

**CITY OF RIVERVIEW RETIREMENT SYSTEM**  
**FIFTY-SECOND ACTUARIAL VALUATION REPORT**  
**JUNE 30, 2012**



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June 19, 2013

The Retirement Board  
City of Riverview Retirement System  
Riverview, Michigan

Dear Board Members:

Submitted in this report are the results of the fifty-second annual actuarial valuation of the City of Riverview Retirement System. The purpose of the valuation was to measure the System's funding progress and to determine an employer contribution rate for the corresponding fiscal year. This report may be provided to parties other than the Retirement Board only in its entirety and only with the permission of the Board.

The valuation was based upon information furnished by the City, concerning Retirement System benefits, financial transactions, active members, terminated members, retirants and beneficiaries. Data was checked for internal and year-to-year consistency, but was not otherwise audited by us. As a result, we are unable to assume responsibility for the accuracy or completeness of the data provided.

The date of the valuation was June 30, 2012.

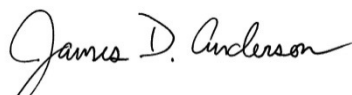
Future actuarial measurements may differ significantly from those presented in this report due to such factors as experience differing from that anticipated by actuarial assumptions, changes in plan provisions, actuarial assumptions/methods or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements.

To the best of our knowledge, this report is complete, accurate, and was made in accordance with standards of practice prescribed by the Actuarial Standards Board and in compliance with the provisions of the City ordinance and union contracts communicated to the actuary. The actuarial assumptions used for the valuation produce results that are reasonable. The undersigned are independent of the plan sponsor and 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. It is our opinion that the actuarial assumptions used for the valuation produce results which are reasonable.

Respectfully submitted,



Louise Gates, ASA, MAAA



James D. Anderson, FSA, EA, MAAA

LG/JDA:mrB

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**SECTION A**  
VALUATION RESULTS

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**COMPUTED CONTRIBUTIONS FOR THE FISCAL YEAR  
BEGINNING JULY 1, 2013**

<b>Contributions for</b>	<b>City's Contributions Expressed as % 's of Active Member Payroll &amp; Dollars</b>	
	<b>General Members</b>	<b>Police Members</b>
Normal Cost		
Service Pensions	9.53%	15.49%
Disability Pensions	1.45%	3.56%
Death-in-Service Pensions	0.37%	0.30%
Deferred Service Pensions	0.81%	0.48%
Refunds of Member Contributions	0.32%	0.19%
<b>Total Normal Cost</b>	<b>12.48%</b>	<b>20.02%</b>
Member Portion**	5.00%	5.41%
<b>Employer Normal Cost %</b>	<b>7.48%</b>	<b>14.61%</b>
<b>Employer Normal Cost \$</b>	<b>\$156,520</b>	
<b>Payment on UAL*</b>	<b>\$823,442</b>	<b>11.52%</b>
<b>Employer Portion - %</b>		<b>26.13%</b>
<b>Employer Portion - \$ (end of fiscal year)</b>	<b>\$979,962</b>	<b>\$497,330</b>

\* *The Unfunded Accrued Liability (UAL) was amortized over 15 years for General Members and 20 years for Police Members based on the Board's current policy. A level dollar amortization method was used in determining General member contributions. Level percent-of-payroll amortization was used in determining Police contributions.*

\*\* *Weighted average of employee contribution rates.*

**Determining Employer Dollar Contributions**

For any period of time, the percent-of-payroll contribution rate needs to be converted to dollars and then promptly contributed to the Retirement System. The City may either (1) contribute an amount based on the contribution rates shown above and applicable payroll, or, (2) contribute the dollar amounts shown above. The normal cost component of the General member contribution can be determined using method (1), while the UAL payment should be based on the dollar amount shown above.

**Public Act 728 Certification**

The Retirement Board of the City of Riverview Retirement System confirms that the System provides for payment of the required employer contribution as described in Section 20m of Michigan Public Act No. 728 of 2002.

## DEVELOPMENT OF FUNDING VALUE OF ASSETS

Year Ended June 30:	2009	2010	2011	2012
A. Funding Value Beginning of Year	\$23,682,237	\$23,199,385	\$22,674,366	\$22,378,159
B. Market Value End of Year	17,930,953	19,290,142	22,950,007	22,916,046
C. Market Value Beginning of Year	21,781,321	17,930,953	19,290,142	22,950,007
D. Non-Investment Net Cash Flow	(352,677)	(439,125)	(488,518)	(298,547)
E. Investment Income				
E1. Market Total: B - C - D	(3,497,691)	1,798,314	4,148,383	264,586
E2. Amount for Immediate Recognition (7.5%)	1,762,942	1,723,487	1,682,258	1,667,166
E3. Amount for Phased-in Recognition: E1 - E2	(5,260,633)	74,827	2,466,125	(1,402,580)
F. Phased-In Recognition of Investment Income				
F1. Current Year: 0.25 x E3	(1,315,158)	18,707	616,531	(350,645)
F2. First Prior Year	(810,027)	(1,315,158)	18,707	616,531
F3. Second Prior Year	297,097	(810,027)	(1,315,158)	18,707
F4. Third Prior Year	(65,029)	297,097	(810,027)	(1,315,158)
F5. Total	(1,893,117)	(1,809,381)	(1,489,947)	(1,030,565)
G. Funding Value End of Year: A + D + E2 + F5	23,199,385	22,674,366	22,378,159	22,716,213
H. Funding Value Rate of Return	(0.55)%	(0.37)%	0.86%	2.86%
I. Market Value Rate of Return	(16.19)%	10.15%	21.78%	1.16%
J. Ratio of Funding Value to Market Value	1.29	1.18	0.98	0.99

**DERIVATION OF EXPERIENCE GAIN (LOSS)  
YEAR ENDED JUNE 30, 2012**

Actual experience will never (except by coincidence) coincide exactly with assumed experience. It is hoped that gains and losses will 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, along with a year-by-year comparative schedule.

