

ILLINOIS MUNICIPAL RETIREMENT FUND ANNUAL ACTUARIAL VALUATION REPORT DECEMBER 31, 2011

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April 13, 2012

Board of Trustees Illinois Municipal Retirement Fund Oak Brook, Illinois 60521

Ladies and Gentlemen:

The results of the **December 31, 2011 annual actuarial valuations of members** covered by the Illinois Municipal Retirement Fund are presented in this report. The purpose of the valuations, as provided by Article 7 of the Illinois Pension Code, is to measure IMRF's funding progress and to establish contribution rates for the 2013 calendar year. This report should not be relied upon for any other purpose. This report may be distributed to parties other than the System only in its entirety and only with the permission of the Board.

The valuation was based upon information, furnished by IMRF staff, concerning Retirement Fund benefits, financial transactions, and individual members, terminated members, retirees and beneficiaries. Data was checked for internal and year to year consistency, but was not otherwise audited, by us. As a result, we are unable to assume responsibility for the accuracy or completeness of the data provided. The valuations are based upon current plan provisions related to Regular Members, Sheriff's Law Enforcement Personnel (SLEP), and Elected County Officials (ECO) employment.

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

To the best of our knowledge, this report is complete and accurate and the valuation was conducted in accordance with standards of practice prescribed by the Actuarial Standards Board and in compliance with the applicable state statutes. The undersigned are independent of the plan sponsor and are members of the American Academy of Actuaries (MAAA) who meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. It is our opinion that the actuarial assumptions used for the valuation produce results which are reasonable.

Respectfully submitted,

Brian B. Murphy, FSA, EA, MAAA

Mark Buis, FSA, EA, MAAA BBM/MB:sc

IMRF is established under statutes adopted by the Illinois General Assembly. It is an agent multiple employer defined benefit pension plan that, as of December 31, 2011, encompasses 3,276 active plans and serves and 409,415 active, inactive and retired persons. Since IMRF reports information to us by plan, there are cases in which a person with employment in more than one plan is counted multiple times for census counts. This produces an overstatement in the census when compared with true counts of people. Liabilities are, however, correctly calculated and apportioned among employers. This issue may affect inactive members to a greater extent than it affects others. IMRF is funded by both member and employer contributions. Members contribute at fixed rates determined by statute. Regular members contribute 4.5% of pay; SLEP members contribute 7.5%; ECO members contribute 7.5%. Participating employers make all additional contributions needed to provide benefits. Each employer contributes to a separate account within IMRF which, when combined with member contributions and investment income, will be sufficient to provide future benefits for its own employees. Employer contributions for each plan are computed each year in the actuarial valuation and consist of:

- Normal Cost Contributions for normal and early retirement benefits, separation benefits, permanent disability benefits, and annuity type death benefits. These contributions are the same for most employers (larger employers have the option of being individually rated).
- **Contributions for lump sum death-in-service benefits**, which are separately determined for each employer.
- **Contributions for temporary disability benefits**, which are 0.11% of payroll for each employer.
- Contributions for 13th Payments, which are 0.62% of covered payroll for each employer.
- Contributions for Early Retirement Incentive (ERI) unfunded liabilities which are separately determined for each employer.
- Contributions for other unfunded liabilities, which are separately determined for each employer. For employers with taxing authority, unfunded liabilities are being funded over a 30 year closed period. For non-taxing employers the unfunded liabilities are being funded over a 10 year rolling period. Unfunded liabilities associated with benefit changes for SLEP members (Public Act 94-712) are amortized over 25 years for most employers. The amortization policy is described on page D-12.

Employer contributions computed in this valuation compared with those computed in the prior valuation are shown below.

	Average Employer Contribution Rates Expressed as %'s of Active Member Pays						
	Regular	SLEP	ECO	Average/Total			
This Valuation Prior Valuation	12.85% 12.42%	23.40% 22.48%	46.85% 47.15%	13.37% 12.92%			

This year's valuation results were affected by:

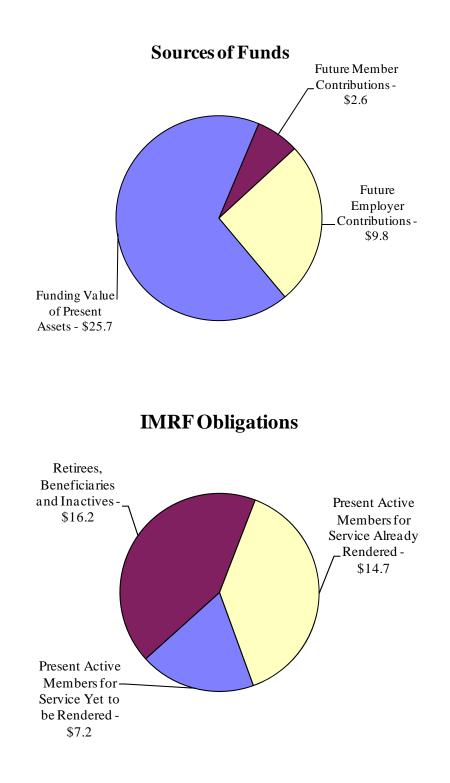
- Poor investment return in 2011.
- A second tier of benefits.
- Continued phase-in of 2008 Market value losses.
- Changes in Actuarial Assumptions.
- ERI liabilities.
- Three employers are individually rated (DuPage County; Union School District 46 and Peoria County). Although these employers will receive separate valuation reports, member counts, assets, and liabilities for these employers are also included in this valuation report.

The effect of the 2008 market value decline has been significantly ameliorated by the excellent investment returns in 2009 and 2010, but because of poor investment returns in 2011, there are now approximately \$880 million in asset losses to be recognized over the next few years. Based upon this year's valuation results, IMRF is 83.0% funded and the average/total employer rate is 13.37% of payroll.

Section A of this report describes this year's valuation results in depth.

# **SECTION A** VALUATION RESULTS

# FINANCING \$38.1 BILLION WORTH OF BENEFIT PROMISES TO PRESENT MEMBERS, RETIREES AND BENEFICIARIES DECEMBER 31, 2011 (AMOUNTS IN \$BILLIONS)



# ACTUARIAL BALANCE SHEET DECEMBER 31, 2011

	Funding Sources									
	Regular	SLEP	ECO	Total						
Present Valuation Assets										
Member Contributions	\$ 5,138,430,007	\$ 304,265,338	\$ 29,085,444	\$ 5,471,780,789						
Employer Assets	5,907,594,162	207,618,092	(28,201,465)	6,087,010,789						
Retired Life Assets	12,189,531,092	976,023,299	222,464,408	13,388,018,799						
Market Value Adjustment	687,100,406	43,877,371	6,023,413	737,001,190						
Death and Disability Reserves				27,476,017						
Total Present Assets	\$23,922,655,667	\$1,531,784,100	\$229,371,800	\$25,711,287,584						
Future Assets										
Member Contributions	2,433,656,804	189,872,651	9,713,898	2,633,243,353						
Employer Contributions										
Normal Costs	4,178,501,225	321,794,648	22,838,258	4,523,134,131						
Unfunded Liability	4,628,221,266	498,495,462	124,811,116	5,251,527,844						
Total Employer	8,806,722,491	820,290,110	147,649,374	9,774,661,975						
Total Future Assets	11,240,379,295	1,010,162,761	157,363,272	12,407,905,328						
Total Funding Sources	\$35,163,034,962	\$2,541,946,861	\$386,735,072	\$38,119,192,912						

Funding Uses									
Funds Needed for	Regular	Regular SLEP		Total					
Active Members	\$20,245,250,732	\$1,496,205,552	\$126,498,438	\$21,867,954,722					
Inactive Members	2,728,253,138	69,718,010	37,772,226	2,835,743,374					
Retirees and Beneficiaries	12,189,531,092	976,023,299	222,464,408	13,388,018,799					
Death and Disability Benefits				27,476,017					
Total Actuarial Present Value	\$35,163,034,962	\$2,541,946,861	\$386,735,072	\$38,119,192,912					

# DEVELOPMENT OF AVERAGE CONTRIBUTION RATES APPLICABLE TO CALENDAR YEAR 2013 (RESULTS AS OF DECEMBER 31, 2011)

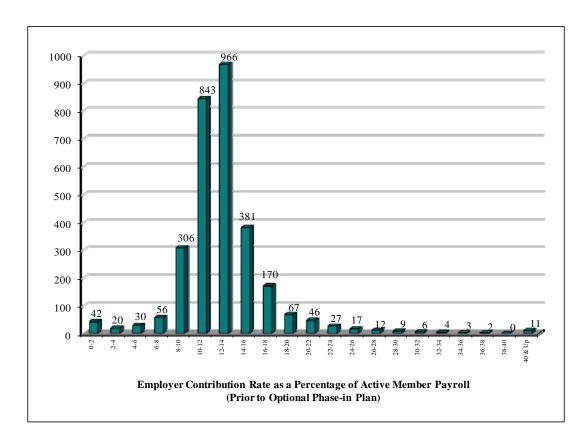
	% of Active Member Pays				
	Regular	SLEP	ECO		
Tier 1 Normal Cost	7.89 %	12.84 %	17.64 %		
Tier 2 Normal Cost	4.68 %	9.12 %	13.58 %		
Average Employer Contributions for					
Normal Cost*					
Retirement	7.65 %	12.51 %	17.23 %		
\$3,000 Lump Sum Death Benefit	0.04 %	0.01 %	0.06 %		
Total & Permanent Disability Benefit	0.08 %	0.22 %	0.34 %		
Total Normal Cost	7.77 %	12.74 %	17.63 %		
Lump Sum Death-in-Service Benefits	0.19 %	0.20 %	0.20 %		
Temporary Disability	0.11 %	0.11 %	0.11 %		
13th Payments	0.62 %	0.62 %	0.62 %		
Unfunded (Overfunded) Liabilities (30/10 years)	3.86 %	7.90 %	28.15 %		
Early Retirement Incentive Liabilities	0.30 %	0.11 %	0.14 %		
SLEP Supplemental Liabilities	0.00 %	1.72 %	0.00 %		
Total Average Employer Rate	12.85 %	23.40 %	46.85 %		
	10.40.00	22.49.0/	47 15 0/		
Prior Year Averages	12.42 %	22.48 %	47.15 %		

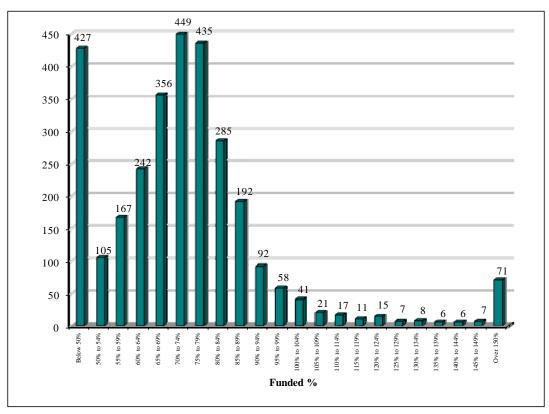
\* Average of Tier 1 and Tier 2 Normal Cost weighted on expected payroll.

Each participating employer pays a normal cost rate based on the weighted average of its Tier 1 and Tier 2 projected wages (some larger employers have the option of paying an individual normal cost rate) and the same rate for temporary disability benefits and 13th Payments. Rates for lump sum death-in-service benefits, unfunded (overfunded) liabilities, and early retirement incentive liabilities are separately determined for each employer, and can vary widely. Because of this, the average contribution rates tell only part of the story. Pages A-4 through A-7 show the distribution of computed employer contribution rates, funding percents, and rate changes based on the annual required contribution from the prior year among the 3,018 Regular plans, 191 SLEP plans and 67 ECO plans. IMRF staff reviews all of the computed rates and in some cases may make adjustments to those rates that are not reflected in this report. The rates shown in this report are prior to the optional phase-in plan where employers have the option to cap contribution rate increases at 10% of the 2012 rate or 1/3 of the difference between the 2012 rate and 2013 rate (if higher). While most contribution rates are near the average, some employer rates are below 2% and some are over 40% of payroll.

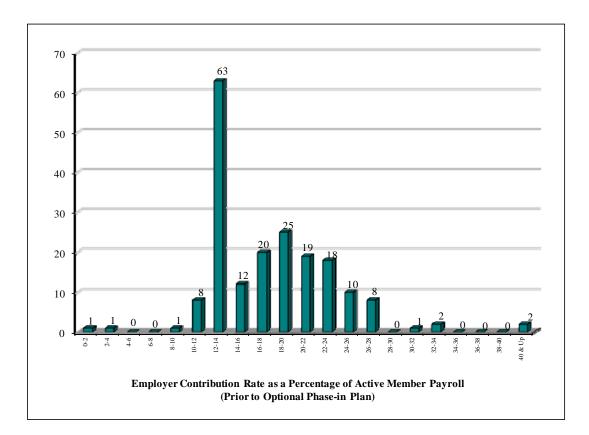
Employer contributions made during calendar year 2011 amounted to \$801 million. This compares with \$770 million in the previous year.

