

OKLAHOMA CITY EMPLOYEE RETIREMENT SYSTEM
ANNUAL ACTUARIAL VALUATION
DECEMBER 31, 2011

### TABLE OF CONTENTS

Section	Page	Item					
		Introduction					
$\mathbf{A}$		Valuation Results					
	1	Funding Objective					
	2	Computed Contributions					
	3-4	Funding Progress Indicators					
	5-6	Comments					
	7	Unfunded Actuarial Accrued Liability					
В		Summary of Benefit Provisions and Valuation Data					
	1-2	Summary of Benefit Provisions					
	3-4	Asset Information					
	5-7	Retired Lives					
	8-10	Active and Inactive Members					
	11	Comparative Statement					
C		Actuarial Methods, Actuarial Assumptions and Definition of Technical Terms					
	1-2	Valuation Process					
	3	Actuarial Methods					
	4-7	Actuarial Assumptions					
	8-9	Definitions of Technical Terms					
	10	Miscellaneous and Technical Assumptions					
D		GASB Statement No. 25 and No. 27					
	1-2	Required Supplementary Information					
E		Retirement System Experience – Actual vs Expected					
	1	Derivation of Experience Gain (Loss)					
	2	Service Retirements During the Indicated Plan Years					
	3	Non-Vested Withdrawals from Active Membership During the Indicated Plan Years					
	4	Number Added to and Removed from Active Membership					



May 25, 2012

The Board of Trustees Oklahoma City Employee Retirement System Oklahoma City, Oklahoma

Dear Board Members:

The results of the December 31, 2011 annual actuarial valuation of the Oklahoma City Employee Retirement System are presented in this report. The purpose of the valuation was to measure the System's funding progress, provide actuarial information in connection with applicable Governmental Accounting Standards Board Statements and to determine the employer contribution for the fiscal year beginning July 1, 2013. This report should not be relied upon for any other purpose. This report may be distributed 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 Retirement System Manager, concerning Retirement System benefits, financial transactions, and individual members, terminated members, retirees 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.

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 and accurate and the valuation was conducted in accordance with standards of practice prescribed by the Actuarial Standards Board and in compliance with the applicable state statutes. The undersigned are independent of the plan sponsor and are Members of the American Academy of Actuaries (MAAA) who 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 M. Gates ASA, MAAA

Mark Buis, FSA, EA, MAAA

LMG/MB:sac

## SECTION A VALUATION RESULTS

### **Funding Objective**

The funding objective of the Retirement System is 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 citizens.

#### **Contribution Rates**

The Retirement System is supported by member contributions, City contributions and investment income from Retirement System assets.

Contributions which satisfy the funding objective are determined by the annual actuarial valuation and are sufficient to:

- (1) Cover the actuarial present value of benefits allocated to the current year by the actuarial cost method described in Section C (the normal cost); and
- (2) Finance over a period of future years the actuarial present value of benefits not covered by valuation assets and anticipated future normal costs (unfunded actuarial accrued liability).

Computed contribution rates for the fiscal year beginning July 1, 2013 are shown on page A-2.

### COMPUTED CONTRIBUTIONS EXPRESSED AS PERCENTS OF ACTIVE MEMBER PAYROLL

The total computed contributions determined in the current and prior year's valuation are shown below. The 2011 valuation results will be used by the City for the fiscal year beginning July 1, 2013. Please refer to page A-5 for additional information.

Contributions Determined as of December 31st of the	e Percents of Me	Percents of Member Payroll			
Indicated Valuation Year	2011	2010			
Normal Cost					
Service pensions	10.43%	10.41%			
Disability pensions	0.57%	0.56%			
Survivor pensions					
- Death before retirement	0.51%	0.52%			
Termination benefits					
- Deferred service pensions	0.42%	0.41%			
- Refunds of current member contributions	1.34%	1.34%			
Total normal Cost	13.27%	13.24%			
Unfunded Actuarial Accrued Liability (UAAL)					
Total UAAL contribution*	3.57%	2.25%			
<b>Total Computed Contribution Rate</b>	16.84%	15.49%			
Member portion	6.00%	6.00%			
City's computed rate	10.84%	9.49%			

<sup>\*</sup> The 2011 unfunded actuarial accrued liability (the UAAL) was amortized as a level percent of active member payroll over a period of 30 years, the maximum time period permitted by the GASB Standards. The 2010 UAL was amortized as a level percent of active member payroll over a period of 25 years.

### **Funding Progress**

There is no single all-encompassing indicator to measure a retirement system's funding progress. A traditional measure has been the relationship of valuation assets to actuarial accrued liability - a measure that is influenced by the choice of actuarial cost method. Numeric information using this traditional measure is shown on the following page.

*Additional understanding* of funding progress can be achieved using the following test, which compares the System's present assets with:

- (1) members' contributions on deposit in the System;
- (2) present value of future benefits to present retired lives; and
- (3) present value of benefits based on service already rendered by active and inactive members.

In a system that has been following the discipline of level percent-of-payroll financing, member contributions on deposit (item 1) and the present value of future benefits to present retired lives (item 2) will be fully covered by present assets (except in rare circumstances). In addition, the present value of benefits based on service already rendered by members (item 3) will be partially covered by the remainder of present assets. The larger the funded portion of item 3, the stronger the condition of the system. Generally, if the system has been using level-percent financing, the funded portion of item 3 will increase over time.

From 1983 through 1996, item 3 was computed in accordance with the Pension Benefit Obligation required by Governmental Accounting Standards Board Statement No. 5.

Beginning with the December 31, 1997 actuarial valuation, item 3 is computed in accordance with Governmental Accounting Standards Board Statement No. 25, which has replaced Statement No. 5. Under Statement No. 25, item (3) is the same amount that is used in computing the level contribution rates and the funding value of assets is shown rather than cost value. Further detail concerning Statement No. 25 is shown in Section D.

A historical comparison of funding progress tests is shown on the following page.