(1) UAAL* at start of year	\$8,409,736
(2) Normal cost	646,395
(3) Actual contributions	1,505,460
(4) Interest accrual	598,515
(5) Expected UAAL before changes: (1) + (2) - (3) + (4)	8,149,186
(6) Change from benefit improvements	0
(7) Change from revised actuarial assumptions/methods	2,335,319
(8) Expected UAAL after changes: (5) + (6) + (7)	10,484,505
(9) Actual UAAL at end of year	10,415,726
(10) Gain (Loss): (8) - (9)	\$ 68,779
(11) Gain (Loss) as percent of AAL at start of year	0.2%

\* *Unfunded actuarial accrued liabilities.*

<b>Valuation Date June 30</b>	<b>Experience Gain (Loss) As % of Beginning Accrued Liability</b>
2003	(7.8) %
2004	(4.1)
2005	(7.6)
2006	(4.8)
2007	1.9
2008	(2.3)
2009	(3.4)
2010	(6.0)
2011	(4.9)
2012	0.2

# ACTUARIAL BALANCE SHEET – JUNE 30, 2012

## Present Resources and Expected Future Resources

	<u>General</u>	<u>Police</u>	<u>Total</u>
A. Present valuation assets			
1. Funding value of assets	\$12,970,237	\$ 9,745,976	\$22,716,213
B. Actuarial present value of expected future employer contributions			
1. For normal costs	1,195,503	2,211,311	3,406,814
2. For unfunded actuarial accrued liability	7,270,208	3,145,518	10,415,726
3. Total	<u>8,465,711</u>	<u>5,356,829</u>	<u>13,822,540</u>
C. Actuarial present value of expected future member contributions	819,098	779,203	1,598,301
D. Total actuarial present value of expected future benefit payments	<u>\$22,255,046</u>	<u>\$15,882,008</u>	<u>\$38,137,054</u>

## Actuarial Present Value of Expected Future Benefit Payments

	<u>General</u>	<u>Police</u>	<u>Total</u>
A. To retirants and beneficiaries	\$13,324,617	\$5,149,970	\$18,474,587
B. To vested terminated members	682,281	321,261	1,003,542
C. To present active members			
1. Allocated to service rendered prior to valuation date	6,233,547	7,420,263	13,653,810
2. Allocated to service likely to be rendered after valuation date	2,014,601	2,990,514	5,005,115
3. Total	<u>8,248,148</u>	<u>10,410,777</u>	<u>18,658,925</u>
D. Total actuarial present value of expected future benefit payments	<u>\$22,255,046</u>	<u>\$15,882,008</u>	<u>\$38,137,054</u>



## COMPARATIVE STATEMENT

Valuation Date	Actuarial Accrued Liability	Valuation Assets	Unfunded Actuarial Accrued Liability	Ratio of Valuation Assets To AAL	Ratio of UAAL to Valuation Payroll	Employer Contribution As Payroll Percents
6-30-88*	\$ 8,191,062	\$ 8,600,373	\$ (409,311)	105.0 %	-	7.74 %
6-30-89#	9,111,946	9,225,151	(113,205)	101.2	-	8.10
6-30-90	10,295,990	10,234,523	61,467	99.4	1.9 %	9.30
6-30-91	11,032,663	11,212,714	(180,051)	101.6	-	8.04
6-30-92	12,001,782	12,410,954	(409,172)	103.4	-	6.40
6-30-93	12,796,762	13,455,063	(658,301)	105.1	-	5.25
6-30-94*#	12,452,205	14,446,911	(1,994,706)	116.0	-	0.40
6-30-95	13,767,801	15,359,267	(1,591,466)	111.6	-	1.33
6-30-96	15,021,582	16,542,028	(1,520,446)	110.1	-	1.35
6-30-97	16,219,489	17,576,608	(1,357,119)	108.4	-	2.45
6-30-98	17,052,447	19,132,875	(2,080,428)	112.2	-	0.27
6-30-99	17,844,328	20,577,644	(2,733,316)	115.3	-	0.00
6-30-00	19,700,697	21,761,762	(2,061,065)	110.5	-	0.55
6-30-01	20,427,736	22,328,838	(1,901,102)	109.3	-	0.86
6-30-02	21,301,907	21,549,980	(248,073)	101.2	-	8.30
6-30-03*	22,297,515	21,393,774	903,742	95.9	18.0	10.46
6-30-04	23,292,715	21,885,428	1,407,287	94.0	27.8	11.18
6-30-05*	24,972,621	21,807,937	3,164,684	87.3	59.8	N/A
6-30-06#	26,358,737	21,611,224	4,747,513	82.0	97.6	N/A
6-30-07	27,199,099	23,059,510	4,139,589	84.8	85.1	N/A
6-30-08	28,302,386	23,682,237	4,620,149	83.7	97.4	N/A
6-30-09	28,604,048	23,199,385	5,404,663	81.1	120.6	N/A
6-30-10	29,705,014	22,674,366	7,030,648	76.3	158.1	N/A
6-30-11	30,787,895	22,378,159	8,409,736	72.7	188.8	N/A
6-30-12*	33,131,939	22,716,213	10,415,726	68.6	261.5	N/A

\* Revised actuarial assumptions/methods.