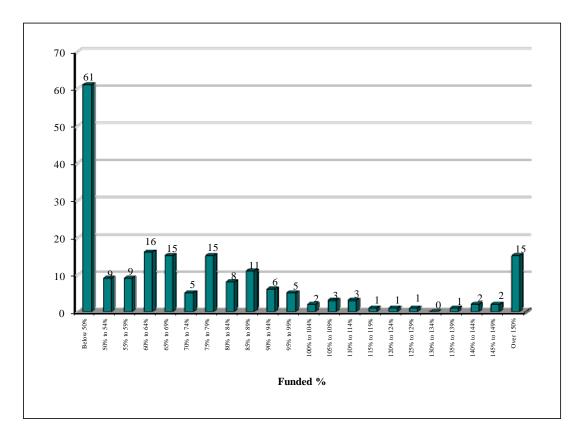
# EMPLOYER CONTRIBUTION RATES AND FUNDED PERCENTS 3,018 REGULAR EMPLOYERS AT DECEMBER 31, 2011



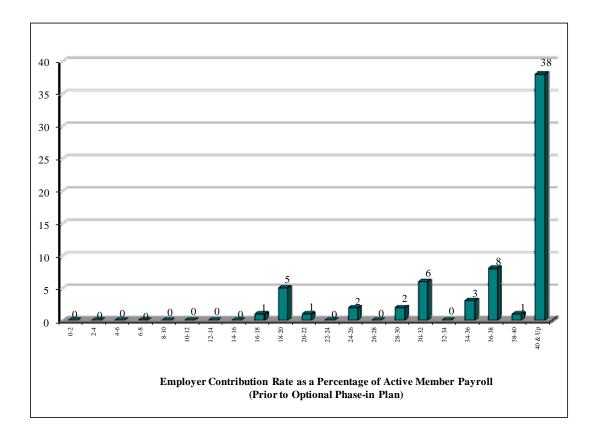


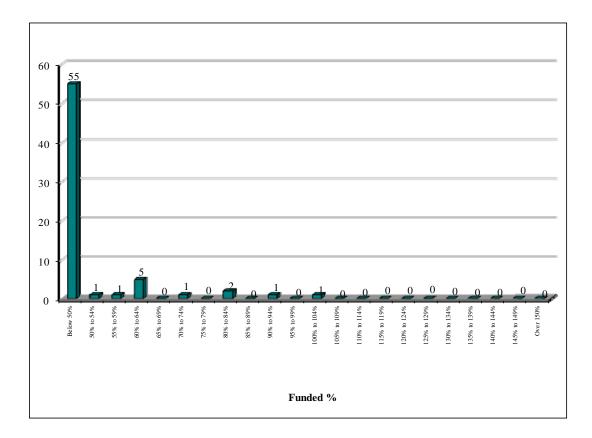
# EMPLOYER CONTRIBUTION RATES AND FUNDED PERCENTS 191 SLEP EMPLOYERS AT DECEMBER 31, 2011



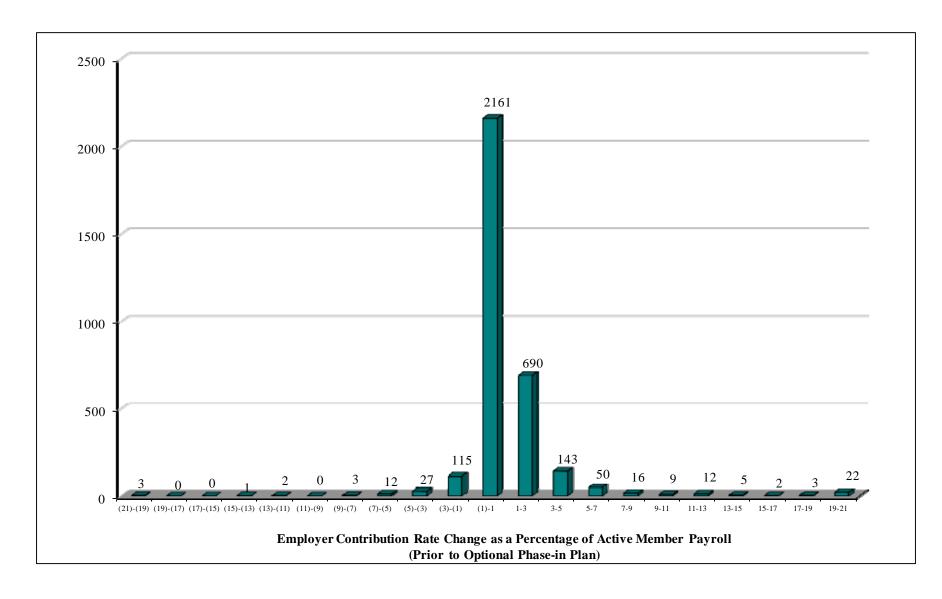


# EMPLOYER CONTRIBUTION RATES AND FUNDED PERCENTS 67 ECO EMPLOYERS AT DECEMBER 31, 2011





# EMPLOYER CONTRIBUTION RATE CHANGES - 2011 ACTUARIAL VALUATIONS 3,276 EMPLOYERS



		Employer Contribution Rate						
			Expressed as % of Active Payroll					
		Regular	Members	SLEP M	[embers	ECO M	le mbe rs	
Rate Applies	Rate Computed		Average		Average		Average	
to Calendar	as of	Normal	Total	Normal	Total	Normal	Total	
Year	December 31	Cost	Rate	Cost	Rate	Cost	Rate	
1989	1987 <sup>1, 2</sup>	6.94%	12.17%	7.93%	13.01%			
1990	1988	6.94%	11.79%	7.90%	12.53%			
1991	1989	6.94%	11.60%	7.88%	12.02%			
1992	1990 <sup>1</sup>	8.24%	11.89%	10.31%	14.01%			
1993	1991 <sup>1, 2</sup>	7.04%	10.58%	8.49%	12.01%			
1994	1992	7.33%	10.77%	8.87%	11.82%			
1995	1993 <sup>1</sup>	7.22%	10.19%	9.50%	12.00%			
1996	1994	7.22%	9.98%	9.51%	11.97%			
1997	1995	7.27%	9.61%	9.32%	11.43%			
1998	1996 <sup>1</sup>	7.21%	9.64%	10.22%	13.94%			
1999	1997 <sup>3</sup>	7.23%	9.03%	10.62%	14.65%	21.48%	36.14%	
2000	1998	7.17%	8.16%	10.42%	14.28%	23.39%	41.38%	
2001	1999 <sup>1</sup>	7.41%	6.64%	12.02%	14.86%	23.85%	42.58%	
2002	2000	7.62%	5.87%	11.94%	14.13%	18.05%	38.46%	
2003	2001	7.66%	6.22%	11.96%	14.04%	17.95%	40.37%	
2004	$2002^{-1}$	7.60%	7.82%	12.47%	16.29%	18.18%	44.90%	
2005	2003	7.61%	9.25%	12.48%	17.15%	18.07%	42.66%	
2006	2004	7.64%	10.04%	12.56%	18.25%	18.01%	44.90%	
2007	$2005^{1, 2}$	7.43%	9.72%	11.66%	18.42%	17.52%	41.30%	
2008	2006	7.42%	9.47%	11.63%	19.33%	16.96%	41.80%	
2009	2007	7.42%	9.27%	11.63%	18.65%	17.08%	42.77%	
2010	2008 <sup>1, 4</sup>	7.58%	11.89%	11.97%	21.63%	17.24%	43.57%	
2011	$2009^{4}$	7.58%	12.14%	11.97%	21.76%	17.20%	42.72%	
2012	$2010^{4}$	7.58%	12.42%	12.01%	22.48%	17.22%	47.15%	
2013	<b>2011</b> <sup>1, 2, 4</sup>	7.77%	12.85%	12.74%	23.40%	17.63%	46.85%	

# HISTORICAL SUMMARY OF EMPLOYER RATES

1 Assumption change

2 Benefit change

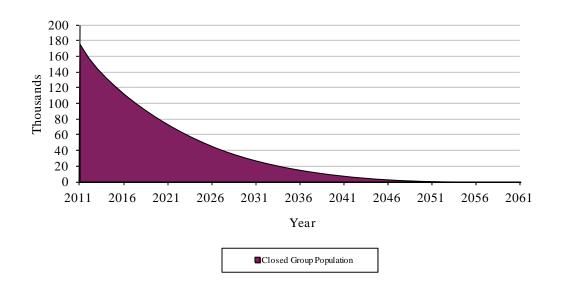
3 Changed to payroll weighted average method

4 Before optional phase-in plan

As shown above, the average employer contribution rates (prior to the optional phase-in plan) increased this year for regular employers, SLEP employers and ECO employers. Generally, small fluctuations from year to year should be expected for the average rate and for any large employer's rate. Small and very small employers will experience larger variations.

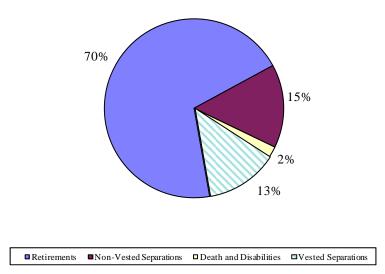
Most of the larger changes were for small employers (often employers covering only 1 or 2 employees), since the removal or addition of 1 employee can significantly impact the contribution rate. The actuary and IMRF staff review all of the large rate changes individually in order to determine the reasonableness of the change. In some cases, rates may be changed.

# EXPECTED DEVELOPMENT OF PRESENT POPULATION DECEMBER 31, 2011



**Closed Group Population Projection** 

Expected Terminations from Active Employment for Current Active Members



The charts above show the expected future development of the present population in simplified terms. The retirement system presently covers 175,233 active members. Eventually, 15% of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for a monthly benefit. About 83% of the present population is expected to receive monthly retirement benefits either by retiring directly from active service, or by retiring from vested deferred status. Two percent of the present population is expected to become eligible for death-in-service or disability benefits. Within 8 years, over half of the covered membership is expected to consist of new hires.

In a retirement system such as IMRF, where unfunded liabilities are being amortized as a level percent of active member payroll, unfunded liabilities are expected to rise in dollar amount for an extended period before finally beginning to decrease. This has to do with inflation and the related fact that the dollar is a yardstick whose length changes every year. The schedule below illustrates the development of the unfunded liability, based upon actuarial value of assets, during the year.

	Unfunded Liability I	Development During
	2011	2010
Unfunded (Overfunded) Liability January 1	\$4,878,091,350	\$4,590,309,432
Assumed Net (Payments) Credits	(271,273,181)	(242,704,632)
Assumed Interest	355,806,713	335,281,478
Expected Unfunded Liability December 31	4,962,624,882	4,682,886,278
Increase/(Decrease) Due to Experience Study	181,134,110	0
Increase/(Decrease) Due to Benefit Changes	0	0
Increase/(Decrease) Due to Data Changes	0	250,000,000
Loss/(Gain) Due to Investment Experience	164,319,997	90,484,387
Loss/(Gain) Due to Other Sources	(56,551,145)	(145,279,315)
Actual Unfunded Liability December 31	\$5,251,527,844	\$4,878,091,350

# UNFUNDED ACTUARIAL ACCRUED LIABILITIES COMPARATIVE STATEMENT

	(4)					1
	Actuarial				(5) E	
<b>V</b> .1	Accrued	(2) V 1	(3)	(4) Val - 4	Funded	Unfunded/
Valuation Data	Liabilities	Valuation	Unfunde d	Valuation	Ratio	Payroll
Date	(AAL)	Assets	AAL	Payroll	(2)/(1)	(3)/(4)
1987*#	\$ 4,516,366,654	\$ 2,757,918,614	\$ 1,758,448,040	\$1,869,513,284	61.1%	94.1%
1988	4,941,412,403	3,139,563,467	1,801,848,936	1,998,362,932	63.5%	90.2%
1989	5,429,420,300	3,589,732,873	1,839,687,427	2,141,472,213	66.1%	85.9%
1990*	6,234,602,259	4,468,795,967	1,765,806,292	2,303,544,906	71.7%	76.7%
1991*#	6,406,965,450	5,034,577,441	1,372,388,009	2,491,859,698	78.6%	55.1%
1992	6,954,483,358	5,615,583,858	1,338,899,500	2,634,441,716	80.7%	50.8%
1993*	7,509,766,239	6,396,329,900	1,113,436,339	2,709,280,078	85.2%	41.1%
1994	8,126,642,830	7,078,861,925	1,047,780,905	2,946,519,940	87.1%	35.6%
1995	8,823,697,487	8,034,030,783	789,666,704	3,095,916,750	91.1%	25.5%
1996*	9,778,592,519	9,076,261,663	702,330,856	3,084,086,668	92.8%	22.8%
1997	10,807,969,067	10,273,116,034	534,853,033	3,454,621,933	95.1%	15.5%
1998	11,860,879,198	11,636,495,534	224,383,665	3,696,047,942	98.1%	6.1%
1999*	13,005,023,293	13,520,192,111	(515,168,818)	3,952,129,535	104.0%	-
2000	14,153,055,774	15,169,369,271	(1,016,313,497)	4,184,702,169	107.2%	-
2001	15,318,517,575	16,305,022,254	(986,504,679)	4,503,092,615	106.4%	-
2002*	16,559,907,302	16,800,195,504	(240,288,202)	4,755,103,888	101.5%	-
2003	17,966,103,451	17,529,890,818	436,212,633	4,944,767,495	97.6%	8.8%
2004	19,424,667,016	18,315,987,910	1,108,679,106	5,161,127,432	94.3%	21.5%
2005 *#	20,815,060,842	19,698,401,285	1,116,659,557	5,374,585,943	94.6%	20.8%
2006	22,488,185,031	21,427,139,356	1,061,045,675	5,630,683,054	95.3%	18.8%
2007	24,221,543,716	23,274,361,198	947,182,518	5,931,443,117	96.1%	16.0%
2008 *	25,611,199,349	21,601,053,512	4,010,145,837	6,259,283,197	84.3%	64.1%
2009	27,345,113,216	22,754,803,784	4,590,309,432	6,461,696,602	83.2%	71.0%
2010	29,129,228,239	24,251,136,889	4,878,091,350	6,391,164,701	83.3%	76.3%
2011 *#	30,962,815,428	25,711,287,584	5,251,527,844	6,431,296,235	83.0%	81.7%

\* Assumption change

# Benefit change

While no one or two numeric indices can fully describe the financial condition of a retirement system, trends in both the Funded Ratio (column 5) and the Unfunded/Payroll Ratio (column 6) provide useful information. Unfunded accrued liabilities represent plan debt, while active member payroll represents the plan's capacity to service the debt. In a retirement system that is following the discipline of level percent of payroll financing, the Funded Ratio should gradually move toward 100% and the Unfunded/Payroll ratio should gradually move toward 0%.

