GRS Gabriel Roeder Smith & Company
Consultants & Actuaries

CITY OF DETROIT GENERAL RETIREMENT SYSTEM

71ST ANNUAL ACTUARIAL VALUATION

JUNE 30, 2009

OUTLINE OF CONTENTS

GRS

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August 26, 2010

The Board of Trustees
City of Detroit General Retirement System

Dear Board Members:

The results of the **71st Annual Actuarial Valuations** of the annuity and pension liabilities of the City of Detroit General Retirement System are presented in this report. The purpose of the valuations was to measure the system's funding progress and to determine contribution rates for the ensuing fiscal year in accordance with the established funding policy. Six divisions are evaluated separately.

The date of the valuations was **June 30, 2009**.

The valuations were based upon records maintained and furnished by the retirement system staff concerning active members, retirees and beneficiaries, and financial accounts as of the valuation date. The assumptions used in the valuations concerning future financial experience are summarized in the Appendix of this report.

Your attention is directed particularly to the comments on page A-5 and A-6 and the contribution rates on page A-1.

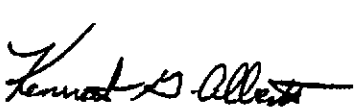
This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge, this report is complete and accurate and was made in accordance with standards of practice promulgated by the Actuarial Standards Board of the American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

The signing actuaries are Members of the American Academy of Actuaries (MAAA) as indicated, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,

Norman L. Jones
FSA, EA, MAAA

Judith A. Kermans
EA, MAAA



Kenneth G. Alberts

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SECTION A

RETIREMENT SYSTEM TOTALS

SUMMARY OF COMPUTED EMPLOYER CONTRIBUTION RATES
2010-2011 FISCAL YEAR

Contributions for	Contributions Expressed as a Percent of Payroll					
	General City@	D.O.T.	Water*	Sewage*	Library	Total
Normal Cost:						
Age & Service Pensions	9.39 %	8.67 %	9.13 %	9.02 %	9.28 %	9.20 %
Disability Pensions	1.38 %	1.00 %	1.46 %	1.44 %	1.33 %	1.34 %
Death-in-Service Pensions	0.29 %	0.28 %	0.33 %	0.35 %	0.26 %	0.30 %
Employer Normal Cost	11.06 %	9.95 %	10.92 %	10.81 %	10.87 %	10.84 %
Unfunded Actuarial Accrued Liabilities#	2.31 %	5.39 %	1.99 %	19.28 %	6.36 %	4.54 %
Computed Employer Contribution Rates	**13.37 %**	**15.34 %**	**12.91 %**	**30.09 %**	**17.23 %**	**15.38 %**
(Change from last year)	4.78 %	4.83 %	(5.07)%	28.73 %	8.05 %	5.82 %

 # Unfunded actuarial accrued liabilities (UAAL) were amortized over a 30 year period.

** Water/Sewage combined employer contribution rate would be 19.63% of payroll.*

@ Includes COBO Hall. Methodology for determining the split between COBO Hall and the City has not been finalized.

COMMENT

The valuation results shown above do not include a provision for the potential financial effect of future retroactive transfers to the 1998 Defined Contribution Plan. These transfers may have a material impact on the computed employer contribution rates.

DEVELOPMENT OF LIABILITIES AS OF JUNE 30, 2009
RETIREMENT SYSTEM TOTALS

Present Value of Future Benefits	$ 3,920,030,684
Present Value of Future Normal Costs	230,964,958
Actuarial Accrued Liability	3,689,065,726
Accrued Assets	3,412,411,183
Unfunded Actuarial Accrued Liability	$ 276,654,543

ACTUARIAL ACCRUED LIABILITIES AS OF JUNE 30, 2009
RETIREMENT SYSTEM TOTALS

Present Value	June 30, 2009	June 30, 2008
Accrued Pension Liabilities (Employer Financed)		
Retirees and beneficiaries		
Future pensions	$1,845,450,721	$1,755,788,942
Mortality reserve	0	0
Total	1,845,450,721	1,755,788,942
Inactive members future deferred pensions	131,078,817	127,547,999
Active members	948,787,935	945,371,700
Total accrued pensions	2,925,317,473	2,828,708,641
Pension fund balances	2,657,574,063	2,863,239,666
Unfunded accrued pension liabilities	$ 267,743,410	$ (34,531,025)
Accrued Annuity Liabilities (Member Financed)		
Retirees and beneficiaries		
Future annuities	$ 55,184,182	$ 48,865,897
Mortality reserve	0	0
Total	55,184,182	48,865,897
Member annuities & future refunds	708,564,071	731,984,090
Total accrued annuity liabilities	763,748,253	780,849,987
Annuity fund balances	754,837,120	777,957,857
Unfunded accrued annuity liabilities	$ 8,911,133	$ 2,892,130
Totals		
Actuarial Accrued Liabilities	**$3,689,065,726**	**$3,609,558,628**
Accrued Assets	**3,412,411,183**	**3,641,197,523**
Unfunded Actuarial Accrued Liabilities	**$ 276,654,543**	**$ (31,638,895)**

VALUATION RESULTS - COMPARATIVE STATEMENT
- - - - $ IN MILLIONS - - - -
RETIREMENT SYSTEM TOTALS

June 30	Active Payroll		% of Payroll Contributions For			Actuarial Accrued Liabilities			
	Total	Average	Normal Cost	UAAL	Total	Computed Total	Accrued Assets	Unfunded	Unfunded/ Active Pay
1990	$352.6	$26,700	9.22%	5.24 %	14.46%	$1,983.0	$1,768.9	$214.1	0.61
1991	362.5	27,997	8.80%	5.09 %	13.89%	2,034.7	1,832.4	202.3	0.56
1992(a)#	344.3	28,369	8.48%	1.13 %	9.61%	1,998.8	1,930.3	68.5	0.20
1993(a)	331.0	28,763	8.02%	2.08 %	10.10%	2,114.2	1,983.8	130.4	0.39
1994	325.4	28,591	8.06%	2.73 %	10.79%	2,192.8	2,041.9	150.9	0.46
1995	327.6	28,451	8.11%	4.80 %	12.91%	2,275.2	2,043.4	231.8	0.71
1996	360.1	29,729	8.14%	3.44 %	11.58%	2,382.8	2,193.2	189.6	0.53
1997(a)	382.8	30,951	7.91%	3.93 %	11.84%	2,528.5	2,333.4	195.1	0.51
1998(a)#	387.0	31,565	9.30%	4.45 %	13.75%	2,814.9	2,582.1	232.8	0.60
1999#	383.4	31,989	9.29%	3.97 %	13.26%	2,900.4	2,756.6	143.8	0.38
2000	417.2	34,345	9.22%	4.15 %	13.37%	3,077.0	2,902.4	174.6	0.42
2001	439.6	34,497	9.22%	5.05 %	14.27%	3,179.6	2,912.1	267.5	0.61
2002(a)	440.7	34,867	8.74%	9.31 %	18.05%	3,250.5	2,761.2	489.3	1.11
2003	448.6	34,955	8.82%	13.90 %	22.72%	3,270.6	2,537.7	732.9	1.63
2004	444.6	37,706	8.99%	11.10 %	20.09%	3,383.9	2,470.2	913.7	2.06
2005*	390.6	39,775	9.26%	1.80 %	11.06%	3,347.4	3,222.4	125.0	0.32
2006	361.2	39,919	9.26%	0.95 %	10.21%	3,434.3	3,373.7	60.6	0.17
2007	361.7	40,319	9.29%	0.67 %	9.96%	3,629.2	3,586.6	42.6	0.12
2008(a)	368.5	41,763	10.09%	(0.53)%	9.56%	3,609.6	3,641.2	(31.6)	(0.09)
2009(a)	**357.1**	**41,525**	**10.84%**	**4.54 %**	**15.38%**	**3,689.1**	**3,412.4**	**276.7**	**0.77**

 # After plan amendments.
(a) After changes in actuarial assumptions and/or methods .
** After POC transfer.*

COMMENTS

Computed Contribution Rate

The total computed contribution rate increased from 9.56% to 15.38% payroll. Overall experience during the year was unfavorable, as shown on page A-7. The loss was primarily due to unfavorable investment experience.

Experience

Experience during the year was less favorable than expected. Overall, the experience loss was approximately 16% of the beginning of year liability. The experience loss was comprised of two parts: 1) a recognized investment loss of 272 million (after accounting for the change in the asset smoothing method) and a liability loss of 44.1 million.

The investment loss was the primary source of the experience loss during the year and was approximately 9.5% of the beginning of year liabilities. The fund earned a -24.1% rate of return on a market basis and a 0.2% rate of return on a funding value of asset basis.