# Retirement System amended.

**The Ratio of Valuation Assets to AAL** is a traditional measure of a system's funding progress. Except in years when the system is amended or actuarial assumptions are revised, this ratio can be expected to increase gradually toward 100%.

**The Ratio of UAAL to Valuation Payroll** is another relative index of condition. Unfunded actuarial accrued liabilities represent debt, while active member payroll represents the system's capacity to collect contributions to pay toward debt. The lower the ratio, the greater the financial strength and vice-versa.

## COMMENTS

**COMMENT A:** The aggregate experience of the System was favorable during the year ended June 30, 2012. During this period, System assets earned less than the long-term assumed rate (7.5% net of expenses). The market smoothing techniques used for your actuarial valuation recognize only a part of the current and prior investment gains and losses. As a result, the rate of return recognized in this valuation of the System was 2.86%. This experience was offset by lower than expected pay increases due to wage reductions among Police Officers and the 26 pay periods in this plan year versus 27 last year.

**COMMENT B:** This valuation of the System recognizes the following changes in actuarial assumptions and methods adopted by the Board pursuant to the January 2013 assumption study:

- The mortality table was changed from the 1971 Group Annuity Mortality Table projected to 1984 to the RP2000 Combined Healthy Mortality Table projected to 2020.
- The annual rate of wage inflation was changed from 5.0% per year to 4.0% per year.
- The amortization period used to finance the unfunded accrued liabilities of the System was changed from 12 years for both groups to 20 years for the Police group and 15 years for the General group.

**COMMENT C:** The Riverview Code of Ordinances requires a transfer to the Reserve for Retired Benefit Payments from the Reserve for Employer Contributions whenever the balance in the Reserve for Retired Benefit Payments is less than the reported value of pensions being paid. Assets and liabilities as of June 30, 2012 are shown below:

	<u>\$ Amount</u>
Retired Benefit Payments Reserve	\$14,462,356
Retired Life Liabilities	<u>18,474,587</u>
Difference	\$ 4,012,231

The reported assets in the Reserve for Retired Benefit Payments were less than the value of pensions being paid by \$4,012,231 as of June 30, 2012. Therefore, we recommend a transfer of \$4,012,231 to the Reserve for Retired Benefit Payments. For valuation purposes, this transfer was assumed to have been made as of June 30, 2012.

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**SECTION B**  
**VALUATION DATA**

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## **BRIEF SUMMARY OF BENEFIT PROVISIONS EVALUATED (JUNE 30, 2012)**

### **REGULAR RETIREMENT (NO REDUCTION FACTOR FOR AGE):**

**Eligibility** - General and Police Chiefs: Age 55 with 25 years of service, or age 60. Police (Command Officers and Patrolmen): Age 50 with 25 years of service.

**Annual Amount** – General and Police Chiefs: Average Final Compensation times the sum of a) 2.0% times the first 25 years of service, plus b) 1.0% times years of service in excess of 25 years. Command Officers and Patrolmen: 2.5% of AFC times all years of service to a maximum of 75% of AFC. Clerical: 2.25% of AFC times all years of service to a maximum of 70% of AFC. DPW: 2.25% of AFC times all years of service to a maximum of 75% of AFC.

**Type of Average Final Compensation (AFC)** - General and Police Chiefs: Highest 5 years out of last 10. Police: Highest 3 years out of last 10. Covered compensation includes base salary, overtime and longevity pay. Clerical and DPW: Covered compensation includes base salary and longevity pay.

### **DEFERRED RETIREMENT (VESTED BENEFIT):**

**Eligibility** - All employees: 5 years of service. Benefit begins upon attainment of age 60 for employees with less than 25 years of service, or upon attainment of age 55 for employees with 25 or more years of service.

**Annual Amount** - Computed as regular retirement but based upon service and average final compensation at time of termination. If an employee's service at termination is less than 10 years, the vested benefit is reduced to the percentage shown in the following vesting schedule.

<b>Years of Service</b>	<b>Percent Vested</b>
5, but less than 6	50%
6, but less than 7	60
7, but less than 8	70
8, but less than 9	80
9, but less than 10	90
10 or more	100

### **DUTY DISABILITY RETIREMENT:**

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

**Annual Amount** - To age 55 or 25th anniversary date if later, benefit equals one-half of average final compensation. At age 55 or 25th anniversary date, benefit is recomputed to grant additional service credit from date of disability to date of conversion, based upon regular retirement formula.

**BRIEF SUMMARY OF BENEFIT PROVISIONS EVALUATED  
(JUNE 30, 2012)**

**NON-DUTY DISABILITY RETIREMENT:**

*Eligibility* - 10 years of service.