If the contributions to IMRF 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 test*.

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

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

In a system that has been following the discipline of level percent of payroll financing, the liabilities for 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 and inactive 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.

	Aggregate Actuarial Liabilities For				Porti	<b>Portion of Actuarial</b>		
	(1)	(2)	(3)		Liabili	ities Cove	ered by	
			Non-Retired			Assets		
			Members					
Calendar	Non-Retired		(Employer	Actuarial				
Year	Contributions	Annuitants	<b>Financed Portion</b> )	Assets	(1)	(2)	(3)	
1996*	\$1,782,293,677	\$3,588,320,471	\$4,407,978,361	\$ 9,076,261,663	100%	100%	84.1%	
1997	1,933,512,014	3,995,946,514	4,878,510,539	10,273,116,034	100%	100%	89.0%	
1998	2,086,679,470	4,485,651,306	5,288,548,422	11,636,495,534	100%	100%	95.8%	
1999*	2,259,446,274	4,915,459,683	5,830,117,336	13,520,192,111	100%	100%	108.8%	
2000	2,473,646,891	5,284,275,174	6,395,133,709	15,169,369,271	100%	100%	115.9%	
2001	2,708,833,984	5,613,708,283	6,995,975,308	16,305,022,254	100%	100%	114.1%	
2002*	2,950,041,671	6,050,882,416	7,558,983,215	16,800,195,504	100%	100%	103.2%	
2003	3,186,234,066	6,674,490,186	8,105,379,199	17,529,890,818	100%	100%	94.6%	
2004	3,423,785,725	7,332,542,340	8,668,338,951	18,315,987,910	100%	100%	87.2%	
2005*#	3,688,148,208	7,966,135,229	9,160,777,405	19,698,401,285	100%	100%	87.8%	
2006	3,960,880,175	8,652,328,762	9,874,976,094	21,427,139,356	100%	100%	89.3%	
2007	4,248,399,825	9,400,832,984	10,572,310,907	23,274,361,198	100%	100%	91.0%	
2008*	4,573,736,116	10,025,599,295	11,011,863,938	21,601,053,512	100%	100%	63.6%	
2009	4,893,022,745	10,903,323,478	11,548,766,993	22,754,803,784	100%	100%	60.3%	
2010	5,153,902,881	12,121,959,266	11,853,366,092	24,251,136,889	100%	100%	58.8%	
2011 *#	5,417,822,062	13,388,018,799	12,156,974,567	25,711,287,584	100%	100%	56.8%	

#### **Short Condition Test**

\* Assumption change

# Benefit change

	Aggregate Actuarial Liabilities For				Porti	on of Act	ıarial
	(1)	(2)	(3)		Liabili	Liabilities Covered by	
			Non-Retired			Assets	
			Members				
Calendar	Non-Retired		(Employer	Actuarial			
Year	Contributions	Annuitants	<b>Financed Portion</b> )	Assets	(1)	(2)	(3)
2004	\$3,218,950,781	\$6,775,766,071	\$8,033,013,628	\$17,183,420,531	100%	100%	89.5%
2005*#	3,467,051,885	7,348,267,408	8,459,755,550	18,462,949,189	100%	100%	90.4%
2006	3,722,403,708	7,943,908,035	9,079,788,372	20,063,069,197	100%	100%	92.5%
2007	3,992,763,009	8,599,825,860	9,769,922,388	21,779,613,412	100%	100%	94.0%
2008*	4,297,097,330	9,168,217,695	10,187,007,579	20,191,630,667	100%	100%	66.0%
2009	4,594,830,636	9,971,780,724	10,698,214,439	21,250,929,876	100%	100%	62.5%
2010	4,841,653,264	11,047,821,308	11,007,557,254	22,628,324,412	100%	100%	61.2%
2011 *#	5,087,758,544	12,189,531,092	11,298,603,677	23,948,247,636	100%	100%	59.0%

# **Regular Members**

\* Assumption change

# Benefit change

### **SLEP Members**

	Aggreg	ate Actuarial Liab		Porti	Portion of Actuarial		
	(1)	(2)	(3)		Liabili	ties Cove	red by
			Non-Retired			Assets	
			Members				
Calendar	Non-Retired		(Employer	Actuarial			
Year	Contributions	Annuitants	<b>Financed Portion</b> )	Assets	(1)	(2)	(3)
2004	\$186,737,395	\$475,131,592	\$516,744,548	\$1,018,431,576	100%	100%	69.0%
2005*#	200,612,275	524,514,703	591,855,568	1,106,145,236	100%	100%	64.4%
2006	215,431,613	601,939,738	673,264,887	1,216,287,901	100%	100%	59.3%
2007	230,360,204	682,656,029	671,880,227	1,330,462,724	100%	100%	62.1%
2008*	251,078,170	691,076,541	711,187,062	1,225,043,022	100%	100%	39.8%
2009	270,526,254	756,769,279	735,206,914	1,307,566,622	100%	100%	38.1%
2010	284,935,047	868,199,000	739,639,201	1,410,557,658	100%	100%	34.8%
2011 *#	301,264,894	976,023,299	754,994,446	1,533,422,771	100%	100%	33.9%

\* Assumption change

# Benefit change

	Aggregate Actuarial Liabilities For				Porti	on of Actu	ıarial
	(1)	(2)	(3)		Liabili	ties Cove	red by
			Non-Retired			Assets	
			Members				
Calendar	Non-Retired		(Employer	Actuarial			
Year	Contributions	Annuitants	Financed Portion)	Assets	(1)	(2)	(3)
2004	\$18,097,549	\$81,644,677	\$118,580,776	\$114,135,803	100%	100%	12.1%
2005*#	20,484,049	93,353,118	109,166,286	129,306,860	100%	100%	14.2%
2006	23,044,854	106,480,989	121,922,835	147,782,258	100%	100%	15.0%
2007	25,276,522	118,351,095	130,508,292	164,285,062	100%	100%	15.8%
2008	25,560,616	166,305,059	113,669,297	184,379,823	100%	95%	0.0%
2009	27,665,855	174,773,475	115,345,640	196,307,286	100%	96%	0.0%
2010	27,314,570	205,938,958	106,169,637	212,254,819	100%	90%	0.0%
2011 *#	28,798,624	222,464,408	103,376,444	229,617,177	100%	90%	0.0%

# **ECO Members**

\* Assumption change# Benefit change

# **SECTION B** SUMMARY OF BENEFIT PROVISIONS AND VALUATION DATA

# SUMMARY OF BENEFITS AND CONDITIONS EVALUATED DECEMBER 31, 2011

This is a brief plan description of IMRF benefits. Additional conditions and restrictions may apply. A complete description is found in Article 7 of the Illinois Pension Code.

#### **Participating Employers**

All counties and school districts, plus cities and villages and incorporated towns with a population of 5,000 or more (except certain governmental entities specifically excluded by the Pension Code) are required to participate. Other local government units may elect to participate.

#### Membership

All appointed employees of a participating employer who are employed in a position normally requiring 600 hours (1,000 hours for certain employees hired after 1981) or more of work in a year are required to participate. Elected officials and hospital employees who satisfy requirements may also participate.

#### **Service Credit**

Service credit is the total time under IMRF, stated in years and fractions. Service is credited monthly while the member is working, receiving IMRF disability benefits or on IMRF's Benefit Protection Leave. For revised ECO members, the ECO benefit formula is limited to service in an elected office.

Members may qualify for a maximum of one year of additional service credit for unused, unpaid sick leave accumulated with the last employer. Members who retire from a school district may utilize unused sick leave from all school district employers. This additional service credit applies only for members leaving employment for retirement. The service credit is earned at the rate of one month for every 20 days of unused, unpaid sick leave or fraction thereof.

IMRF is a participating plan under the Reciprocal Act, as are all other Illinois public pension systems, except local police and fire pension plans. Under the Reciprocal Act, service credit of at least one year may be considered together at the date of retirement or death for the purpose of determining eligibility for and amount of benefits. However, for teacher aides who meet certain criteria, service credit of less than one year may be considered in determining benefits under the Reciprocal Act.

#### **Final Rate of Earnings (FRE)**

#### **Retirement and Survivor Annuities**

*Tier 1 Members:* The final rate of earnings for Regular and SLEP members is the highest total earnings during any 48 consecutive months within the last 10 years of IMRF service divided by 48 or the total lifetime earnings divided by the total lifetime number of months of service. The final rate of earnings for ECO members is the annual salary of the ECO member on the day he or she retires. For revised ECO members who join the plan after January 25, 2000, the final rate of earnings is the highest total earnings during any 48 consecutive months within the last 10 years of IMRF service divided by 48 or the total earnings during any 48 consecutive months within the last 10 years of IMRF service divided by 48 for each office held.

*Tier 2 Members:* The final rate of earnings for Regular and SLEP members is the highest total earnings during any 96 consecutive months within the last 10 years of IMRF service divided by 96 or the total lifetime earnings divided by the total lifetime number of months of service. For revised ECO members who join the plan after January 25, 2000, the final rate of earnings is the highest total earnings during any 96 consecutive months within the last 10 years of IMRF service highest total earnings are initially capped at \$106,800 which will increase annually beginning in 2012 by three percent or one-half of the increase of the Consumer Price Index whichever is less. For SLEP members overtime compensation is excluded from pensionable earnings.

Death Benefits: The greater of the above amount or the average of earnings over the last 12 months of service.

*Disability Benefits:* The average of earnings over the last 12 months of service (for ECO members, annualized salary on last day of ECO participation).

#### **Normal Retirement Pension Eligibility**

#### Tier 1 Members:

Normal retirement for an unreduced pension is:

- Age 60 with eight or more years of service or 35 or more years of service at age 55,
- Age 50 with 20 or more years of SLEP service for members with SLEP service,
- Age 55 with eight or more years of service for members with ECO service, or
- Age 55 with eight or more years of service in the same elected county office for members with Revised ECO service.

#### Tier 2 Members:

Normal retirement for an unreduced pension is:

- Age 67 with ten or more years of service or 35 or more years of service at age 62,
- Age 55 with ten or more years of SLEP service for members with SLEP service,
- Age 67 with eight or more years of service in the same elected county office for members with Revised ECO service.

#### **Normal Retirement Pension Amount**

#### A Regular IMRF pension is:

- 1-2/3 percent of the final rate of earnings for each of the first 15 years of service credit, plus
- 2 percent for each year of service credit in excess of 15 years.

The maximum pension at retirement cannot exceed 75 percent of the final rate of earnings.

#### A SLEP pension is:

• 2-1/2 percent of the final rate of earnings for each year of service.

The maximum pension at retirement cannot exceed 80 percent (75 percent for Tier 2) of the final rate of earnings.

#### An ECO pension is:

- 3 percent of the final rate of earnings for each of the first eight years of service, plus
- 4 percent for each year of service between eight and 12 years of service, plus
- 5 percent for years of service credit over 12.

The maximum pension at retirement cannot exceed 80 percent of the final rate of earnings.

*A money purchase minimum pension* is provided if it exceeds the normal formula amount. The money purchase minimum is the amount that may be purchased by 2.4 times the member's applicable accumulated contributions, including interest at 7.5%.

*A reversionary pension option* is provided to members at retirement. This option permits the member to revert a portion of his pension to one other person upon his death. This election is irrevocable.

An IMRF pension is paid for life.

#### Early Retirement (not applicable to SLEP Tier 1 optional benefits or to ECO service)

*Tier 1 Members:* Regular members may retire as early as age 55 with a reduced pension. The reduction is the lesser of:

- one-fourth percent for each month the member is under age 60, or
- one-fourth percent for each month of service less than 35 years.

*Tier 2 Members:* Regular members may retire as early as age 62 with a reduced pension. The reduction is the lesser of:

- one-half percent for each month the member is under age 67, or
- one-half percent for each month of service less than 35 years.

SLEP members may retire as early as age 50 with a reduced pension. The reduction is one-half percent for each month the member is under age 55.

#### **Early Retirement Incentive Program (ERI)**

*Eligibility and Amount:* IMRF employers may offer an early retirement incentive (ERI) program to their employees who are over 50 (57 for Tier 2 regular and ECO members) years of age and who have at least 20 years of service credit. Eligible members may purchase up to five years of service credit and age. Employers must pay off the additional ERI liability within 10 years. Subsequent ERI programs may be offered by an employer after the liability for the previous ERI program is paid.

*Member Cost:* For each year of service credit purchased, members pay the current member contribution rate multiplied by the highest 12 consecutive months of salary (within ERI period).

#### Vesting

*Tier 1 Members:* Members are vested for pension benefits when they have at least eight years of qualifying service credit. SLEP members are vested for a SLEP pension when they have at least 20 years of SLEP service credit. SLEP members with more than eight years of service but less than 20 years of SLEP service will receive a Regular pension. Revised ECO members (those who joined the ECO plan after January 25, 2000) are vested with eight or more years of ECO service credit in the same elected county position. Revised ECO members with eight years in the same elected county office will receive a Regular pension.

