GRS Gabriel Roeder Smith & Company
Consultants & Actuaries

THE GENERAL RETIREMENT SYSTEM OF THE CITY OF DETROIT

73RD ANNUAL ACTUARIAL VALUATION

JUNE 30, 2011

Outline of Contents

GRS

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July 16, 2012

The Board of Trustees
The General Retirement System of the City of Detroit

Dear Board Members:

The results of the **73rd Annual Actuarial Valuations** of the annuity and pension liabilities of the General Retirement System of the City of Detroit are presented in this report. The purpose of the valuations was to measure the system's funding progress, to determine contribution rates for the 2013 fiscal year in accordance with the established funding policy, and to determine actuarial information for Governmental Accounting Standards Board (GASB) Statements No. 25 and No. 27. The results of the valuation may not be applicable for other purposes. Four divisions are evaluated separately.

The date of the valuations was **June 30, 2011**.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as: plan experience differing from that anticipated by the economic and demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements.

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

The signing actuaries are independent of the plan sponsor.

One or more of the undersigned are Members of the American Academy of Actuaries (designated by "MAAA"), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

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

This report replaces our preliminary report dated May 31, 2012 and is based on updated asset information received in June 2012. Although the total amount of reported assets did not change, the allocation of assets between divisions did change.

Respectfully submitted,

Norman L. Jones
FSA, EA, MAAA

Judith A. Kermans
EA, MAAA

Kenneth G. Alberts

NLJ:rmn

SECTION A
RETIREMENT SYSTEM TOTALS

Summary of Computed Employer Contribution Rates 2012-2013 Fiscal Year

Contributions for	Contributions Expressed as a Percent of Payroll				
	General City@	D.O.T.	Water/ Sewage	Library	System Total
Normal Cost:					
Age & Service Pensions	10.04 %	9.26 %	9.70 %	9.82 %	9.82 %
Disability Pensions	1.41 %	1.02 %	1.44 %	1.37 %	1.36 %
Death-in-Service Pensions	0.30 %	0.30 %	0.34 %	0.27 %	0.31 %
Employer Normal Cost	11.75 %	10.58 %	11.48 %	11.46 %	11.49 %
Unfunded Actuarial Accrued Liabilities#	8.21 %	13.61 %	16.84 %	14.77 %	11.60 %
Estimated Employer Contribution Rates	**19.96 %**	**24.19 %**	**28.32 %**	**26.23 %**	**23.09 %**
(Change from last year)	4.70 %	3.93 %	2.50 %	4.08 %	3.98 %
Estimated Employer ($ mill)	**$ 33.8**	**$ 11.0**	**$ 23.6**	**$ 3.8**	**$ 72.2**

Unfunded actuarial accrued liabilities (UAAL) were amortized over an open 30 year period. Select and ultimate wage inflation rates are used beginning at 3% for one year and 4% thereafter.

@ *Includes COBO Hall.*

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. We are currently working with staff to collect the data necessary to study the potential magnitude of these transfers.

DEVELOPMENT OF LIABILITIES AS OF JUNE 30, 2011
RETIREMENT SYSTEM TOTALS

Present Value of Future Benefits	$ 3,924,103,964
Present Value of Future Normal Costs	203,936,786
Actuarial Accrued Liability	3,720,167,178
Accrued Assets	3,080,295,734
Unfunded Actuarial Accrued Liability	$ 639,871,444

Actuarial Accrued Liabilities as of June 30, 2011
Retirement System Totals

Present Value	June 30, 2011	June 30, 2010
Accrued Pension Liabilities (Employer Financed)		
Retirees and beneficiaries		
Future pensions	$1,983,919,013	$1,884,694,816
Mortality reserve	0	0
Total	1,983,919,013	1,884,694,816
Inactive members future deferred pensions	186,785,801	165,658,810
Active members	878,193,058	955,399,406
Total accrued pensions	3,048,897,872	3,005,753,032
Pension fund balances	2,409,026,428	2,524,296,823
Unfunded accrued pension liabilities	$ 639,871,444	$ 481,456,209
Accrued Annuity Liabilities (Member Financed)		
Retirees and beneficiaries		
Future annuities	$ 75,220,724	$ 64,773,695
Mortality reserve	0	0
Total	75,220,724	64,773,695
Member annuities & future refunds	596,048,582	649,060,035
Total accrued annuity liabilities	671,269,306	713,833,730
Annuity fund balances	671,269,306	713,833,730
Unfunded accrued annuity liabilities	$ 0	$ 0
Totals		
Actuarial Accrued Liabilities	**$3,720,167,178**	**$3,719,586,762**
Accrued Assets	**3,080,295,734**	**3,238,130,553**
Unfunded Actuarial Accrued Liabilities	**$ 639,871,444**	**$ 481,456,209**

VALUATION RESULTS - COMPARATIVE STATEMENT

---- $ IN MILLIONS ----

RETIREMENT SYSTEM TOTALS

June 30	Active Payroll		% of Payroll Contributions For			Actuarial Accrued Liabilities			Unfunded/ Active Pay
	Total	Average	Normal Cost	UAAL	Total	Computed Total	Accrued Assets	Unfunded	
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	357.1	41,525	10.84%	4.54 %	15.38%	3,689.1	3,412.4	276.7	0.77
2010(a)	334.3	41,420	10.97%	8.14 %	19.11%	3,719.6	3,238.1	481.5	1.44
2011	**303.4**	**41,845**	**11.49%**	**11.60 %**	**23.09%**	**3,720.2**	**3,080.3**	**639.9**	**2.11**

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

Experience

Experience during the year was less favorable than expected. Overall, the experience loss was approximately 4.7% of the beginning of year liability. The experience loss was comprised of two parts: a recognized investment loss of $137 million and a liability loss of $6 million.