*Annual Amount* - To age 55 benefit equals 2% of average final compensation times years of service. At age 55 benefit is recomputed based upon regular retirement with no additional service credit granted for years of disability.

**DUTY DEATH BEFORE RETIREMENT:**

*Eligibility* - No age or service requirements.

*Annual Amount* - Refund of accumulated contributions plus a benefit equal to 25% of final compensation to the widow for life or until remarriage and equal shares of 20% of final compensation to unmarried children under 18.

**NON-DUTY DEATH BEFORE RETIREMENT:**

*Eligibility* - 20 years of service or age 60 with 10 years of service.

*Annual Amount* - Computed as regular retirement but actuarially reduced in accordance with a 100% joint and survivor election. Benefit terminates upon remarriage of beneficiary.

**MEMBER CONTRIBUTIONS:**

5.0% of annual compensation for all plan members, except for Police Command employees who contribute 6.0% of annual compensation.

**OTHER:**

Effective July 1, 2003, all new DPW employees will be excluded from membership in the Retirement System.

Effective January 1, 2004, all new Clerical employees will be excluded from membership in the Retirement System.

The June 30, 2005 valuation reflects the closure of the Retirement System to new City employees of the Administrator's division.

## RETIRANTS AND BENEFICIARIES COMPARATIVE STATEMENT

Year Ended June 30	Added to Rolls		Removed from Rolls		Rolls End of Year		Average Pensions	Present Value of Pensions	Active per Retired	Pensions as a % of Payroll
	No.	Annual Pensions	No.	Annual Pensions	No.	Annual Pensions				
1988	2	\$ 29,054	1	\$ 9,656	23	\$ 171,512	\$ 7,457	\$ 1,920,680	3.8	6.3 %
1989	7	103,951 *	1	11,175	29	264,288	9,113	2,914,040	3.1	9.6
1990	5	48,909	5	33,713	29	279,484	9,637	3,147,032	3.3	8.8
1991	4	41,685			33	321,169	9,732	3,626,869	3.0	9.7
1992	4	56,609	1	16,731	36	361,047	10,029	4,124,859	2.7	10.6
1993	2	35,778	2	9,092	36	387,733	10,770	4,402,369	2.7	10.7
1994	2	37,748	1	8,063	37	417,418	11,282	4,536,293	2.7	11.2
1995	7	126,976	1	8,456	43	535,938	12,464	5,907,086	2.2	14.2
1996	2	44,176			45	580,114	12,891	6,310,656	2.2	14.5
1997	4	92,541			49	672,655	13,728	7,633,254	2.0	16.2
1998	5	78,302	2	7,405	52	743,552	14,299	8,076,872	1.9	17.0
1999	2	84,833 **	1	3,269	53	825,116	15,568	8,678,738	1.9	19.2
2000	1	34,208			54	883,225	16,356	9,004,389	1.8	18.9
2001	2	34,662			56	917,887	16,391	9,187,788	1.8	19.3
2002	4	36,686	1	5,290	59	949,283	16,090	9,388,342	1.7	19.1
2003	6	180,554	1	20,725	64	1,109,112	17,330	11,107,389	1.5	22.1
2004	4	85,642	1	10,928	67	1,183,826	17,669	11,819,102	1.4	23.4
2005	2	76,514			69	1,260,340	18,266	12,407,521	1.3	23.8
2006	7	162,785	2	20,140	74	1,402,985	18,959	13,740,565	1.1	28.8
2007	5	94,692	3	20,977	76	1,476,700	19,430	14,247,168	1.0	30.4
2008	2	78,326	1	8,568	77	1,546,458	20,084	14,809,002	0.9	32.6
2009	3	52,295	2	15,073	78	1,583,679	20,304	14,949,283	0.9	35.3
2010	4	91,160	1	18,253	81	1,656,984	20,452	15,388,738	0.8	37.2
2011	5	109,639	4	37,852	82	1,728,772	21,083	16,052,142	0.8	38.8
2012	4	146,340	1	27,645	85	1,847,467	21,735	18,474,587	0.7	46.4

\* Includes post-retirement adjustments.

\*\* Includes data adjustments.

**RETIRANTS AND BENEFICIARIES AS OF JUNE 30, 2012**  
**TABULATED BY ATTAINED AGES**

Attained Ages	General		Police		Total	
	No.	Annual Pensions	No.	Annual Pensions	No.	Annual Pensions
35 - 39	1	\$ 44,963			1	\$ 44,963
50 - 54	4	70,683			4	70,683
55 - 59	7	194,690	1	\$ 55,234	8	249,924
60 - 64	7	209,711	2	58,714	9	268,425
65 - 69	13	280,792	5	172,292	18	453,084
70 - 74	11	206,615	6	155,630	17	362,245
75 - 79	9	158,602	3	58,986	12	217,588
80 - 84	10	119,158	2	34,335	12	153,493
85 - 89	2	11,684			2	11,684
90 - 94	1	8,847			1	8,847
95 - 99			1	6,531	1	6,531
<b>Totals</b>	<b>65</b>	<b>\$1,305,745</b>	<b>20</b>	<b>\$541,722</b>	<b>85</b>	<b>\$1,847,467</b>

	<u>General</u>	<u>Police</u>
Average Age at Retirement:	58.0 yrs.	53.1 yrs.
Average Age Now:	69.9	72.5