*Tier 2 Members:* Members are vested for pension benefits when they have at least ten years of qualifying service credit. SLEP members are vested for a SLEP pension when they have at least ten years of SLEP service credit. Revised ECO members (those who join the ECO plan after January 25, 2000) are vested with ten or more years of ECO service credit in the same elected county position. Revised ECO members with at least ten years of total service but less than ten years of service in the same elected county office will receive a Regular pension.

#### **Surviving Spouse Pension**

*For Regular and SLEP members:* A surviving spouse's monthly pension is one-half (66-2/3 percent for Tier 2) of the member's pension.

*For ECO members:* A surviving spouse's monthly pension is 66-2/3 percent of the member's pension. This pension is payable once the surviving spouse becomes 50 years old. If the spouse is caring for the member's minor, unmarried children, the spouse will receive (age 50 requirement does not apply):

- A monthly pension equal to 30 percent of the ECO member's salary at time of death plus
- 10 percent of the ECO member's salary at time of death for each minor, unmarried child. The maximum total monthly benefit payable to spouse and children cannot exceed 50 percent of the ECO member's salary at time of death, or
- A monthly pension equal to 66-2/3 percent of the pension the member had earned.

Surviving spouse pensions under all plans are increased each January 1. The increase is based on the original amount of the pension. The increase for the first year is prorated for the number of months the surviving spouse or the member received a pension. For tier 1, the annual increase is three percent. For tier 2, the annual increase is three percent or one-half the increase in the Consumer Price Index, whichever is less.

# SUMMARY OF BENEFITS AND CONDITIONS EVALUATED DECEMBER 31, 2011

#### Lump Sum Death-In-Service Benefit

Less than 1 year of service: Member contributions plus interest.

*More than 1 year of service* (or death in the line of duty): The sum of one times FRE (limited to pensionable earnings cap for Tier 2 members) and member contributions with interest.

These benefits are payable only if no surviving spouse pension is payable.

#### Lump Sum Death-After Retirement Benefit

\$3,000. If there is no surviving spouse, any remainder of the deceased member's contributions and interest not paid out as a pension is also payable.

#### **Children's Benefits**

#### **Regular and SLEP**

*Eligibility:* Death of a member eligible to retire who has no surviving spouse, or death of a surviving spouse's beneficiary.

Amount: Equal to spouse's pension, divided equally among surviving children and payable to age 18.

#### ECO

Eligibility: Death of a member with minor children and no eligible spouse.

*Amount:* 20% of salary to each child, to a maximum of 50% of salary, payable to age 18. If death occurs after termination of service, the total payment to the surviving spouse and children is limited to 75% of the member's pension.

#### **Temporary Disability**

*Eligibility:* Temporary disability for at least 30 days after one year of service and prior to age 70. Preexisting conditions are excluded if service is under 5 years.

Amount: 50% of FRE less amounts payable from Social Security or Worker's Compensation.

Duration: Period equal to 1/2 credited service, not to exceed 30 months.

#### **Total and Permanent Disability**

#### **Regular and SLEP**

*Eligibility:* Payable after temporary disability period to members who are totally and permanently disabled and unable to engage in any gainful occupation.

Amount: 50% of FRE less amounts payable by Social Security.

Duration: To the later of (i) Social Security age, or (ii) age at disability plus 5 years.

#### ECO

*Eligibility:* Payable to members who are totally and permanently disabled from performing the duties of their office while in service as an elected county officer.

Amount: The greater of 50% of FRE or the alternate formula pension amount earned to date.

Duration: To the later of (i) Social Security age, or (ii) age at disability plus 5 years.

# SUMMARY OF BENEFITS AND CONDITIONS EVALUATED DECEMBER 31, 2011

IMRF service is credited during the disability period, except that under the revised ECO plan, the service that will be credited will be Regular or SLEP as appropriate, but not ECO.

#### **Post-Retirement Increases**

**Tier 1 Members:** Members in all plans receive an annual 3% increase based upon the original amount of the annuity. The increase for the first year is pro-rated for the number of months the member was retired.

**Tier 2 Members:** Members in all plans receive an annual increase based upon the original amount of the annuity of 3% or one-half of the increase in the Consumer Price Index whichever is less. For regular and ECO members the annual increases do not begin until the retiree reaches the age of 67 or after 12 months of retirement, whichever is later. For SLEP members the increases begin at age 60 or after 12 months of retirement, whichever is later.

#### **13th Payment**

A lump sum payment is made to eligible retirees and surviving spouses on July 1st. The amount depends on funds available from a designated employer contribution of 0.62% of payroll. No specific 13<sup>th</sup> payment amount is promised to any individual.

#### **Member Contributions**

Regular Members: 4 1/2% of earnings (3-3/4% base plus 3/4% for survivor benefits).

SLEP Members: 7 1/2% of earnings (6-3/4% base plus 3/4% for survivor benefits).

ECO Members: 7 1/2% of earnings (6-3/4% base plus 3/4% for survivor benefits).

*Converting past service credit:* ECO members can convert past regular service by contributing 3% of earnings plus interest for each month of Regular service credit converted. ECO members can convert past SLEP service by contributing 0% to 3% (depending on the original SLEP contribution) of earnings plus interest for each month of SLEP service credit converted. SLEP members can convert past regular service by contributing 3% of earnings plus interest for each month of Regular service credit converted.

Voluntary Additional: Up to 10% of earnings.

**Refunds:** Non-vested members who stop working for an IMRF employer can receive a lump sum refund of their IMRF member contributions. Vested members can receive a lump sum refund of their IMRF member contributions if they stop working for an IMRF employer prior to age 55 (62 for Tier 2 regular members, 50 for Tier 2 SLEP members). Vested members age 55 or older (62 for Tier 2 regular members, 50 for Tier 2 SLEP members) may receive separation refunds if the member rolls over the refund into another defined benefit retirement plan for the purpose of purchasing service credit.

Members who retire without an eligible spouse (married to or in a civil union with the member at least one year before the member terminates IMRF participation) may receive a refund of their surviving spouse contributions with interest or an annuity.

If, upon a member's death, all of the member contributions with interest (7.5% per year) were not paid as a refund or pension to either the member or his or her spouse, the beneficiary will receive any balance in the member's account.

#### **Caps on Reportable Wages**

Under Tier 2, a member's wages are capped. No contributions are payable on wages above the cap. The wage cap is also applied when IMRF calculates your benefits. The cap increases each year by the lesser of 3% or one-half of the increase in the Consumer Price Index (urban) for the preceding September. If the CPI is zero, the wage cap is not increased. A wage cap of \$108,883 was used in the December 31, 2011 valuation.

# SUMMARY OF COVERED POPULATION DATA DECEMBER 31, 2011

				Average	
		Valuation	Pay/		
Member Status	No.	Payroll/Benefits	Benefits	Age	Servi
Active Members					
Regular Tier 1	159,518	\$5,901,314,984	\$36,995	48.6	1
Regular Tier 2	11,063	244,214,104	22,075	36.5	
SLEP Tier 1	4,048	257,467,446	63,604	41.6	1
SLEP Tier 2	175	6,941,387	39,665	33.1	
ECO / ECO SLEP Tier 1	427	21,329,925	49,953	55.7	1
ECO / ECO SLEP Tier 2	2	28,389	14,195	55.3	
Total Active	175,233	\$6,431,296,235	\$36,701	47.7	1
Inactive Members					
Regular Tier 1	163,478			46.3	
Regular Tier 2	1,318			33.8	
SLEP Tier 1	1,053			44.5	
SLEP Tier 2	13			29.4	
ECO / ECO SLEP Tier 1	174			54.7	1
ECO / ECO SLEP Tier 2	0			0.0	
(Inactive and Active)	(33,754)				
Total Inactive	132,282			46.2	
Retirees & Beneficiaries	101,900	\$1,250,503,560	\$12,272	72.3	

Data on persons covered by IMRF were reported to the Actuary as follows:

There are a number of situations where members may be counted more than once. In particular, there are some members who are inactive with at least one employer and active with another employer. In order to avoid counting such individuals more than once, the inactive count is reduced by the number of such people as shown above. Other situations involving people who are inactive with more than one employer can also lead to people being counted more than once in the totals above. Consequently, actual counts of people may be lower than the above counts would suggest.

Additional population statistics are presented on the following pages.

409,415

405,195

**Total Population** 

Prior Year Total

# ACTIVE MEMBERS BY EMPLOYER TYPE DECEMBER 31, 2011 REGULAR, SLEP, ECO COMBINED

			Members		
	Rate		% of	Cumulative	
Type of Employer	Groups	Number	Total	Percent	Payroll
School Districts	863	82,796	47.4%	47.4%	\$ 2,270,005,270
Counties (Regular, SLEP, ECO)	269	31,515	18.0%	65.4%	1,362,974,846
Cities	297	19,081	10.9%	76.3%	966,730,998
Villages	457	14,330	8.2%	84.5%	785,514,387
Park Districts	199	7,845	4.5%	89.0%	297,252,951
Special Ed Districts	43	4,695	2.7%	91.7%	127,839,274
Townships	493	3,669	2.1%	93.8%	133,873,919
Library Districts	217	3,077	1.8%	95.6%	101,349,008
Forest Preserve Districts	13	998	0.6%	96.2%	47,445,124
Sanitary Districts	38	937	0.5%	96.7%	55,682,712
Consolidated Education Service Region	29	827	0.5%	97.2%	21,428,252
Towns	5	647	0.4%	97.6%	30,719,324
County Hospital Districts	3	630	0.4%	98.0%	26,606,943
Intergovernmental Coop	53	617	0.4%	98.4%	39,592,037
Mass Transit District (Taxing Authority)	4	577	0.3%	98.7%	28,682,603
Airport Authorities	12	290	0.2%	98.9%	15,050,853
Misc. Taxing Authority	8	253	0.1%	99.0%	15,437,040
Multi Co/Cons Health Dept.	4	240	0.1%	99.1%	7,786,534
Mass Transit Instrumentality	3	234	0.1%	99.2%	8,694,227
Joint Spec Rec Assns	15	232	0.1%	99.3%	10,067,129
Health Districts	4	229	0.1%	99.4%	9,049,651
Fire Protection Districts	56	198	0.1%	99.5%	11,204,629
Public Library System	2	166	0.1%	99.6%	6,420,901
Miscellaneous Instrumentality	15	145	0.1%	99.7%	8,527,467
Vocational System	39	135	0.1%	99.8%	4,681,910
County Conservation Districts	4	130	0.1%	99.9%	6,036,565
Public Hopusing Authority	8	130	0.1%	100.0%	4,860,290
Conservancy Districts	4	83	0.0%	100.0%	3,636,562
Regional Planning Commission	1	83	0.0%	100.0%	5,374,367
Public Housing Commission	7	61	0.0%	100.0%	2,664,958
County Road District	32	59	0.0%	100.0%	1,563,705
Joint Education Projects	6	58	0.0%	100.0%	1,670,682
Special Ed Coop/Districts	16	57	0.0%	100.0%	4,081,611
Water District	11	55	0.0%	100.0%	2,588,419
Educ Serv Centers	3	42	0.0%	100.0%	1,379,579
Mosquito Abatement District	7	33	0.0%	100.0%	1,919,960
Water Supply/Sewr Comission	5	32	0.0%	100.0%	1,528,438
ROE Office	1	18	0.0%	100.0%	631,311
Multi Twp Assessment Districts	14	13	0.0%	100.0%	267,808
Township Cemetary	13	13	0.0%	100.0%	250,976
Drainage District	2	5	0.0%	100.0%	223,015
Tuberculosis Sanitarium Districts	1	0	0.0%	100.0%	-
Employers with no Active Members	1	U	0.070	100.070	-
or no Asset Information	226	0	0.0%	100.0%	-
					\$6 121 206 225
Totals	3,502	175,233	100.0%	100.0%	\$6,431,296,235

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

									Totals
Attained		Y	ears of Ser	vice to Val	uation Date	•			Valuation
Ages	0-7	8-9	10-14	15-19	20-24	25-29	30 & Up	No.	Payroll
15 - 19	186							186	\$ 2,429,064
20 - 24	4,702							4,702	96,665,444
25 - 29	11,037	319	75					11,431	324,749,515
30 - 34	9,378	1,338	1,609	54				12,379	444,831,896
35 - 39	8,146	1,205	3,230	800	53	3		13,437	501,550,959
40 - 44	10,123	1,478	3,637	2,149	1,039	54	6	18,486	684,868,186
45 - 49	11,474	2,226	5,151	2,532	2,289	995	119	24,786	913,066,806
50	2,321	490	1,354	650	492	379	160	5,846	218,238,745
51	2,268	531	1,399	742	556	356	242	6,094	230,234,667
52	2,146	463	1,412	819	532	427	331	6,130	236,461,558
53	2,050	478	1,419	813	539	383	395	6,077	229,670,705
54	1,873	457	1,494	869	655	385	501	6,234	243,401,207
55	1,839	493	1,427	968	645	394	536	6,302	245,943,656
56	1,653	394	1,274	928	670	320	453	5,692	219,210,067
57	1,504	364	1,154	894	660	342	413	5,331	209,784,607
58	1,457	366	1,127	867	602	318	381	5,118	194,698,729
59	1,433	312	995	813	637	313	339	4,842	185,443,421
60	1,264	361	939	689	669	322	337	4,581	176,247,532
61	1,185	290	808	652	515	319	301	4,070	152,129,881
62	999	244	716	568	463	265	249	3,504	131,879,665
63	862	223	572	440	418	227	190	2,932	106,591,173
64	718	189	501	370	316	209	154	2,457	89,015,119
65	715	181	460	325	308	183	151	2,323	82,967,621
66	448	134	257	187	166	102	99	1,393	47,436,400
67	345	92	226	148	107	74	73	1,065	35,182,032
68	345	88	190	122	85	59	56	945	29,503,264
69	317	88	183	117	76	55	59	895	26,485,662
70	245	57	156	76	72	47	46	699	20,059,415
Over 70	886	247	550	373	223	152	213	2,644	66,782,092
Totals	81,919	13,108	32,315	17,965	12,787	6,683	5,804	170,581	\$6,145,529,088
		,	,		,	-,000	- ,001		, -, , , 0 - 0