The investment loss was the primary source of the experience loss during the year. The fund earned a 20.9% rate of return on a market basis and a 3.5% rate of return on a funding value basis. Even though there was an investment gain due to the higher than expected market value return in the current year, the rate of return on the funding value of assets was less than assumed due to the phased-in investment losses recognized from prior years.

Funding Value of Assets

Beginning June 30, 2010, gains and losses in excess of the assumed investment return are being recognized over a period of 7 years. As of June 30, 2011, the funding value of assets was nearly $660 million dollars greater than the market value (see page A-10). As that difference is recognized over the next several 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 increase by approximately an additional 11%-12% of payroll over the next several years. On a market value of asset basis, the fund was approximately 65% funded.

In accordance with the policy adopted by the Board, the market value corridor used in the derivation of the funding value of assets was decreased from 50% last year to 40% this year. A 40% market value corridor means that the funding value of assets may not be more than 140% of the market value of assets nor less than 60% of the market value of assets. No additional loss was recognized as a result of the corridor. The corridor will be reduced to 30% for the June 30, 2012 and later valuations, as previously adopted by the Board.

The current method of allocation of investment income between divisions results in each division recognizing a rate of return that differs from the fund, in total. The result is that the relative changes in divisional contribution rates may not be uniform every year. For example, this year the contribution rates for the water/sewer division increased by 2.50% or payroll while the contribution rates for the other divisions increased by approximately 4.00% of payroll. An alternative method has been discussed with staff that could produce results that are more uniform across divisions. We understand that staff is in the process of implementing this alternative method.

Active Member Group Size

If the active member group size continues to contract, the employer rate (as a percent of payroll) will continue to increase.

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 an open period of 30 years.

GASB Changes

For plan years beginning in 2014, new reporting standards will be required. The new reporting standards will be substantially different than the current standards. Some of the changes include reporting of:

- Liabilities that may be materially different than the liabilities currently developed for funding;
- Unfunded liabilities based on the market value of assets;
- Annual plan expenses that may differ materially from the contribution developed for current funding.

Some of the calculations that will need to be performed will differ depending on the existence of a formal written policy. As such, the Board should consider developing a formal written funding policy if one does not currently exist.

Conclusion

The Retirement System is 83% funded as of June 30, 2011, based on the funding value of assets (65% on a market value of assets 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 2012-2013 fiscal year is 23.09% of covered payroll with the rate for each separate division as shown on page A-1.

SOLVENCY TESTS

The DGRS funding objective is to meet long-term benefit promises through contributions made during members' working careers which, combined with investment income on system assets, will be sufficient to pay benefits throughout their retired lives. If the contributions to the System are received in a timely manner, 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
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%
2010(a)	649	1,949	1,121	3,238	100%	100%	57%	87%
2011	596	2,059	1,065	3,080	100%	100%	40%	83% &

(a) After changes in actuarial assumptions and/or methods.
& 65% on a market value basis.

DERIVATION OF EXPERIENCE GAIN (LOSS)
YEAR ENDED JUNE 30, 2011
($ 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	$481.5
(2)	Normal cost from last valuation	33.3
(3)	Employer contributions	55.1
(4)	Interest accrual: [(1) + 1/2 [(2) - (3)]] x .079	37.2
(5)	Expected UAAL before changes: (1) + (2) - (3) + (4)	496.8
(6)	Increase due to changes in benefits	0.0
(7)	Asset method change	0.0
(8)	Expected UAAL after changes: (5) + (6) + (7)	496.8
(9)	Actual UAAL at end of year	639.9
(10)	Experience gain (loss): (8) - (9)	$(143.1)
(11)	Gain (loss) as % of beginning of year ($3,071 million) accrued pension liability	(4.7)%
(12)	Experience gain (loss)	(143.1)
(13)	Gain (loss) due to investment experience recognized in this valuation	(137.3)
(14)	Gain (loss) from other sources	(5.8)
(15)	Gain (loss) from other sources as a % of beginning of year liability	(0.2)

** 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 THE VALUATION
RETIREMENT SYSTEM TOTALS

Reserve Accounts
(Funding Value)

Funds	Fund Balances	
	June 30, 2011	June 30, 2010
Annuity Savings	$ 596,048,582	$ 649,060,035
Annuity Reserve	75,220,724	64,773,695
Pension Accumulation	(374,150,543)	(150,116,172)
Pension Reserve	1,983,919,013	1,884,694,816
Accrued Liability Fund Reserve	799,257,958	789,718,179
Total Fund Balances	**$3,080,295,734**	**$3,238,130,553**

Revenues and Expenditures
(Funding Value)