The liability loss was approximately 1.5% of beginning of year liabilities and was comprised of losses due to mortality (less liabilities were removed than expected due to deaths), vested turnover (fewer vested members terminated employment than expected), and gains due to retirements (fewer members retired than expected) and non-vested turnover (more non-vested members quit than expected).

Funding Value of Asset Method

At the August 4, 2010 Board meeting, the Board adopted a change in the method used for asset smoothing. Beginning June 30, 2009, gains and losses in excess of the assumed investment return will be recognized over a period of 5 years (previously 3 years). This change had no impact on accrued liabilities. The effect on the funding value of assets was a delay in recognition of approximately $143.1 million of the market losses experienced during the year. As of June 30, 2009, the funding value of assets was approximately $1 billion dollars greater than the market value. As that difference is recognized over the next five years, computed contribution rates will continue to increase unless offset by future experience gains. In the absence of future experience gains, computed contribution rates will approximately double over the next few years. On a market value of asset basis, the fund was approximately 56% funded. However, going forward, the longer smoothing period should also result in a slightly more stable pattern of contribution rates.

Water and Sewage Divisions

Valuation results for these groups are distorted due to the periodic transfer of members and their accrued liabilities from Sewage to Water without a corresponding transfer of assets. We do not audit the asset information provided to us, although there appeared to be a shift in assets this year between the Water and Sewage divisions which had a significant effect on the relative contribution rates of the two divisions. We continue to recommend that consideration again be given to combining these divisions for the purpose of setting contribution rates.

Annuity Reserve Fund

A portion of the ARF is currently unfunded. As such, we recommend that a transfer of $8.9 million be made from the PAF to the ARF.

Pension Funding Policy

The computed employer contribution rates shown on page A-1 are based on the Board of Trustees policy of financing unfunded actuarial accrued liabilities over a period of 30 years.

Conclusion and Recommendation

The Retirement System is 92% funded as of June 30, 2009, based on the funding value of assets (56% on a market value of asset basis). Based upon the funding policy established by the Board, the data furnished by the Retirement System and the actuarial assumptions shown in the Appendix, the weighted average recommended employer contribution rate for the 2010-2011 fiscal year is 15.38% of covered payroll with the rate for each division as shown on page A-1.

SOLVENCY TESTS

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

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

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

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

SHORT-TERM SOLVENCY TEST
5-YEAR COMPARATIVE STATEMENT
($ IN MILLIONS)

	Actuarial Accrued Liabilities				Portion of Accrued Liabilities Covered by Assets			
June 30	(1) Active Member Contr.	(2) Retirees and Benef.	(3) Present Members (Employer-Financed Portion)	Valuation Assets	(1)	(2)	(3)	Total
2004	$ 658	$1,546	$1,180	$2,470	100%	100%	23%	73%
2005*	632	1,680	1,035	3,222	100%	100%	88%	96%
2006	653	1,755	1,025	3,374	100%	100%	94%	98%
2007	733	1,804	1,092	3,587	100%	100%	96%	99%
2008(a)	732	1,805	1,073	3,641	100%	100%	103%	101%
2009	709	1,901	1,080	3,412	100%	100%	74%	92% #

* *After POC transfer.*
(a) After changes in actuarial assumptions.
 # 64% on a market value basis.

DERIVATION OF EXPERIENCE GAIN (LOSS)
YEAR ENDED JUNE 30, 2009
($ IN MILLIONS)

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

(1)	UAAL* at start of year	$(31.6)
(2)	Normal cost from last valuation	36.0
(3)	Employer contributions	41.4
(4)	Interest accrual: [(1) + 1/2 [(2) - (3)]] x .079	(2.7)
(5)	Expected UAAL before changes: (1) + (2) -(3) + (4)	(39.7)
(6)	Asset method change	(143.1)
(7)	Increase due to changes in benefits, methods or assumptions	0.0
(8)	Expected UAAL after changes: (5) + (6) + (7)	(182.8)
(9)	Actual UAAL at end of year	276.7
(10)	Experience gain (loss): (8) - (9)	$(459.5)
(11)	Gain (loss) as % of beginning of year ($2,878 million) accrued pension liability	(16.0)%
(12)	Experience gain (loss)	(459.5)
(13)	Gain (loss) due to investment experience recognized in this valuation	(272.1)
(14)	Gain (loss) due to investment experience deferred due to asset method change	(143.1)
(15)	Gain (loss) from other sources	(44.3)

* *Unfunded actuarial accrued liability.*

A large component of the actuarial experience gain (loss) in any given year is typically the Retirement System's investment gain (loss) on valuation assets. Detail on the investment gain (loss) is shown on Page A-10.

ASSET INFORMATION
FURNISHED FOR VALUATION
RETIREMENT SYSTEM TOTALS

Reserve Accounts
(Funding Value)

Funds	Fund Balances	
	June 30, 2009	June 30, 2008*
Annuity Savings	$ 708,564,071	$ 731,984,090
Annuity Reserve	46,273,049	45,973,767
Pension Accumulation*	171,645,246	336,598,129
Pension Reserve	1,703,062,175	1,760,202,005
Accrued Liability Fund Reserve	782,866,642	766,439,532
Total Fund Balances	**$3,412,411,183**	**$3,641,197,523**

Revenues and Expenditures
(Funding Value)

	Pension Funds	Annuity Funds	Total Funds
Balance, July 1, 2008	$2,863,239,666	$ 777,957,857	$3,641,197,523
Prior valuation audit adjustment	0	0	0
Balance July 1, 2008 after adjustment	2,863,239,666	777,957,857	3,641,197,523
Revenues			
Member contributions	230,864	20,905,060	21,135,924
Employer contributions #	41,395,719	0	41,395,719
Recognized investment income*	(49,033,866)	55,276,076	6,242,210
Transfers	3,063,016	(3,063,016)	0
Total	$ (4,344,267)	$ 73,118,120	$ 68,773,853
Expenditures			
Benefit payments	192,011,720	11,496,019	203,507,739
Refund of member contributions	3,864,724	84,742,839	88,607,563
Administrative expenses	5,444,891	0	5,444,891
Total	$ 201,321,335	$ 96,238,858	$ 297,560,193
Balance, June 30, 2009	$2,657,574,064	$ 754,837,119	$3,412,411,183
Funding Value Rate of Return	(1.8)%	7.5%	0.2%

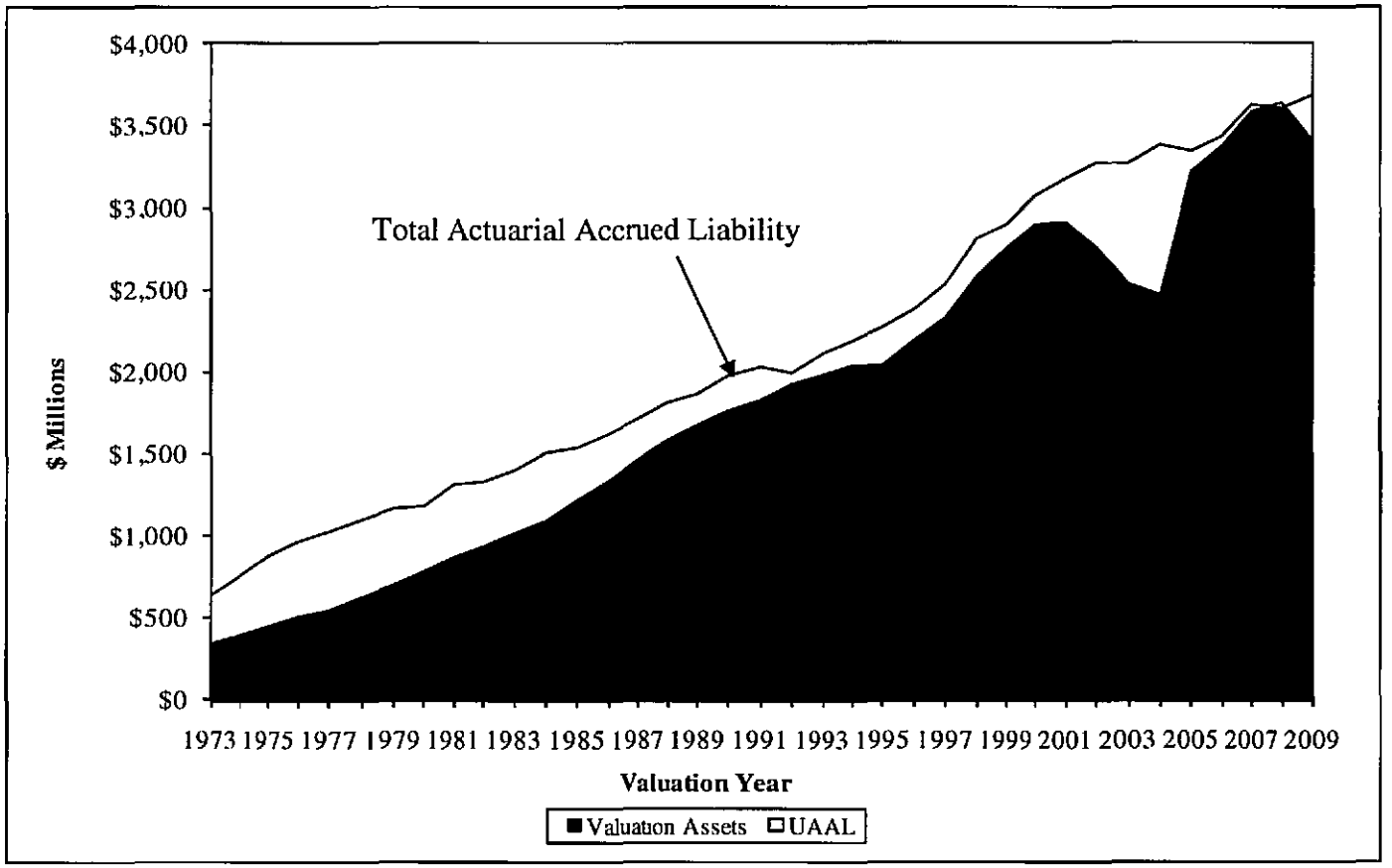
 # Includes contributions receivable.
** Reported value adjusted to obtain actuarial value, in total.*