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

							_		Totals
Attained _		Ye	ars of Serv	vice to Valu	ation Date				Valuation
Ages	0-7	8-9	10-14	15-19	20-24	25-29	30 & Up	No.	Payroll
20 - 24	41							41	\$ 1,589,429
25 - 29	476	10	1					487	24,682,869
30 - 34	413	140	101	1				655	36,421,742
35 - 39	209	79	302	95	3			688	42,079,377
40 - 44	165	63	226	270	110	1		835	54,537,978
45 - 49	79	27	107	147	261	75	6	702	49,725,036
50	6	9	18	21	37	25	1	117	8,391,929
51	13	3	16	19	17	12	2	82	5,622,067
52	13	3	10	16	22	12	2	78	5,331,023
53	13	5	10	15	18	10	12	83	5,724,721
54	13	3	7	8	12	11	4	58	4,031,891
55	5	5	7	5	16	12	8	58	4,036,906
56	8	6	9	11	15	5	3	57	3,720,145
57	10	2	6	5	7	8	3	41	2,517,311
58	6	2	10	4	10	8	2	42	2,742,568
59	9	3	9	9	8	5	4	47	3,145,782
60	4	2	4	6	6	4	6	32	2,064,472
61	3	3	4	5	4	5	2	26	1,791,721
62	5	1	3	3	5	1	4	22	1,428,621
63	3	2	4	2	6	1	3	21	1,346,921
64	6	1	3	2	1		4	17	1,124,729
65		2	3				3	8	682,075
66	1	1		3		1	1	7	547,105
67	1					1	1	3	179,246
68	1			2				3	187,343
69				1				1	68,609
70		1	1	1	1	1		5	273,406
Over 70	3			3			1	7	413,811
Totals	1,506	373	861	654	559	198	72	4,223	\$264,408,833

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

									Totals			
Attained		Yea	ars of Ser	vice to Va	duation <b>D</b>	ate	_		Valuation			
Ages	0-7	8-9	10-14	15-19	20-24	25-29	30 & Up	No.	Payroll			
20-24	1							1	\$ 5,560			
25-29	1							1	57,860			
30-34	8							8	601,991			
35-39	8	2	4					14	972,710			
40-44	17	3	7	3				30	1,724,377			
45-49	19	8	7	7	3	3	1	48	2,698,297			
50	7	1	2	2	1	1	2	16	522,616			
51	5			1	2	2		10	412,780			
52	3	1	2	2	1		1	10	399,185			
53	6		4	2		2	1	15	1,113,673			
54	2	4	6	2	2	3	1	20	1,067,357			
55	7	3	6	6	3		2	27	1,408,127			
56	2		4	4	3	1	1	15	889,638			
57	9		1	4		4	4	22	1,464,382			
58	5		1	3	1		2	12	453,443			
59	7	2	2	3	5	1	2	22	1,397,885			
60	7		1	1	1		1	11	389,716			
61	2	2	3	1	1	1		10	520,618			
62	6	1	3	6	2			18	736,024			
63	1		5	5	1		1	13	533,952			
64	3	1	2	2			1	9	272,070			
65	4	1	4				1	10	383,491			
66	2	1	2				2	7	240,193			
67	2	1		1	1		1	6	211,489			
68	1			2		1		4	195,925			
69	1				1			2	42,391			
70	1			1			1	3	46,586			
Over 70	14	2	8	4	6	4		38	528,264			
Totals	151	33	74	62	34	23	25	402	\$19,290,600			

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

								r	Fotals
Attained		Y	ears of Ser	vice to Va	luation Da	ate			Valuation
Ages	0-7	8-9	10-14	15-19	20-24	25-29	30 & Up	No.	Payroll
	_								<b>•</b> • • • <b>•</b> • • •
40-44	2		1					3	\$ 197,643
45-49	4	1		1	1			7	487,798
50		1						1	62,600
54			1					1	66,119
55	1	2						3	174,454
56			1					1	49,048
60			1					1	70,730
61		1		1		1	3	6	568,093
62		1						1	115,423
63	1				1			2	180,100
Over 70						1		1	95,706
Totals	8	6	4	2	2	2	3	27	\$2,067,714

# ALL ACTIVE MEMBERS BY YEARS OF SERVICE AND GENDER DECEMBER 31, 2011

Service	Acti	ive Member (	Count	Active Mem	ber Pays	
Years	Males	Females	Total	Total	Average	
0	5,103	9,016	14,119	\$ 311,097,330	\$22,034	
1	3,877	6,580	10,457	262,668,292	25,119	
2	3,684	6,280	9,964	259,339,429	26,028	
3	4,200	7,356	11,556	332,293,589	28,755	
4	3,876	7,443	11,319	336,980,603	29,771	
5	3,336	6,447	9,783	309,368,743	31,623	
6	3,174	5,670	8,844	295,150,227	33,373	
7	2,677	4,865	7,542	261,903,099	34,726	
8	2,479	4,209	6,688	238,931,501	35,725	
Sub-Total	32,406	57,866	90,272	2,607,732,813	28,888	
9	2,415	4,418	6,833	250,798,445	36,704	
10	2,620	5,114	7,734	284,556,631	36,793	
11	2,451	4,888	7,339	283,935,129	38,689	
12	2,293	4,568	6,861	272,744,383	39,753	
13	1,965	4,037	6,002	241,242,629	40,194	
14	1,833	3,485	5,318	219,011,132	41,183	
15 & Up	19,107	25,767	44,874	2,271,275,073	50,615	
Totals	65,090	110,143	175,233	\$6,431,296,235	\$36,701	

# INACTIVE REGULAR MEMBERS BY ATTAINED AGE AND YEARS OF SERVICE DECEMBER 31, 2011

Attained		Years of Service to Valuation Date										
Ages	0-4	5-9	10-14	15-19	20-24	25-29	30 & Up	No.				
15 10	101							101				
15-19 20-24	101	2						101				
20-24 25-29	2,662		1				1	2,664				
23-29 30-34	12,213 14,971	171 584	1 68				1	12,386				
	-			22	1		7	15,623				
35-39 40-44	13,859	905 1 202	212 517	133	1 24	3	13	15,006				
40-44 45-49	14,750 14,909	1,292 1,808	825	319	24 143	5 41	13 43	16,732				
43-49 50	-	471			145 49			18,088				
50 51	2,787	471 521	269 272	106		14 22	27 16	3,723				
	2,871		272	115	44 81	38	16 20	3,861				
52 52	2,828	501	341	125			29 21	3,943				
53	2,811	516	307	111	72	36	31	3,884				
54	2,757	574	363	134	75	44	48	3,995				
55	2,879	536	314	138	83	34	42	4,026				
56	2,354	385	170	41	20	10	12	2,992				
57 59	2,617	353	129	38	18	11	18	3,184				
58	2,221	325	114	42	24	8	14	2,748				
59	2,140	291	108	48	17	9	7	2,620				
60	2,298	289	86	34	21	10	10	2,748				
61	1,799	227	63	26	7	13	13	2,148				
62	1,437	156	39	12	10	10	8	1,672				
63	1,296	125	34	13	13	12	6	1,499				
64	1,180	121	39	10	11	3	4	1,368				
65	1,155	127	33	15	6	5	7	1,348				
66	625	73	10	10	2	2	4	726				
67	503	43	19	7	1		2	575				
68	439	52	10	1	2	1	1	506				
69	519	56	5	1	1			582				
70	402	34	4	3	1	1		445				
Over 70	2,165	97	18	6	3	1	9	2,299				
Totals	113,548	10,635	4,370	1,510	729	328	372	131,492				

# INACTIVE SLEP MEMBERS BY ATTAINED AGE AND YEARS OF SERVICE DECEMBER 31, 2011

Attained _		Years of Service to Valuation Date										
Ages	0-4	5-9	10-14	15-19	20-24	25-29	30 & Up	No.				
15-19												
20-24	14							14				
25-29	65							65				
30-34	69	19	1					89				
35-39	55	22	9	1				87				
40-44	66	21	14	3	5		1	110				
45-49	39	17	23	9	11		6	105				
50	5	2	4	1	1	1	1	15				
51	9	3	5	1	1			19				
52	9	1	11	1	1	1	2	26				
53	8	6	5	3				22				
54	6	2	1	3				12				
55	7	2	5	3			2	19				
56	7	2	2	1			1	13				
57	6	1		1				8				
58	13	4			1	2		20				
59	11	1	1		1			14				
60	7	1					2	10				
61	5		1				1	7				
62	5					1		6				
63	2							2				
64		1						1				
65	4						1	5				
66	1						1	2				
67	3						1	4				
68	4							4				
69	1							1				
70												
Over 70	3							3				
Totals	424	105	82	27	21	5	19	683				

# INACTIVE ECO MEMBERS BY ATTAINED AGE AND YEARS OF SERVICE DECEMBER 31, 2011

Attained _	Years of Service to Valuation Date										
Ages	0-4	5-9	10-14	15-19	20-24	25-29	30 & Up	No.			
15-19											
20-24											
25-29											
30-34											
35-39	1							1			
40-44	2	6	2					10			
45-49	4	5	4	4				17			
50	1	3	1			1		6			
51	2	5	1		1			9			
52	1	3	2	1	1			8			
53	1	2	2	1	2			8			
54	4	1	2					7			
55	6	3		1	1			11			
56	1	3	1					5			
57	2	1	1					4			
58		2		2	1			5			
59	1	1						2			
60			1					1			
61											
62	2							2			
63	1							1			
64	1						1	2			
65											
66		2					1	3			
67	1						1	2			
68											
69	1							1			
70											
Over 70	1						1	2			
Totals	33	37	17	9	6	1	4	107			

### **RETIREES AND BENEFICIARIES DECEMBER 31, 2011**

	Annual Amounts by Form of Payment									
	R	egular	Level Pa	yment Option		Total				
Type of Retirement	No.	Amount	No.	Amount	No.	Amount				
Normal or Early										
Joint and 50% Survivor	49,616	\$640,175,280	15,536	\$229,558,476	65,152	\$ 869,733,756				
Joint and 66% Survivor	317	\$11,081,760	82	\$4,117,680	399	15,199,440				
Straight Life	16,577	212,511,864	4,247	72,330,600	20,824	284,842,464				
Total	66,510	863,768,904	19,865	306,006,756	86,375	1,169,775,660				
Disability	515	3,992,220	-	0	515	3,992,220				
Surviving Beneficiaries	11,820	68,809,068	636	5,815,008	12,456	74,624,076				
Voluntary Contributions	2,554	2,111,604	-	0	2,554	2,111,604				
Grand Total	81,399	\$938,681,796	20,501	\$311,821,764	101,900	\$1,250,503,560				

Voluntary Contributions includes annuitization of certain surviving spouse and SLEP refund amounts. Of the 2,554 retirees listed as receiving Voluntary contribution, 2,510 retirees are also in receipt of a separate retirement benefit.

Thirteenth payment amounts are not included in the above figures.

In the above chart, "Regular" refers to all forms of payment other than the level payment option. It does not connote "Regular" as opposed to SLEP and ECO.