	Pension Funds	Annuity Funds	Total Funds
Balance, July 1, 2010	$2,527,603,142	$ 710,527,411	$3,238,130,553
Prior valuation audit adjustment	0	0	0
Balance July 1, 2010 after adjustment	2,527,603,142	710,527,411	3,238,130,553
Revenues			
Member contributions	601,980	17,502,422	18,104,402
Employer contributions #	55,138,044	0	55,138,044
Recognized investment income	55,169,889	52,809,686	107,979,575
Transfers	177,811	(177,811)	0
Total	$ 111,087,724	$ 70,134,297	$ 181,222,021
Expenditures			
Benefit payments	221,498,249	0	221,498,249
Refund of member contributions	3,336,436	109,392,402	112,728,838
Administrative expenses	4,829,753	0	4,829,753
Total	$ 229,664,438	$ 109,392,402	$ 339,056,840
Balance, June 30, 2011	$2,409,026,428	$ 671,269,306	$3,080,295,734
Funding Value Rate of Return	2.3%	7.9%	3.5%

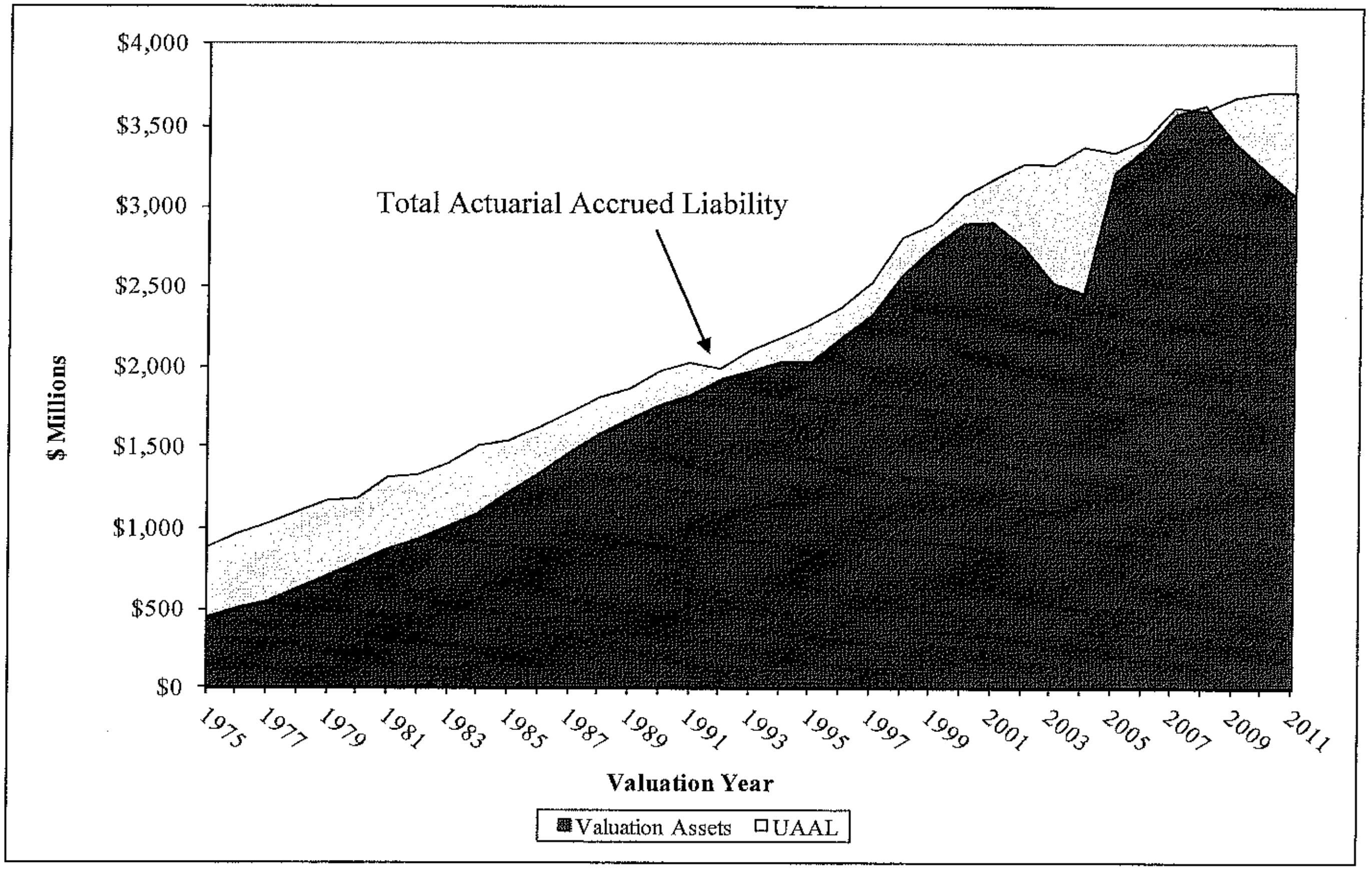
Includes contributions receivable.

