

**OKLAHOMA CITY EMPLOYEE RETIREMENT SYSTEM**  
**ANNUAL ACTUARIAL VALUATION**  
**DECEMBER 31, 2009**

# TABLE OF CONTENTS

<b>Section</b>	<b>Page</b>	<b>Item</b>
		Introduction
<b>A</b>		<b>Valuation Results</b>
	1	Funding Objective
	2	Computed Contributions
	3-4	Funding Progress Indicators
	5	Comments
	6	Unfunded Actuarial Accrued Liability
<b>B</b>		<b>Summary of Benefit Provisions and Valuation Data</b>
	1-2	Summary of Benefit Provisions
	3-4	Asset Information
	5-7	Retired Lives
	8-10	Active and Inactive Members
	11	Comparative Statement
<b>C</b>		<b>Actuarial Methods, Actuarial Assumptions and Definition of Technical Terms</b>
	1-2	Valuation Process
	3	Actuarial Methods
	4-7	Actuarial Assumptions
	8-9	Definitions of Technical Terms
	10	Miscellaneous and Technical Assumptions
<b>D</b>		<b>GASB Statement No. 25 and No. 27</b>
	1-2	Disclosures and Supplementary Information Required By Statements No. 25 and No. 27 of the Governmental Accounting Standards Board
<b>E</b>		<b>Retirement System Experience – Actual vs Expected</b>
	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

April 21, 2010

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

Dear Board Members:

The results of the 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 and to determine an appropriate contribution level for the fiscal year beginning July 1, 2011. This report may be provided to parties other than the Board of Trustees only in its entirety and only with the permission of the Board.

The date of the valuation was December 31, 2009.

The valuation was based upon information, furnished by the Retirement System Manager, concerning Retirement System benefits, financial transactions, active members, terminated members, retired members and beneficiaries. Data was checked for reasonableness and year-to-year consistency, but was not otherwise audited by us. This information is summarized in Section B.

To the best of our knowledge, the actuarial valuation is complete and accurate and was made in accordance with generally recognized actuarial methods. We believe the assumptions concerning future experience produce results which are reasonable. Both actuaries submitting this report 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.

Respectfully submitted,



Louise M. Gates ASA, MAAA



W. James Koss, ASA, EA, MAAA

LMG/WJK:bd

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**SECTION A**  
**VALUATION RESULTS**

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## **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, 2011 are shown on page A-2.

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

The total computed contributions determined in the 2009 and prior year's valuation are shown below. The 2009 valuation results will be used by the City for the fiscal year beginning July 1, 2011. Please refer to page A-5 for additional information.

<b>Contributions Determined as December 31st of the Indicated Valuation Year</b>	<b>Percents of Member Payroll</b>	
	<b>2009</b>	<b>2008</b>
<b>Normal Cost</b>		
Service pensions	10.41%	10.40%
Disability pensions	0.56%	0.58%
Survivor pensions		
- Death before retirement	0.51%	0.51%
Termination benefits		
- Deferred service pensions	0.41%	0.42%
- Refunds of current member contributions	1.35%	1.35%
Total Normal Cost	13.24%	13.26%
<b>Unfunded Actuarial Accrued Liability (UAAL)</b>		
Total UAAL Contribution*	1.32%	(0.49%)
<b>Total Computed Contribution Rate</b>		
Member Portion	6.00%	6.00%
City's Computed Rate	8.56%	6.77%

\* The 2009 unfunded actuarial accrued liability (the UAAL) was amortized as a level percent of active member payroll over a period of 26 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.

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*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)**

<b>Accrued Liabilities (AL)</b>									
<b>Valuation Date</b>	<b>(1) Member Contribs.</b>	<b>(2) Retirants and Beneficiaries</b>	<b>(3) Active &amp; Inactive Members<sup>(1)</sup> (Employer Financed Portion)</b>	<b>Total AL</b>	<b>Assets<sup>(2)</sup></b>	<b>Portion of Liabilities Covered by Assets</b>			
						<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>Overall</b>
12/31/90	\$19,885	\$ 51,738	\$ 43,434	\$ 115,057	\$ 95,145	100 %	100 %	54 %	83 %
12/31/91	21,724	58,201	51,491	131,416	107,544	100	100	54	82
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

(1) 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.

