346,811	15	26,149	403	1,081,442
55-59	597	1,682,824	181	484,423	32	57,874	810	2,225,121
60-64	1,249	3,947,990	399	985,940	46	79,175	1,694	5,013,105
65-69	1,292	3,849,847	415	976,440	42	71,605	1,749	4,897,892
70-74	858	2,319,945	205	466,959	24	42,089	1,087	2,828,993
75-79	456	1,067,410	73	184,172	17	30,138	546	1,281,720
80-84	504	1,145,880	71	171,519	24	46,728	599	1,364,127
85-89	578	1,210,520	72	175,415	22	41,755	672	1,427,690
90-94	246	462,516	24	57,526	9	16,804	279	536,846
95 & Over	55	92,847	3	7,771	0	0	58	100,618
Totals	**6,321**	**$17,029,594**	**1,832**	**$4,669,131**	**323**	**$504,479**	**8,476**	**$22,203,204**

@ *Includes both pre-1969 and 1969 retirees. Allowances being paid to DROP members are not reflected.*
* *May include records with defective birth dates.*

INACTIVE VESTED MEMBERS JUNE 30, 2013

Attained Age	No.	Estimated Annual Allowances
Under 40	54	$ 810,896
40-44	55	924,262
45-49	53	1,073,963
50-54	24	525,176
55-59	14	252,907
60-64	16	346,531
65 & over	19	541,032
Totals	**235**	**$4,474,767**

PRE-1969 RETIREES AND BENEFICIARIES JUNE 30, 2013
TABULATED BY ATTAINED AGE

Attained Age	Age & Service# No.	Age & Service# Monthly Allowances	Disability# No.	Disability# Monthly Allowances	Death-in-Service No.	Death-in-Service Monthly Allowances	Totals No.	Totals Monthly Allowances
Under 20*								
20-24								
25-29								
30-34	0	$ 0	1	$ 2,534			1	$ 2,534
35-39	2	1,916					2	1,916
40-44	1	1,054					1	1,054
45-49	0	0					0	0
50-54	5	5,349					5	5,349
55-59	7	8,224			1	$ 1,763	8	9,987
60-64	12	17,635	0		5	9,696	17	27,331
65-69	203	386,935	91	202,372	13	25,259	307	614,566
70-74	390	821,459	131	288,174	16	27,899	537	1,137,532
75-79	309	631,376	53	118,325	15	25,628	377	775,329
80-84	324	640,011	60	137,587	21	37,688	405	815,286
85-89	474	938,743	69	166,698	21	39,682	564	1,145,123
90-94	234	435,365	23	55,986	8	16,093	265	507,444
95 & Over	52	89,739	3	7,771	0	0	55	97,510
Totals	**2,013**	**$3,977,806**	**431**	**$979,447**	**100**	**$183,708**	**2,544**	**$5,140,961**

* *May include records with defective birth dates.*
\# *Includes survivor beneficiaries of service and disability retirees.*

DROP PARTICIPANTS JUNE 30, 2013

Attained Age	No.	Estimated Monthly Allowances &
40-44	25	$ 40,715
45-49	134	306,200
50-54	179	430,177
55-59	166	451,976
60-64	49	133,640
65-69	9	27,146
70-74	3	10,192
75-79	0	0
Totals	**565**	**$1,400,046**

& *Reflects the 75% of reported monthly benefits being paid into DROP accounts.*

ACTIVE MEMBERS JUNE 30, 2013
BY ATTAINED AGE AND YEARS OF SERVICE@

Police Members

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll *
Under 20									
20-24	13	1						14	$ 554,338
25-29	75	37	1					113	4,979,066
30-34	52	72	118					242	12,322,579
35-39	28	37	253	138				456	24,647,370
40-44	21	16	235	368	35			675	38,032,302
45-49	6	12	86	183	64	53		404	23,437,201
50-54	3	2	33	62	36	118	1	255	15,159,145
55-59	1	2	9	20	18	78	38	166	10,442,187
60				1		11	11	23	1,436,012
61		1				5	10	16	955,662
62						4	8	12	769,233
63					1	2	4	7	425,608
64		1	2			2	6	11	659,397
65					1	1	4	6	363,696
66					1		3	4	235,931
70							2	2	121,232
71							1	1	53,687
74							1	1	67,995
Totals	**199**	**181**	**737**	**772**	**156**	**274**	**89**	**2,408**	**$134,662,641**