REPORTED FUNDING VALUE OF ASSETS

Year Ended June 30:	2007	2008	2009	2010	2011	2012	2013
A. Funding Value Beginning of Year	$3,356,145,798	$3,586,550,486	$3,641,197,523				
B Market Value End of Year	3,842,458,810	3,416,767,126	2,387,136,535				
C. Market Value Beginning of Year	3,455,079,219	3,842,458,810	3,416,767,126				
D. Non-Investment Net Cash Flow(Contribution-Benefits)	(218,952,938)	(207,466,037)	(235,028,550)				
E. Investment Income							
E1. Market Total. B - C - D	606,332,529	(218,225,647)	(794,602,041)				
E2. Amount for Immediate Recogn: Reg. Int. on Reserves	278,246,313	282,463,057	278,370,977				
E3. Amount for Phased-In Recognition: E1-E2	328,086,216	(500,688,704)	(1,072,973,018)				
F. Phased-In Recognition of Investment Income							
F1. Current Year: E3/3	109,362,072	(166,896,235)	(214,594,604)				
F2. First Prior Year	37,184,180	109,362,072	(166,896,235)	$(214,594,604)			
F3. Second Prior Year	24,565,061	37,184,180	109,362,072	(166,896,234)	$(214,594,604)		
						$(214,594,604)	
							$(214,594,602)
F4. Total Recognized Investment Gain	171,111,313	(20,349,983)	(272,128,767)	(381,490,838)	(214,594,604)	(214,594,604)	(214,594,602)
G. Total Recognized Investment Income: (E2+F4)	449,357,626	262,113,074	6,242,210				
H Funding Value End of Year: A + D + G	3,586,550,486	3,641,197,523	3,412,411,183				
I. Difference between Market & Funding Value: B - H	255,908,324	(224,430,397)	(1,025,274,648)				
J. Recognized Rate of Return: G / [1/2(A+H-G)]	**13.8%**	**7.5%**	**0.2%**				
K Market Value Rate of Return (net)	18.1%	(5.8)%	(24.1)%				
L. Ratio of Funding Value to Market Value	93.3%	106.6%	142.9%				

The Funding Value of Assets recognizes assumed investment income (line E2) fully each year. Differences between actual and assumed investment income (line E3) are phased-in over a closed 5 year period. During periods when investment performance exceeds the assumed rate, the Funding Value of Assets will tend to be less than Market Value. During periods when investment performance is less than the assumed rate, Funding Value of Assets will tend to be greater than market value. The Funding Value of Assets is unbiased with respect to Market Value. At any time it may be either greater or less than Market Value. If assumed rates are exactly realized for 4 consecutive years, it will become equal to Market Value.

ASSETS AND ACCRUED LIABILITIES



PERSONS IN VALUATIONS - COMPARATIVE STATEMENTS
RETIREMENT SYSTEM TOTALS

Active Members

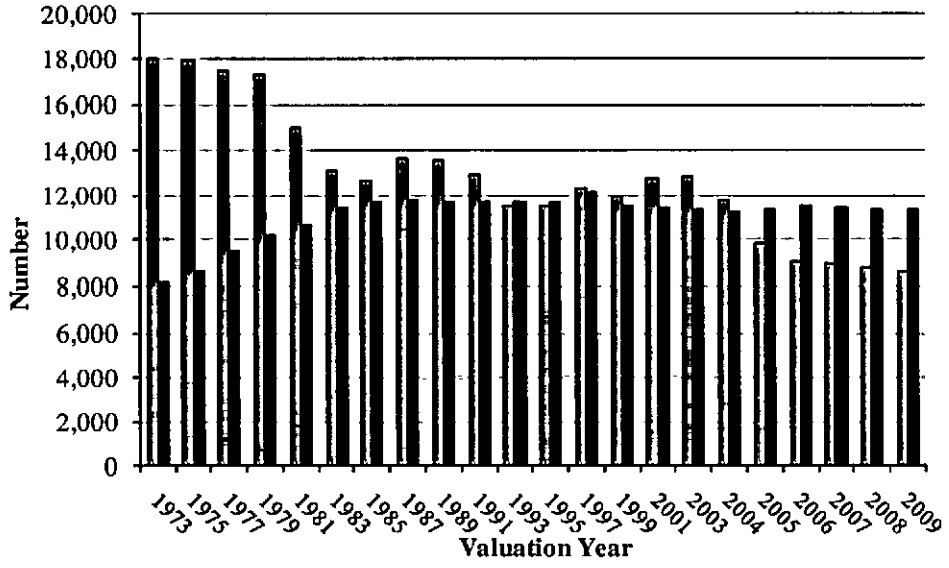
June 30	Active Members		Annual	Group Averages			
				Average Pay		Age	Service
	No.	Change	Payroll	$	Change	Years	Years
1980	15,881	(8.0)%	$293,624,360	$18,489	2.7 %	41.7	12.6
1981	14,993	(5.6)%	301,243,225	20,092	8.7 %	42.0	13.0
1982	13,730	(8.4)%	283,677,869	20,661	2.8 %	42.0	13.1
1983	13,156	(4.2)%	272,369,708	20,703	0.2 %	41.6	12.6
1984	13,172	0.1 %	288,048,279	21,868	5.6 %	41.5	12.0
1985	12,719	(3.4)%	281,378,439	22,123	1.2 %	41.5	11.9
1986	13,423	5.5 %	299,859,070	22,339	1.0 %	41.1	11.3
1987	13,640	1.6 %	321,402,755	23,563	5.5 %	40.9	11.0
1988	13,368	(2.0)%	326,216,082	24,403	3.6 %	41.0	11.1
1989	13,554	1.4 %	331,555,458	24,462	0.2 %	41.1	11.0
1990	13,207	(2.6)%	352,622,639	26,700	9.1 %	41.5	11.4
1991	12,949	(2.0)%	362,532,918	27,997	4.9 %	41.8	11.7
1992	12,137	(6.3)%	344,320,379	28,369	1.3 %	42.2	12.1
1993	11,508	(5.2)%	331,009,921	28,763	1.4 %	43.0	12.9
1994	11,382	(1.1)%	325,427,813	28,591	(0.6)%	43.1	12.8
1995	11,515	1.2 %	327,615,936	28,451	(0.5)%	42.2	12.6
1996	12,086	5.0 %	360,068,578	29,792	4.7 %	42.8	11.9
1997	12,369	2.3 %	382,835,917	30,951	3.9 %	42.8	11.7
1998	12,261	(0.9)%	387,022,423	31,565	2.0 %	43.3	11.8
1999	11,987	(2.2)%	383,449,421	31,989	1.3 %	43.7	12.1
2000	12,147	1.3 %	417,187,666	34,345	7.4 %	43.5	12.0
2001	12,744	4.9 %	439,636,072	34,497	0.4 %	43.3	11.7
2002	12,639	(0.8)%	440,680,045	34,867	1.1 %	43.7	11.8
2003	12,833	1.5 %	448,579,064	34,955	0.3 %	43.5	11.7
2004	11,791	(8.1)%	444,596,299	37,706	7.9 %	44.5	12.5
2005	9,820	(16.7)%	390,593,600	39,775	5.5 %	45.9	13.8
2006	9,047	(7.9)%	361,151,456	39,919	0.4 %	46.6	14.6
2007	8,971	(0.8)%	361,701,481	40,319	1.0 %	47.0	14.6
2008	8,823	(1.6)%	368,470,990	41,763	3.6 %	47.2	14.7
2009	8,599	(2.5)%	357,072,833	41,525	(0.6)%	47.4	14.8