(2) 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:** 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 2009.

**Comment B:** Experience for the year ended December 31, 2009 was unfavorable. The market value smoothing techniques used in this valuation of the System recognize both past and present investment experience. Although the calendar year 2009 return on System assets was higher than long term expectations, recognition of investment losses from prior years offset the 2009 gains. The actuarial asset yield for the year was 1.9%. Additional information on the investment experience is provided on page B-4 of this report.

**Comment C:** The Board's policy is to use any existing surplus as a funding credit to reduce the employer's contribution. During calendar year 2009, the System's surplus eroded. As of the valuation date, the System has a funding deficit. Given the current state of capital markets and unrecognized investment losses from the prior year, it is likely that the Retirement System will continue to experience investment losses in the near term. In the absence of significant offsetting favorable experience, contribution increases are likely in the near term. Contribution projections can be a useful planning tool. The Board/City may wish to consider this actuarial service.

**Comment D:** 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 95%. Last year the ratio was 102%. The decline in funded ratio over the prior year is due primarily to the System's experience during calendar year 2009. If the funded ratio were measured using the market value of assets as of December 31, 2009 the System would be 82% funded.

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

	December 31	
	2009	2008
A. Actuarial present value of future benefits	\$677,093	\$634,628
B. Actuarial present value of future normal costs	120,666	115,394
C. Actuarial accrued liability	556,427	519,234
D. Assets allocated to funding	529,137	528,664
E. Unfunded actuarial accrued liability	27,290	(9,430)
F. Ratio of assets to actuarial accrued liability	95%	102%

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

Valuation Date December 31	Established City Contribution Rate as a % of Active Member Payroll	Years to Amortize UAL	Years to Liquidate Surplus
1995	8.35 %	8.0	
1996	8.35	3.0	
1997 *	8.35	0.0	
1998	8.35	0.0	
1999	8.35	0.0	
2000 *	7.00	0.0	
2001	7.00	0.0	
2002	7.00		3.8
2003	7.00	40.0	
2004 #	8.25	40.0	
2005	7.94	30.0	
2006	6.16		29.0
2007	5.04		28.0
2008	6.77		27.0
2009	8.56	26.0	

\* Retirement System amended

# The average established City contribution for the indicated fiscal year

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**SECTION B**

**SUMMARY OF BENEFIT PROVISIONS  
AND VALUATION DATA**

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# SUMMARY OF BENEFIT PROVISIONS EVALUATED OR CONSIDERED (DECEMBER 31, 2009)

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

*Eligibility* - Pre 3-1-67 hires: Age 60 with 10 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, 2009)

### 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 \$458,406,805 as of December 31, 2009. 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,	
	2009	2008
<b>Revenues:</b>		
a. Member contributions	\$ 6,547,898	\$ 6,363,043
b. City contributions	5,487,417	5,851,288
c. Investment income		
1. Interest and dividends	5,868,232	6,558,828
2. Realized & unrealized gain/(loss)	45,987,834	(113,606,729)
d. Other	591,774	519,088
e. Total revenues	64,483,155	(94,314,482)
<b>Expenditures:</b>		
a. Refunds of member contributions	947,693	807,503
b. Benefits paid	20,510,017	18,951,368
c. Administrative expenses	457,258	394,462
d. Investment expenses	1,214,610	1,432,267
e. Other expenses	0	0
f. Total expenditures	23,129,578	21,585,600
<b>Reserve Increase (Decrease):</b>		
Total revenues minus total expenditures	41,353,577	\$ (115,900,082)