Fire Members

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll *
Under 20									
20-24									
25-29	1	3	1					5	$ 223,140
30-34	3	19	43	1				66	3,429,055
35-39	1	20	90	17				128	6,857,651
40-44		8	79	65	33	1		186	10,550,171
45-49	3	2	29	38	107	47	1	227	14,281,974
50-54			16	20	56	59	11	162	10,579,253
55-59		1	2	3	14	28	33	81	5,892,664
60					1	1	1	3	217,617
Totals	**8**	**53**	**260**	**144**	**211**	**136**	**46**	**858**	**$52,031,525**

@ Includes 565 members currently in the DROP.
** Valuation payroll is the greater of the current year and prior year reported pay .*

TOTAL ACTIVE MEMBERS JUNE 30, 2013
BY ATTAINED AGE AND YEARS OF SERVICE @

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll *
Under 20									
20-24	13	1						14	$ 554,338
25-29	76	40	2					118	5,202,206
30-34	55	91	161	1				308	15,751,634
35-39	29	57	343	155				584	31,505,021
40-44	21	24	314	433	68	1		861	48,582,473
45-49	9	14	115	221	171	100	1	631	37,719,175
50-54	3	2	49	82	92	177	12	417	25,738,398
55-59	1	3	11	23	32	106	71	247	16,334,851
60				1	1	12	12	26	1,653,629
61		1				5	10	16	955,662
62						4	8	12	769,233
63					1	2	4	7	425,608
64		1	2			2	6	11	659,397
65					1	1	4	6	363,696
66					1		3	4	235,931
67									
68									
69									
70							2	2	121,232
71							1	1	53,687
72									
73									
74							1	1	67,995
75									
Totals	**207**	**234**	**997**	**916**	**367**	**410**	**135**	**3,266**	**$186,694,166**

@ *Includes 565 members currently in the DROP.*
* *Valuation payroll is the greater of the current year and prior year reported pay.*

	Group Averages		
	Police	**Fire**	**Total**
Age:	42.9 years	45.1 years	43.5 years
Service:	16.2 years	18.9 years	16.9 years
Annual Pay:	$55,923	$60,643	$57,163

RECONCILIATION OF REPORTED DATA
AS OF JUNE 30, 2013

Active Data

A)	Number of records reported on data file:	3,541
B)	Number of records excluded due to inactive status in "EmployeeMaster" file	266
C)	Reclassified as General per Staff	9
D)	Number defective:	-
E)	Number valued:	3,266

Retired Data

A)	Number of records reported on data file #:	38,972
B)	Number not in P/F plan #:	24,512
C)	Number not currently in receipt:	5,984
D)	Number defective:	-
E)	Number valued:	8,476

Deferred Data

A)	Number of records reported on data file:	254
B)	Number of records with reported service less than 8 years:	19
C)	Number defective:	-
D)	Number valued:	235

\# *For retiree data, file contains members in Police and Fire Retirement System and General Retirement System.*

ACTUARIAL DISCLOSURES REQUIRED BY STATEMENT NO. 25 OF THE GOVERNMENTAL ACCOUNTING STANDARDS BOARD

This information is presented in draft form for review by the System's auditor. Please let us know if there are any items that the auditor changes so that we may maintain consistency with the System's financial statements.