**INACTIVE MEMBERS AS OF JUNE 30, 2012**  
**TABULATED BY ATTAINED AGES**

<b>Attained Ages</b>	<b>No.</b>	<b>Annual Estimated Pensions</b>
52	1	\$ 24,539
53	1	6,887
55	1	43,027
57	2	34,320
58	2	18,681
<b>Totals</b>	<b>7</b>	<b>\$127,454</b>

Average Age Now: 56.0 years



## ACTIVE MEMBERS HISTORIC COMPARISON

Valuation		Valuation Payroll	Average			
Date June 30	No.		Age	Service	Pay	Incr.
1983	89	\$2,199,675	40.1	11.0	\$24,715	9.8%
1984	88	2,289,095	41.3	11.9	26,012	5.2
1985	88	2,421,948	42.2	12.7	27,522	5.8
1986	88	2,413,816	42.5	13.3	27,430	(0.3)
1987	87	2,598,840	43.3	13.7	29,872	8.9
1988	87	2,735,619	43.1	13.7	31,444	5.3
1989	89	2,753,342	42.6	12.9	30,936	(1.6)
1990	96	3,178,114	41.9	12.1	33,105	7.0
1991	98	3,303,703	41.4	12.1	33,711	1.8
1992	98	3,413,443	41.8	11.9	34,831	3.3
1993	98	3,627,349	42.5	11.9	37,014	6.3
1994	99	3,739,680	42.7	11.8	37,775	2.1
1995	95	3,787,190	42.3	11.7	39,865	5.5
1996	99	4,003,901	42.5	11.7	40,443	1.4
1997	96	4,157,933	42.9	11.6	43,312	7.1
1998	98	4,393,788	43.2	11.3	44,835	3.5
1999	96	4,294,293	43.5	11.9	44,732	(0.2)
2000	98	4,682,137	43.9	12.2	47,777	6.8
2001	101	4,754,414	44.4	12.2	47,073	(1.5)
2002	100	4,976,624	45.2	13.0	49,766	5.7
2003	97	5,025,115	44.8	12.4	51,805	4.1
2004	94	5,064,717	45.5	12.9	53,880	4.0
2005	90	5,292,595	46.3	13.7	58,807	9.1
2006	82	4,866,039	46.0	13.9	59,342	0.9
2007	77	4,862,204	45.8	14.1	63,146	6.4
2008	73	4,742,807	46.8	15.2	64,970	2.9
2009	70	4,482,195	47.5	16.0	64,031	(1.4)
2010	68	4,448,361	47.4	16.3	65,417	2.2
2011	63	4,454,694	47.9	16.6	70,709	8.1
2012	60	3,982,719	48.6	17.2	66,379	(6.1)

## ACTIVE MEMBERS ADDED TO AND REMOVED FROM ROLLS

Year	Number Added During Year	Terminations During Year					Active Members End of Year
		Normal Retirement	Disabled	Died-in Service	Vested	Other	
1998	6	2	1		1		98
1999	5	2			1	4	96
2000	4	1				1	98
2001	8	1	1			3	101
2002	3	1				3	100
2003	8	4			4	3	97
2004	3	1		1		4	94
2005		2				2	90
2006	1	5	1			3	82
2007	2	4			1	2	77
2008		2			1	1	73
2009		1	1		1		70
2010	1	3					68
2011		3	1			1	63
2012		2	1				60

**GENERAL (INCLUDING POLICE CHIEFS) MEMBERS  
AS OF JUNE 30, 2012  
BY ATTAINED AGE AND YEARS OF SERVICE**

Attained Age	Years of Service on Valuation Date							Total	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
30-34		1						1	\$ 43,443
40-44		4	3	1				8	621,352
45-49			1		1			2	121,313
50-54			3	1	2	2	1	9	495,538
55-59		1	2	3	2	1	2	11	667,759
60			2	1	1			4	195,771
65				1				1	42,994
<b>Totals</b>		<b>6</b>	<b>11</b>	<b>7</b>	<b>6</b>	<b>3</b>	<b>3</b>	<b>36</b>	<b>\$2,188,170</b>

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

Average Age: 52.3 years

Average Service: 17.4 years

Average Annual Pay: \$60,783

**POLICE MEMBERS  
AS OF JUNE 30, 2012  
BY ATTAINED AGE AND YEARS OF SERVICE**

Attained Age	Years of Service on Valuation Date							Total	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
25-29	1	1						2	\$ 131,464
30-34		1						1	65,667
35-39		1	3					4	284,398
40-44		1	1	4	2			8	583,745
45-49			1		3			4	318,622
50-54				1	2			3	237,523
55-59							1	1	91,426
60							1	1	81,704
<b>Totals</b>	<b>1</b>	<b>4</b>	<b>5</b>	<b>5</b>	<b>7</b>		<b>2</b>	<b>24</b>	<b>\$1,794,549</b>