### FUNDING PROGRESS TEST (DOLLAR AMOUNTS IN THOUSANDS)

#### **Accrued Liabilities (AL)**

	Accrueu Liabiliues (AL)								
Valuation	(1) Member	(2) Retirants and	(3) Active & Inactive Members <sup>(1)</sup> (Employer Financed				ortion of I Covered by	y Assets	
Date	Contribs.	Beneficiaries	Portion)	Total AL	Assets <sup>(2)</sup>	(1)	(2)	(3)	Overall
12/31/92	\$24,039	\$ 59,294	\$ 56,040	\$ 139,373	\$ 122,638	100 %	100 %	70 %	88 %
12/31/93	26,732	59,703	60,919	147,354	141,078	100	100	90	96
12/31/94	29,028	63,894	67,915	160,837	151,580	100	100	86	94
12/31/95	31,423	67,408	71,283	170,114	168,203	100	100	97	99
12/31/96	33,507	72,225	75,504	181,236	185,368	100	100	105	102
12/31/97	35,654	76,275	107,169	219,098	219,602	100	100	100	100
12/31/98	37,900	82,258	118,498	238,656	260,877	100	100	119	109
12/31/99	39,866	85,724	120,316	245,906	307,872	100	100	152	125
12/31/00	41,550	100,936	180,814	323,300	350,398	100	100	115	108
12/31/01	42,226	116,552	185,819	344,597	372,737	100	100	115	108
12/31/02	44,368	128,120	200,072	372,560	375,382	100	100	101	101
12/31/03	46,654	136,873	207,496	391,023	374,192	100	100	92	96
12/31/04	48,487	150,664	216,013	415,164	381,495	100	100	84	92
12/31/05	54,239	169,752	212,913	436,904	424,182	100	100	94	97
12/31/06	55,557	187,693	214,297	457,547	476,913	100	100	109	104
12/31/07	60,118	204,470	224,239	488,827	529,876	100	100	118	108
12/31/08	62,128	221,456	235,650	519,234	528,664	100	100	104	102
12/31/09	65,106	237,302	254,019	556,427	529,137	100	100	89	95
12/31/10	64,922	267,120	234,792	566,834	524,731	100	100	82	93

<sup>(1)</sup> Beginning with the 12/31/97 valuation, Employer Financed Portion is calculated in accordance with Governmental Accounting Standards Board Statement No. 25, which replaces Statement No. 5 used in prior years. This is the same calculation that is used in computing contribution rates.

593,922

514,499

100

100

67

87

242,529

67,324

284,069

12/31/11

<sup>(2)</sup> Beginning with the 12/31/97 valuation, funding value, pursuant to Governmental Accounting Standards Board Statement No. 25 (prior to 12/31/97, Cost Value was used).

### **COMMENTS**

**Comment A:** The recommended City pension contribution for the City's 2013-2014 fiscal year is 10.84% of plan member payroll. The established maximum City contribution rate is 10% of payroll. Under current GASB standards, a contribution rate of 10% of pay may result in a net pension obligation on the City's financial statements.

**Comment B:** There were no benefit changes reported to the actuary in connection with this valuation of the System. There were no assumption or method changes reflected in this valuation of the System. The change in contribution rate over the prior year is due to System experience during calendar year 2011.

**Comment C:** Experience for the year ended December 31, 2011 was overall unfavorable. The market value smoothing techniques used in this valuation of the System recognize both past and present investment experience. The recognized rate of return (-.10%) was lower than long term expectations. This unfavorable experience was offset in part by lower than expected pay increases. Additional information on the investment experience is provided on page B-4 of this report.

**Comment D:** As of the valuation date, the System has a funding deficit. Given the current state of capital markets and unrecognized investment losses from 2011, it is likely that recommended City contributions to the Retirement System will continue to exceed 10% of pay in the near term. If the market value of System assets was used to develop the pension contributions for the City's 2013-2014 fiscal year, City pension contributions would be approximately 11.7% of payroll.

### **COMMENTS**

**Comment E:** As of the valuation date, the System's funded ratio (the ratio of the funding value of assets to the accrued liabilities of the System) was 87%. Last year the ratio was 93%. The decline in funded ratio over the prior year is due primarily to the System's experience during calendar year 2011. If the funded ratio was measured using the market value of assets as of December 31, 2011, the System would be 84% funded.

Comment F: The Actuarial Standards of Practice with regard to the mortality assumption have recently been revised. ASOP No. 35 Disclosure Section 4.1.1 now states "The disclosure of the mortality assumption should contain sufficient detail to permit another qualified actuary to understand the provision made for future mortality improvement. If the actuary assumes zero mortality improvement after the measurement date, the actuary should state that no provision was made for future mortality improvement." Currently, there is no margin for future mortality improvement in the mortality assumption used for the annual valuation of the System. We recommend that the mortality assumption be reviewed in connection with an experience study to determine the appropriate margin (if any) to be used in future valuations.

### UNFUNDED ACTUARIAL ACCRUED LIABILITY (AMOUNTS IN THOUSANDS OF DOLLARS)

	December 31		
	2011	2010	
A. Actuarial present value of future benefits	\$711,210	\$678,690	
B. Actuarial present value of future normal costs	117,288	111,856	
C. Actuarial accrued liability	593,922	566,834	
D. Assets allocated to funding	514,499	524,731	
E. Unfunded actuarial accrued liability	79,423	42,103	
F. Ratio of assets to actuarial accrued liability	87%	93%	

### HISTORICAL SCHEDULE OF CITY CONTRIBUTION RATES AND THE ASSOCIATED AMORTIZATION PERIOD

### **Established City Contribution Rate**

as a % of	Years to	Years to
Active Member Payroll	Amortize UAL	Liquidate Surplus
8.35 %	0.0	
8.35	0.0	
8.35	0.0	
7.00	0.0	
7.00	0.0	
7.00		3.8
7.00	40.0	
8.25	40.0	
7.94	30.0	
6.16		29.0
5.04		28.0
6.77		27.0
8.56	26.0	
9.49	25.0	
10.84	30.0	
	8.35 % 8.35 8.35 7.00 7.00 7.00 7.00 8.25 7.94 6.16 5.04 6.77 8.56 9.49	Active Member Payroll       Amortize UAL         8.35 %       0.0         8.35       0.0         7.00       0.0         7.00       0.0         7.00       40.0         8.25       40.0         7.94       30.0         6.16       5.04         6.77       8.56       26.0         9.49       25.0