GASB STATEMENT NO. 25 REQUIRED SUPPLEMENTARY INFORMATION

Actuarial Valuation Date	Actuarial Value of Assets (a)	Schedule of Funding Progress: Actuarial Accrued Liability (AAL) -- Entry Age (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b - a) / c)
2001	$3,900,020,703	$3,463,248,393	$(436,772,310)	112.6%	$253,297,027	-
2002#	3,635,106,581	3,631,971,448	(3,135,133)	100.1%	248,663,133	-
2003	3,205,516,657	3,721,593,210	516,076,553	86.1%	248,681,461	207.5 %
2004	3,074,516,589	3,857,493,282	782,976,693	79.7%	258,699,581	302.7 %
2005@&	3,757,884,417	3,780,447,414	22,562,997	99.4%	250,491,872	9.0 %
2006&	3,980,254,576	3,808,952,741	(171,301,835)	104.5%	228,140,160	-
2007*&	4,307,194,763	3,896,814,229	(410,380,534)	110.5%	230,173,964	-
2008#	4,316,263,291	4,071,053,752	(245,209,539)	106.0%	232,812,606	-
2009	3,945,205,453	4,221,291,045	276,085,592	93.5%	231,795,528	119.1 %
2010#*	3,853,279,381	3,767,364,201	(85,915,180)	102.3%	228,829,999	-
2011	3,804,759,868	3,808,642,533	3,882,665	99.9%	220,461,691	1.8 %
2012#	3,675,459,604	3,822,676,002	147,216,398	96.1%	205,800,278	71.5 %
2013#(a)	3,474,538,021	3,890,143,341	415,605,320	89.3%	186,694,166	222.6 %

* *Plan amended.*
\# *After changes in actuarial assumptions and/or methods.*
@ *After POC transfer.*
& *2005 and 2006 assets were revised following the June 30, 2006 valuation. 2007 assets were revised after the June 30, 2007 valuation.*
(a) *Assumes past due contributions of $71 million are **NOT MADE**.*

SCHEDULE OF EMPLOYER CONTRIBUTIONS

Fiscal Year Ended June 30	Reported Employer Contributions: From Pension Obligation Certificates (POCs)	Employer Contributions Other than from POCs
2001		$ 14,443,382
2002		8,449,645
2003		66,843,029
2004		69,475,202
2005	$ 630,829,189	51,602,596
2006&		57,766,542
2007		57,423,366
2008		33,934,636
2009@		36,151,057
2010		32,808,485
2011		81,642,112
2012@		49,760,229
2013		0

& *2006 assets were revised following the 6/30/2006 valuation.*
@ *Contribution receivable.*