PERSONS IN VALUATIONS - COMPARATIVE STATEMENTS
RETIREMENT SYSTEM TOTALS

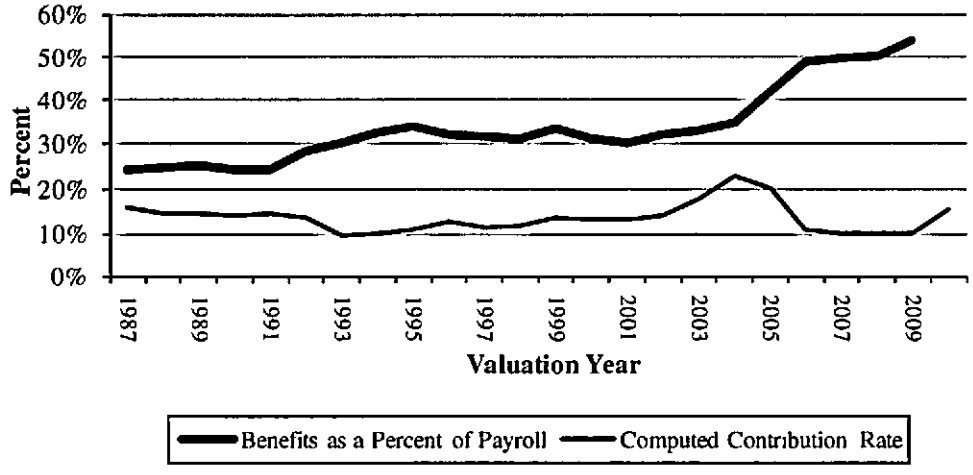
Retirees and Beneficiaries

June 30	No.	% of Current Allowances				Annual Allowances		
		Annuities	Initial Pensions	Escalators & Other Increases	Allow.	Total	Average	% of Payroll
1980	10,373	6.3%	81.0%	12.7%	100.0%	$ 45,054,237	$ 4,343	15.3%
1981	10,693	5.6%	81.7%	12.7%	100.0%	49,416,852	4,621	16.4%
1982	10,924	4.8%	77.7%	17.5%	100.0%	56,741,667	5,194	20.0%
1983	11,418	4.1%	79.6%	16.3%	100.0%	64,048,464	5,609	23.5%
1984	11,643	3.8%	80.4%	15.8%	100.0%	68,564,556	5,889	23.8%
1985	11,710	3.4%	80.6%	16.0%	100.0%	71,433,168	6,100	25.4%
1986	11,776	3.2%	80.7%	16.1%	100.0%	74,834,820	6,355	25.0%
1987	11,800	2.9%	80.2%	16.9%	100.0%	78,342,384	6,639	24.4%
1988	11,728	3.0%	80.0%	17.0%	100.0%	81,346,500	6,936	24.9%
1989	11,734	3.0%	79.8%	17.2%	100.0%	83,790,744	7,141	25.3%
1990	11,684	2.9%	79.1%	18.0%	100.0%	85,720,620	7,337	24.3%
1991	11,691	2.9%	78.7%	18.4%	100.0%	87,625,800	7,495	24.2%
1992	11,674	2.6%	76.5%	20.9%	100.0%	97,218,012	8,328	28.2%
1993	11,719	2.8%	77.7%	19.5%	100.0%	100,203,596	8,551	30.3%
1994	11,649	2.8%	76.9%	20.3%	100.0%	106,193,220	9,116	32.6%
1995	11,756	2.7%	76.7%	20.6%	100.0%	110,262,876	9,379	33.7%
1996	11,889	2.6%	75.5%	21.9%	100.0%	115,232,400	9,692	32.0%
1997	12,199	2.4%	74.4%	23.2%	100.0%	121,255,488	9,940	31.7%
1998	11,593	2.3%	73.7%	24.0%	100.0%	119,852,820	10,338	31.0%
1999	11,537	2.4%	76.6%	21.0%	100.0%	127,535,748	11,054	33.3%
2000	11,480	2.2%	77.7%	20.1%	100.0%	129,354,696	11,268	31.0%
2001	11,450	2.3%	77.7%	20.0%	100.0%	133,170,804	11,631	30.3%
2002	11,363	2.2%	78.2%	19.6%	100.0%	140,805,120	12,392	32.0%
2003	11,322	2.4%	78.3%	19.3%	100.0%	147,024,720	12,986	32.8%
2004	11,311	2.6%	78.5%	18.9%	100.0%	154,133,460	13,627	34.7%
2005	11,396	2.7%	79.6%	17.7%	100.0%	165,095,736	14,487	42.3%
2006	11,541	2.7%	79.6%	17.7%	100.0%	175,193,088	15,180	48.5%
2007	11,478	2.7%	79.6%	17.7%	100.0%	180,332,688	15,711	49.9%
2008	11,388	2.8%	79.9%	17.3%	100.0%	185,688,852	16,306	50.4%
2009	11,407	3.0%	79.8%	17.2%	100.0%	193,045,584	16,923	54.1%

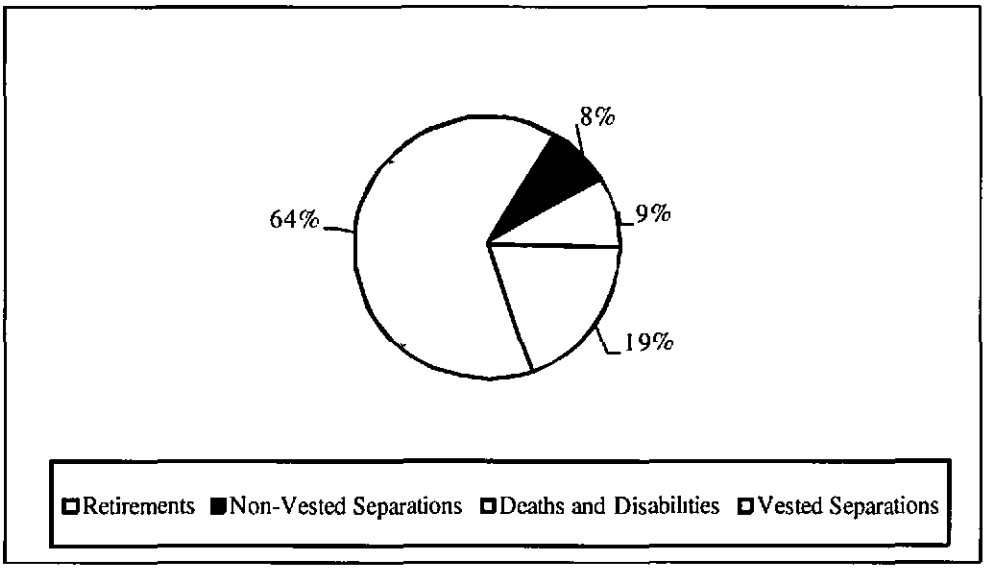
ACTIVE AND RETIRED MEMBERS



BENEFIT PAYOUT AND COMPUTED CONTRIBUTIONS AS A PERCENT OF PAYROLL



EXPECTED TERMINATIONS FROM ACTIVE EMPLOYMENT FOR CURRENT ACTIVE MEMBERS



The chart shows the expected future development of the present population in simplified terms. The retirement system presently covers 8,599 active members. Eventually, 727 people are expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. 7,114 people are expected to receive monthly retirement benefits either by retiring directly from active service, or by retiring from vested deferred status. 758 people are expected to become eligible for death-in-service or disability benefits.