<sup>\*</sup> Retirement System amended

<sup>#</sup> The average established City contribution for the indicated fiscal year

# SECTION B SUMMARY OF BENEFIT PROVISIONS AND VALUATION DATA

### SUMMARY OF BENEFIT PROVISIONS EVALUATED OR CONSIDERED (DECEMBER 31, 2011)

#### **Regular Retirement** (no reduction factor for age)

*Eligibility* - Pre 3-1-67 hires: Age 60 with 20 years of service; or, any age with 30 years of service.

Post 3-1-67 hires: Age 65 with 5 years of service; or, any age with 25 years of service.

**Annual Amount** - Normal retirement benefit: 2% of average final compensation for all years and complete months of service, to a maximum of 100% of AFC.

**Average Final Compensation** (AFC) - Average earned compensation (excluding compensation for unused vacation and sick leave) during highest 36 months of service out of the last 60 consecutive months of service.

#### Early Retirement (reduction factor for age)

Eligibility - Age 55 with 5 years of service.

**Annual Amount** - Same as regular retirement amount but reduced 4% for each full year or portion of a year that payments commence prior to age 65 (age 60 if hired prior to 3-1-67).

#### **Deferred Retirement** (vested benefit)

*Eligibility* - 5 years of service. Benefit begins at age 65 (age 60 if hired prior to 3-1-67) or at age 55 on a reduced basis.

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

#### **Duty Disability Retirement**

*Eligibility* - No age or service requirements.

**Annual Amount** - 40% of average final compensation, reduced if degree of disability is less than total disability.

### **Non-Duty Disability Retirement**

*Eligibility* - Any age with 15 years of service.

**Annual Amount** - 2% of average final compensation for each full year of service, plus 1/12 of 2% for each full month of service due to a partial year of service to a maximum of 40% of AFC. Amount is reduced if degree of disability is less than total disability.

### SUMMARY OF BENEFIT PROVISIONS EVALUATED OR CONSIDERED (DECEMBER 31, 2011)

#### **Duty Death Before Retirement**

*Eligibility* - No age or service requirements.

**Annual Amount** - 20% of average final compensation to an eligible spouse. Payments cease upon death. If there is no eligible spouse, accumulated employee contributions are paid to designated beneficiary. For members eligible under age and service conditions, the benefit is the amount the spouse would have received as a joint annuitant under normal or early retirement conditions.

#### **Non-Duty Death Before Retirement**

Eligibility - Any age with 15 years of service.

Annual Amount - Same as duty death.

### **Post-Retirement Adjustments**

Pensions may be adjusted annually (in January) for changes in the Consumer Price Index. Maximum adjustment is 4% per year compounded. The first adjustment is made one year following retirement for those age 65 (60 for pre 3-1-67 hires) or those awarded disability allowances. For all others, the first adjustment is made no earlier than 4 years following retirement.

#### **Post-Retirement Death Benefit**

*Eligibility* – Retiree currently collecting pension benefits from the System.

Amount - A one-time payment of \$5,000 payable upon the death of the retiree. This benefit is payable only upon the death of the retiree, and is payable to the designated beneficiary.

#### **Member Contributions**

6% of annual pay.

### **Employer Contributions**

7% of annual payroll effective March 2, 2001 – December 31, 2005.

The actuarially determined contribution rate (up to a maximum of 10% of pay) effective January 1, 2006.

#### **Partial Lump Sum Payment Option**

Members who are eligible for Regular Retirement may elect this optional form of payment, which allows for cash at retirement of up to \$30,000. Any remaining monthly retirement benefit is reduced actuarially to reflect the payment of cash at retirement.

### **ASSET INFORMATION SUBMITTED FOR VALUATION**

The net market value of Retirement System assets was reported to be \$494,715,986 as of December 31, 2011. The derivation of the funding value of assets used for the actuarial valuation is shown on the following page.

### Revenues and Expenditures – Market Value Basis

	Year Ended December 31,			
	2011	2010		
Revenues:				
a. Member contributions	\$ 6,532,180	\$ 6,312,216		
b. City contributions	8,421,136	6,394,770		
c. Investment income				
1. Interest and dividends	6,713,038	5,135,035		
2. Realized & unrealized gain/(loss)	2,420,356	45,860,730		
3. Securities lending income	43,913	112,573		
d. Other	63,189	287,503		
e. Total revenues	\$ 24,193,812	\$ 64,102,827		
<b>Expenditures:</b>				
a. Refunds of member contributions	\$ 1,099,826	\$ 899,878		
b. Benefits paid	23,642,100	22,753,676		
c. Administrative expenses	468,469	382,095		
d. Investment expenses	1,511,533	1,229,881		
e. Other expenses	0	0		
f. Total expenditures	\$ 26,721,928	\$ 25,265,530		
Reserve Increase (Decrease):				
Total revenues minus total expenditures	\$ (2,528,116)	\$ 38,837,297		

### **Reported Market Value of Assets**

	<b>December 31, 2011</b>
Cash & Other	\$ 31,422,890
Fixed Income	142,530,269
Equities	328,272,426
Real Estate	28,197,535
Total Assets	530,423,120
Less Accounts Payable	35,707,134
Net Assets	\$494,715,986