GASB STATEMENT NO. 25 REQUIRED SUPPLEMENTARY INFORMATION

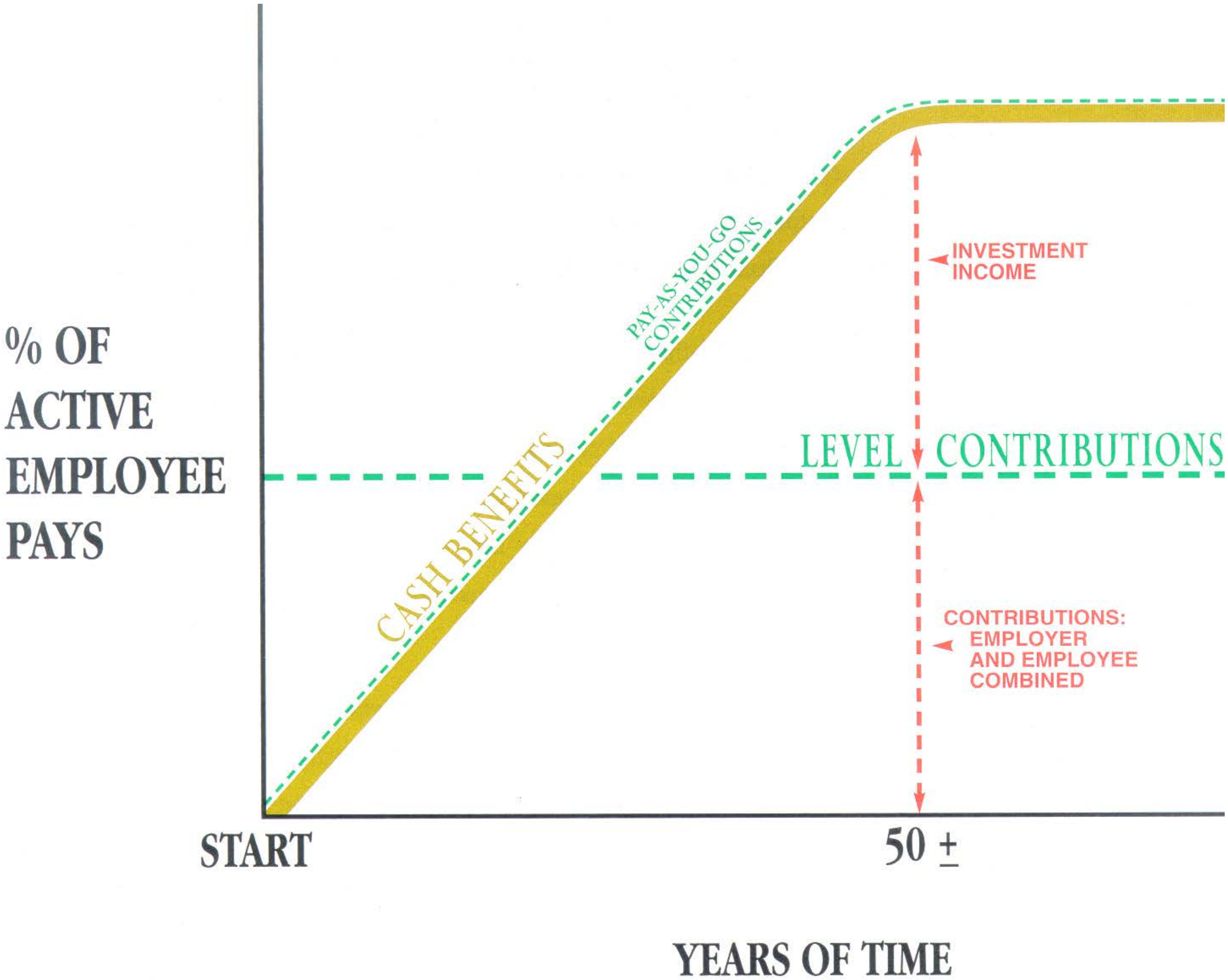
The information presented in the required supplementary schedules was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation date	June 30, 2013
Actuarial cost method	Entry Age
Amortization method	Level dollar, closed
Remaining amortization period	28 years
Asset valuation method	7-year smoothed market, 30% Corridor
Actuarial assumptions:	
Investment rate of return	8.0%
Projected salary increases*	5.0% - 9.2%
*Includes inflation at	0% for one year; 4% thereafter
Cost-of-living adjustments	Pre-1969 Plan Members: Allowances increase in proportion to active member compensation for corresponding rank. 1969 Plan Members: Pensions increase by 2.25% of current pension amount each July 1.

Membership of the plan consisted of the following at June 30, 2013, the date of the latest actuarial valuation:

Retirees and beneficiaries receiving benefits	8,476
Terminated plan members entitled to but not yet receiving benefits	235
Active plan members	3,266
Total	**11,977**

FINANCIAL PRINCIPLES



CASH BENEFITS LINE. This relentlessly increasing line is the fundamental reality of retirement plan financing. It happens each time a new benefit is added for future retirements (and happens regardless of the design for contributing for benefits).

LEVEL CONTRIBUTION LINE. Determining the level contribution line requires detailed assumptions concerning a variety of experiences in future decades, including:

- Economic Risk Areas
  - Rates of investment return
  - Rates of pay increase
  - Changes in active member group size
- Non-Economic Risk Areas
  - Ages at actual retirement
  - Rates of mortality
  - Rates of withdrawal of active members (turnover)
  - Rates of disability

THE ACTUARIAL VALUATION PROCESS

The financing diagram on the opposite page shows the relationship between two different philosophies of paying for retirement benefits: the method where contributions match cash benefit payments (as in the Federal Social Security program) is an ***increasing contribution method***; and the ***level contribution method*** which seeks to balance contributions between generations.