REPORTED FUNDING VALUE OF ASSETS

Year Ended June 30:	2010	2011	2012	2013	2014	2015	2016	2017
A. Funding Value Beginning of Year	$3,412,411,183	$3,238,130,553						
B. Market Value End of Year	2,246,512,689	2,421,566,956						
C. Market Value Beginning of Year	2,387,136,535	2,246,512,689						
D. Non-Investment Net Cash Flow (Contribution-Benefits)	(268,005,262)	(265,814,394)						
E. Investment Income								
E1. Market Total: B - C - D	127,381,416	440,868,661						
E2. Amount for Immediate Recogn: Reg. Int. on Reserves	258,994,276	245,312,645						
E3. Amount for Phased-In Recognition: E1-E2	(131,612,860)	195,556,016						
F. Phased-In Recognition of Investment Income								
F1. Current Year: E3/7	(165,269,644)	27,936,574						
F2. First Prior Year		(165,269,644)	$ 27,936,574					
F3. Second Prior Year			(165,269,644)	$ 27,936,574				
F4. Third Prior Year				(165,269,644)	$ 27,936,574			
F5. Fourth Prior Year					(165,269,644)	$ 27,936,574		
F6. Fifth Prior Year						(165,269,644)	$ 27,936,574	
F7. Sixth Prior Year							(165,269,644)	$27,936,572
F8. Total Recognized Investment Gain	(165,269,644)	(137,333,070)	(137,333,070)	(137,333,070)	(137,333,070)	(137,333,070)	(137,333,070)	27,936,572
G. Total Recognized Investment Income: (E2+F8)	93,724,632	107,979,575						
H. Funding Value End of Year: A + D + G								
H1. Preliminary Funding Value End of Year: A + D + E2 + F8	3,238,130,553	3,080,295,734						
H2. Corridor Limit	50%	40%	30%	30%	30%	30%	30%	30%
H3. Upper Corridor Limit: (100% + H2) * B	3,369,769,034	3,390,193,738						
H4. Lower Corridor Limit: (100% - H2) * B	1,123,256,345	1,452,940,174						
H5. Funding Value End of Year	3,238,130,553	3,080,295,734						
I. Difference between Market & Funding Value: B - H4	(991,617,864)	(658,728,778)						
J. Recognized Rate of Return: G / [1/2(A+H4-G)]	**2.9%**	**3.5%**						
K. Market Value Rate of Return (net)	5.7%	20.9%						
L. Ratio of Funding Value to Market Value	144.1%	127.2%						

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 7-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 6 consecutive years, it will become equal to Market Value.

ASSETS AND ACCRUED LIABILITIES



PERSONS IN VALUATIONS - COMPARATIVE STATEMENTS
RETIREMENT SYSTEM TOTALS

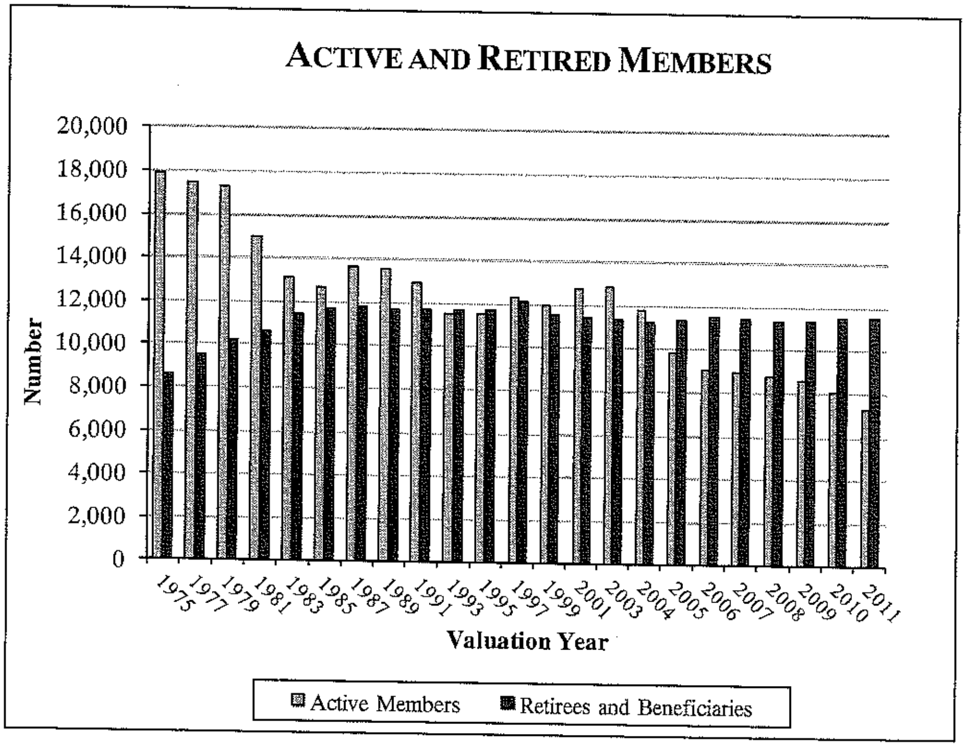
Active Members

June 30	Active Members No.	Active Members Change	Annual Payroll	Group Averages: Average Pay $	Average Pay Change	Age Years	Service Years
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
2010	8,072	(6.1)%	334,343,506	41,420	(0.3)%	47.7	15.3
2011	7,250	(10.2)%	303,379,482	41,845	1.0 %	48.3	15.4