### **DEVELOPMENT OF VALUATION ASSETS**

2010	2011
\$529,136,712	\$524,731,336
497,244,102	494,715,986
458,406,805	497,244,102
(10,659,065)	(9,725,421)
49,496,362	7,197,305
41,904,574	41,589,490
7,591,788	(34,392,185)
\$ 1,897,947	\$ (8,598,046)
2,214,945	1,897,947
(37,610,966)	2,214,945
(2,152,811)	(37,610,966)
(35,650,885)	(42,096,120)
524,731,336	514,499,285
(27,487,234)	(19,783,299)
1.19%	(0.10%)
10.92%	1.46%
1.06	1.04
	\$529,136,712 497,244,102 458,406,805 (10,659,065) 49,496,362 41,904,574 7,591,788 \$ 1,897,947 2,214,945 (37,610,966) (2,152,811) (35,650,885) 524,731,336 (27,487,234) 1.19% 10.92%

### RETIRANT AND BENEFICIARY DATA

Valuation Date	No. of Pension Recipients			Total Annual	% of	Average Annual	% Incr. in Total	
Dec. 31	Service	Disability	Survivor	Total	Pensions (2)	Payroll	Pension	Pensions
1992	635	49	203	887	\$ 5,275,616	8.6 %	\$ 5,948	3.8 %
1993	622	53	203	878	5,393,539	8.1	6,143	2.2
1994	621	51	204	876	5,759,562	8.2	6,575	6.8
1995	630	54	198	882	6,131,477	8.8	6,952	5.7
1996	634	55	195	884	6,507,720	9.2	7,362	6.1
1997	634	54	200	888	6,818,103	9.1	7,678	4.8
1998	633	56	202	891	7,134,692	9.0	8,008	4.6
1999	643	56	202	901	7,470,215	9.2	8,291	4.7
$2000^{(1)}$	646	61	203	910	9,188,323	11.4	10,097	23.0
2001	694	63	205	962	10,386,513	12.4	10,797	13.0
2002	725	65	210	1000	11,261,772	13.0	11,262	8.4
2003	731	68	207	1006	11,972,938	14.0	11,902	6.3
2004	773	66	207	1046	13,038,432	14.7	12,465	8.9
2005	796	67	213	1076	14,355,655	15.7	13,342	10.1
2006	823	69	221	1,113	15,766,306	16.5	14,166	9.8
2007	854	66	233	1,153	17,117,037	17.2	14,846	8.6
2008	894	59	225	1,178	18,459,873	17.5	15,671	7.8
2009	936	56	226	1,218	19,673,159	17.8	16,152	6.6
2010	995	59	229	1,283	21,945,667	21.3	17,105	11.6
2011	1,018	56	225	1,299	22,946,844	21.0	17,665	4.6

<sup>(1)</sup> Reflects a one-time increase resulting from purchasing power study.

<sup>(2)</sup> Annual pension amounts shown above are reported to the actuary by the City and reflect annual pension payments as of the indicated valuation date.

### PENSIONS BEING PAID DECEMBER 31, 2011 TABULATED BY ATTAINED AGE OF RECIPIENT

	Service		D	Disability Survivor		Survivor			
	]	Pensions		Pensions		Pensions		Totals	
Attained		Annual Annual		Annual			Annual		
Age	No.	Pensions	No.	Pensions	No.	Pensions	No.	Pensions	
45 - 49	16	\$ 363,636	2	\$ 26,364	5	\$ 61,056	23	\$ 451,056	
50 - 54	71	1,833,168	9	105,324	9	114,324	89	2,052,816	
55 - 59	130	2,946,384	17	205,571	13	182,100	160	3,334,055	
60 - 64	170	3,748,032	11	97,248	21	282,912	202	4,128,192	
65 - 69	198	3,902,850	5	64,092	20	258,780	223	4,225,722	
70 - 74	170	3,022,224	5	37,680	33	486,276	208	3,546,180	
75 - 79	119	2,002,824	4	33,348	41	373,207	164	2,409,379	
80 - 84	79	1,192,476	1	11,028	35	352,704	115	1,556,208	
85 - 89	49	682,860	2	24,216	31	255,192	82	962,268	
90+	16	173,952			17	107,016	33	280,968	
Totals	1,018	\$19,868,406	56	\$604,871	225	\$2,473,567	1,299	\$22,946,844	

### PENSIONS BEING PAID DECEMBER 31, 2011 TABULATED BY YEAR OF RETIREMENT

Year of		<b>Annual Pensions</b>			
Retirement	No.	Total	Average		
1970 - 1974	5	\$ 40,281	\$ 8,056		
1975 - 1979	13	143,100	11,008		
1980 - 1984	28	246,981	8,821		
1985	12	144,942	12,079		
1986	16	260,936	16,309		
1987*	65	1,119,394	17,221		
1988	8	71,380	8,923		
1989	9	134,093	14,899		
1990	10	144,794	14,479		
1991	17	222,622	13,095		
1992	17	177,268	10,428		
1993	15	137,580	9,172		
1994	28	411,120	14,683		
1995	32	420,505	13,141		
1996	35	530,082	15,145		
1997	34	468,981	13,794		
1998	34	446,269	13,126		
1999	38	509,651	13,412		
2000	43	579,252	13,471		
2001	77	1,465,108	19,027		
2002	60	992,024	16,534		
2003	53	1,008,217	19,023		
2004	75	1,400,514	18,674		
2005	64	1,226,791	19,169		
2006	79	1,625,572	20,577		
2007	81	1,488,140	18,372		
2008	81	1,551,290	19,152		
2009	81	1,807,049	22,309		
2010	120	2,663,596	22,197		
2011	69	1,509,312	21,874		
Totals	1,299	\$22,946,844	\$17,665		

<sup>\*</sup> Reflects early retirement incentive program.