### Reported Market Value of Assets

	December 31, 2009
Cash & Other	\$ 31,700,986
Fixed Income	157,226,692
Equities	279,156,373
Real Estate	16,256,658
Total Assets	484,340,709
Less Accounts Payable	25,933,904
Net Assets	\$458,406,805

## DEVELOPMENT OF VALUATION ASSETS

<b>Year Ended December 31:</b>	<b>2008</b>	<b>2009</b>
A. Funding Value Beginning of Year	\$529,876,293	\$528,663,586
B. Market Value End of Year	417,053,228	458,406,805
C. Market Value Beginning of Year	532,953,310	417,053,228
D. Non-Investment Net Cash Flow	(7,544,540)	(9,422,395)
E. Investment Income		
E1. Market Total: B - C - D	(108,355,542)	50,775,972
E2. Amount for Immediate Recognition (8.0%)	42,088,322	41,916,191
E3. Amount for Phased-In Recognition E1-E2	(150,443,864)	8,859,781
F. Phased-In Recognition of Investment Income		
F1. Current Year: 0.25 x E3	\$ (37,610,966)	\$2,214,945
F2. First Prior Year	(2,152,811)	(37,610,966)
F3. Second Prior Year	5,528,162	(2,152,811)
F4. Third Prior Year	(1,520,874)	5,528,162
F5. Total	(35,756,489)	(32,020,670)
G. Funding Value End of Year: A + D + E2 + F5	528,663,586	529,136,712
H. Difference between Market & Funding Value	(111,610,358)	(70,729,907)
I. Net Recognized Rate of Return - Funding Value Basis	1.20%	1.89%
J. Net Recognized Rate of Return - Market Value Basis	(20.48%)	12.31%
K. Ratio of Funding Value to Market Value	1.27	1.15

## RETIRANT AND BENEFICIARY DATA

Valuation Date Dec. 31	No. Pension Recipients				Total Annual Pensions <sup>(2)</sup>	% of Payroll	Average Annual Pension	% Incr. in Total Pensions
	Service	Disability	Survivor	Total				
1990	667	52	185	904	\$ 4,866,789	8.8 %	\$ 5,384	4.5 %
1991	643	55	196	894	5,083,200	8.8	5,686	4.4
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 <sup>(1)</sup>	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	1,046	13,038,432	14.7	12,465	8.9
2005	796	67	213	1,076	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

(1) Reflects a one-time increase resulting from purchasing power study.

(2) 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, 2009**  
**TABULATED BY ATTAINED AGE OF RECIPIENT**

<b>Attained Age</b>	<b>Service Pensions</b>		<b>Disability Pensions</b>		<b>Survivor Pensions</b>		<b>Totals</b>	
	<b>No.</b>	<b>Annual Pensions</b>	<b>No.</b>	<b>Annual Pensions</b>	<b>No.</b>	<b>Annual Pensions</b>	<b>No.</b>	<b>Annual Pensions</b>
Under 45	1	\$ 2,316			1	\$ 9,768	2	\$ 12,084
45 - 49	24	584,124	3	\$ 32,796	3	24,936	30	641,856
50 - 54	60	1,415,880	11	114,204	10	117,936	81	1,648,020
55 - 59	105	2,195,220	15	139,144	11	129,072	131	2,463,436
60 - 64	150	2,955,504	9	86,064	19	212,544	178	3,254,112
65 - 69	199	3,620,502	8	86,700	18	207,276	225	3,914,478
70 - 74	140	2,397,132	3	24,084	33	474,468	176	2,895,684
75 - 79	129	1,949,484	5	54,612	47	452,605	181	2,456,701
80 - 84	68	921,060			38	342,792	106	1,263,852
85 - 89	45	593,556	2	23,232	27	222,948	74	839,736
90+	15	155,508			19	127,692	34	283,200
<b>Totals</b>	<b>936</b>	<b>\$16,790,286</b>	<b>56</b>	<b>\$560,836</b>	<b>226</b>	<b>\$2,322,037</b>	<b>1,218</b>	<b>\$19,673,159</b>