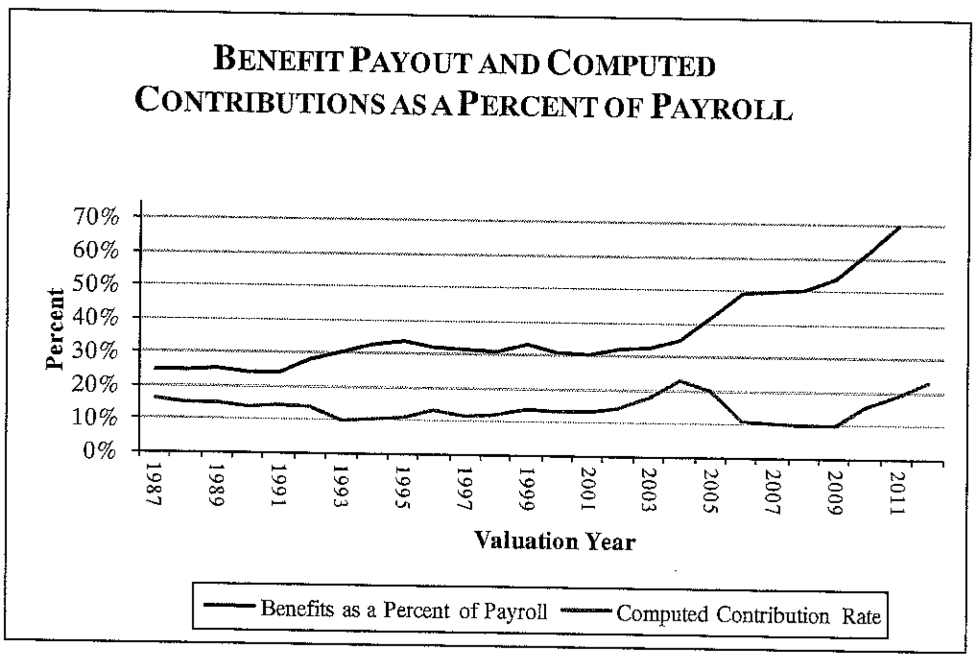
PERSONS IN VALUATIONS - COMPARATIVE STATEMENTS
RETIREMENT SYSTEM TOTALS

Retirees and Beneficiaries

		% of Current Allowances				Current Annual Pensions		
June 30	No.	Annuities	Initial Pensions	Escalators & Other Increases	Allow.	Total	Average	% of Payroll
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%
2010	11,539	3.4%	79.6%	17.0%	100.0%	202,935,852	17,587	60.7%
2011	11,555	3.7%	79.9%	16.4%	100.0%	211,169,292	18,275	69.6%

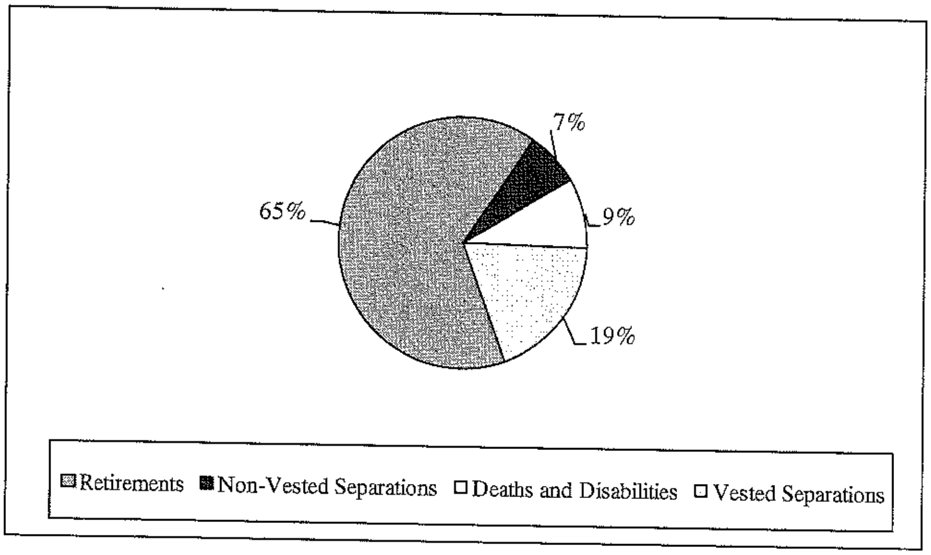


ACTIVE AND RETIRED MEMBERS
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Number
1975 1977 1979 1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2004 2005 2006 2007 2008 2009 2010 2011
Valuation Year
Active Members
Retirees and Beneficiaries



BENEFIT PAYOUT AND COMPUTED CONTRIBUTIONS AS A PERCENT OF PAYROLL
70%
60%
50%
40%
30%
20%
10%
0%
Percent
1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011
Valuation Year
Benefits as a Percent of Payroll
Computed Contribution Rate

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 7,250 active members. Eventually, 503 people are expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. 6,104 people are expected to receive monthly retirement benefits either by retiring directly from active service, or by retiring from vested deferred status. 643 people are expected to become eligible for death-in-service or disability benefits.