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

Average Age: 43.1 years

Average Service: 17 years

Average Annual Pay: \$74,773

# FINANCIAL INFORMATION FURNISHED FOR ACTUARIAL VALUATION

## STATEMENT OF ASSETS AS OF JUNE 30, 2012

	<u>Market Value</u>
<b>CASH &amp; SHORT-TERM</b>	
Cash (including checking/savings accounts)	\$ 692,852
Accrued interest and dividends	0
Contributions receivable	729,986
Other	0
<b>FIXED INCOME</b>	
U.S. Government/Agency bonds	3,947,691
Corporate bonds	3,928,836
Mortgages	0
<b>EQUITIES</b>	
Common stocks	13,616,681
Stocks mutual funds	0
Total System Assets	22,916,046
Less: Accounts Payable	0
Net System Assets	\$22,916,046

# FINANCIAL INFORMATION FURNISHED FOR ACTUARIAL VALUATION

## STATEMENT OF REVENUES AND EXPENDITURES FOR THE YEAR ENDED, JUNE 30, 2012

<b>Revenues</b>		<u><b>Totals</b></u>
Member contributions		
General & Police Chiefs	\$ 112,837	
Police	96,857	
		\$ 209,694
Employer pension contributions		
General & Police Chiefs	693,827	
Police	601,939	
		1,295,766
Investment income		
Interest	481,757	
Dividends	0	
Gain (loss) on sales of investments	691,781	
Other unrealized gain (loss)	(808,587)	
		<u>364,951</u>
Total Revenues		1,870,411
<b>Expenditures</b>		
Retirement benefits paid		1,804,007
Refunds of member contributions		0
Investment expense: counseling fees		<u>100,365</u>
Total Expenditures		\$1,904,372

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**SECTION C**  
**OPERATION OF THE SYSTEM**

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## BASIC FINANCIAL OBJECTIVE OF A RETIREMENT SYSTEM

***Benefit Promises Made Which Must Be Paid For:*** A retirement system 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 System acquires a unit of service credit they are, in effect, handed an "IOU" which reads: *"The City of Riverview 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 which 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 present value of benefits likely to be paid on account of members' 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 System 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 systems must operate; that is:

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

**Benefit** payments to any group of members and their beneficiaries cannot exceed the sum of:

**Contributions** received on behalf of the group

. . . plus . . .

**Ivestment** earnings on contributions received and not required for immediate cash payments of benefits

. . . minus . . .

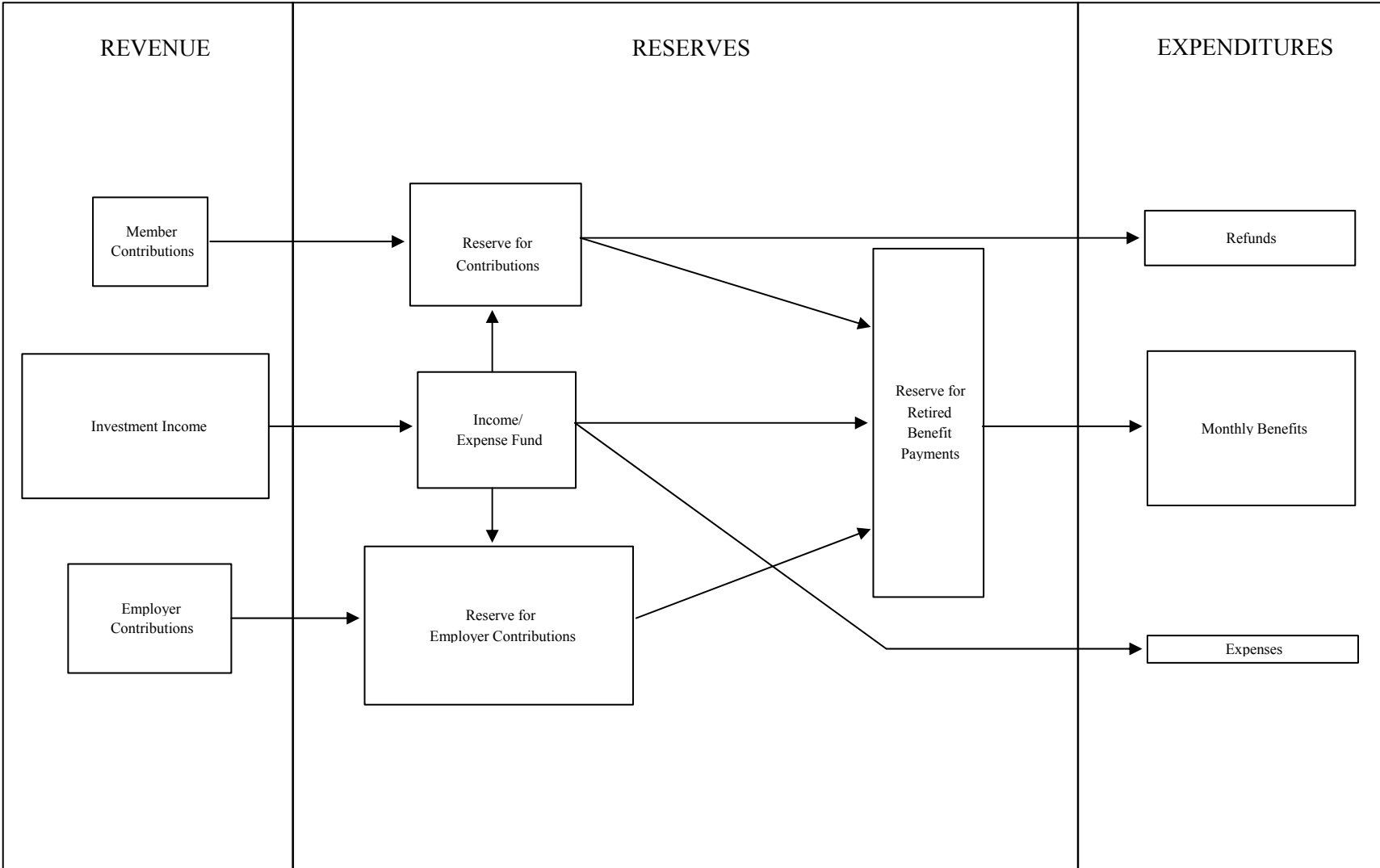
**Expenses** incurred in operating the system.