### SYSTEM MEMBERS INCLUDED IN VALUATION COMPARATIVE SCHEDULE

Valuation	Num	ber of					Ratio of	% Increase/
Date	Active	Inactive	Annual	Active Me	ember Ave	rages	Active to	(Decrease)
Dec. 31	Members	Members	Payroll <sup>(1)</sup>	Age	Service	Pay	<b>Retired Members</b>	in Avg Pay
1991	2,452	28	\$57,850	39.9 yrs.	9.0 yrs.	\$23,593	2.7	3.8 %
1992	2,496	26	61,028	40.4	9.3	24,450	2.8	3.6
1993	2,520	15	66,278	40.9	9.5	26,301	2.9	7.6
1994	2,492	14	70,151	41.6	10.0	28,150	2.8	7.0
1995	2,428	16	69,754	42.2	10.5	28,729	2.8	2.1
								2.9
1996	2,401	17	70,972	42.8	10.9	29,559	2.7	
1997	2,418	19	74,752	43.3	11.1	30,908	2.7	4.6
1998	2,404	25	79,195	43.7	11.6	32,929	2.7	6.5
1999	2,453	36	80,897	43.8	11.6	32,979	2.7	0.2
2000	2,454	41	80,503	44.0	11.6	32,805	2.7	(0.5)
								4.2
2001	2,454	49	83,862	44.0	11.4	34,174	2.6	
2002	2,374	55	86,428	44.5	11.7	36,406	2.4	6.5
2003	2,290	61	85,666	45.2	12.3	37,409	2.3	2.8
2004	2,302	54	88,866	45.2	12.3	38,604	2.2	3.2
2005	2,312	58	91,641	45.5	12.3	39,637	2.1	2.7
								2.4
2006	2,353	62	95,504	45.5	12.1	40,588	2.1	
2007	2,380	66	99,574	45.5	12.0	41,838	2.1	3.1
2008	2,422	71	105,566	45.8	11.9	43,586	2.1	4.2
2009	2,380	73	110,408	46.3	12.3	46,390	2	6.4
2010	2,304	81	102,915	46.4	12.3	44,668	1.8	(3.7)
2011	2,398	75	109,293	46.3	12.1	45,577	1.8	2.0
2011	2,370	13	107,273	70.5	14.1	75,511	1.0	2.0

<sup>(1)</sup> In thousands of dollars

## INACTIVE MEMBERS - DECEMBER 31, 2011 ELIGIBLE FOR DEFERRED PENSIONS TABULATED BY ATTAINED AGE

		Estimated
Attained		Annual
Age	No.	Allowances
Under 40	9	\$ 49,112
40	3	22,609
41	4	29,913
42	2	25,732
43	1	13,518
46	2	12,165
47	4	34,297
48	3	33,676
49	3	22,446
47	3	22,440
50	3	44,152
51	2	45,342
52	6	68,643
53	1	5,441
54	4	64,385
55	3	19,315
56	2	11,058
57	3	36,845
58	4	52,215
59	1	5,494
60 & Over	15	187,498
Totals	75	\$783,856

### ACTIVE MEMBERS AS OF DECEMBER 31, 2011 BY ATTAINED AGE AND YEARS OF SERVICE

								Totals	
Attained		Ye	ars of Se	rvice on	Valuation	n Date	•		Valuation
Age	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Payroll
Under 20	2							2	\$ 50,859
20-24	44							44	1,269,507
25-29	124	30						154	5,561,480
30-34	139	56	26					221	7,868,057
35-39	96	89	54	10	1			250	10,190,454
40-44	99	59	68	41	28	1		296	12,869,906
45-49	76	65	86	62	59	46	1	395	18,630,616
50-54	82	56	68	67	68	53	35	429	21,254,227
55-59	51	41	55	42	65	57	46	357	18,268,396
60	4	8	12	4	2	10	7	47	2,363,297
61	4	5	9	7	7	5	7	44	2,316,529
62	3	5	3	8	11	10	8	48	2,597,811
63	2	1	8	4	5	3	4	27	1,588,438
64	3	4	4	1	4	3	1	20	1,075,582
65	2	4		3	4	3		16	845,940
66	2		2	1		4	1	10	547,318
67		2	4		2	1	1	10	565,460
68	1	2	1	2	3			9	558,691
69				1	1			2	149,197
70			1	2	1	1		5	260,305
72	1	1	1				1	4	169,482
73			1					1	16,779
74	1			1				2	67,458
75	1			2				3	124,193
77				1				1	41,554
79					1			1	41,399
Totals	737	428	403	259	262	197	112	2,398	\$109,292,935

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

### **Group Averages:**

Age: 46.3 years Service: 12.1 years Annual Pay: \$45,577

## SCHEDULE OF RETIREES AND BENEFICIARIES ADDED TO AND REMOVED FROM ROLLS COMPARATIVE STATEMENT

Year	Δdd	ed to Rolls		moved m Rolls		Rolls End of Y	ear	
Ended	7144	Annual		Annual		Annual	Avg. Annual	% Incr.
Dec. 31	No.	Benefits (1)	No.	Benefits	No.	Benefits	Benefits	In Benefits
2003	61	\$1,178,401	55	\$467,235	1,006	\$ 11,972,938	\$ 11,902	6.3 %
2004	85	1,582,646	45	517,152	1,046	13,038,432	12,465	8.9
2005	80	1,835,088	50	517,865	1,076	14,355,655	13,342	10.1
2006	85	1,978,502	48	567,851	1,113	15,766,306	14,166	9.8
2007	95	1,989,651	55	638,920	1,153	17,117,037	14,846	8.6
2008	85	2,109,746	60	766,910	1,178	18,459,873	15,671	7.8
2009	86	1,905,592	46	692,306	1,218	19,673,159	16,152	6.6
2010	120	3,059,254	55	786,746	1,283	21,945,667	17,105	11.6
2011	70	1,778,917	54	777,740	1,299	22,946,844	17,665	4.6

<sup>(1)</sup> Includes post retirement cost-of-living adjustments. The year 2000, reflects increases in connection with special purchasing power study.