ACTIVE MEMBERS AS OF JUNE 30, 2011
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	8							8	$ 161,575
20-24	61	5						66	1,501,445
25-29	121	71	11					203	5,760,351
30-34	159	148	128	6				441	15,260,105
35-39	155	141	250	70	2			618	23,462,297
40-44	145	180	359	220	88	11		1,003	42,086,509
45-49	129	155	348	277	315	136	7	1,367	57,613,185
50-54	111	145	310	243	348	319	88	1,564	67,961,026
55-59	62	93	242	169	238	285	121	1,210	53,369,612
60-64	38	59	112	86	85	86	91	557	25,563,863
65-69	9	12	33	20	23	14	41	152	7,733,470
70-74	1	6	12	8	4	0	9	40	1,954,358
75-79	1	8	0	2	3	2	5	21	951,686
Totals	**1,000**	**1,023**	**1,805**	**1,101**	**1,106**	**853**	**362**	**7,250**	**$303,379,482**

Group Averages:

Age:	48.3 years
Service:	15.4 years
Annual Pay:	$41,845

Retirees and Beneficiaries June 30, 2011
Tabulated by Year of Retirement

Year of Retirement	No.	Monthly Allowances	
		Total	Average
1950 & before	1	$ 334	$ 334
1951-1955	1	214	214
1956-1960	1	271	271
1961-1965	20	9,493	475
1966-1970	57	24,075	422
1971-1975	225	125,291	557
1976-1980	700	514,243	735
1981-1985	1,230	1,282,425	1,043
1986-1990	1,151	1,291,639	1,122
1991-1995	1,854	2,375,456	1,281
1996-2000	1,737	2,701,972	1,556
2001	336	587,673	1,749
2002	434	819,017	1,887
2003	393	785,110	1,998
2004	457	945,501	2,069
2005	538	1,204,220	2,238
2006	462	882,382	1,910
2007	391	727,358	1,860
2008	385	813,713	2,114
2009	495	991,779	2,004
2010	471	1,039,188	2,206
2011	216	476,087	2,204
Totals	**11,555**	**$17,597,441**	**$1,523**

RETIREES AND BENEFICIARIES JUNE 30, 2011
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*	11	$ 17,564			8	$ 3,644	19	$ 21,208
20-24	2	720					2	720
25-29	4	3,131	2	$ 413			6	3,544
30-34	5	4,552	6	3,219	1	777	12	8,548
35-39	13	10,892	25	14,681			38	25,573
40-44	32	34,512	43	25,503	6	7,572	81	67,587
45-49	166	317,243	125	77,300	23	25,696	314	420,239
50-54	652	1,580,723	232	185,386	33	37,536	917	1,803,645
55-59	1,368	3,175,494	229	271,132	40	61,054	1,637	3,507,680
60-64	1,819	3,454,646	195	223,156	37	59,055	2,051	3,736,857
65-69	1,411	2,227,775	97	83,384	44	53,882	1,552	2,365,041
70-74	1,074	1,499,956	70	59,508	41	46,008	1,185	1,605,472
75-79	1,144	1,418,220	52	39,808	73	65,989	1,269	1,524,017
80-84	1,190	1,328,345	72	60,689	60	46,970	1,322	1,436,004
85-89	755	765,808	25	17,340	53	40,407	833	823,555
90-94	240	193,102	12	7,943	16	11,992	268	213,037
95-99	46	33,509	1	591	2	614	49	34,714
Totals	**9,932**	**$16,066,192**	**1,186**	**$1,070,053**	**437**	**$461,196**	**11,555**	**$17,597,441**

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

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 – **EMS Members:** Sum of a) a basic pension of $12 for each of the first 10 years of service, plus b) a pension equal to 2.0% of AFC multiplied by years of service. Maximum benefit is 90% of AFC. **Other Members:** 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 (min. 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 - APTE hired prior to July 1, 1988: Benefit begins at the age the member would have become eligible for regular retirement if service had continued. ***SAAA, Non-Union and lawyers hired prior to June 30, 1986:*** Benefit begins at the age the member would have become eligible for regular retirement. ***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.

Summary of Benefit Provisions Evaluated (Concluded)

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, 2011

Active Members

	General	D.O.T.	Water/ Sewage	Library	Totals
Number	3,749	1,234	1,905	362	7,250
% Change in active members	(12.5)%	(5.3)%	(6.7)%	(18.1)%	(10.2)%
Annual payroll ($ millions)	$ 164.2	$ 44.0	$ 80.9	$ 14.2	$ 303.3
Average pay	$43,801	$35,687	$42,457	$39,364	$41,845
% Change in average pay	3.8 %	(4.4)%	(1.7)%	4.1 %	1.0 %

Retired Members and Survivor Beneficiaries

	General	D.O.T.	Water/ Sewage	Library	Totals
Number	7,340	1,576	2,315	324	11,555
Annual benefits ($ millions) #	$ 131.9	$ 27.8	$ 52.3	$ 7.1	$ 219.0
Average benefits	$17,973	$17,624	$22,583	$21,760	$18,955
% Change in average benefit	3.3 %	6.3 %	5.4 %	1.6 %	4.3 %

Includes Annuities.