**PENSIONS BEING PAID DECEMBER 31, 2009**  
**TABULATED BY YEAR OF RETIREMENT**

Year of Retirement	No.	Annual Pensions	
		Total	Average
1965 - 1969	1	2,605	2,605
1970 - 1974	7	50,621	7,232
1975 - 1979	18	195,602	10,867
1980 - 1984	37	337,245	9,115
1985	16	188,784	11,799
1986	16	250,321	15,645
1987*	72	1,187,555	16,494
1988	8	68,476	8,560
1989	10	135,253	13,525
1990	11	146,557	13,323
1991	19	229,271	12,067
1992	21	215,140	10,245
1993	19	172,571	9,083
1994	31	425,464	13,725
1995	34	435,116	12,798
1996	41	570,728	13,920
1997	36	484,816	13,467
1998	39	488,688	12,530
1999	43	578,183	13,446
2000	52	663,997	12,769
2001	82	1,495,931	18,243
2002	64	1,000,130	15,627
2003	54	983,659	18,216
2004	77	1,360,852	17,673
2005	68	1,253,845	18,439
2006	84	1,633,665	19,448
2007	89	1,685,989	18,944
2008	84	1,577,422	18,779
2009	85	1,854,673	21,820
<b>Totals</b>	<b>1,218</b>	<b>\$19,673,159</b>	<b>\$16,152</b>

\* Reflects early retirement incentive program

**SYSTEM MEMBERS INCLUDED IN VALUATION  
COMPARATIVE SCHEDULE**

Valuation Date Dec. 31	Number of		Annual Payroll <sup>(1)</sup>	Active Member Averages			Ratio of Active to Retired Members	% Increase/ (Decrease) in Avg Pay
	Active Members	Inactive Members		Age	Service	Pay		
1989	2,360	25	\$49,267	39.3 yrs.	8.4 yrs.	\$20,876	2.6	1.2 %
1990	2,424	25	55,094	39.6	8.7	22,729	2.7	8.9
1991	2,452	28	57,850	39.9	9.0	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
1996	2,401	17	70,972	42.8	10.9	29,559	2.7	2.9
1997	2,418	19	74,752	43.3	11.1	30,908	2.7	4.6
1998	2,405	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)
2001	2,454	49	83,862	44.0	11.4	34,174	2.6	4.2
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
2006	2,353	62	95,504	45.5	12.1	40,588	2.1	2.4
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	2.0	6.4

\* In thousands of dollars

**INACTIVE MEMBERS - DECEMBER 31, 2009**  
**ELIGIBLE FOR DEFERRED PENSIONS**  
**TABULATED BY ATTAINED AGE**

<u>Attained Age</u>	<u>No.</u>	<u>Estimated Annual Allowances</u>
Under 40	12	\$ 80,572
43	1	10,020
44	2	11,943
45	4	34,043
46	2	14,921
47	4	37,429
48	3	53,681
49	1	25,395
50	2	16,824
51	2	25,388
52	1	6,416
53	5	45,401
54	6	86,821
55	3	36,845
56	3	28,570
57	1	5,494
58	3	42,302
60 & Over	18	214,884
<b>Totals</b>	<b>73</b>	<b>\$776,949</b>