### **SECTION C**

ACTUARIAL METHODS, ACTUARIAL ASSUMPTIONS AND DEFINITION OF TECHNICAL TERMS

### THE ACTUARIAL VALUATION PROCESS

The *actuarial valuation* is the mathematical process by which actuarial present values and contribution rates are determined. The flow of activity constituting the valuation may be summarized as follows:

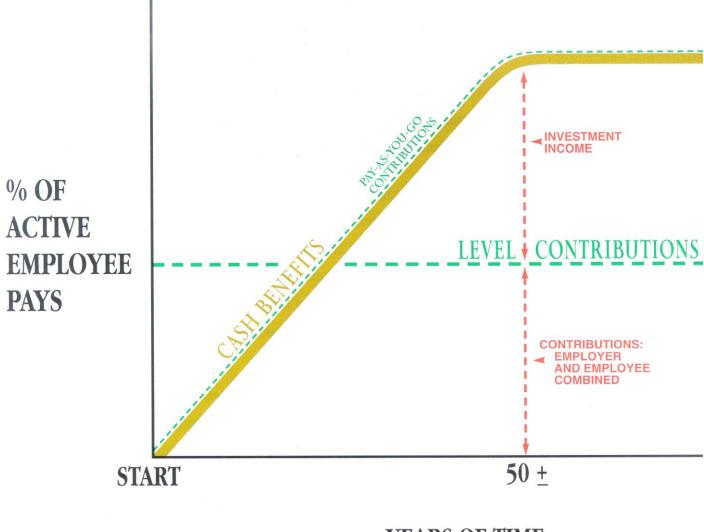
- A. *Census data*, furnished by plan administrator, including:
  - Retired lives now receiving benefits

    Former employees with vested benefits not yet payable

    Active employees
- B. + Benefit provisions, furnished by plan administrator
- C. + Asset data (cash & investments), furnished by plan administrator
- D. + Assumptions concerning future experience in various risk areas
- 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/or

New Employer Contribution Rate



YEARS OF TIME

**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

### **ACTUARIAL METHODS**

### **Actuarial Cost Method**

The actuarial cost method is a procedure for allocating the actuarial present value of pension plan benefits and expenses to time periods. The method used for the valuation is known as the individual entry-age actuarial cost method and has the following characteristics.

- (i) 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 pension at time of retirement.
- (ii) Each annual normal cost is a constant percentage of the member's year by year projected compensation.

The entry-age actuarial cost method allocates the actuarial present value of each member's projected benefits on a level basis over the member's compensation between the entry age of the member and the assumed exit ages.

The portion of the actuarial present value allocated to the valuation year is called the normal cost. The portion of the actuarial present value not provided for by the actuarial present value of future normal costs is called the actuarial accrued liability. Deducting System assets from the actuarial accrued liability determines the unfunded actuarial accrued liability.

#### **Actuarial 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 lower 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 4 consecutive years, it will become equal to market value.

### **ACTUARIAL ASSUMPTIONS**

Funding objective contribution requirements and actuarial present values are calculated by applying actuarial assumptions to the benefit provisions and people information of the System, using the actuarial cost method described on page C-3.

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

- (i) long-term rates of investment return to be generated by the assets of the System
- (ii) patterns of pay increases to members
- (iii) rates of mortality among members and retired lives
- (iv) rates of withdrawal of active members
- (v) rates of disability among active members
- (vi) the age patterns of actual retirements

In a valuation, the monetary effect of each assumption projected is for as long as a present covered person or potential beneficiary 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. From time-to-time one or more of the assumptions are modified to reflect experience trends (but not random or temporary year to year fluctuations).

### **ACTUARIAL ASSUMPTIONS**

### **Investment Return** (net of expenses)

The rate of investment return assumed in the valuation was eight percent (8.0%) per year, compounded annually.

### Wage Inflation

The wage inflation rate assumed in this valuation was 4.5% per year. The wage inflation rate is defined to be the portion of total pay increases for an individual that are due to macroeconomic forces including productivity, price inflation, and labor market conditions. The wage inflation rate does not include pay changes rated to individual merit and seniority effects. The assumed real rate of return over wage inflation is 3.5% per year.

### **Salary Increase Rates**

These assumptions are used to project current pays to those which will determine average final compensation.

_	Annual Rate of Salary Increase						
Sample	Inflation		Merit and				
Ages	Component	Productivity	Longevity	Total			
20	4.00 %	0.50 %	3.80 %	8.30 %			
25	4.00	0.50	3.10	7.60			
30	4.00	0.50	2.70	7.20			
35	4.00	0.50	2.40	6.90			
40	4.00	0.50	2.10	6.60			
45	4.00	0.50	1.70	6.20			
50	4.00	0.50	1.10	5.60			
55	4.00	0.50	0.70	5.20			
60	4.00	0.50	0.20	4.70			
65	4.00	0.50	0.00	4.50			

The active member population is assumed to remain constant. For purposes of financing the unfunded liabilities, total payroll is assumed to grow at the wage inflation rate, 4.5% per year.

### **Price inflation**

The assumed rate of price inflation used in this valuation was 4.0% per year.

#### **Mortality Table**

The mortality assumption is used to measure the probabilities of a member dying before retirement and the probability of each benefit payment being made. The 1994 Group Annuity mortality table set forward 1 year for women and 3 years for men was used in this valuation of the System. The rates used include no margin for future mortality improvement. Sample values are shown below. This was first used in the 12/31/2005 valuation.

	Value at Retirement of		Future Life		
Sample	\$1 Montl	aly for Life	Expectancy (Years		
Ages	Men	Women	Men	Women	
50	\$130.37	\$139.27	27.95	33.94	
55	121.75	132.99	23.52	29.24	
60	111.34	124.83	19.39	24.70	
65	99.69	115.07	15.66	20.46	
70	86.85	103.62	12.34	16.54	
75	72.81	89.91	9.40	12.90	
80	59.14	74.92	7.00	9.71	

#### **Rates of Retirement**

Rates of retirement are used to measure the probabilities of an eligible member retiring during the next year, and are summarized below. These rates were first used for the December 31, 2005 valuation.