There are retirement systems designed to defer the bulk of contributions far into the future. The present contribution rate for such systems is artificially low. The fact that the contribution rate is destined to increase relentlessly to a much higher level is often ignored. *This method of financing is prohibited in Michigan by the state constitution.*

A by-product of a level percent-of-payroll contribution objective is the accumulation of invested assets. Investment income on accumulated assets becomes a major contributor to the retirement system, and the amount is directly related to the amount of contributions and investment performance.

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

# FLOW OF MONEY THROUGH THE RETIREMENT SYSTEM



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## **SECTION D**

### **VALUATION METHODS AND ASSUMPTIONS**

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## ACTUARIAL COST METHODS

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

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

***Financing of Unfunded Actuarial Accrued Liabilities (UAAL):*** Accrued liabilities were amortized as a level percent of payroll for the Police division. The level dollar amortization method was used for the General division UAAL.

***Funding Value of Assets:*** The funding value of assets recognizes assumed investment income fully each year. Differences between actual and assumed investment income are phased in over a closed 4-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 actual and assumed rates of investment income are exactly equal for 4 consecutive years, the funding value will become equal to market value.

Financial information related to Plan activity is reported by the City in the aggregate for part of the fund. Trust assets are allocated to both General and Police groups based on reported fund activity for each group. If an actual accounting of trust assets by group were provided, the computed contribution rate results would be different than those shown in this report.

## **ACTUARIAL ASSUMPTIONS USED FOR THE VALUATION**

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

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

- long-term rates of investment return to be generated by the assets of the System
- patterns of pay increases to members
- rates of mortality among members, retirants and beneficiaries
- rates of withdrawal of active members
- rates of disability among members
- the age patterns of actual retirement

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

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

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

*The rate of investment return* was 7.5% (net of expenses) a year, compounded annually. This assumption is used to make money payable at one point in time equal in value to an amount of money payable at another point in time. The assumed real rate of return (the net return in excess of the wage inflation rate) was 3.5%. Economic experience during the last 5 years has been as follows:

	<b>Year Ending June 30</b>				
	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>
1) Nominal rate of return#	2.9%	0.9%	(0.4)%	(0.6)%	3.9%
2) Increase in CPI	1.7%	3.6%	1.1%	(1.4)%	5.0%
3) Average salary increase	(6.1)%	8.1%	2.2%	(1.4)%	2.9%

# *The nominal rate of return was computed using the approximate formula:  $i = I$  divided by  $1/2 (A+B-I)$ , where  $I$  is recognized investment income net of expenses,  $A$  is the beginning of year asset value and  $B$  is the end of year asset value.*

*The rates of salary increase* used for individual members are in accordance with the following table. This assumption is used to project a member's current salary to the salaries upon which benefit amounts will be based.

<b>Sample Ages</b>	<b>Salary Increase Assumptions For an Individual Member</b>		
	<b>Merit &amp; Seniority</b>	<b>Base (Economic)</b>	<b>Increase Next Year</b>
20	4.0%	4.0%	8.0%
25	3.3	4.0	7.3
30	2.8	4.0	6.8
35	2.5	4.0	6.5
40	2.2	4.0	6.2
45	1.8	4.0	5.8
50	1.2	4.0	5.2
55	0.7	4.0	4.7
60	0.2	4.0	4.2
65	-	4.0	4.0

If the number of active members remains constant, then the total active member payroll is expected to increase 4.0% annually, the base portion of the individual salary increase assumptions.

*The mortality tables* used in the valuation of the plan are the RP-2000 Combined Healthy Mortality Table adjusted for mortality improvements to 2020 using projection scale BB.

Sample Ages	Value at Retirement of \$1 Monthly for Life		Future Life Expectancy (Years)	
	Men	Women	Men	Women
50	\$144.67	\$147.85	32.99	35.59
55	137.49	141.58	28.37	30.90
60	128.51	133.44	23.94	26.34
65	117.58	123.33	19.74	21.98
70	104.59	111.45	15.83	17.93
75	89.73	97.95	12.26	14.25
80	73.73	83.02	9.13	10.95

This assumption is used to measure the probabilities of members dying before retirement and the probabilities of each benefit payment being made after retirement.

*The rates of retirement* used to measure the probability of eligible members retiring during the next year were as follows:

**PERCENT OF ELIGIBLE ACTIVE MEMBERS RETIRING WITHIN NEXT YEAR**

General & Chiefs		Police	
Retirement Ages	% Eligible	Retirement Ages	% Eligible
55	15%	50	35%
56	15	51	30
57	15	52	30
58	15	53	30
59	15	54	30
60	20	55	30
61	20	56	30
62	30	57	30
63	20	58	30
64	20	59	40
65	80	60	100
66	30		
67	40		
68	50		
69	90		
70	100		

*Rates of separation from active membership* were as shown below (rates do not apply to members eligible to retire and do not include separation on account of death or disability). This assumption measures the probabilities of members remaining in employment.