## **RETIREES AND BENEFICIARIES BY ATTAINED AGE DECEMBER 31, 2011**

А	ttain	ed		Number		Annual
	Ages	-	Males	Females	Total	Benefits
U	Inder	20	2	5	7	\$ 17,592
20	-	24	3	5	8	9,312
25	-	29	7	13	20	77,268
30	-	34	9	5	14	62,772
35	-	39	8	12	20	113,964
40	-	44	19	31	50	335,796
45	-	49	37	79	116	878,676
50	-	54	372	297	669	18,839,964
55	-	59	3,290	4,494	7,784	154,940,352
60	-	64	5,941	10,290	16,231	267,340,188
65	-	69	6,329	13,581	19,910	263,140,392
70	-	74	5,342	11,675	17,017	201,753,684
75	-	79	4,539	9,688	14,227	149,155,824
80	-	84	3,644	8,355	11,999	104,498,148
85	-	89	2,462	6,094	8,556	61,841,772
90	-	94	965	3,158	4,123	22,932,552
9	5 & U	Jp	206	943	1,149	4,565,304
,	Total	s	33,175	68,725	101,900	\$1,250,503,560

Y	Year of	f		Number		Annual
Re	tire me	nt -	Males	Females	Total	Benefits
	2011		2,631	4,712	7,343	\$ 115,311,780
	2010		2,882	4,975	7,857	120,744,024
	2009		2,446	3,988	6,434	97,039,116
	2008		2,101	3,778	5,879	83,657,436
	2007		2,100	3,941	6,041	82,258,284
	2006		1,903	3,514	5,417	74,094,420
	2005		1,855	3,440	5,295	68,523,756
	2004		1,696	3,132	4,828	68,136,468
	2003		1,723	3,087	4,810	64,958,436
	2002		1,412	2,740	4,152	52,254,708
	2001		1,233	2,518	3,751	41,644,728
	2000		1,035	2,383	3,418	37,649,124
	1999		1,248	2,458	3,706	45,104,352
	1998		1,192	2,340	3,532	46,927,500
	1997		1,038	2,287	3,325	40,345,308
	1996		868	2,126	2,994	35,155,140
	1995		757	1,937	2,694	26,009,172
	1994		659	1,729	2,388	22,855,560
	1993		621	1,586	2,207	20,155,068
	1992		549	1,398	1,947	17,649,048
	1991		457	1,243	1,700	14,677,656
	1990		456	1,204	1,660	13,512,504
1985	-	1989	1,590	4,826	6,416	44,771,784
1980	-	1984	574	2,282	2,856	14,006,844
1975	-	1979	138	867	1,005	2,657,436
1970	-	1974	9	198	207	368,676
1965	-	1969	2	27	29	27,264
Bei	fore 19	65	0	9	9	7,968
	Total		33,175	68,725	101,900	\$1,250,503,560

## **DATA REPORTED FOR ACTUARIAL VALUATIONS COMPARATIVE SUMMARY**

			A	ctive M	embers				
					Average				
Date	Total				Annual	Pay	Nun	nber	Ratio:
December 31	Count	Number	Age	Serv.	Pay	Increase	Inactive	Retired	Act/Ret.
1987	203,499	112,611	43.0	7.1	\$16,602	3.5 %	46,199	44,689	2.50
1988	208,237	115,050	43.1	7.2	17,370	4.6 %	47,305	45,882	2.50
1989	221,145	118,670	43.1	7.2	18,046	3.9 %	53,470	49,005	2.40
1990	228,964	121,234	43.3	7.3	19,000	5.3 %	57,016	50,714	2.40
1991	237,731	125,559	43.4	7.4	19,846	4.5 %	59,775	52,397	2.40
1992	242,730	126,557	43.7	7.7	20,816	4.9 %	61,964	54,209	2.30
1993	245,409	122,361	44.2	8.2	22,142	6.4 %	66,735	56,313	2.20
1994	265,456	133,803	43.8	7.8	22,021	(0.5)%	73,972	57,681	2.30
1995	262,232	136,617	43.8	8.2	22,661	2.9 %	65,914	59,701	2.29
1996	249,291	139,525	44.0	8.3	22,104	3.5 %*	48,274	61,492	2.27
1997	290,804	143,999	44.1	8.2	23,991	8.5 %	81,919	64,886	2.22
1998	303,869	148,610	44.3	8.2	24,871	3.7 %	88,173	67,086	2.22
1999	317,616	153,910	44.4	8.6	25,678	3.2 %	94,576	69,130	2.23
2000	330,313	157,836	44.6	8.2	26,514	3.4 %	102,082	70,395+	2.24
2001	343,842	163,886	44.9	8.3	27,477	3.9 %	108,338	71,618	2.29
2002	353,897	166,365	45.3	8.5	28,582	4.0 %	113,524	74,008	2.25
2003	361,010	166,439	45.7	8.8	29,709	3.9 %	118,093	76,478	2.18
2004	367,590	167,030	46.0	9.0	30,899	4.0 %	121,543	79,017	2.11
2005	377,251	169,867	46.3	9.1	31,640	2.4 %	125,761	81,623	2.08
2006	387,665	173,068	46.5	9.4	32,535	2.8 %	130,239	84,358	2.05
2007	398,659	176,495	46.7	9.5	33,607	3.3 %	134,687	87,477	2.02
2008	420,632	180,615	46.8	9.6	34,655	3.1 %	149,885	90,132	2.00
2009	412,435	180,643	47.1	9.8	35,771	3.2 %	138,530	93,262	1.94
2010	405,195	176,179	47.5	10.3	36,277	1.4 %	131,462	97,554	1.81
2011	409,415	175,233	47.7	10.4	36,701	1.2 %	132,282	101,900	1.72

Changed method of recording earnings for 1996 valuation. Restated subsequent to release of 2000 valuation. \*

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# SECTION C FINANCIAL DATA

## **DEVELOPMENT OF FUNDING VALUE OF RETIREMENT SYSTEM ASSETS**

Year Ended December 31	2009	2010	2011	2012	2013	2014	2015
A. Funding Value Beginning of Year	\$21,601,053,512	\$22,754,803,784	\$24,251,136,889				
B. Market Value End of Year	22,282,188,251	25,132,408,091	24,833,689,793				
C. Market Value Beginning of Year	18,000,877,927	22,282,188,251	25,132,408,091				
D. Non-Investment/Administrative Net Cash Flow	(118,712,178)	(115,462,932)	(187,339,349)				
E. Investment Return							
E1. Market Total: B-C-D	4,400,022,502	2,965,682,772	(111,378,949)				
E2. Assumed Rate of Return	7.50%	7.50%	7.50%				
E3. Assumed Amount of Return	1,615,627,307	1,702,280,424	1,811,810,041		Scheo	duled	
E4. Return Subject to Phase-In: E1-E3	2,784,395,195	1,263,402,348	(1,923,188,990)				
F. Phased-In Recognition of Investment Return							
F1. Current year: 0.20 x E4	556,879,039	252,680,470	(384,637,798)	Unknown	Unknown	Unknown	Unknown
F2. First Prior Year	(900,043,896)	556,879,039	220,317,801	(219,399,448)	Unknown	Unknown	Unknown
F3. Second Prior Year	-	(900,043,896)	-	-	(219,399,448)	Unknown	Unknown
F4. Third Prior Year	-	-	-	-	-	(219,399,448)	Unknown
F5. Fourth Prior Year	-	-	-	-	-	-	(219,399,447)
F6. Funding Corridor Adjustment		-	-				
F7. Total Scheduled Phase-in of gain/(loss)	(343,164,857)	(90,484,387)	(164,319,997)	(219,399,448)	(219,399,448)	(219,399,448)	(219,399,447)
G. Acceptable Phase-in of Investment Return							
G1. Projected Funding Value without Phase-in: A+D+E3	23,097,968,641	24,341,621,276	25,875,607,581				
G2. Limit on Phase-in: B-G1	(815,780,390)	790,786,815	(1,041,917,788)				
G3. Acceptable Phase-in Amount	(343,164,857)	(90,484,387)	(164,319,997)				
H. Funding Value End of Year: A+D+E3+G3	\$22,754,803,784	\$24,251,136,889	\$25,711,287,584				
I. Difference Between Market and Funding Value	(472,615,533)	881,271,202	(877,597,791)	(658,198,343)	(438,798,895)	(219,399,447)	-
J. Recognized Rate of Return	5.9%	7.1%	6.8%				
K. Market Rate of Return	24.5%	13.3%	-0.4%				
L. Ratio of Funding Value to Market Value	102.1%	96.5%	103.5%				

The Funding Value of Assets recognizes assumed investment return (line E3) fully each year. Differences between actual and assumed investment return (line E4) are phased-in over a closed 5-year period subject to a 20% corridor. The acceptable phase-in amount (Item G3) is the minimum of Items F6 and G2, if G2 is positive. If G2 is negative, the acceptable phase-in amount is the greater of Items F6 and G2.

In a single employer plan, the Market Value Adjustment would normally be the difference between the funding value of assets and the market value of assets. In IMRF, because of the need to allocate the Market Value Adjustment in an equitable manner among participating employers, certain extra steps are taken as shown below.

	Year Ended	December 31
	2011	2010
1. Funding Value of End of Year	\$25,711,287,584	\$ 24,251,136,889
2. Amounts not used in rate calculations		
a. Suspended Annuity Reserve	23,556,805	23,870,935
b. Disability Benefit Reserve	16,008,450	16,108,477
c. Death Benefit Reserve	11,467,567	12,826,474
d. Supplemental Benefit Reserve	313,841	70,716
e. Cases removed from rate calculations*	36,130,883	33,224,216
f. Estimated pending reserve transfers	_	-
g. Total	87,477,546	86,100,818
3. Remaining amount to allocate: (1)-(2g)	25,623,810,038	24,165,036,071
4. Total reported negative reserves	(2,107,668)	(1,672,807)
5. Amount available to positive reserves: (3)-(4)	25,625,917,706	24,166,708,878
6. Total Market Value of reported positive reserves	24,888,916,516	25,163,739,531
7. Market Value Adjustment: (5)-(6)	\$ 737,001,190	\$ (997,030,653)

\* Employers that are not included on the asset tape submitted to the actuary. In general, these employers have no active members and no employer assets, but may have retired lives and/or inactive members.

The Market Value Adjustment is allocated among all employers that have a positive reserve balance (member plus employer plus retired life reserves), in proportion to each employer's reserve balance.

Even in years when the Funding Value of Assets equals the Market Value of Assets, a market value adjustment can be made due to the following reasons:

- Differences between the earnings and experience reserve and the investment loss reserve from the financial statements.
- Differences between employee contribution amounts in the financial statements versus data tapes.
- Differences between employer contribution amounts in the financial statements versus data tapes.

	Marke	et Value	Percentage of Total			
	2011	2010	2011	2010		
Investment Portfolio						
Fixed income	\$ 7,587,530,545	\$ 7,319,589,326	30.8%	29.3%		
Short term	143,422,728	358,534,386	0.6%	1.4%		
Foreign exchange contracts	847,683	1,110,371	0.0%	0.0%		
Stocks	9,843,240,724	9,853,868,971	39.9%	39.5%		
Bond funds	-	-	0.0%	0.0%		
Stock funds and index funds	4,857,789,413	5,972,013,017	19.7%	23.9%		
Options	-	-	0.0%	0.0%		
Real estate	712,759,150	465,013,425	2.9%	1.9%		
Alternative investments	986,369,450	958,090,149	4.0%	3.8%		
Master trust reserve fund	865,760,284	597,900,490	3.5%	2.4%		
Cash	-	-	0.0%	0.0%		
Due from brokers	-	-	0.0%	0.0%		
Due (to) brokers	(411,798,641)	(627,756,407)	(1.7)%	(2.5)%		
Accrued investment income	82,482,044	75,061,964	0.3%	0.3%		
Total Invested Assets	\$24,668,403,380	\$24,973,425,692	100.0%	100.0%		
Receivables	175,816,298	162,820,389				
Cash	22,314,101	23,696,653				
Fixed Assets	5,146,784	3,569,621				
Total Market Value	\$24,871,680,563	\$25,163,512,356				
Liabilities						
Benefits & vouchers payable Securities Lending Payable	37,990,770	31,104,264				
Total Liabilities	37,990,770	31,104,264				
Nets Assets Available for Benefits	\$24,833,689,793	\$25,132,408,091				

Amounts on this page are preliminary year-end numbers and may not agree with final audited numbers reported by IMRF, but are shown for completeness.

# **SECTION D** ACTUARIAL METHODS AND ASSUMPTIONS

### SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS USED FOR IMRF ACTUARIAL VALUATIONS ASSUMPTIONS ADOPTED BY RETIREMENT BOARD AFTER CONSULTING WITH ACTUARY

### **Economic Assumptions**

*The investment return rate* assumed in the valuations was 7.5% per year, compounded annually (net after administrative expenses).

The **Wage Inflation Rate** assumed in this valuation was 4.00% per year. The Wage Inflation Rate is defined to be the portion of total pay increases for an individual that are due to macroeconomic forces including productivity, price inflation, and labor market conditions. The wage inflation rate does not include pay changes related to individual merit and seniority effects.

No specific **Price Inflation** assumption is required to perform this valuation, since there are no benefits that are linked to price increases. However, a price inflation assumption on the order of 3.0% to 3.5% would be consistent with the other economic assumptions.

The assumed **real rate of return** over wage inflation is defined to be the portion of total investment return that is more than the assumed total wage growth rate. Considering other economic assumptions, the 7.5% investment return rate translates to an assumed real rate of return over wage inflation of 3.5%. The assumed real rate of return over price inflation would be higher – on the order of 4.0% to 4.5%, considering both an inflation assumption and an average expense provision.

The Active Member Population is assumed to remain constant. For purposes of financing the unfunded liabilities, total payroll is assumed to grow at the wage inflation rate -4.00% per year.

*Pay increase assumptions* for individual active members are shown for sample ages on pages D-8 and D-9. Part of the assumption for each age is for merit and/or seniority increase, and the other 4.00% recognizes wage inflation, including price inflation, productivity increases, and other macroeconomic forces.

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

### **Non-Economic Assumptions**

Non-economic (decrement) assumptions include rates of mortality before and after retirement, rates of disability, rates of retirement, rates of other separation from employment and probabilities of an active member being married. The non-economic assumptions are based upon experience during the 2008-2010 period (please see report dated December 8, 2011), and were first used in the December 31, 2011 valuation. Decrement assumptions are shown for sample ages beginning on page D-3.

### SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS USED FOR IMRF ACTUARIAL VALUATIONS ASSUMPTIONS ADOPTED BY RETIREMENT BOARD AFTER CONSULTING WITH ACTUARY

### **Actuarial Valuation Method**

An aggregate entry age actuarial cost method of valuation was used in determining most liabilities and normal cost. This means that an individual entry-age employer normal cost was determined for each benefit group (Regular Tier 1, Regular Tier 2, SLEP Tier 1, SLEP Tier 2, ECO Tier 1, ECO Tier 2) as a percent-of-payroll. The normal cost for each employer was calculated based on the aggregate Tier 1 and Tier 2 normal cost, weighted on the expected payroll of Tier 1 and Tier 2 members for the given employer. Larger employers have the option of an individual normal cost rate. The aggregate normal cost rate is then multiplied by the present value of future salary to determine the present value of future normal cost for each employer. The actuarial accrued liability is then calculated by subtracting the present value of future normal cost and present value of future employee contributions from the present value of future benefits.