RETIREES AND BENEFICIARIES JUNE 30, 2009
TABULATED BY ATTAINED AGES
RETIREMENT SYSTEM TOTALS

Attained Ages	Age & Service#		Disability		Death-in-Service		Totals	
	No.	Monthly Allowances	No.	Monthly Allowances	No.	Monthly Allowances	No.	Monthly Allowances
Under 20*	50	$ 84,136			6	$ 3,409	56	$ 87,545
20-24	2	692					2	692
25-29	2	1,204	1	$ 0			3	1,204
30-34	2	2,012	2	756	1	744	5	3,512
35-39	11	9,366	21	11,261			32	20,627
40-44	22	19,832	38	21,882	6	7,273	66	48,987
45-49	79	129,034	113	67,658	16	15,976	208	212,668
50-54	428	944,516	207	150,502	27	28,804	662	1,123,822
55-59	1,014	2,342,715	231	219,910	38	55,556	1,283	2,618,181
60-64	1,630	3,230,239	208	252,240	39	58,107	1,877	3,540,586
65-69	1,404	2,126,096	116	101,293	45	53,830	1,565	2,281,219
70-74	1,115	1,496,897	76	60,690	43	44,206	1,234	1,601,793
75-79	1,217	1,463,754	65	48,770	76	67,702	1,358	1,580,226
80-84	1,355	1,444,586	90	72,163	70	53,166	1,515	1,569,915
85-89	928	923,307	40	28,246	69	50,741	1,037	1,002,294
90-94	376	309,756	15	9,612	25	17,097	416	336,465
95-99	82	54,360	1	566	5	2,470	88	57,396
Totals	**9,717**	**$14,582,502**	**1,224**	**$1,045,549**	**466**	**$459,081**	**11,407**	**$16,087,132**

** May include records with defective birth dates.*
 # Includes survivor beneficiaries of deceased retirees.

ACTIVE MEMBERS AS OF JUNE 30, 2009
BY ATTAINED AGE AND YEARS OF SERVICE
RETIREMENT SYSTEM TOTALS

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
Under 20	54							54	$ 1,037,491
20-24	142	13						155	3,463,346
25-29	179	108	15					302	8,766,297
30-34	180	230	110	6				526	18,513,458
35-39	181	269	302	50	5			807	31,085,630
40-44	174	271	403	159	148	9		1,164	48,562,877
45-49	147	305	420	238	430	106	13	1,659	69,312,448
50-54	117	233	344	209	441	279	157	1,780	77,488,790
55-59	65	162	197	137	310	221	191	1,283	57,093,592
60-64	37	80	109	77	112	92	110	617	29,402,198
65-69	10	39	35	18	17	11	52	182	8,967,105
70-74	0	6	13	7	4	1	16	47	2,376,702
75-79	4	6	2	2	2	3	4	23	1,002,899
Totals	**1,290**	**1,722**	**1,950**	**903**	**1,469**	**722**	**543**	**8,599**	**$357,072,833**

Group Averages:

Age:	47.4 years
Service:	14.8 years
Annual Pay:	$41,525

RETIREES AND BENEFICIARIES JUNE 30, 2009
TABULATED BY YEAR OF RETIREMENT

Year of Retirement	No.	Monthly Allowances	
		Total	Average
1950 & before	2	$ 796	$ 398
1951-1955	9	3,708	412
1956-1960	5	2,168	434
1961-1965	28	12,874	460
1966-1970	102	46,985	461
1971-1975	371	215,072	580
1976-1980	988	768,572	778
1981-1985	1,505	1,579,154	1,049
1986-1990	1,280	1,429,453	1,117
1991-1995	1,711	2,144,674	1,253
1996-2000	1,799	2,772,580	1,541
2001	346	587,848	1,699
2002	442	824,784	1,866
2003	397	781,941	1,970
2004	467	953,098	2,041
2005	541	1,198,690	2,216
2006	474	878,445	1,853
2007	384	707,250	1,842
2008	377	810,355	2,149
2009	179	368,685	2,060
Totals	**11,407**	**$16,087,132**	**$1,410**

Age and Service Pension

Eligibility - Any age (minimum age 55 for members hired after 1995) with 30 years of service (25 for EMS members), or age 60 with 10 years of service, or age 65 with 8 years of service.

Annual Amount - Sum of a) a basic pension of $12 for each of the first 10 years of service, plus b) a pension equal to the first 10 years of service multiplied by 1.6% of AFC, plus 1.8% of AFC for each year of service greater than 10 years up to 20 years, plus 2.0% of AFC for each year of service greater than 20 years up to 25 years, plus 2.2% of AFC for each year of service greater than 25 years.

Type of Average Final Compensation (AFC) - Highest 3 consecutive years out of the last 10. Pension benefits will not be diminished if compensation is reduced because of a fiscal emergency. Effective July 1,1999, in computing the AFC, a member shall have the option of adding the value of 25% of unused accrued sick leave to the earnings used in computing the AFC. Longevity is added to AFC in accordance with the following schedule: $150 after 5 years, $300 after 10 years, $450 after 15 years, $600 after 20 years, and $750 after 25 years.

Early Retirement

Eligibility - Any age with 25 or more years of service (minimum age 55 for members hired after 1995).

Annual Amount - Same as regular retirement but actuarially reduced.

Deferred Retirement (Vested Benefit)

Eligibility - Hired prior to 7-1-80: Age 40 with 8 years of service. Hired on or after 7-1-80: Any age with 10 years of service.

Benefit Commencement – SAAA and APTE hired prior to October 1, 1988 and all Non-Union and lawyers: Benefit begins at the age the member would have become eligible for regular retirement if service had continued. ***Others:*** Benefits based on service rendered by June 30, 1986 begin at the age the member would have become eligible for regular retirement. Benefits based on service rendered after July 1, 1986 begin at age 62.

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

Duty Disability Retirement

Eligibility - Service related disability before age 60. No service requirement.

Annual Amount - An annuity which is the actuarial equivalent of the accumulated contributions at date of disability plus a pension of two-thirds of average final compensation at time of disability. The maximum annual pension is $9,000. At the earliest of when the member would have accrued 30 years service credit (25 for EMS) or age 60, the annuity is recomputed assuming contributions would have continued at a salary level equal to final compensation. The pension is recomputed with additional service credit granted from the date of disability to age 60 (or 30 years service credit) with no maximum.

Non-Duty Disability Retirement

Eligibility - Disability from any cause before age 60 with 10 or more years of service.

Annual Amount - Computed in the same manner as a regular retirement benefit. Maximum annual pension to age 60 is $6,000. Benefit is recomputed at age 60 with no maximum.

Duty Death Before Retirement

Eligibility - Death from service related causes. No age or service requirements.

Annual Amount - One-third of final compensation to the surviving spouse for life or until remarriage, plus an equal share of 1/4 of final compensation to each unmarried child under age 18. If there is no eligible spouse, eligible children each receive 1/4 of final compensation; if there are more than 2 such children, each child shares an equal part of 1/2 of final compensation. Maximum total amount for spouse and children is $9,000 annually. If there is no eligible spouse or children, dependent parents each receive 1/6 of deceased's final compensation, to a total maximum of $600 annually.

Non-Duty Death Before Retirement

Eligibility – Death-in-service at any age with 15 years of service; or after age 60 with 10 years of service; or after age 65 with 8 years of service.

Annual Amount - To Surviving Spouse: Computed as a regular retirement benefit but reduced in accordance with a 100% joint and survivor election for members with 20 or more years of service. For members with 15 years of service but less than 20, benefit is reduced in accordance with a 50% joint and survivor election. To Dependent Children if no Surviving Spouse: $9,000 payable to age 19 of the youngest child or for life if child is physically or mentally impaired for members with 20 or more years of service ($6,000 if less than 20 years of service).

Post-Retirement Cost-of-Living Adjustments

Benefit is increased annually by 2.25% of the **original** pension amount at retirement.

Member Contributions

Members have the option of choosing one of four contribution amounts: (1) 0%; (2) 3.0% of compensation up to the Social Security wage base, plus 5.0% of compensation in excess of the Social Security wage base; (3) 5.0% of total compensation; or (4) 7.0% of total compensation. Member contributions can be paid as a lump sum or annuitized at retirement to provide an annuity in addition to the pension (which is not affected by the level of member contributions).

SECTION B

DIVISIONS SEPARATELY EXPERIENCE RATED

SUMMARY OF MEMBER DATA
JUNE 30, 2009

Active Members

	General	D.O.T.	Water	Sewage	Library	Totals
Number	4,664	1,456	1,327	727	425	8,599
% Change in active members	(3.8)%	0.6 %	(0.8)%	(5.0)%	0.0 %	(2.5)%
Annual payroll ($ millions)	$ 200.3	$ 52.0	$ 54.1	$ 34.8	$ 15.9	$ 357.1
Average pay	$42,953	$35,692	$40,791	$47,803	$37,387	$41,525
% Change in average pay	(0.1)%	(1.5)%	(0.9)%	(0.6)%	0.5 %	(0.6)%

Retired Members and Survivor Beneficiaries

	General	D.O.T.	Water	Sewage	Library	Totals
Number	7,376	1,559	1,819	343	310	11,407
Annual benefits ($ millions) #	$ 123.1	$ 24.8	$ 37.0	$ 7.4	$ 6.5	$ 198.9
Average benefits	$16,696	$15,897	$20,363	$21,663	$20,906	$17,435
% Change in average benefit	3.4 %	3.5 %	5.8 %	3.3 %	3.2 %	4.0 %

 # Includes Annuities

Inactive Vested Members

	General	D.O.T.	Water	Sewage	Library	Totals
Number	1,050	233	263	91	45	1,682
Annual benefits ($ millions)	$ 9.7	$ 2.2	$ 2.8	$ 0.9	$ 0.3	$ 16.0
Average benefits	$9,265	$9,404	$10,552	$10,128	$7,739	$9,491
% Change in average benefit	0.6 %	1.2 %	(0.4)%	(0.8)%	3.5 %	0.5 %