The actuarial valuation is the mathematical process by which the level contribution rate is determined, and the flow of activity constituting the valuation may be summarized as follows:

A. ***Member Census Data:***

    Retired lives now receiving benefits
    Former members with vested benefits
    Active members

B. ***Benefit provisions*** that establish eligibility and amounts of payments to members

C. ***Asset Data*** (cash & investments)

D. ***Assumptions concerning future experience in various risk areas***, which are established by the Board of Trustees and the City Council after consulting with the actuary

E. ***The funding method*** for employer contributions (the long-term, planned pattern for employer contributions)

F. ***Mathematically combining the assumptions, the funding method, and the data***

G. ***Determination*** of:

    Plan Financial position and
    New Employer Contribution Rate

BASIC FINANCIAL OBJECTIVE AND OPERATION OF THE RETIREMENT SYSTEM

Benefit Promises Made Which Must Be Paid For. A retirement program is an orderly means of handing out, keeping track of, and financing contingent pension promises to a group of employees. As each member of the retirement program acquires a unit of service credit they are, in effect, handed an "IOU" which reads: **"The Retirement System promises to pay you one unit of retirement benefits, payments in cash commencing when you retire."**

The principal related financial question is: When shall the money required to cover the "IOU" be contributed? This year, when the benefit of the member's service is received? Or, some future year when the "IOU" becomes a cash demand?

The **Constitution of the State of Michigan** is directed to the question:

> **"Financial benefits arising on account of service rendered in each fiscal year shall be funded during that year and such funding shall not be used for financing unfunded accrued liabilities."**

This retirement system meets this constitutional requirement by having the following ***Financial Objective: To establish and receive contributions, expressed as percents of active member payroll, which will remain approximately level*** from year to year and will not have to be increased for future generations of taxpayers.

Translated into actuarial terminology, a level percent-of-payroll contribution objective means that the contribution rate must be at least:

> ***Normal Cost*** (the value of benefits likely to be paid which is assigned to service being rendered in the current year)
>
> . . . plus . . .
>
> ***Interest on the Unfunded Actuarial Accrued Liability*** (the difference between the actuarial accrued liability and current system assets).

If contributions to the retirement program are less than the preceding amount, the difference, plus investment earnings not realized thereon, will have to be contributed at some later time, or, benefits will have to be reduced, to satisfy the fundamental fiscal equation under which all retirement programs must operate; that is:

$$\mathbf{B = C + I - E}$$

<u>B</u>enefit payments to any group of members and their beneficiaries cannot exceed the sum of:

<u>C</u>ontributions received over time on behalf of the group

. . . plus . . .

<u>I</u>nvestment earnings on contributions received and not required for immediate payment of benefits

. . . minus . . .

<u>E</u>xpenses incurred in operating the program.

There are retirement programs designed to defer the bulk of contributions far into the future. Contributions in early years are low, but the inevitable consequence is a relentlessly increasing contribution rate – to a level greatly in excess of the level percent of payroll rate. ***This method of financing is prohibited in Michigan by the state constitution***.

A by-product of the level percent-of-payroll contribution objective is the accumulation of invested assets for varying periods of time. Investment income becomes the major contributor to the retirement program, and the amount is directly related to the amount of past contributions and investment performance.

Computed Contribution Rate Needed To Finance Benefits. From a given schedule of benefits and from the data furnished, the contribution rate is calculated ***by means of an actuarial valuation*** – the technique of assigning monetary values to the risks assumed in operating a retirement program.

APPENDIX

SUMMARY OF ASSUMPTIONS USED FOR DPFRS ACTUARIAL VALUATION ASSUMPTIONS ADOPTED BY BOARD OF TRUSTEES AFTER CONSULTING WITH ACTUARY

ASSUMPTION REVIEW

As required by City Ordinance, assumptions are formally reviewed every 5 years and changes are recommended as experience emerges. The results of this study (including the actuary's recommendation) are detailed in a report called an Experience Study. The last Experience Study covered the 5-year period ending June 30, 2007.

ECONOMIC ASSUMPTIONS

The investment return rate used in the valuation was 8.0% per year, compounded annually (net after investment expenses). The real rate of return is the portion of total investment return which is more than the inflation rate. Considering other financial assumptions, the 8.0% total investment return rate translates to an assumed real rate of return of 4.0% over wage inflation. This assumption was first used for the June 30, 2010 valuation. It was adopted by the Board outside of the routine 5-year experience studies at the request of the Employer.

Pay increase assumptions for individual active members are shown on page 35. Part of the assumption for each age is for a merit and/or seniority increase, and the other recognizes wage inflation (assumed to be 0% for the next year and 4% per year thereafter).