Inactive Vested Members

	General	D.O.T.	Water/ Sewage	Library	Totals
Number	1,102	227	371	46	1,746
Annual benefits ($ millions)	$ 13.6	$ 2.9	$ 5.1	$ 0.5	$ 22.1
Average benefits	$12,364	$12,580	$13,623	$11,593	$12,639
% Change in average benefit	6.6 %	3.6 %	1.0 %	8.6 %	5.0 %

ALLOCATION OF ASSETS USED FOR VALUATION
RESERVE ACCOUNTS

	June 30, 2011	June 30, 2010
Annuity Savings Fund		
General	$ 284,888,534	$ 309,678,070
D.O.T.	111,819,992	120,925,915
Water	164,289,865	181,980,128
Sewage	11,502,201	12,069,797
Housing	1,617,761	1,484,516
Library	21,930,229	22,921,609
Totals	596,048,582	649,060,035
Annuity Reserve Fund		
General	40,578,275	36,008,145
D.O.T.	6,140,779	4,838,801
Water	20,385,428	16,173,675
Sewage	2,618,774	2,504,065
Housing	1,669,483	1,710,115
Library	3,827,985	3,538,894
Totals	75,220,724	64,773,695
Pension Accumulation Fund		
General	(161,384,581)	(25,476,972)
D.O.T.	(55,660,607)	(23,363,342)
Water	(46,196,244)	20,590,841
Sewage	(90,591,178)	(111,393,046)
Housing	(2,547,865)	1,664,737
Library	(17,770,068)	(12,138,390)
Totals	(374,150,543)	(150,116,172)
Pension Reserve Fund		
General	1,123,907,328	1,089,394,480
D.O.T.	254,044,633	232,467,451
Water	435,521,686	394,598,849
Sewage	73,546,072	73,586,363
Housing	36,704,789	37,482,117
Library	60,194,505	57,165,556
Totals	1,983,919,013	1,884,694,816
Accrued Liability Fund		
General	504,590,894	495,758,120
D.O.T.	103,571,123	102,513,701
Water	154,538,076	155,926,757
Sewage	12,600,338	11,685,215
Housing	N/A	N/A
Library	23,957,527	23,834,386
Totals	799,257,958	789,718,179
Retirement System Totals	$3,080,295,734	$3,238,130,553

ACTUARIAL ACCRUED LIABILITIES AS OF JUNE 30, 2011
BY DIVISION
($ IN THOUSANDS)

Present Value, June 30 of	General	D.O.T.	Water/ Sewage	Library	Totals
Accrued Pension Liabilities					
Retirees and beneficiaries	$1,160,612	$254,045	$509,068	$ 60,195	$1,983,920
Inactive members future deferred pensions	114,564	24,159	43,539	4,523	186,785
Active members	471,097	132,724	234,436	39,936	878,193
Total accrued pension liabilities	1,746,273	410,928	787,043	104,654	3,048,898
Pension fund balances	1,501,271	301,955	539,419	66,382	2,409,027
Unfunded accrued pension liabilities	245,002	108,973	247,624	38,272	639,871
Accrued Annuity Liabilities					
Retirees and beneficiaries	42,248	6,141	23,004	3,828	75,221
Members annuities & future refunds	286,506	111,820	175,792	21,930	596,048
Total accrued annuity liabilities	328,754	117,961	198,796	25,758	671,269
Annuity fund balances	328,754	117,961	198,796	25,758	671,269
Unfunded accrued annuity liabilities	0	0	0	0	0
Totals					
Actuarial Accrued Liabilities	2,075,027	528,889	985,839	130,412	3,720,167
Accrued Assets	1,830,025	419,916	738,215	92,140	3,080,296
Funded Ratio	88.2%	79.4%	74.9%	70.7%	82.8%
Unfunded Actuarial Accrued Liabilities	**$ 245,002**	**$ 108,973**	**$ 247,624**	**$ 38,272**	**$ 639,871**

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
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
2010	4,286	1,303	2,041	#	0	442	8,072
2011	3,749	1,234	1,905	#	0	362	7,250

 # Included with Water beginning 6/30/2010.

Retired Members & Beneficiaries by Valuation Division

June 30	General	D.O.T.	Water	Sewage	Housing	Library	Totals
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
2010	7,408	1,567	2,248	#	*	316	11,539
2011	7,340	1,576	2,315	#	*	324	11,555

** Included with General City beginning 6/30/2004.*
 # Included with Water beginning 6/30/2010.

EMPLOYER COMPUTED CONTRIBUTIONS - HISTORICAL COMPARISON

Valuation Date June 30	As Percents of Valuation Payroll						
	General	D.O.T.	Water	Sewage	Housing	Library	Totals
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%
2010(a)	15.26%	20.26%	25.82%	&	-	22.15%	19.11%
2011	19.96%	24.19%	28.32%	&	-	26.23%	23.09%

(a) *After changes in actuarial assumptions or methods.*
* *After plan amendments.*
\# *After issuance of POCs.*
& *Included with Water beginning 6/30/2010.*

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.

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)
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 %
2010#	3,238,130,553	3,719,586,762	481,456,209	87.1%	334,343,506	144.0 %
2011	3,080,295,734	3,720,167,178	639,871,444	82.8%	303,379,482	210.9 %

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

Schedule of Employer Contributions

Valuation Year Ended June 30	Reported Employer Contributions	
	From Pension Obligation Certificates (POCs)	Employer Contributions other than from POCs
2002		$67,791,488
2003		72,859,246
2004		95,876,076
2005	$739,793,898	41,689,528
2006		58,162,088
2007		41,442,687
2008		43,546,951
2009		41,395,719
2010		34,602,184
2011		55,138,044

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, 2011
Actuarial cost method	Entry Age
Amortization method	Level percent
Remaining amortization period for unfunded accrued liabilities	30 years (see page A-1)
Asset valuation method	7-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.

