

ILLINOIS MUNICIPAL RETIREMENT FUND
GAIN/LOSS ANALYSIS
OF FINANCIAL EXPERIENCE AMONG ACTIVE MEMBERS
DURING THE PERIOD JANUARY 1, 2015 TO DECEMBER 31, 2015

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DURING CALENDAR YEAR 2015

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April 12, 2016

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

Ladies and Gentlemen:

Submitted in this report are the results of the annual gain and loss analysis of financial experience among the active members of the Illinois Municipal Retirement Fund (IMRF) covering the period from **January 1, 2015 to December 31, 2015**.

This is one of multiple documents comprising the actuarial report. The other documents comprising the actuarial report are the Annual Actuarial Valuation report dated April 1, 2016 and the preliminary results as communicated via email on March 21, 2016.

The valuation was based upon information, furnished by IMRF staff, concerning Retirement Fund benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal reasonability and year-to-year consistency, but did not otherwise audit the data. We are not responsible for the accuracy or completeness of the information provided by IMRF Staff.

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 the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such 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. Brian Murphy and Mark Buis 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.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of IMRF as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.


Brian Murphy and Mark Buis are Members of the American Academy of Actuaries (MAAA). These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein.

The signing actuaries are independent of the plan sponsor.


Gabriel, Roeder, Smith & Company will be pleased to review this valuation and report with the Board of Trustees and to answer any questions pertaining to the valuation.

Respectfully submitted,

GABRIEL, ROEDER, SMITH & COMPANY

By 

Brian Murphy, FSA EA, MAAA



Mark Buis, FSA, EA, MAAA

BBM/MB:bd

COMMENTS

PURPOSE OF GAIN/LOSS ANALYSIS. Regular actuarial valuations give valuable information about the composite change in unfunded actuarial accrued liabilities -- whether or not the liabilities are increasing or decreasing and by how much.

Valuations do not show the portion of the change attributable to each risk area within the retirement system financial mechanism: 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 ages at actual retirement. In an actuarial valuation, assumptions must be made as to what these rates will be, for the next year and for decades in the future.

The objective of a gain and loss analysis is to determine the portion of the change in actuarial condition (unfunded actuarial accrued liabilities) attributable to each risk area.

The fact that actual experience differs from assumed experience is to be expected -- *the future cannot be predicted with precision.* The economic risk areas (particularly investment return and pay increases) are volatile. Inflation directly affects economic risk areas, and inflation seems to defy reliable prediction.

Changes in the assumed experience for a risk area should be made when the differences between assumed and actual experience have been observed to be sizable and persistent. A gain and loss analysis covering a relatively short period may or may not be indicative of *long-term trends, which are the basis of financial assumptions.*

COMMENTS

DATA USED. The 2015 gain/loss analysis is based on the active member population as reported for use in preparing the December 31, 2014 and December 31, 2015 regular annual actuarial valuations. Please note however, that counts shown in this report may not match the December 31, 2015 valuation or the December 31, 2014 gain/loss report since data records for members who have more than one record have been combined. The 2014 reported active member data was matched with the 2015 reported active/inactive member data and the 2015 reported data for retirees and beneficiaries. This matching shows the movement of persons from active member status to various inactive status categories (e.g., retirement, death, disability, etc.). A reconciliation of the population is shown below:

	Active Population Reconciliation					
	Actual					Expected
	Regular	SLEP	ECO		Total	
			Regular	SLEP		
Beginning of Year Census	168,494	4,194	228	11	172,927	
+ New People	21,529	209	14	2	21,754	
+ Transfers In	30	86	8	0	124	
- Normal Retirement	4,573	162	11	0	4,746	4,835
- Early Retirement	1,114	0	0	0	1,114	1,410
- Vested Deferred Retirements	2,179	26	2	0	2,207	1,660
- Deaths	127	3	2	0	132	290
- Disabilities	415	14	0	0	429	71
- Other Terminations	12,782	101	1	0	12,884	11,208
- Transfers Out	94	16	14	0	124	
End of Year Census	168,769	4,167	220	13	173,169	

The expected number of disabilities is based on the assumed rates of disability for permanent disability. The actual number of disabilities shown above is comprised of both temporary and permanent disability cases with temporary cases making up the majority.

The retirement system had *a net experience gain/(loss) of \$0.2 billion* during the 2015 observation year, which is 0.6% of the beginning accrued liabilities. During the 2015 observation year, IMRF experienced a return on the Market Value of Assets of 0.5%. The gain of \$313 million related to investment return is based on the Actuarial Value of Assets (AVA), which is a five-year smoothed market value. In this method, a portion of the current years' market value gain is combined with portions of the gains or losses from the prior four years to arrive at the AVA. See page 8 for a full description of this method. The gain due to the smoothed investment return was somewhat offset by losses in the non-economic risk areas.

CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITIES DURING CALENDAR YEAR 2015

The schedule below estimates the total gain or loss on Retirement Fund activities for the year as the difference between Expected and Actual Unfunded Liability.

	Unfunded Liability Development During	
	2015	2014
Unfunded Liability January 1	\$4,764,939,075	\$4,273,532,925
(Assumed Payments)	(306,609,121)	(253,703,224)
Assumed Interest	346,011,165	311,115,763
Expected Unfunded Liability December 31	4,804,341,119	4,330,945,464
Change Due to Experience Study	0	1,309,736,106
Change Due to Benefit Changes	0	0
Change Due to Investment Experience	(313,208,972)	(767,567,271)
Change Due to Demographic and Other Sources	82,314,274	(108,175,224)
Actual Unfunded Liability December 31	\$4,573,446,421	\$4,764,939,075
Gain (Loss) for the Year	\$ 230,894,698	\$ (433,993,611)

The following schedule reconciles the employer contribution rate from last year to this year.

	<u>Regular</u>	<u>SLEP</u>	<u>ECO</u>	<u>Total</u>
Prior Year	11.73 %	22.71 %	86.07 %	12.34 %
Tier 2 Structure	(0.13)%	(0.18)%	0.00 %	(0.13)%
Investment Return	(0.26)%	(0.39)%	(1.41)%	(0.27)%
Pay Increases	(0.06)%	0.92 %	(0.11)%	(0.02)%
Demographic	0.00 %	0.14 %	0.37 %	0.01 %
Population Change	(0.02)%	0.14 %	1.54 %	(0.01)%
Other	0.08 %	(0.95)%	(12.96)%	0.02 %
Current Year	11.34 %	22.39 %	73.50 %	11.94 %

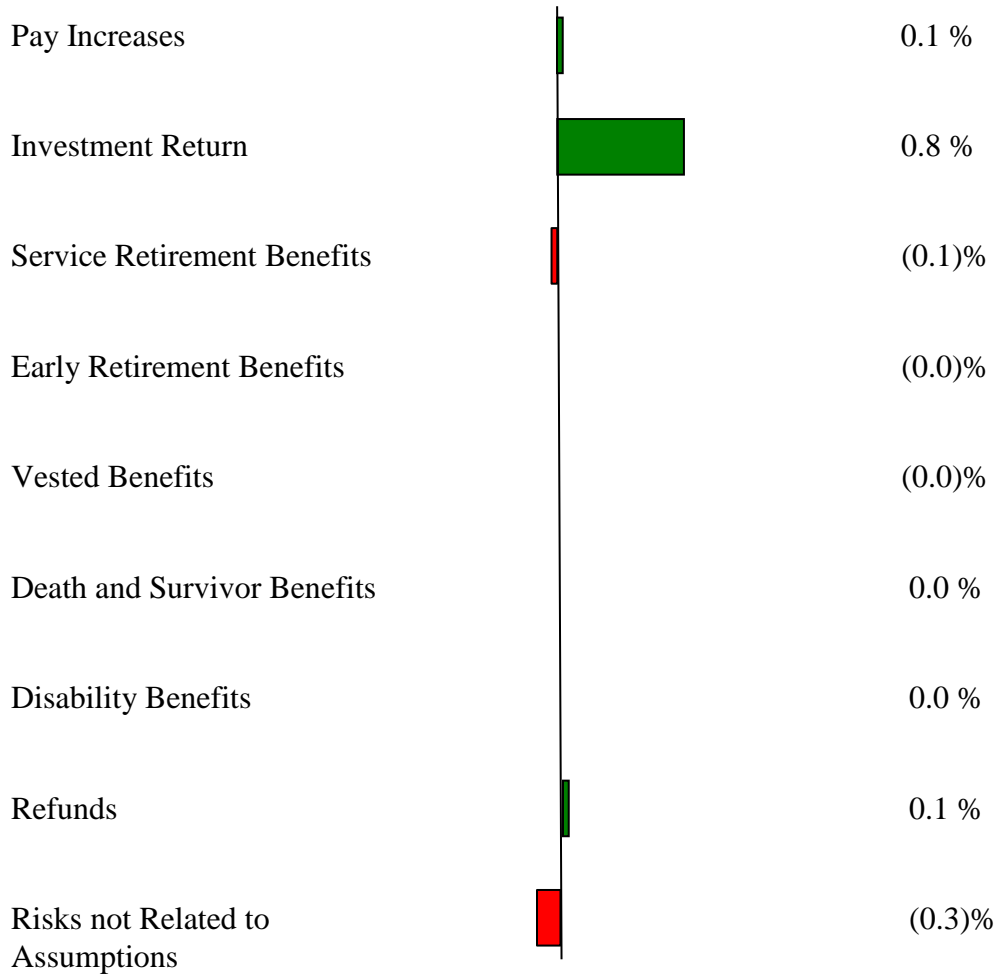
The next page shows the breakdown of the total gain or loss by source. Risk areas related to assumptions include economic risks and demographic risks. Economic risks relate to pay increases and investment return. Demographic risks relate to rates of retirement, death, disability, and other terminations. Actual number counts for each decrement are shown on pages 17 to 36. It is important to note that liability weighting was used to develop assumptions for certain decrements (such as retirement and age-based withdrawal) and therefore looking at number counts alone is not always the best indicator of plan experience.