NON-ECONOMIC ASSUMPTIONS

The number of active members is assumed to be stable during the period from the valuation date through the contribution effective date.

The mortality table used to measure retired life mortality was 95% of the RP-2000 Combined Table for males and 100% of the RP-2000 Combined Table set back 2 years for females. No provision is currently made for future improvements in mortality after the measurement date. Related values are shown on page 35. This table was first used for the June 30, 2008 valuation. For disabled members, a 10 year set forward of the healthy rates was used to measure post-retirement mortality.

The probabilities of age/service retirement for members eligible to retire are shown on page 36. Probabilities for service eligibility were first used for the June 30, 2008 valuation.

The probabilities of separation from service (including *death-in-service*) are shown for sample ages on page 37. These probabilities were first used for the June 30, 2008 valuation.

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS
JUNE 30, 2013

Marriage Assumption:	100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. This assumption accounts for potential dependent children/dependent parent death benefits. No other assumption is made for surviving children/dependent parents. Male spouses are assumed to be three years older than female spouses.
Pay Increase Timing:	End of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year beginning the day after the valuation date.
Decrement Timing:	Decrements are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date of decrement.
Decrement Relativity:	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Decrement Operation:	Disability and mortality decrements do not operate during the first 5 years of service. Disability and withdrawal do not operate during retirement eligibility.
Incidence of Contributions:	Member contributions are assumed to be received continuously throughout the year. Employer contributions are assumed to be received on the last day of the fiscal year.
Longevity in AFC:	Longevity payments included in the computation of Average Final Compensation were assumed to increase age and service costs by 4% and disability and death-in-service costs by 2%.
Unused Sick Leave Payout:	The normal cost was increased by 1.0% of payroll to account for the inclusion of a percentage of unused sick leave banks in the determination of AFC.
Administrative Expense Load:	3.00% of pay is added to the normal cost to account for administrative expenses.
Miscellaneous Loads:	Normal retirement accrued liability (excluding DROP members) was increased by 3% for service purchases. Active accrued liability (excluding DROP members) was increased by 1% to approximate the effect of missing or incomplete data.
Post-Retirement COLA:	Active members are assumed to receive a 1.9% COLA rather than 2.25% because the annuity portion is not subject to the COLA. Post retirement increases for retired members were based on the plan in effect at retirement. For the pre-69 plan members, future COLA’s are assumed to be the same as wage inflation for active members. The COLA rate is prorated by the ratio of COLA eligible service to total service at retirement.
AFC Period:	1-year FAC period was used.
Disability Change Age:	The duty disability benefit is assumed to change at normal retirement age.

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS
JUNE 30, 2013
(CONTINUED)

DROP Assumption:	Members are assumed to retire based on the assumed rates of retirement. Members retiring after first eligibility were assumed to DROP upon the later of first eligibility and 5 years prior to retirement. Employer contributions are assumed to be made on DROP payroll. DROP account balances are assumed to grow at 8% per year.
Workers Compensation Offset:	No Workers compensation offsets are assumed for duty disability benefits.
DROP Account:	DROP account balances are not reported. No liability is included for DROP account balances.
Class Codes:	For valuation purposes, members are categorized as DPOA, DFFA or LSA based on class codes provided by the retirement system and are primarily used in the valuation to determine normal retirement eligibility (20 & Out versus 25 & Out). Therefore, counts in the valuation may not represent actual membership in the respective associations.

FUNDING METHODS

The entry age actuarial cost method was used in determining age and service liabilities and normal cost, vesting liabilities and normal cost, and casualty liabilities and normal cost.

Differences between assumed experience and actual experience ("actuarial gains and losses") become part of actuarial accrued liabilities.

Unfunded actuarial accrued liabilities, if any, are amortized over periods of future years to produce contribution amounts (principal & interest) which are level dollar contributions.

Employer contribution dollars were assumed to be *paid in a single sum on the last day* of the employer fiscal year. (Adopted for the 6-30-79 actuarial valuation.)

Valuation assets recognize investment return above or below the actuarial assumed rate over a seven year period. (Adopted for the 6-30-10 actuarial valuation.)

The data about persons now covered and about present assets was furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the actuary.

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (M.A.A.A.).