**ACTIVE MEMBERS AS OF DECEMBER 31, 2009**  
**BY ATTAINED AGE AND YEARS OF SERVICE**

Attained Age	Years of Service on Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
Under 20	1							1	\$ 9,312
20-24	38	1						39	1,218,041
25-29	123	31	1					155	5,239,826
30-34	125	49	16					190	7,214,722
35-39	98	82	56	20				256	10,509,662
40-44	106	59	55	64	28	4		316	14,158,842
45-49	96	50	74	74	71	47	3	415	20,120,236
50-54	100	51	63	72	65	63	34	448	22,311,706
55-59	48	43	47	48	55	51	41	333	17,039,960
60	2	8	4	14	10	11	9	58	3,251,014
61	3	5	6	7	6	7	2	36	2,120,587
62	8	4	4	6	5	1	3	31	1,646,145
63	5	3	1	6	6	5	1	27	1,560,719
64	3	1	2	2	3	2	3	16	865,606
65	2	4	4	1	3	1	2	17	896,835
66		3	3	2	3			11	689,283
67				1	1	2		4	286,036
68	1	1	3	1	1	1	1	9	415,256
70	1	1	1				1	4	165,274
71			1					1	17,528
72	1		1	1			1	4	197,031
73	1		1	1	1			4	225,411
74	1							1	62,761
75				1			1	2	120,571
77					1			1	42,047
78						1		1	23,961
<b>Totals</b>	<b>763</b>	<b>396</b>	<b>343</b>	<b>321</b>	<b>259</b>	<b>196</b>	<b>102</b>	<b>2,380</b>	<b>\$110,408,372</b>

*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: 12.3 years  
Annual Pay: \$46,390

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

Year Ended Dec. 31	Added to Rols		Removed from Rols		Rols End of Year			% Incr. In Benefits
	No.	Annual Benefits <sup>(2)</sup>	No.	Annual Benefits	No.	Annual Benefits	Avg. Annual Benefits	
2001	107	\$1,484,844	55	\$286,654	962	\$ 10,386,513	\$ 10,797	13.0 %
2002	82	1,288,646	44	413,387	1000	11,261,772	11,262	8.4
2003	61	1,178,401	55	467,235	1006	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

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## **SECTION C**

**ACTUARIAL METHODS,  
ACTUARIAL ASSUMPTIONS AND  
DEFINITION OF TECHNICAL TERMS**

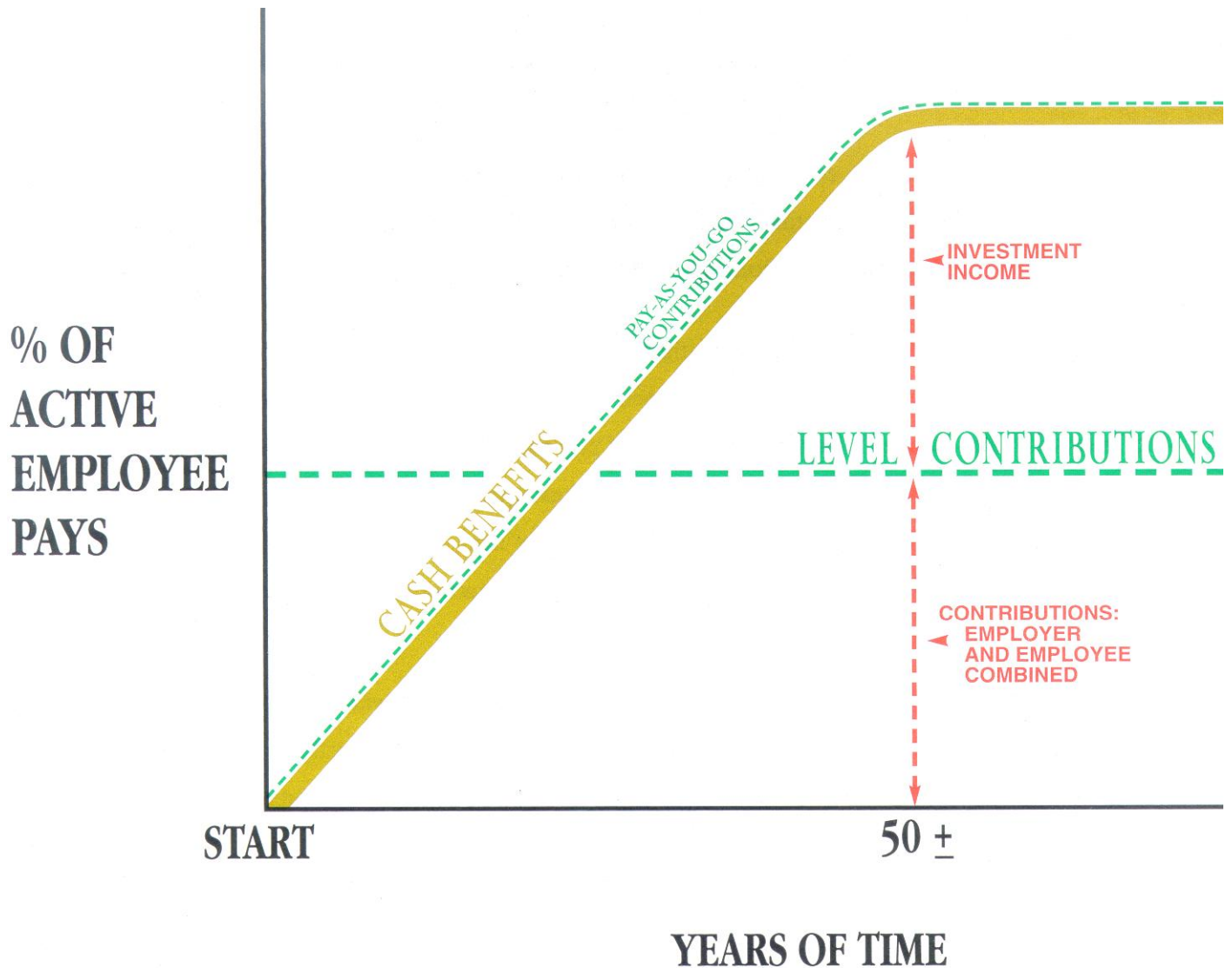
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## THE ACTUARIAL VALUATION PROCESS