ALLOCATION OF ASSETS USED FOR VALUATION
RESERVE ACCOUNTS

	June 30, 2009	June 30, 2008
Annuity Savings Fund		
General	$ 345,716,388	$ 356,394,294
D.O.T.	127,117,614	131,166,818
Water	200,969,666	209,620,117
Sewage	9,860,740	8,068,324
Housing	1,599,414	1,894,446
Library	23,300,249	24,840,090
Totals	708,564,071	731,984,089
Annuity Reserve Fund		
General	24,182,195	26,087,821
D.O.T.	3,405,579	4,136,553
Water	14,504,994	10,872,108
Sewage	(958,460)	(10,800)
Housing	2,457,914	2,632,519
Library	2,680,826	2,255,566
Totals	46,273,049	45,973,767
Pension Accumulation Fund		
General	93,122,860	160,856,674
D.O.T.	25,692,264	36,058,500
Water	34,098,743	(57,631,877)
Sewage	10,283,576	169,236,615
Housing	1,842,559	7,968,946
Library	6,605,245	20,109,271
Totals	171,645,247	336,598,129
Pension Reserve Fund		
General	1,015,452,872	1,049,022,237
D.O.T.	206,865,488	216,017,457
Water	327,769,332	329,865,203
Sewage	63,224,548	71,835,158
Housing	38,955,661	40,349,397
Library	50,794,274	53,112,553
Totals	1,703,062,175	1,760,202,005
Accrued Liability Fund		
General	488,992,029	475,914,571
D.O.T.	101,781,122	100,608,444
Water	157,410,041	156,256,780
Sewage	10,913,036	10,168,537
Housing	N/A	N/A
Library	23,770,414	23,491,201
Totals	782,866,642	766,439,533
Retirement System Totals	$3,412,411,183	$3,641,197,523

ACTUARIAL ACCRUED LIABILITIES AS OF JUNE 30, 2009
BY DIVISION
($ IN THOUSANDS)

Present Value, June 30 of	General	D.O.T.	Water	Sewage	Library	Totals
Accrued Pension Liabilities						
Retirees and beneficiaries	$1,114,154	$227,419	$368,879	$ 78,115	$ 56,884	$1,845,451
Inactive members future deferred pensions	79,584	17,908	22,897	7,851	2,840	131,080
Active members	517,863	136,131	147,408	109,239	38,147	948,788
Total accrued pension liabilities	1,711,601	381,458	539,184	195,205	97,871	2,925,319
Pension fund balances	1,638,366	334,339	519,278	84,421	81,170	2,657,574
Unfunded accrued pension liabilities	73,235	47,119	19,906	110,784	16,701	267,745
Accrued Annuity Liabilities						
Retirees and beneficiaries	32,339	4,113	12,965	2,552	3,216	55,185
Members annuities & future refunds	347,316	127,118	200,970	9,861	23,300	708,565
Total accrued annuity liabilities	379,655	131,231	213,935	12,413	26,516	763,750
Annuity fund balances	373,956	130,523	215,475	8,902	25,981	754,837
Unfunded accrued annuity liabilities	5,699	708	(1,540)	3,511	535	8,913
Totals						
Actuarial Accrued Liabilities	2,091,256	512,689	753,119	207,618	124,387	3,689,069
Accrued Assets	2,012,322	464,862	734,753	93,323	107,151	3,412,411
Funded Ratio	96.2%	90.7%	97.6%	44.9%	86.1%	92.5%
Unfunded Actuarial Accrued Liabilities	**$ 78,934**	**$ 47,827**	**$ 18,366**	**$114,295**	**$ 17,236**	**$ 276,658**

Note: Totals may be off slightly due to rounding.

ACTIVE AND RETIRED MEMBERS
INCLUDED IN VALUATION
HISTORIC COMPARISONS

Active Members
by Valuation Division

June 30	General	D.O.T.	Water	Sewage	Housing	Library	Totals
1995	6,377	1,585	1,604	1,091	369	489	11,515
1996	6,620	1,724	1,681	1,134	461	466	12,086
1997	6,717	1,845	1,727	1,185	436	459	12,369
1998	6,659	1,764	1,785	1,184	430	439	12,261
1999	6,527	1,669	1,768	1,173	414	436	11,987
2000	6,941	1,606	1,770	1,064	334	432	12,147
2001	7,325	1,677	1,836	1,094	325	487	12,744
2002	7,320	1,705	1,797	1,106	262	449	12,639
2003	7,575	1,734	1,744	1,090	227	463	12,833
2004	7,068	1,652	1,592	1,035	0	444	11,791
2005	5,414	1,529	1,472	973	0	432	9,820
2006	4,935	1,460	1,329	886	0	437	9,047
2007	4,914	1,509	1,289	834	0	425	8,971
2008	4,848	1,447	1,338	765	0	425	8,823
2009	4,664	1,456	1,327	727	0	425	8,599

Retired Members & Beneficiaries
by Valuation Division

June 30	General	D.O.T.	Water	Sewage	Housing	Library	Totals
1995	7,883	1,788	1,256	254	310	265	11,756
1996	7,910	1,823	1,312	257	323	264	11,889
1997	8,086	1,858	1,377	254	347	277	12,199
1998	7,665	1,738	1,334	247	337	272	11,593
1999	7,599	1,719	1,360	243	338	278	11,537
2000	7,522	1,706	1,387	242	330	293	11,480
2001	7,483	1,684	1,418	235	327	303	11,450
2002	7,392	1,667	1,446	227	327	304	11,363
2003	7,329	1,659	1,481	227	319	307	11,322
2004	7,593	1,614	1,569	226	*	309	11,311
2005	7,592	1,623	1,643	235	*	303	11,396
2006	7,638	1,617	1,714	267	*	305	11,541
2007	7,567	1,591	1,721	299	*	300	11,478
2008	7,459	1,553	1,742	333	*	301	11,388
2009	7,376	1,559	1,819	343	*	310	11,407

* *Included with General City beginning 6/30/2004.*

EMPLOYER COMPUTED CONTRIBUTIONS - HISTORICAL COMPARISON

Valuation Date June 30	As Percents of Valuation Payroll						
	General	D.O.T.	Water	Sewage	Housing	Library	Totals
1980	18.58%	25 56%	18.02%	10.85%	16.81%	18.24%	18.92%
1981*	20.67%	30 27%	19.41%	12.52%	17.81%	20.24%	20.89%
1982(a)	19.39%	27.36%	18.12%	10.97%	16.94%	19.07%	19.08%
1983	19.19%	28.30%	17.57%	9.86%	16.10%	17.33%	19.01%
1984(a)	20.27%	27.45%	18.36%	9.48%	17.22%	18.15%	19.78%
1985	17.81%	24.64%	16.35%	6.52%	14.45%	13.75%	17 22%
1986*	16 39%	23.17%	15.28%	5.04%	12.29%	11.46%	15.82%
1987	15.62%	21.67%	14.74%	3.26%	11.24%	10.10%	14.87%
1988(a)*	15.96%	19.82%	15 03%	2.98%	11 54%	10.47%	14.90%
1989	15.18%	18 54%	14.49%	1.58%	11.33%	8.80%	14.02%
1990	15.72%	18.62%	15.10%	2.02%	11.08%	9.04%	14.46%
1991	15 31%	17.73%	14.45%	1 80%	10 51%	8.42%	13.89%
1992(a)*	11.21%	10.08%	10.49%	0.76%	6 94%	6.15%	9.61%
1993(a)	11.57%	10.80%	12.31%	0.59%	8.14%	5.51%	10 10%
1994	12.31%	11.35%	13.42%	0.25%	8.55%	7.65%	10.79%
1995	14.71%	12.65%	15.68%	0.98%	10 74%	10.28%	12.91%
1996	13.23%	12.52%	15.83%	0 00%	9.74%	7.64%	11.58%
1997(a)	13.47%	12.94%	15.32%	0.00%	9.34%	7.09%	11.84%
1998(a)*	15.80%	14.23%	17.16%	0.00%	11.38%	9.73%	13.75%
1999*	15.31%	13.70%	16.95%	0.00%	10.48%	8.04%	13.26%
2000	15.19%	14 37%	17.12%	0.00%	9.01%	6.97%	13.37%
2001	15.92%	15.36%	19.12%	0.00%	9.25%	9.20%	14.27%
2002(a)	19.32%	19 51%	26.33%	0.33%	10.90%	15.82%	18.05%
2003	23.45%	23.59%	29.82%	10.09%	13.11%	21.72%	22.72%
2004	19.75%	19.96%	31.71%	6.80%	-	20.40%	20.09%
2005#	10 35%	10.88%	20.84%	2 04%	-	11.33%	11.06%
2006	9.57%	9.93%	20.05%	0.80%	-	10.44%	10 21%
2007	9.52%	10 54%	18.62%	0.00%	-	9.22%	9.96%
2008(a)	8.59%	10.51%	17.98%	1.36%	-	9.18%	9.56%
2009	13.37%	15.34%	12.91%	30.09%	-	17.23%	15.38%

(a) After changes in actuarial assumptions.
** After plan amendments.*
 # After issuance of POCs.