SAMPLE SALARY ADJUSTMENT RATES

Service	Salary Increase Assumptions for an Individual Member: Merit & Seniority	Base (Economic)	Increase Next Year
5	5.20%	4.00%	9.20%
10	1.70%	4.00%	5.70%
15	1.00%	4.00%	5.00%
20	1.00%	4.00%	5.00%
25	1.00%	4.00%	5.00%
30	1.00%	4.00%	5.00%
35	1.00%	4.00%	5.00%
Ref			306 + 4.00%

Select and ultimate wage inflation rates are assumed to be 0% for the next 2 years and 4% thereafter.

SINGLE LIFE RETIREMENT VALUES BASED ON RP-2000 COMBINED & 8.0% INTEREST 95% OF MALE RATES SET-BACK 0 YEARS 100% OF FEMALE RATES SET-BACK 2 YEARS

Sample Attained Ages	Present Value of $1.00 Monthly Increasing "X"% Annually After Retirement: 4.0% Compound Men	4.0% Compound Women	2.25% Simple Men	2.25% Simple Women	2.25% Compound Men	2.25% Compound Women	Future Life Expectancy (years) Men	Future Life Expectancy (years) Women
45	$ 224.52	$ 236.82	$ 173.21	$ 178.99	$ 180.46	$ 187.39	35.97	40.28
50	208.32	222.62	164.68	172.13	170.60	179.24	31.24	35.49
55	189.54	206.05	153.76	163.26	158.37	169.04	26.61	30.77
60	168.51	187.03	140.39	152.02	143.78	156.51	22.16	26.17
65	145.94	166.04	124.89	138.53	127.22	141.84	18.00	21.78
70	122.74	144.03	107.85	123.36	109.33	125.65	14.23	17.75
75	99.47	121.39	89.64	106.67	90.50	108.15	10.88	14.08
80	77.33	98.98	71.33	89.14	71.77	90.01	8.02	10.85
Ref:	506 x 0.95	507 x 1.00	506 x 0.95	507 x 1.00	506 x 0.95	507 x 1.00		

PROBABILITIES OF SERVICE RETIREMENT

Service	Percent of Eligible Active Members Retiring Within Next Year			
	Police		Fire	
	20&Out	25 &Out	20&Out	25 &Out
19	25%		15%	
20	18%		12%	
21	18%		12%	
22	18%		12%	
23	18%		12%	
24	18%	35%	12%	15%
25	18%	25%	12%	15%
26	18%	20%	12%	12%
27	18%	20%	12%	12%
28	18%	20%	12%	12%
29	18%	18%	15%	12%
30	18%	18%	15%	12%
31	18%	18%	15%	12%
32	20%	20%	15%	12%
33	25%	25%	20%	20%
34	30%	30%	25%	20%
35	30%	30%	30%	30%
36	30%	30%	30%	35%
37	30%	30%	30%	35%
38	30%	30%	30%	35%
39	30%	30%	30%	35%
40	100%	100%	100%	100%
Ref	1548	823	1549	1639

Age	Percent of Eligible Active Members Retiring Within Next Year	
	Police	Fire
60	25%	100%
61	25%	100%
62	25%	100%
63	22%	100%
64	20%	100%
65	18%	100%
66	15%	100%
67	15%	100%
68	15%	100%
69	15%	100%
70	100%	100%
Ref	1638	1

Members eligible for 20 & Out are assumed to be first eligible for normal retirement after 19 years of service due to their ability to purchase service. Members eligible for 25 & Out are assumed to be eligible for normal retirement after 24 years of service due to their ability to purchase service. Members are also eligible to retire at age 60 with no service requirement.