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





**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.

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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.

Sample Ages	Annual Rate of Salary Increase			
	Inflation Component	Productivity	Merit and 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. Sample values are shown below. This was first used in the 12/31/2005 valuation.

Sample Ages	Value at Retirement of		Future Life	
	\$1 Monthly for Life		Expectancy (Years)	
	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 Member	% of Active Members During Next Year	
	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, 2009**  
**MISCELLANEOUS AND TECHNICAL ASSUMPTIONS**

<b>Marriage Assumption:</b>	80% of the population is assumed to be married for purposes of death-in-service benefits.
<b>Pay Increase Timing:</b>	Beginning of year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
<b>Decrement Timing:</b>	All decrements were assumed to occur mid-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 turnover decrements do not operate during retirement eligibility. Neither disability nor mortality operates during the first 5 years of service.
<b>Normal Form of Benefit:</b>	The assumed normal form of benefit is the straight life form.
<b>Expenses:</b>	Assumed investment return is net of administrative and investment expenses.

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## **SECTION D**

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

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**REQUIRED SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF FUNDING PROGRESS**

<b>Actuarial Valuation Date December 31,</b>	<b>Actuarial Value of Assets (a)</b>	<b>Actuarial Accrued Liability (AAL) (b)</b>	<b>Unfunded AAL (UAAL) (b)-(a)</b>	<b>Funded Ratio (a)/(b)</b>	<b>Active Member Covered Payroll (c)</b>	<b>UAAL as a Percentage of Active Member Covered Payroll ((b-a)/c)</b>
1999	\$307,872	\$245,906	\$ (61,967)	125.2 %	\$80,897	(76.6) %
2000	350,398	323,300	(27,098)	108.4	80,503	(33.7)
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

*Dollar amounts are in thousands*

*# Changes in methods and assumptions*

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.