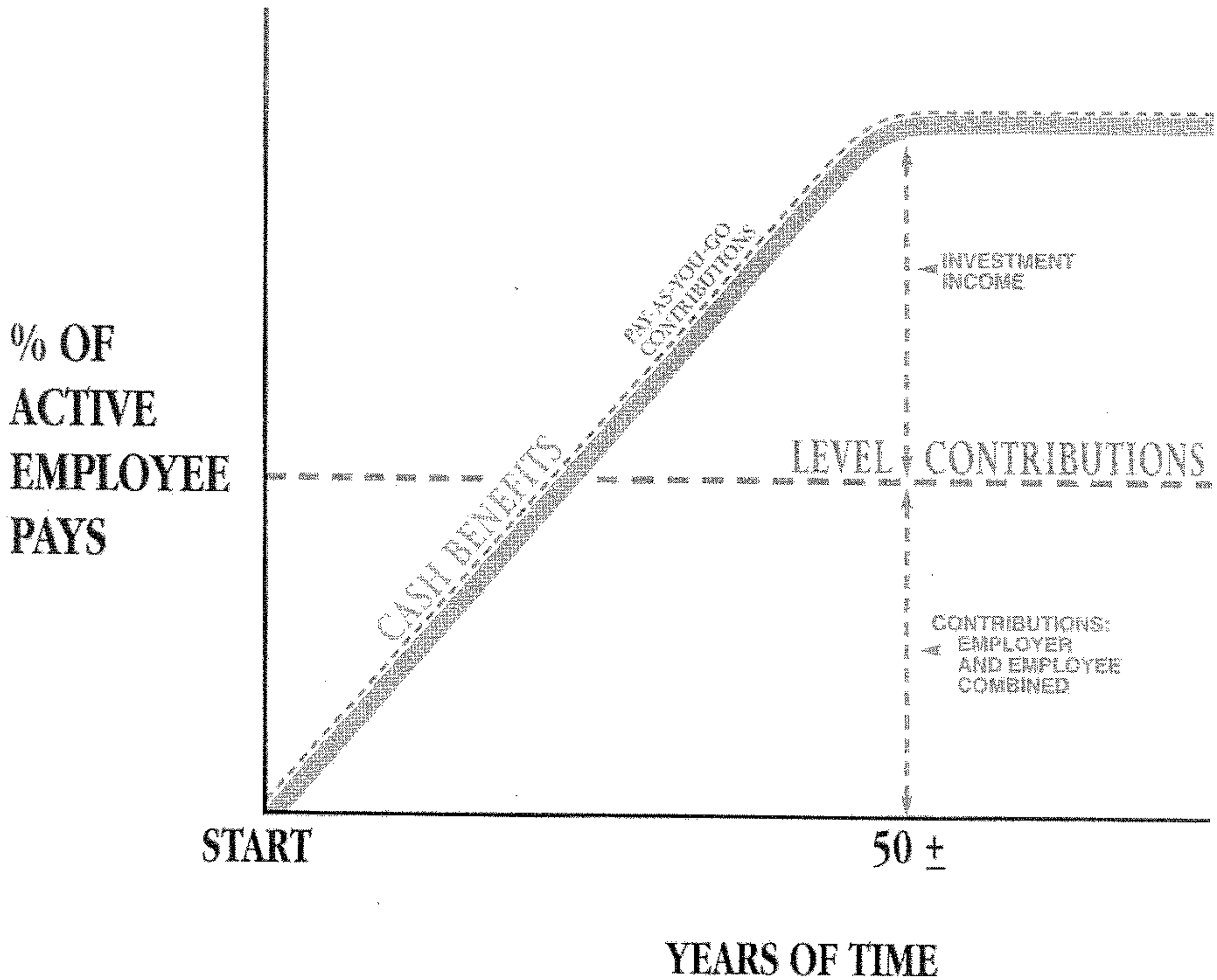
Ultimate assumption 2 years after valuation date. For the first year after the valuation date, select assumption is 3%.

Membership of the plan consisted of the following at June 30, 2011, the date of the latest actuarial valuation:

Retirees and beneficiaries receiving benefits	11,555
Terminated plan members entitled to but not yet receiving benefits	1,746
Active plan members	7,250
Total	20,551

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 meet long-term benefit promises through contributions made during members' working careers which, combined with investment income on system assets, will be sufficient to pay benefits throughout their retired lives.***

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, 2008 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 110% of the RP-2000 Combined Table for males and 110% of the RP-2000 Combined Table set back 2 years for females. These tables provide a margin for mortality improvements of approximately 15%. For disabled members, a 10-year set forward of the healthy rates was used to measure post-retirement mortality. Related values are shown on page E-3. This table was first used for the June 30, 2008 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, 2008 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, 2008 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-1), 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 seven-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 (MAAA).

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 3%, increasing 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	$163.69	$172.57	29.97	34.61
55	151.88	163.09	25.38	29.91
60	137.56	151.16	20.98	25.33
65	121.19	136.98	16.90	20.98
70	103.48	121.17	13.23	17.00
75	84.85	103.98	10.00	13.41
80	66.44	86.12	7.27	10.25
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			
		EMS	D.O.T.	Others	
				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 1068	143 212	584 212 x 0.95	188 212 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	Liabilities were increased by 1.0% to adjust for incomplete data.
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	1.50% of payroll was added to the normal cost for administrative expenses.

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.

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.