Age of Member	Percent of Eligible Members Retiring During Next Year	Years of Service	Percent Retiring
50	12%	25	20%
51	8	26	12
52	8	27	12
53	8	28	12
54	8	29	12
55	8	30	12
56	8	31	12
57	8	32	12
58	8	33	12
59	8	34	12
60	8	35	12
61	8	36	12
62	20	37	12
63	8	38	12
64	8	39	12
65	55	40	100
66	25		
67	30		
68	40		
69	70		
70	100		

The service based retirement rates were applied to those members first eligible to retire under "25 and out". The age based retirement rates were applied to members retiring under either 65/5 (60/10 for pre 3/67 hires) or the Plan's early retirement conditions.

The probability of retiring at age 70 was assumed to be 100% regardless of service.

### **Rates of Separation from Active Membership**

This assumption measures the probabilities of a member terminating employment. The rates do not apply to members who are eligible to retire.

Sample Ages	Years of Service	% of Active Members Separating within Next Year
ALL	0	30.00%
	1	20.00
	2	15.00
	3	10.00
	4	7.00
25	5 & Over	7.00
30		6.00
35		4.75
40		3.50
45		2.40
50		1.50
55		1.00
60		1.00

### **Rates of Disability**

This assumption measures the probabilities of a member becoming disabled.

Age	% of Active Members During Next Year				
of Member	Males	Females			
25	0.09%	0.05%			
30	0.10	0.07			
35	0.14	0.13			
40	0.21	0.19			
45	0.32	0.28			
50	0.52	0.45			
55	0.92	0.76			
60	1.53	1.10			

Disabled life mortality is measured by the 1994 Group Annuity Mortality Table set forward by 1 year for women and 3 years for men at time of disability. Rates of recovery from disability were assumed to be zero.

### **DEFINITIONS OF TECHNICAL TERMS**

**Actuarial Accrued Liability.** The difference between the actuarial present value of System benefits and the actuarial value of future normal costs. Also referred to as "accrued liability" or "actuarial liability."

**Actuarial Assumptions.** Estimates of future 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.

**Accrued Service.** Service credited under the system which was rendered before the date of the actuarial valuation.

**Actuarial Equivalent.** A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.

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

**Actuarial Gain (Loss).** The difference between actual experience and actuarial assumption anticipated experience during the period between two actuarial valuation dates.

**Actuarial Present Value.** The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest, and by probabilities of payment.

**Amortization.** Paying off an interest-discounted amount with periodic payments of interest and principal -- as opposed to paying off with lump sum payment.

### **DEFINITIONS OF TECHNICAL TERMS**

**Normal Cost.** The actuarial present value of retirement system benefits allocated to the current year by the actuarial cost method.

**Unfunded Actuarial Accrued Liability.** The difference between actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded actuarial liability" or "unfunded accrued liability."

The existence of an unfunded actuarial accrued liability is not in itself bad, any more than a mortgage on a house is bad. The unfunded actuarial accrued liability does not represent a debt that is payable today. What is important is the ability to amortize the unfunded actuarial accrued liability and the trend in its amount (after due allowance for devaluation of the dollar).

### SUMMARY OF ASSUMPTIONS USED DECEMBER 31, 2011

### MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Marriage Assumption: 80% of the population is assumed to be married for purposes of

death-in-service benefits.

Pay Increase Timing: Beginning of year. This is equivalent to assuming that reported

pays represent amounts paid to members during the year ended

on the valuation date.

**Decrement Timing:** All decrements were 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 the

decrement is assumed to occur.

Benefit Service: Exact fractional service is used to determine the amount of

benefit payable.

Decrement Operation: Disability and turnover decrements do not operate during

retirement eligibility. Neither disability nor mortality operates

during the first 5 years of service.

**Normal Form of Benefit:** The assumed normal form of benefit is the straight life form.

**Expenses:** Assumed investment return is net of administrative and

investment expenses.

Non-forfeiture Assumption: All vested terminated members who terminate close to

retirement were assumed to elect a deferred retirement while those terminating with less service were assumed to elect a refund of their contributions in lieu of deferred retirement

benefits.

### **SECTION D**

DISCLOSURES AND SUPPLEMENTARY
INFORMATION REQUIRED BY
STATEMENTS NO. 25 AND NO. 27 OF THE
GOVERNMENTAL ACCOUNTING STANDARDS
BOARD

### REQUIRED SUPPLEMENTARY INFORMATION SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date December 31	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	(	nfunded AAL UAAL) (b)-(a)	Funded Ratio (a)/(b)	Active Member Covered Payroll (c)	UAAL as a Percentage of Active Member Covered Payroll ((b-a)/c)
2001	¢272 727	¢244.507	¢	(20.140)	100.2.0/	¢ 92.962	(22.6) 0/
2001	\$372,737	\$344,597	\$	(28,140)	108.2 %	\$ 83,862	(33.6) %
2002	375,382	372,560		(2,822)	100.8	86,428	(3.3)
2003	374,192	391,023		16,831	95.7	85,666	19.6
2004	381,495	415,164		33,669	91.9	88,866	37.9
2005 #	424,182	436,904		12,722	97.1	91,641	13.9
2006	476,913	457,547		(19,366)	104.2	95,504	(20.3)
2007	529,876	488,827		(41,049)	108.4	99,574	(41.2)
2008	528,664	519,234		(9,430)	101.8	105,566	(8.9)
2009	529,137	556,427		27,290	95.1	110,408	24.7
2010	524,731	566,834		42,103	92.6	102,915	40.9
2011	514,499	593,922		79,423	86.6	109,293	72.7

Dollar amounts are in thousands

Analysis of the dollar amounts of the actuarial value of assets, actuarial accrued liability, or actuarial accrued liability in isolation can be misleading. Expressing the actuarial value of assets as a percentage of the actuarial accrued liability provides one indication of the System's funded status on a going-concern basis. Analysis of this percentage over time indicates whether the System is becoming financially stronger or weaker. Generally, the greater this percentage, the stronger the plan. The unfunded actuarial accrued liability and annual covered payroll are both affected by inflation. Expressing the unfunded actuarial accrued liability as a percentage of covered payroll approximately adjusts for the effects of inflation and aids analysis of the progress being made in accumulating sufficient assets to pay benefits when due. Generally, the smaller this percentage, the stronger the plan.