SECTION C

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

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

GASB STATEMENT NO. 25 REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Funding Progress

Actuarial Valuation Date June 30	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) -- Entry Age (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b - a) / c)
1995	$2,043,397,183	$2,275,210,040	$231,812,857	89.8%	$327,615,936	70.8 %
1996	2,193,234,516	2,382,866,954	189,632,438	92.0%	360,068,578	52.7 %
1997#	2,333,412,893	2,528,504,057	195,091,164	92.3%	382,835,917	51.0 %
1998#*	2,582,099,884	2,814,878,226	232,778,342	91.7%	387,022,423	60.1 %
1999*	2,756,614,458	2,900,404,223	143,789,765	95.0%	383,449,421	37.5 %
2000	2,902,433,063	3,077,001,129	174,568,066	94.3%	417,187,666	41.8 %
2001	2,912,146,389	3,179,601,214	267,454,825	91.6%	439,636,072	60.8 %
2002#	2,761,203,680	3,250,514,916	489,311,236	84.9%	440,680,045	111.0 %
2003	2,537,668,376	3,270,627,177	732,958,801	77.6%	448,579,064	163.4 %
2004	2,470,243,470	3,383,926,672	913,683,202	73.0%	444,596,299	205.5 %
2005@	3,222,393,861	3,347,387,652	124,993,791	96.3%	390,593,600	32.0 %
2006	3,373,687,677	3,434,288,153	60,600,476	98.2%	361,151,456	16.8 %
2007	3,586,550,485	3,629,217,059	42,666,574	98.8%	361,701,481	11.8 %
2008(a)	3,641,197,523	3,609,558,628	(31,638,895)	100.9%	368,470,990	(8.6)%
2009	3,412,411,183	3,689,065,726	276,654,543	92.5%	357,072,833	77.5 %

@ *After POC transfer.*
* *After plan amendments.*
\# *After changes in actuarial assumptions.*

Schedule of Employer Contributions

Valuation Year Ended June 30	Fiscal Year Ended June 30	Contribution Rates as Percents of Valuation Payroll
1996	1998	11.58%
1997	1999	12.30%
1998	2000	13.75%
1999	2001	13.26%
2000	2002	13.37%
2001	2003	14.27%
2002	2004	19.06%
2003	2005	22.72%
2004	2006	20.09%
2005	2007	11.06%
2006	2008	10.21%
2007	2009	9.96%
2008	2010	9.56%
2009	2011	15.38%

GASB STATEMENT NO. 25 REQUIRED SUPPLEMENTARY INFORMATION

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

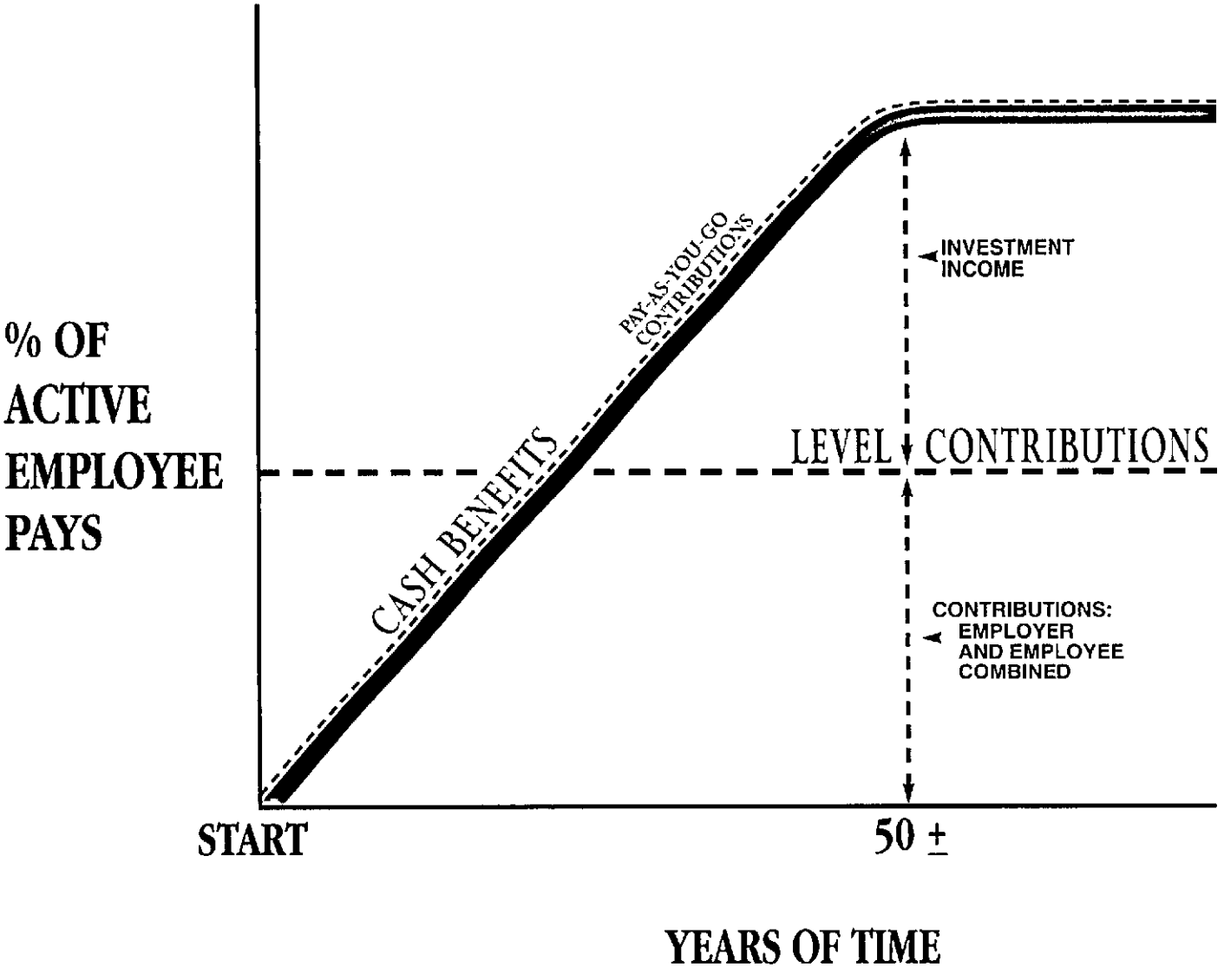
Valuation date	June 30, 2009
Actuarial cost method	Entry Age
Amortization method	Level percent
Remaining amortization period for unfunded accrued liabilities	30 years (see page A-4)
Asset valuation method	5-year smoothed market
Actuarial assumptions:	
Investment rate of return	7.9%
Projected salary increases*	4.0% - 8.9%
*Includes inflation at	4.0%
Cost-of-living adjustments	2.25% of original pension amount at retirement.

Membership of the plan consisted of the following at June 30, 2009, the date of the latest actuarial valuation:

Retirees and beneficiaries receiving benefits	11,407
Terminated plan members entitled to but not yet receiving benefits	1,682
Active plan members	8,599
Total	21,688

SECTION D

FINANCIAL PRINCIPLES



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

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

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

THE ACTUARIAL VALUATION PROCESS

The financing diagram on page D-1 shows the relationship between two different philosophies of paying for retirement benefits: the method where contributions match cash benefit payments (as in the Federal Social Security program) and is an ***increasing contribution method;*** and the ***level contribution method*** which seeks to balance contribution rates between generations.

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

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

Retired lives now receiving benefits

Former employees with vested benefits not yet payable

Active employees

B. ***Benefit provisions*** governing future payments from the plan

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

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

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

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

G. ***Determination of:***

Plan financial position, and

New Employer Contribution Rate

BASIC FINANCIAL OBJECTIVE AND OPERATION OF THE RETIREMENT SYSTEM

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

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

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

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

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

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

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

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

$$B = C + I - E$$

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

Contributions received over time on behalf of the group

. . . plus . . .

Investment earnings on contributions received and not required for immediate payment of benefits

. . . minus . . .

Expenses incurred in operating the program.