Sample Ages	Years of Service	% of Active Members Separating within Next Year	
		General	Police
ALL	0	15.00%	10.00%
	1	10.00	7.00
	2	8.00	5.00
	3	7.00	4.00
	4	6.00	3.50
25	5 & Over	6.00	3.50
30		5.10	2.90
35		2.70	1.50
40		1.60	0.60
45		1.10	0.50
50		1.00	0.50
55		1.00	0.50
60		1.00	0.50

*Rates of disability* were as follows:

Sample Ages	% of Active General Members & Chiefs Becoming Disabled within Next Year		% of Active Police Members Becoming Disabled within Next Year
	Men	Women	All
20	0.15%	0.06%	0.14%
25	0.18	0.10	0.23
30	0.20	0.15	0.48
35	0.29	0.27	0.79
40	0.42	0.39	1.10
45	0.65	0.57	1.42
50	1.05	0.91	1.73
55	1.84	1.54	2.05
60	3.06	2.21	
65	3.30	1.97	

For police members (except chiefs), 50% of disability retirements were assumed to be duty-related.



**SUMMARY OF ASSUMPTIONS USED**  
**JUNE 30, 2012**  
**MISCELLANEOUS AND TECHNICAL ASSUMPTIONS**

<b>Marriage Assumption:</b>	100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses.
<b>Pay Increase Timing:</b>	Middle of year.
<b>Decrement Timing:</b>	Middle of year.
<b>Eligibility Testing:</b>	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
<b>Benefit Service:</b>	Exact fractional service is used to determine the amount of benefit payable.
<b>Decrement Operation:</b>	Disability and mortality decrements do not operate during the first 5 years of service. Disability and turnover do not operate during retirement eligibility.
<b>Normal Form of Benefit:</b>	The assumed normal form of benefit is the straight life form.
<b>Option Factors:</b>	Option factors are based upon 7% interest and the 1971 GAM with a 90% Male/10% Female Blend.
<b>Disability:</b>	One hundred percent of disabilities among active General members were assumed to be non-duty disabilities. Fifty percent of disabilities among Police and Command Officers were assumed to be non-duty and fifty percent were assumed to be duty related.

## 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, turn-over 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.

**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.

**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.

## GLOSSARY

**Funding Value of Assets** - The value of assets derived by spreading differences between assumed and actual investment return in equal dollar installments over four years. This treatment removes the timing of investment activities from the valuation process.

**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.

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**SECTION E**  
**DISCLOSURES REQUIRED BY GASB**

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# GASB REQUIRED SUPPLEMENTARY INFORMATION

## Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b)-(a)	Funded Ratio (a)/(b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
2003*	\$21,393,774	\$22,297,515	\$ 903,742	95.9	\$5,025,115	18%
2004	21,885,428	23,292,715	1,407,287	94.0	5,064,717	28%
2005*	21,807,937	24,972,621	3,164,684	87.3	5,292,595	60%
2006#	21,611,224	26,358,737	4,747,513	82.0	4,866,039	98%
2007	23,059,510	27,199,099	4,139,589	84.8	4,862,204	85%
2008	23,682,237	28,302,386	4,620,149	83.7	4,742,807	97%
2009	23,199,385	28,604,048	5,404,663	81.1	4,482,195	121%
2010	22,674,366	29,705,014	7,030,648	76.3	4,448,361	158%
2011	22,378,159	30,787,895	8,409,736	72.7	4,454,694	189%
2012	22,716,213	33,131,939	10,415,726	68.6	3,982,719	262%

\* Revised actuarial assumptions and/or methods.

# Retirement System amended.

## Schedule of Employer Contributions

Fiscal Year Ending June 30	Valuation Date June 30	Computed Dollar Contribution Based on Projected Valuation Payroll	Actual Contribution	Percentage Contributed
2003	2002	\$ 433,341	\$ 433,341	100%
2004	2003	552,179	552,179	100
2005	2004	594,154	610,663	100
2006	2005	789,317	801,016	100
2007	2006	959,766	975,555	100
2008	2007	934,274	949,677	100
2009	2008	979,557	986,548	100
2010	2008	1,009,242	973,804	96
2011	2009	1,082,935	1,082,935	100
2012	2010	1,295,766		
2013	2011	1,494,746		
2014	2012	1,477,292		

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

## 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, 2012
Actuarial cost method	Entry Age
Amortization method	Level percent of pay (for Police) Level dollar (for General)
Amortization period	20 years, closed (for Police) 15 years, closed (for General)
Asset valuation method	4-year smoothed market
Actuarial assumptions:	
Investment rate of return	7.50%
Projected salary increases*	4.0% - 8.0%
*Includes wage inflation at	4.0%
Cost-of-living adjustments	None

Membership of the plan consisted of the following at June 30, 2012, the date of the latest actuarial valuation:

Retirees and beneficiaries receiving benefits	85
Terminated plan members entitled to but not yet receiving benefits	7
Active plan members	<u>60</u>
Total	152