**REQUIRED SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF EMPLOYER CONTRIBUTIONS**

<b>Actuarial Valuation Date December 31,</b>	<b>Annual Required Contribution <sup>(1)</sup></b>
2000	\$6,363,262
2001	6,138,260
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

<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, 2009
Actuarial Cost Method	Individual Entry Age
Amortization Method	Level Percent of payroll
Amortization Period	26 years closed
Asset Valuation Method	4-year smoothed market
Actuarial Assumptions:	
Investment Rate of Return*	8.0%
Projected Salary Increases*	4.5% - 8.3%
*Includes Wage Inflation	4.5%
Cost-of-Living Adjustments	Up to 4.0% per year

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**SECTION E**

**RETIREMENT SYSTEM EXPERIENCE  
ACTUAL VS EXPECTED**

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**DERIVATION OF EXPERIENCE GAIN (LOSS)  
CALENDAR YEARS 2005 - 2009**

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.

	<b>Amounts shown are expressed in thousands of dollars</b>				
	<b>2009</b>	<b>2008</b>	<b>2007</b>	<b>2006</b>	<b>2005</b>
(1) UAAL* at start of year	\$ (9,430)	\$ (41,049)	\$ (19,366)	\$ 12,722	\$ 33,669
(2) Normal cost from last valuation	14,640	13,977	13,164	12,635	12,784
(3) Actual member and employer contributions	12,035	12,214	14,144	15,022	11,887
(4) Interest accrual on (1), (2) and (3)	(650)	(3,213)	(1,588)	922	2,729
(5) Expected UAAL before changes: (1) + (2) - (3) + (4)	(7,475)	(42,499)	(21,934)	11,257	37,295
(6) Increase due to benefit changes	0	0	0	0	0
(7) Increase due to revised actuarial assumptions	0	0	0	0	(28,175)
(8) Expected UAAL after changes: (5) + (6) + (7)	(7,475)	(42,499)	(21,934)	11,257	9,120
(9) Actual UAAL at end of year	27,290	(9,430)	(41,049)	(19,366)	12,722
(10) Gain (loss): (8) - (9)	\$ (34,765)	\$ (33,069)	\$ 19,115	\$ 30,623	\$ (3,602)

\* *Unfunded actuarial accrued liability (UAAL)*

## SERVICE RETIREMENTS DURING THE INDICATED PLAN YEARS

Age Group	Number Retiring in the Indicated Year		
	2009	2008	2007
40-44			2
45-49	4	7	4
50-54	11	7	11
55-59	15	17	19
60	6	1	3
61		4	2
62	7	12	8
63	4	2	1
64		3	4
65	9	7	3
66	7	4	2
67	1		2
68	2	1	1
69	1	2	1
70 & Over		1	1
<b>Total</b>	<b>67</b>	<b>68</b>	<b>64</b>
Expected	106.8	94.7	93.4

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**

Age Groups	Years of Service	Number Terminating during the Indicated Year		
		2009	2008	2007
	0	35	20	32
	1	13	28	16
	2	20	10	12
	3	10	11	2
	4	1	2	6
	Sub-Total	79	71	68
Under 30	5 & Over	0	2	0
30-34		2	3	2
35-39		3	2	6
40-44		4	7	6
45-49		8	10	11
50-54		5	7	3
55-59		0	1	1
60 & Over		1	1	1
Sub-Total		23	33	30
<b>Total *</b>		<b>102</b>	<b>104</b>	<b>98</b>
Expected No.		148.4	137.9	136.9

\* Includes people on leave of absence



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

Valuation Date December 31	Number Added		Retirement		Disabled		Died-In Service		Other Withdrawal		Members End of Year
	A	E	A	E	A	E	A	E	A	E	
	1995	124	176	36	42.6	5	7.3	4	6.3	143	
1996	149	176	34	40.8	4	7.5	4	6.4	138	141.6	2,397
1997	190	172	34	42.6	2	7.5	5	6.4	131	138.6	2,419
1998	201	215	32	50.8	1	3.8	5	4.3	178	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
2005-2009	1,002	924	319	483.9	8	14.6	15	19.8	582	718.6	

*A: Actual experience*

*E: Expected experience based on actuarial assumptions*