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

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

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

SECTION E

APPENDIX

SUMMARY OF ASSUMPTIONS USED FOR DGRS ACTUARIAL VALUATIONS
ASSUMPTIONS ADOPTED BY BOARD OF TRUSTEES
AFTER CONSULTING WITH ACTUARY

Economic Assumptions

The investment return rate used in making the valuation was 7.9% per year, compounded annually (net after administrative and investment expenses). The real rate of return is the portion of total investment return which is more than the inflation rate. The 7.9% total investment return rate translates to a spread of 3.9% over wage inflation and 4.4% to 4.9% over price inflation.

Pay increase assumptions for individual active members are shown on page E-3. Part of the assumption for each age is for a merit and/or seniority increase, and the other 4.0% recognizes wage inflation. Wage inflation has historically exceeded price inflation by 0.5% to 1.0% a year, on average. Wage inflation of 4% suggests an underlying rate of price inflation of 3.0% to 3.5%. The merit and/or seniority increase assumption was first used in the June 30, 2003 valuation.

Total active member payroll is assumed to increase 4.0% annually, which is the portion of the individual pay increase assumptions attributable to inflation.

Non-Economic Assumptions

The number of active members is assumed to continue at the present number.

The mortality table used to measure retired life mortality was 90% (150% for disabled members) of the 1983 Group Annuity Mortality Table. Related values are shown on page E-3. This table was first used for the June 30, 2003 valuation.

The probabilities of retirement for members eligible to retire are shown on pages E-4 and E-5. These probabilities were revised for the June 30, 2003 valuation.

The probabilities of separation from service (including *death-in-service* and *disability*) are shown for sample ages on page E-6. These probabilities were revised for the June 30, 2003 valuation.

Funding Methods

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

Unfunded actuarial accrued liabilities are amortized over a 30-year period (see page A-4), to produce contribution amounts (principal & interest) which are level percent-of-payroll contributions.

Employer contribution dollars were assumed to be paid in equal monthly installments throughout the employer fiscal year.

Present assets were reported to be valued using a five-year smoothing of the difference between expected and actual investment income.

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

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

SAMPLE SALARY ADJUSTMENT RATES

Sample Ages	Salary Increase Assumptions For an Individual Member		
	Merit & Seniority	Base (Economic)	Increase Next Year
20	4.9%	4.0%	8.9%
25	4.9%	4.0%	8.9%
30	4.1%	4.0%	8.1%
35	3.0%	4.0%	7.0%
40	2.3%	4.0%	6.3%
45	1.8%	4.0%	5.8%
50	1.3%	4.0%	5.3%
55	0.9%	4.0%	4.9%
60	0.5%	4.0%	4.5%
Ref	81		

Select and ultimate wage inflation rates are used beginning at 0%, then increase by 1% per year until reaching the ultimate rate shown.

SINGLE LIFE RETIREMENT VALUES

Sample Attained Ages	Present Value of $1 Monthly for Life Increasing 2.25% Annually		Future Life Expectancy (years)	
	Men	Women	Men	Women
50	$164.31	$173.20	30.01	34.65
55	152.49	163.71	25.42	29.95
60	138.17	151.78	21.02	25.37
65	121.78	137.58	16.94	21.02
70	104.06	121.77	13.27	17.04
75	85.42	104.56	10.04	13.45
80	67.00	86.69	7.31	10.29
Ref:	506 sb0 x 1.1	507 sb2 x 1 1		

PROBABILITIES OF AGE/SERVICE RETIREMENT FOR MEMBERS ELIGIBLE TO RETIRE

Retirement Ages	Percent of Eligible Active Members Retiring Within Next Year With Unreduced Benefits		
	EMS	D.O.T.	Others
45	25%		
46	25%		
47	25%		
48	22%		
49	20%		
50	18%	55%	50%
51	15%	50%	50%
52	15%	50%	45%
53	15%	50%	45%
54	15%	55%	40%
55	15%	50%	30%
56	15%	50%	30%
57	15%	50%	30%
58	15%	50%	30%
59	15%	55%	40%
60	40%	40%	25%
61	30%	30%	25%
62	30%	30%	25%
63	30%	30%	25%
64	30%	30%	25%
65	30%	30%	35%
66	30%	30%	30%
67	30%	30%	25%
68	30%	50%	25%
69	30%	50%	25%
70	100%	100%	20%
71			20%
72			20%
73			20%
74			20%
75			20%
76			20%
77			20%
78			20%
79			20%
80			100%
Ref	537	1648	1647

PROBABILITIES OF EARLY RETIREMENT FOR MEMBERS ELIGIBLE FOR EARLY RETIREMENT

Retirement Ages	Percent of Eligible Active Members Retiring Within Next Year With Reduced Benefits
55	7%
56	8%
57	9%
58	10%
59	12%
60	12%
61	12%
62	12%
63	12%
64	12%
Ref	1649

SAMPLE RATES OF SEPARATION FROM ACTIVE EMPLOYMENT BEFORE RETIREMENT

Sample Ages	Years of Service	% of Active Members Separating Within Next Year			
		Withdrawal			
				Others	
		EMS	D.O.T.	Men	Women
ALL	0	11.00%	18.00%	18.00%	20.00%
	1	10.00%	16.00%	15.00%	16.00%
	2	8.00%	14.00%	13.00%	14.00%
	3	8.00%	11.00%	11.00%	12.00%
	4	7.00%	9.00%	10.00%	10.00%
25	5 & Over	6.70%	8.00%	7.60%	7.60%
30		5.90%	7.60%	7.22%	7.22%
35		5.20%	5.56%	5.28%	5.28%
40		4.40%	4.26%	4.05%	4.05%
45		3.40%	3.69%	3.51%	3.51%
50		2.40%	3.50%	3.33%	3.33%
55		2.00%	3.50%	3.33%	3.33%
60		0.00%	3.50%	3.33%	3.33%
Ref		338	143	584	188
		1068	212	212 x 0.95	212 x 0.95

Sample Ages	% of Active Members Becoming Disabled Within Next Year			
	D.O.T.		Others	
	Ordinary	Duty	Ordinary	Duty
25	0.02%	0.03%	0.01%	0.25%
30	0.05%	0.08%	0.04%	0.29%
35	0.14%	0.21%	0.11%	0.34%
40	0.27%	0.42%	0.21%	0.39%
45	0.51%	0.79%	0.40%	0.45%
50	0.66%	1.03%	0.51%	0.52%
55	0.76%	1.18%	0.59%	0.60%
60	0.86%	1.34%	0.67%	0.70%
Ref	23 x 0.45	23 x 0.70	23 x 0.35	423 x 0.90

Sample Ages	% of Active Members Dying Within Next Year			
	Non-Duty Death		Duty Death	
	Men	Women	Men	Women
25	0.03%	0.02%	0.01%	0.01%
30	0.03%	0.02%	0.01%	0.01%
35	0.06%	0.04%	0.02%	0.01%
40	0.08%	0.05%	0.03%	0.02%
45	0.11%	0.08%	0.04%	0.03%
50	0.16%	0.13%	0.05%	0.04%
55	0.27%	0.20%	0.09%	0.07%
60	0.51%	0.38%	0.17%	0.13%
Ref	506 sb0 x 0.75	507 sb0 x 0.75	506 sb0 x 0.25	507 sb0 x 0.25

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Benefit Service	Exact Fractional service is used to determine the amount of benefit payable.
Decrement Operation	Disability and mortality decrements do not operate during the first 5 years of service. Disability and withdrawal also do not operate during retirement eligibility.
Decrement Timing	Decrements of all types are assumed to occur mid-year.
Eligibility Testing	Eligibility for benefits is determined based upon the age nearest birthday and exact fractional service on the date the decrement is assumed to occur.
Forfeitures	For vested separations from service, it is assumed that 0% of members separating will withdraw their contributions and forfeit an employer financed benefit.
Incidence of Contributions	Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.
Liability Adjustments	Retired life liabilities were increased by 3.0% to adjust for incomplete data. An additional load of approximately 0.7% of retired life liabilities was included to account for members who retired between the date that the retiree file was generated and the date the active file was generated, as these members were not reported.
Marriage Assumption	100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.
Normal Form of Benefit	Straight life is the normal form of benefit.
Pay Increase Timing	Beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
Service Credit Accruals	It is assumed that members accrue one year of service credit per year.
Administrative Expenses	1.00% of payroll was added to the normal cost for administrative expenses.
Inactive Member Liability	Approximately 6.9% of Retiree Liability.

MEANING OF "UNFUNDED ACTUARIAL ACCRUED LIABILITIES"

Actuarial accrued liabilities are ***the portion of the present value of plan promises to pay benefits in the future not covered by future normal cost contributions.***

--- a liability has been established ("accrued") because the service has been rendered, but the resulting monthly cash benefit may not be payable until years in the future.

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

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

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

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

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

GLOSSARY

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

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

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

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

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

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

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

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

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

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

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

Valuation Assets. The value of current plan assets recognized for valuation purposes. Generally based on market value plus a portion of unrealized appreciation or depreciation.