Differences in the past between assumed experience and actual experience ("actuarial gains and losses") become part of actuarial accrued liabilities. Unfunded actuarial accrued liabilities are amortized to produce payments (principal & interest) which are level percent of payroll contributions.

Liabilities for lump sum death benefits and temporary disability benefits were determined using a term cost approach. Under this approach, the funding objective is to receive contributions each year that approximately equal the benefits being paid.

*Employer contributions* were assumed to be *paid in equal installments* throughout the year.

Present assets (cash & investments) at funding value are shown on page C-1.

### **Actuarial Valuation Method**

The Funding Value of Assets (developed on page C-1) recognizes assumed investment income fully each year. Differences between actual and assumed investment income are phased-in over a closed 5-year period subject to a 20% corridor. The method also limits the adjustment to the expected actuarial return to the maximum amount of unrecognized gains or losses not yet reflected in the actuarial value of assets. In any year in which the actuarial value minus the market value of assets switches from a positive value to a negative value, or vice-versa, any prior gain/loss bases are wiped out and the smoothing mechanism restarts.

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

### ACTUARIAL ASSUMPTIONS DECEMBER 31, 2011 PROBABILITIES OF AGE & SERVICE RETIREMENT

### Tier 1

	Reg	gular	Reg	gular	SI	ÆP	ECO-	Regular	ECO-SLEP
	Reduce	ed Early	No	rmal	No	rmal	No	rmal	Normal
Age at					Service less	Service 32			Males &
Retirement	Males	Females	Males	Females	than 32 years	years or more	Males	Females	Females
50					23%	40%			23%
51					18%	40%			18%
52					13%	40%			13%
53					8%	40%			8%
54					23%	40%			23%
55	7.25%	5.75%	33%	27%	23%	40%	30%	30%	23%
56	7.25%	5.75%	25%	22%	18%	40%	25%	25%	18%
57	7.25%	5.75%	25%	22%	23%	40%	25%	25%	23%
58	7.25%	5.75%	25%	22%	33%	40%	25%	25%	33%
59	7.25%	5.75%	25%	22%	13%	40%	25%	25%	13%
60			12%	10%	8%	40%	5%	5%	8%
61			12%	10%	8%	40%	5%	5%	8%
62			22%	18%	23%	40%	20%	15%	23%
63			20%	18%	18%	40%	15%	15%	18%
64			20%	18%	18%	40%	15%	15%	18%
65			25%	23%	23%	40%	30%	20%	23%
66			30%	23%	23%	40%	25%	15%	23%
67			25%	23%	23%	40%	20%	15%	23%
68			20%	18%	23%	40%	13%	13%	23%
69			20%	18%	23%	40%	13%	13%	23%
70			2004	100/	1000/	1000/	100/	100/	1000/
70			20%	18%	100%	100%	13%	13%	100%
71-79			20%	18%	100%	100%	13%	13%	100%
80 & Over			100%	100%	100%	100%	100%	100%	100%

For terminated vested members, members were assumed to retire as follows:

- Regular Tier 1 members were assumed to retire at age 60 or attained age if later;
- Regular Tier 2 members were assumed to retire at age 67 or attained age if later;
- SLEP Tier 1 members with less than 20 years of service were assumed to retire at age 60;
- SLEP Tier 1 members with 20 or more years of service were assumed to retire at age 50;
- SLEP Tier 2 members with less than 20 years of service were assumed to retire at age 67;
- SLEP Tier 2 members with 20 or more years of service were assumed to retire at age 55;
- ECO Tier 1 members were assumed to retire at age 55 or attained age if later;
- ECO Tier 2 members were assumed to retire at age 62 or attained age if later.

### ACTUARIAL ASSUMPTIONS DECEMBER 31, 2011 PROBABILITIES OF AGE & SERVICE RETIREMENT

## Tier 2

				Reg	gular						SL	EP		
		Μ	ale			Fen	nale			Male			Female	
		Normal		Early		Normal		Early	Normal		Early	Normal		Early
Age	Service less then 30 years	Service Between 30 and 35 years	Service 35 years or more		Service less then 30 years	Service Between 30 and 35 years	Service 35 years or more		Service Less than 30 Years	Service 30 Years or More		Service Less than 30 Years	Service 30 Years or More	
50											12%			12%
51											12% 9%			9%
52											9% 7%			9% 7%
53											4%			4%
54											12%			12%
55									60%	80%	12/0	60%	80%	12/0
56									18%	55%		18%	55%	
57									23%	55%		23%	55%	
58									33%	55%		33%	55%	
59									13%	55%		13%	55%	
60									8%	55%		8%	55%	
61									8%	55%		8%	55%	
62			75%	15%			75%	13%	23%	55%		23%	55%	
63			75%	15%			75%	13%	18%	55%		18%	55%	
64			75%	15%			75%	13%	18%	55%		18%	55%	
65			75%	15%			75%	13%	23%	55%		23%	55%	
66			75%	15%			75%	13%	23%	55%		23%	55%	
67	30%	50%	75%		25%	50%	75%		23%	55%		23%	55%	
68	30%	50%	75%		25%	50%	75%		23%	55%		23%	55%	
69	25%	50%	75%		20%	50%	75%		23%	55%		23%	55%	
70	20%	50%	75%		18%	50%	75%		100%	100%		100%	100%	
71	20%	50%	75%		18%	50%	75%		100%	100%		100%	100%	
72	20%	50%	75%		18%	50%	75%		100%	100%		100%	100%	
73	18%	50%	75%		18%	50%	75%		100%	100%		100%	100%	
74	18%	50%	75%		18%	50%	75%		100%	100%		100%	100%	
75	18%	50%	75%		18%	50%	75%		100%	100%		100%	100%	
76	18%	50%	75%		18%	50%	75%		100%	100%		100%	100%	
77	18%	50%	75%		18%	50%	75%		100%	100%		100%	100%	
78	18%	50%	75%		18%	50%	75%		100%	100%		100%	100%	
79	18%	50%	75%		18%	50%	75%		100%	100%		100%	100%	
80+	100%	100%	100%		100%	100%	100%		100%	100%		100%	100%	

### ACTUARIAL ASSUMPTIONS DECEMBER 31, 2011 PROBABILITIES OF SEPARATION FROM ACTIVE MEMBER STATUS

		% Separating Next Year										
	Reg	gular	E	СО								
Service	Males	Females	Males	Females	SLEP	ECO-SLEP						
0	24.0%	28.5%	20.0%	15.0%	16.0%	16.0%						
1	18.0%	21.0%	12.0%	10.0%	10.0%	10.0%						
2	13.0%	15.0%	10.0%	8.0%	7.7%	8.0%						
3	10.5%	12.0%	9.0%	7.0%	6.8%	6.0%						
4	8.5%	10.0%	8.0%	6.0%	5.0%	5.0%						
5	7.2%	8.3%	7.0%	5.0%	4.2%	4.5%						
6	6.0%	6.8%	6.0%	4.0%	3.5%	4.0%						
7	5.5%	6.2%	5.5%	3.5%	N/A	N/A						
					7 or More	7 or More						
Age	8 or More Ye	ars of Service	8 or More Y	ears of Service	Years of Service	Years of Service						
30	4.1%	6.1%	5.5%	3.5%	3.2%	1.5%						
35	3.3%	4.9%	5.5%	3.5%	2.1%	1.5%						
40	2.7%	3.9%	5.5%	3.5%	1.7%	1.5%						
45	2.3%	3.2%	5.5%	3.5%	1.7%	1.5%						
50	2.0%	2.7%	5.5%	3.5%	1.7%	1.5%						

## Tier 1 and Tier 2

### ACTUARIAL ASSUMPTIONS DECEMBER 31, 2011 ACTIVE MEMBER PROBABILITIES OF DEATH AND DISABILITY

		% Dying									
Sample	Regular	& ECO	SLEP & F	<b>ECO-SLEP</b>							
Ages	Male	Female	Male	Female							
20	0.02%	0.01%	0.02%	0.01%							
25	0.02%	0.01%	0.02%	0.01%							
30	0.03%	0.01%	0.03%	0.01%							
35	0.05%	0.02%	0.06%	0.02%							
40	0.06%	0.02%	0.07%	0.02%							
45	0.08%	0.03%	0.09%	0.03%							
50	0.10%	0.05%	0.12%	0.05%							
55	0.17%	0.09%	0.20%	0.09%							
60	0.34%	0.18%	0.39%	0.18%							
65	0.67%	0.35%	0.77%	0.35%							
70	1.15%	0.61%	1.31%	0.61%							
75	2.00%	0.96%	2.28%	0.96%							
80	3.69%	1.59%	4.21%	1.59%							

## Tier 1 and Tier 2

				% E	Disabled		% Disabled										
Sample	Reg	ular	ECO		SLEP		ECO-	SLEP									
Ages	Male	Female	Male	Female	Male	Female	Male	Female									
20	0.01%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%									
25	0.01%	0.00%	0.01%	0.01%	0.02%	0.03%	0.03%	0.03%									
30	0.01%	0.00%	0.01%	0.01%	0.02%	0.05%	0.05%	0.05%									
35	0.02%	0.01%	0.02%	0.02%	0.04%	0.07%	0.07%	0.07%									
40	0.03%	0.01%	0.04%	0.03%	0.05%	0.10%	0.10%	0.10%									
45	0.05%	0.02%	0.06%	0.04%	0.08%	0.14%	0.14%	0.14%									
50	0.07%	0.03%	0.09%	0.06%	0.11%	0.21%	0.21%	0.21%									
55	0.11%	0.05%	0.15%	0.10%	0.16%	0.29%	0.29%	0.29%									
60	0.14%	0.09%	0.19%	0.17%	0.14%	0.27%	0.27%	0.27%									
65	0.15%	0.11%	0.20%	0.20%	0.10%	0.18%	0.18%	0.18%									
70	0.13%	0.09%	0.17%	0.17%	0.06%	0.10%	0.10%	0.10%									
75	0.09%	0.07%	0.12%	0.12%	0.02%	0.03%	0.03%	0.03%									
80	0.07%	0.05%	0.10%	0.10%	0.00%	0.00%	0.00%	0.00%									

### ACTUARIAL ASSUMPTIONS DECEMBER 31, 2011 RETIREE, BENEFICIARY, TERMINATED VESTED AND DISABLED LIFE MORTALITY

	% Dying Next Year			
	Non-Disabled Lives		Disable	d Lives
Sample Ages	Males	Females	Males	Females
40	0.1103%	0.0480%	0.1784%	0.1094%
45	0.1393%	0.0749%	0.2963%	0.2129%
50	0.1784%	0.1094%	0.5864%	0.4207%
55	0.2963%	0.2129%	1.1528%	0.8078%
60	0.5864%	0.4207%	1.9696%	1.3933%
65	1.1528%	0.8078%	3.4246%	2.2020%
70	1.9696%	1.3933%	6.3176%	3.6677%
75	3.4246%	2.2020%	11.5488%	6.3171%
80	6.3176%	3.6677%	20.3136%	11.4082%

### Tier 1 and Tier 2

	Life Expectancy Years			
	Non-Disabled	Non-Disabled Retired Lives		ed Lives
Sample Ages	Males	Females	Males	Females
40	40.8	45.1	31.3	35.4
45	36.0	40.2	26.6	30.6
50	31.3	35.4	22.1	26.1
55	26.6	30.6	17.8	21.7
60	22.1	26.1	14.0	17.7
65	17.8	21.7	10.5	14.1
70	14.0	17.7	7.5	10.8
75	10.5	14.1	5.2	7.9
80	7.5	10.8	3.5	5.7

For non-disabled lives, the mortality rates are from the RP-2000 Combined Healthy Mortality Table, adjusted for mortality improvements to 2020 using projection scale AA. For men 120% of the table rates were used. For women 92% of the table rates were used. For disabled lives, the mortality rates are the rates applicable to non-disabled lives set forward 10 years.

### ACTUARIAL ASSUMPTIONS DECEMBER 31, 2011 PAY INCREASES FOR REGULAR AND ECO ACTIVE MEMBERS

### Tier 1 and Tier 2

% Increase in Pay Next Year					
				Additional Increa	ase For Those With
	6 or More Years Service				Years of Service
	Merit &				
Age	Longevity	Economic	Total	Service	% Increase
25	2.0%	4.0%	6.0%	0	7.0%
30	1.7%	4.0%	5.7%	1	5.0%
35	1.2%	4.0%	5.2%	2	3.5%
40	0.9%	4.0%	4.9%	3	3.0%
45	0.7%	4.0%	4.7%	4	2.0%
50	0.6%	4.0%	4.6%	5	1.5%
55	0.5%	4.0%	4.5%		
60	0.4%	4.0%	4.4%		

For a person with 6 or more years of service, the assumed pay increase during the coming year is found in the 6 or more years of service total column. For a person with less than 6 years of service, the % increase from the less than 6 years column that corresponds to the person's service is added to the increase from the 6 or more years of service total column that corresponds to the person's age to get the total assumed increase. For example, a 40-year-old with 8 years of service is assumed to get a 4.9% pay increase during the coming year. But a 40-year-old with 4 years of service is assumed to get a 6.9% increase (4.9% + 2.0%).