<sup>#</sup> Changes in methods and assumptions

### REQUIRED SUPPLEMENTARY INFORMATION SCHEDULE OF EMPLOYER CONTRIBUTIONS

Actuarial	
Valuation	Annual
Date	Required
December 31,	Contribution (1)
2002	\$6,352,439
2003	5,996,592
2004	6,989,274
2005	8,348,510
2006	8,323,183
2007	7,019,982
2008	5,911,702
2009	5,564,582
2010	6,077,150
2011	8,377,304

<sup>(1)</sup> For the plan year ending on the valuation date

Note: The City develops the annual required contribution for financial reporting purposes (the City's CAFR) based on the recommendation of the actuary and the City's contribution policy. This information is presented in draft form for review by the City's auditor.

### NOTES TO REQUIRED SUPPLEMENTARY INFORMATION SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

Valuation Date	December 31, 2011
Actuarial Cost Method	Individual Entry Age
Amortization Method	Level Percent of payroll
Amortization Period	30 years closed
Asset Valuation Method	4-year smoothed market
Actuarial Assumptions: Investment Rate of Return* Projected Salary Increases* *Includes Wage Inflation	8.0% 4.5% - 8.3% 4.5%
Cost-of-Living Adjustments	Up to 4.0% per year

# SECTION E RETIREMENT SYSTEM EXPERIENCE ACTUAL VS EXPECTED

### DERIVATION OF EXPERIENCE GAIN (LOSS) CALENDAR YEARS 2007 - 2011

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 historic comparison.

	Amounts shown are expressed in thousands of dollars				
	2011	2010	2009	2008	2007
(1) UAAL* at start of year	\$ 42,103	\$ 27,290	\$ (9,430)	\$ (41,049)	\$ (19,366)
(2) Normal cost from last valuation	14,470	13,626	14,640	13,977	13,164
(3) Actual member and employer contributions	14,953	12,707	12,035	12,214	14,144
(4) Interest accrual on (1), (2) and (3)	3,349	2,220	(650)	(3,213)	(1,588)
(5) Expected UAAL before changes: $(1) + (2) - (3) + (4)$	44,969	30,429	(7,475)	(42,499)	(21,934)
(6) Increase due to benefit changes	0	0	0	0	0
(7) Increase due to revised actuarial assumptions	0	0	0	0	0
(8) Expected UAAL after changes: $(5) + (6) + (7)$	44,969	30,429	(7,475)	(42,499)	(21,934)
(9) Actual UAAL at end of year	79,423	42,103	27,290	(9,430)	(41,049)
(10) Gain (loss): (8) - (9)	(34,454)	(11,674)	(34,765)	(33,069)	19,115

<sup>\*</sup> Unfunded actuarial accrued liability (UAAL)

### SERVICE RETIREMENTS DURING THE INDICATED PLAN YEARS

Number Retiring in the Indicated Year

106.7

106.8

2010	2009
8	4
23	11
18	15
4	6
9	
	23 18

4 2

111.6

70 & Over

**Total** 

Expected

The chart above shows actual versus expected retirements from City employment and does not include retirements from deferred status or disability retirements.

# NON-VESTED WITHDRAWALS FROM ACTIVE MEMBERSHIP DURING THE INDICATED PLAN YEARS

### Number Terminating during the

	_	Indicated Year					
Age Groups	Years of Service	2011	2010	2009			
	0	22	18	35			
	1	16	16	13			
	2	12	22	20			
	3	10	10	10			
	4	12	8	1			
	Sub-Total	72	74	79			
Under 30	5 & Over	1	2	0			
30-34		6	1	2			
35-39		5	4	3			
40-44		10	4	4			
45-49		3	1	8			
50-54		4	2	5			
55-59		6	7	0			
60 & Over		0	2	1			
Sub-Total	-	35	23	23			
Total *		107	97	102			
Expected No.		114.0	122.2	148.4			

<sup>\*</sup> Includes people on leave of absence

### NUMBER ADDED TO AND REMOVED FROM ACTIVE MEMBERSHIP ACTUAL & EXPECTED

Valuation Date December 31		r Added g Year	Reti	rement	Dis	sabled		ed-In rvice		her drawal	Members End of
	A	E	A	E	A	E	A	E	A	E	<u>Year</u>
1997	190	172	34	42.6	2	7.5	5	6.4	131	138.6	2,418
1998	201	215	32	50.8	1	3.8	5	4.3	177	116.1	2,404
1999	285	240	38	51.6	3	4.1	5	4.6	194	143.4	2,449
2000	309	308	38	54.1	6	4.3	3	4.7	261	159.1	2,454
2001	331	331	82	74.6	4	3.6	5	3.7	240	162.7	2,454
2002	135	215	54	89.1	5	3.1	9	3.7	147	172.2	2,374
2003	120	213	42	87.6	2	3.2	7	3.7	153	146.7	2,290
2004	207	201	62	98.7	1	3	3	3.9	129	119.9	2,302
2005	200	190	57	100.2	3	3.1	6	4.1	124	129.6	2,312
2006	238	197	63	88.8	3	3.1	2	3.8	129	131.4	2,353
2007	206	179	64	93.4	1	3.0	5	3.9	109	148.9	2,380
2008	220	178	68	94.7	0	2.8	0	4.0	110	149.5	2,422
2009	138	180	67	106.8	1	2.6	2	4.0	110	159.2	2,380
2010	137	213	91	106.7	4	2.5	4	4.1	114	132.6	2,304
2011	257	163	48	111.6	1	2.4	3	4.2	111	124.0	2,398
2007-2011	958	913	338	513.2	7	13.3	14	20.2	554	714.2	

A: Actual experience

E: Expected experience based on actuarial assumptions