PROBABILITIES OF SEPARATION

Sample Ages	Years of Service	% of Active Members Separating Within Next Year			
		Withdrawal		Death	
		Police	Fire	Male	Female
ALL	0	8.50%	5.00%		
	1	7.50%	4.00%		
	2	6.00%	3.00%		
	3	5.00%	2.00%		
	4	4.50%	2.00%		
25	5 & Over	4.50%	1.96%	0.03%	0.01%
30		3.30%	1.62%	0.03%	0.02%
35		2.30%	1.11%	0.06%	0.03%
40		1.70%	0.77%	0.08%	0.04%
45		1.50%	0.60%	0.11%	0.07%
50		1.10%	0.51%	0.16%	0.11%
55		0.80%	0.51%	0.27%	0.17%
60		0.80%	0.51%	0.51%	0.29%
Ref		566 207	230 113 x .85	506 x .75	507 x .75

Sample Ages	% of Active Members Becoming Disabled Within Next Year			
	Police		Fire	
	Ordinary	Duty	Ordinary	Duty
25	0.06%	0.13%	0.07%	0.34%
30	0.07%	0.19%	0.08%	0.52%
35	0.08%	0.34%	0.09%	0.90%
40	0.11%	0.49%	0.12%	1.30%
45	0.16%	0.73%	0.18%	1.92%
50	0.47%	1.16%	0.53%	3.06%
55	0.73%	1.96%	0.82%	5.18%
60	0.83%	2.82%	0.94%	7.47%
Ref	105 x 0.75	90 x 0.85	105 x 0.85	90 x 2.25

MEANING OF "UNFUNDED ACTUARIAL ACCRUED LIABILITIES"

Actuarial accrued liabilities are ***the portion of the present value of plan promises to pay benefits in the future not covered by future normal cost contributions*** --- a liability has been established ("accrued") because the service has been rendered, but the resulting monthly cash benefit may not be payable until years in the future.

If actuarial accrued liabilities at any time exceed the plan's accrued assets (cash & investments), the difference is ***unfunded actuarial accrued liabilities***. If the plan's assets equal the plan's actuarial accrued liabilities, the plan would be termed "fully funded."

Each time a plan adds a new benefit which applies to service already rendered, an actuarial accrued liability is created. If assets are insufficient to cover the value of the new benefit promises, an additional unfunded actuarial accrued liability is also created. Payment for such unfunded accrued liabilities is generally spread over a period of years, commonly in the 15-30 year range.

Unfunded actuarial accrued liabilities can occur in another way: if actual financial experience is less favorable than assumed financial experience, the difference is added to unfunded actuarial accrued liabilities. For example, during periods of high inflation, unfunded actuarial accrued liabilities generally increase because unexpected rates of pay increase will create additional liabilities which may not be matched by investment performance.

The existence of unfunded actuarial accrued liabilities is not bad, but the changes from year to year in the amount of unfunded actuarial accrued liabilities are important -- "bad" or "good" or somewhere in between.

Unfunded actuarial accrued liabilities do not represent a bill payable immediately, but it is important that policy-makers prevent the amount from becoming unreasonably high and ***it is vital that there is a sound method in place for making payments toward them***, so that they are controlled.

GLOSSARY

Actuarial Accrued Liability. The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability".

Accrued Service. The service credited under the plan which was rendered before the date of the actuarial valuation.

Actuarial Assumptions. Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method".

Actuarial Equivalent. A single amount or series of amounts of equal value to another single amount or series of amounts, computed on the basis of the rate(s) of interest and mortality tables used by the plan.

Actuarial Present Value. The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

AFC. Average final compensation

Amortization. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

DPOA. Detroit Police Officers Association

DFFA. Detroit Fire Fighters Association

DPCOA. Detroit Police Command Officers Association

DROP. Deferred Retirement Option Program

Experience Gain (Loss). A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

LSA. Lieutenants and Sergeants Association

Normal Cost. The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as “current service cost”. Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

Reserve Account. An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

Unfunded Actuarial Accrued Liability. The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as “unfunded accrued liability”.

Valuation Assets. The value of current plan assets recognized for valuation purposes.

GRS

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April 4, 2014

Mr. David Cetlinski
Executive Secretary
The Police and Fire Retirement System of the
City of Detroit
2 Woodward Avenue, Suite 908
Detroit, MI 48226

Re: June 30, 2013 Actuarial Valuation

Dear Dave:

Enclosed are 20 copies of the report of the June 30, 2013 annual actuarial valuation.

Sincerely,

Kenneth G. Alberts

KGA:dj
Enclosures

cc: Cynthia Thomas, City of Detroit Retirement Systems
David T. Kausch, GRS
Judith A. Kermans, GRS
Brian B. Murphy, GRS