### ACTUARIAL ASSUMPTIONS DECEMBER 31, 2011 PAY INCREASES FOR SLEP AND ECO-SLEP ACTIVE MEMBERS

## Tier 1 and Tier 2

% Increase in Pay Next Year				
Years of Service				
		Merit &	% Total	
Service	Economic	Longevity	Increase	
1	4.0%	12.0%	16.0%	
2	4.0%	9.0%	13.0%	
3	4.0%	4.3%	8.3%	
4	4.0%	3.8%	7.8%	
5	4.0%	3.0%	7.0%	
6	4.0%	2.5%	6.5%	
7	4.0%	1.5%	5.5%	
8	4.0%	1.3%	5.3%	
9	4.0%	1.0%	5.0%	
10	4.0%	0.7%	4.7%	
11	4.0%	0.7%	4.7%	
12	4.0%	0.7%	4.7%	
13	4.0%	0.5%	4.5%	
14	4.0%	0.5%	4.5%	
15	4.0%	0.5%	4.5%	
16	4.0%	0.5%	4.5%	
17	4.0%	0.5%	4.5%	
18	4.0%	0.5%	4.5%	
19	4.0%	0.5%	4.5%	
20	4.0%	0.5%	4.5%	
21	4.0%	0.5%	4.5%	
22	4.0%	0.5%	4.5%	
23	4.0%	0.5%	4.5%	
24	4.0%	0.5%	4.5%	
25	4.0%	0.5%	4.5%	
26	4.0%	0.5%	4.5%	
27	4.0%	0.5%	4.5%	
28	4.0%	0.5%	4.5%	
29	4.0%	0.5%	4.5%	
30	4.0%	0.5%	4.5%	

## MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Expenses:	Assumed investment return is net of administrative and investment expenses.
Marriage Assumption:	80% of male and 70% of female participants are assumed to be married for purposes of death-in-service and death after retirement benefits. Male spouse are assumed to be three years older than female spouses for active member valuation purposes.
Pay Increase Timing:	Beginning of (Calendar) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
<b>Decrement Timing:</b>	Decrements of all types are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Benefit Service:	Exact fractional service on the decrement date is used to determine the amount of benefit payable.
Decrement Relativity:	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
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.
Normal Form of Benefit:	The assumed normal form of benefit is a 50% joint and survivor benefit for Regular and SLEP Tier 1 members and 66 2/3% for Regular and SLEP Tier 2 members and ECO members. Factors for determining optional forms of payment are loaded 120% of the standard mortality rates.
Surviving Spouse Refunds:	For those individuals who are not assumed to be married at retirement, the surviving spouse contributions are assumed to be refunded.
SLEP Refunds:	SLEP participants who are assumed to retire with insufficient service to qualify for SLEP benefits are assumed to receive a refund of their SLEP contributions.
SLEP Conversions:	It was assumed that all active participants in the SLEP program will convert all eligible service (up to 10 years). Additionally, it was assumed that these members would contribute the difference in both member and employer rates for each year converted.
ECO Conversions:	It is assumed that active participants in the ECO program will convert all eligible service up to the point the maximum ECO benefit would be achieved.
Final Rate of Earnings (FRE):	The FRE is determined by projecting the current salary to retirement and averaging the salary over the appropriate number of years. The current FRE is used if this produces a higher value.

## MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

<b>Refunds for Terminated Vested</b> <b>Members:</b>	Members are assumed to elect annuities.
Other:	Disability decrements operate during retirement eligibility.
Contingency Reserve:	A contingency reserve of 0.25% of payroll is added to the normal cost to account for various factors (changes in FRE, data adjustments, rehires, service purchases, etc.)
Post –Retirement Increases	For Tier 2, pensions increase by the lesser of 3% or one-half of the increase in the Consumer Price Index (urban) for the preceding September. If the CPI is zero, pension benefits are not increased. In the December 31, 2011 valuation annual pension increases were assumed to grow at an annual rate of 1.75%.
Wage Cap Growth	Under Tier 2, a member's wages are capped. The wage cap increases each year by the lesser of 3% or one-half of the increase in the Consumer Price Index (urban) for the preceding September. If the CPI is zero, the wage cap is not increased. A wage cap of \$108,883 was used for Tier 2 members in the December 31, 2011 valuation. In the December 31, 2011 valuation, the wage cap was assumed to grow at an annual rate of 1.75%.

### FINANCING UNFUNDED ACCRUED LIABILITIES AND FULL FUNDING CREDITS DECEMBER 31, 2011 VALUATIONS

The following procedures were applied to financing liabilities in the valuation.

#### Financing Periods if employer is less than 120% funded on a market basis.

- 1. Instrumentalities: 10-year rolling period.
- 2. Early Retirement Incentive Plan liabilities: a period up to 10 years selected by the Employer upon adoption of ERI.
- 3. For taxing bodies (Regular, SLEP, and ECO rate Groups): 30-year closed period.

#### Financing Period if employer is over 120% funded on a market basis.

- 4. Irrespective of the size of the employer or the funding level, grant the employer an option to amortize overfunding over 120% over a 5-year period.
- 5. For employers with 50 or more employees, grant the employer an option to adopt a minimum contribution rate until the overfunding is reduced to 120%.
- 6. Irrespective of the size of the employer, surplus in a plan can be used to satisfy early retirement incentive costs so long as the reserve balance does not drop below 120%.

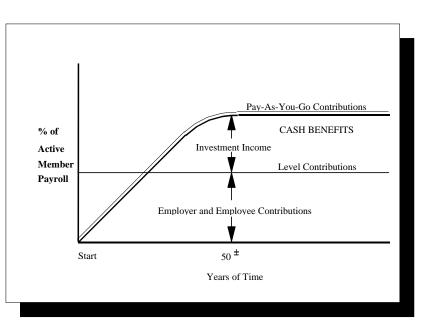
SLEP supplemental liabilities attributable to Public Act 94-712 were financed over 25 years for most employers (two employers were financed over 34 years). The mass production valuation applies rules 1 through 3. For rules 4 through 6, the period provided on the IMRF rate tape is used for valuation purposes and IMRF staff reviews each case individually to see if changes are needed to comply with Board policy. Employers also have the option to phase into a rate change that is more than 10% higher than the prior year (provided they pay the full cost for current service).

### **Economic Assumptions**

Investment return Pay increases to individual employees: the portion for economic changes Active member group size and total payroll growth

### **Demographic Assumptions**

Actual ages at service retirement Pay increases to individual members: the portion for merit & seniority Disability while actively employed Separations before retirement Mortality after retirement Mortality before retirement



### **RELATIONSHIP BETWEEN THE BOARD AND THE ACTUARY**

The actuary should have the primary responsibility for choosing the *demographic* assumptions used in the actuarial valuation, making use of specialized training and experience.

The actuary and other professionals can provide guidance concerning the choice of suitable economic assumptions, but the basis of the economic assumptions is expected market returns for various asset classes and the assumed rate of inflation (a quantity which defies accurate prediction). Given an assumed rate of future inflation, it is very important that this rate be applied in a consistent manner in deriving the assumed rate of investment return, the economic portion of the assumption on pay increases to individual employees, and the assumed rate of growth of active member payroll. Consistent application of assumptions is an area in which the actuary has specialized training.

A sound procedure is that the actuary suggests reasonable alternatives for economic assumptions, followed by discussion involving the actuary, the Board of Trustees, and other professionals, and the Board then makes a final choice from the various reasonable alternatives.

# **SECTION E FINANCIAL PRINCIPLES**

*Promises Made, and To Be Paid For:* As each year is completed, IMRF in effect hands an "IOU" to each member then acquiring a year of service credit. The "IOU" says: "The Illinois Municipal Retirement Fund owes you one year's worth of retirement benefits, payments in cash commencing when you retire."

The related *key financial questions* are:

#### Which generation of taxpayers contributes the money to cover the IOU?

*The present taxpayers,* who receive the benefit of the member's present year of service? *Or the future taxpayers,* who happen to be in Illinois at the time the IOU becomes a cash demand, years and often decades later?

The law governing IMRF financing intends that this year's taxpayers contribute the money to cover the IOUs being handed out this year. With this financial objective, the employer contribution rate is expected to remain approximately level from generation to generation of taxpayers.

There are systems which have a design for deferring contributions to future taxpayers. Lured by a lower contribution rate now, they put aside the consequence that the contribution rate must then relentlessly grow to a level much higher than would be required if a level contribution pattern were followed.

An inevitable by-product of the level-cost design is the accumulation of reserve assets, for decades, and the income produced when the assets are invested. *Investment income* ultimately becomes *the 3rd and largest contributor* for benefits to members, and is interlocked with the contribution amounts required from members and employers.

Translated to actuarial terminology, this level-cost objective means that the contribution rates must total at least the following:

Normal Cost (the cost of members' service being rendered this year)

... plus ...

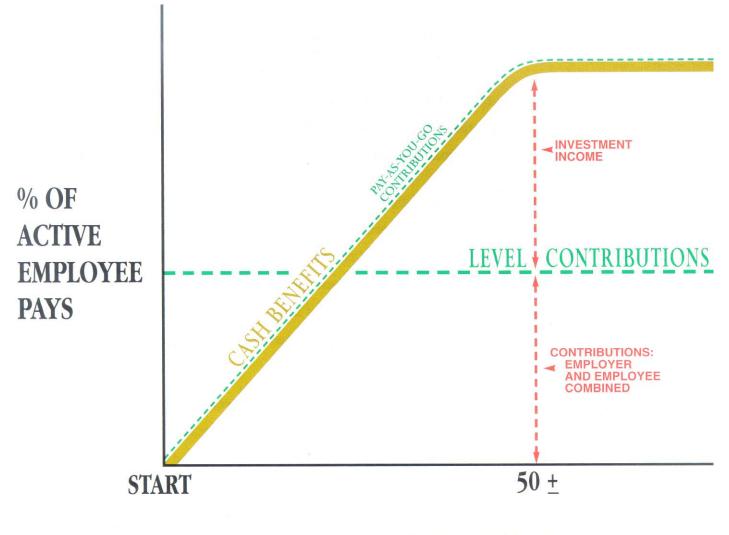
Interest at the assumed real rate of return on Unfunded Actuarial Accrued Liabilities (unfunded actuarial accrued liabilities are the difference between: accrued liabilities for service already rendered; and the accrued assets of IMRF).

*Computing Contributions to Support Fund Benefits:* From a given schedule of benefits and from member and asset data, the actuary calculates the contribution rates to support the benefits by means of *an actuarial valuation and a funding method.* 

An actuarial valuation has a number of ingredients such as: the rate of investment return which plan assets will earn; the rates of withdrawal of active members who leave covered employment; the rates of mortality; the rates of disability; the rates of pay increases; and the assumed age or ages at actual retirement. These rates cannot be known today. Consequently, in an actuarial valuation, assumptions must be made as to what the above rates will be for the next year and for decades in the future. The assumptions are established by the Board of Trustees after receiving the advice of the actuary.

**Reconciling Differences Between Assumed Experience and Actual Experience:** Once actual experience has occurred and has been observed, it will not coincide exactly with assumed experience, regardless of the skill of the actuary and the many calculations made. The future cannot be predicted.

IMRF copes with these continually changing differences by having annual actuarial valuations. Each actuarial valuation is a complete recalculation of assumed future experience, taking into account all past differences between assumed and actual experience. The result is *continuing adjustments in financial position*. Once every three years, an Experience Study is conducted to fully review differences between actual and assumed experience and recommend changes to our assumed experience, where appropriate.



YEARS OF TIME

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

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

Economic Risk Areas Rates of investment return Rates of pay increase Changes in active member group size Non-Economic Risk Areas Ages at actual retirement Rates of mortality Rates of withdrawal of active members (turnover) Rates of disability *The financing diagram* on the opposite page shows the relationship between *the two fundamentally different philosophies of paying* for retirement benefits: the method where contributions match cash benefit payments (or barely exceed cash benefit payments, as in the Federal Social Security program) which is thus an *increasing contribution method;* and, the *level contribution method* which attempts to equalize contributions between the generations.

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

A. *Census Data*, including:

Retired lives now receiving benefits Former members with vested benefits not yet payable Active members

- B. + Asset data (cash & investments)
- C. + Benefit provisions that establish eligibility and amounts of payments to members
- D. + Assumptions concerning future experience in various risk areas
- E. + *The funding method* for employer contributions (the long-term, planned pattern for employer contributions)
- F. + Mathematically combining the assumptions, the funding method, and the data
- G. = Determination of:

Plan Financial position and/or New Employer Contribution Rates 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 (employer and employee). 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.

Accumulated Benefit Obligation - The actuarial present value of vested and non-vested benefits based on service to date and past and current salary levels.

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.

Actuarial Present Value of Credited Projected Benefits or Pension Benefit Obligation - The present value of future benefits based on service to date and the effect of projected salary increases.

**Actuary** - A person who is trained in the applications of probability and compound interest to problems in business and finance that involve payment of money in the future, contingent upon the occurrence of future events. Most actuaries in the United States are Members of the American Academy of Actuaries. The Society of Actuaries is an international research, education and membership organization for actuaries in the life and health insurance, employee benefits, and pension fields. It administers a series of examinations leading initially to Associateship and the designation A.S.A. and ultimately to Fellowship with the designation F.S.A.

**Amortization -** Paying off an interest-bearing liability by means of periodic payments, 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.

**ERI -** Early Retirement Incentive Plan.

**Funded Percent** - A measure of the ratio of the funding value of assets to the actuarial accrued liability.

**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.

**Plan Termination Liability** - The actuarial present value of future plan benefits based on the assumption that there will be no further accruals for future service and salary. The termination liability will generally be less than the liabilities computed on a "going concern" basis and is not normally determined in a routine actuarial valuation.

**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.