**CHANGES IN ACTIVE MEMBER ACCRUED LIABILITIES
GAINS & LOSSES BY RISK AREA
DURING CALENDAR YEAR 2015**

Type of Risk Area	Gain (Loss) in Period			Percent of Liabilities
	Regular	SLEP	Totals	
	Millions of \$			
Risks Related to Assumptions				
Economic Risk Areas				
<i>Pay Increases</i>	\$69.3	\$(46.4)	\$ 22.9	0.1%
<i>Investment Return</i>			313.2	0.8%
Demographic Risk Areas				
<i>Service Retirements</i>	(19.5)	(9.0)	(28.5)	(0.1)%
<i>Early Retirements</i>	(4.7)	0.0	(4.7)	(0.0)%
<i>Vested Deferred Retirements</i>	(14.3)	(2.5)	(16.8)	(0.0)%
<i>Death and Survivor Benefits</i>	(3.2)	(0.2)	(3.4)	(0.0)%
<i>Disability Benefits</i>	13.7	2.1	15.8	0.0%
<i>Terminated with Refund</i>	30.4	2.6	33.0	0.1%
Risks not Related to Assumptions*			(100.6)	(0.3)%
Total Gain (or Loss) During Period			230.9	0.6%
Beginning of Year Accrued Liabilities			\$37,465.1	100.0%

* This is primarily due to rehires of former employees and actual reserve transfers for retirees being higher than the estimated reserve transfers. This may be due to higher final average pay than expected, higher service at retirement than expected, miscellaneous effects of the ERI program or other data adjustments that are made when a final benefit calculation is performed. There may also be a small gain or loss due to retiree mortality which was included in this amount.

**GAIN/LOSS EXPERIENCE
DURING CALENDAR YEAR 2015**



EXPERIENCE GAINS & LOSSES BY RISK AREA COMPARATIVE STATEMENT

Experience Period	Pay Increases	Investment Return	Service Retirement	Early Retirement	Vested Deferred Retirement	Death and Survivor Benefits	Disability Benefits	Terminated with Refund	Other	Total Gain (Loss)	
										\$	Percent of Liabilities
1998	\$ (69.9)	\$ 515.7	\$ 37.8	\$(8.7)	\$ 37.8	\$7.7	\$ 5.7	\$(10.5)	\$(197.0)	\$ 318.6	2.9 %
1999 ¹	5.5	962.1	(6.8)	(5.1)	(14.6)	0.6	6.4	(21.1)	(168.1)	758.9	6.4 %
2000	12.2	642.5	0.8	(2.8)	(8.7)	1.8	9.8	(22.4)	(89.2)	544.0	4.2 %
2001	(29.5)	69.4	(4.9)	(1.0)	(20.3)	2.9	10.0	11.4	1.4	39.4	0.3 %
2002 ¹	19.5	(611.8)	(9.9)	(2.0)	(31.0)	4.3	6.9	2.3	(66.7)	(688.4)	(4.5)%
2003	36.8	(404.6)	(18.4)	(5.4)	(28.0)	2.3	5.9	10.0	(250.0)	(651.4)	(3.9)%
2004	(0.3)	(478.5)	(14.7)	(5.3)	(27.5)	3.4	7.3	15.8	(183.0)	(682.6)	(3.8)%
2005 ¹	130.0	23.8	(10.4)	(5.0)	(28.3)	1.9	12.0	19.3	(111.2)	32.1	0.2 %
2006	23.5	262.2	(8.6)	(3.4)	(32.7)	2.1	9.4	11.1	(211.7)	51.9	0.3 %
2007	(15.4)	305.8	(8.4)	(2.6)	(35.3)	4.1	10.2	23.2	(170.5)	111.1	0.6 %
2008 ¹	8.2	(3,331.5)	2.4	(2.1)	(40.8)	1.8	11.4	9.1	(40.5)	(3,382.0)	(12.6)%
2009	70.2	(343.2)	11.6	(0.5)	(38.3)	3.5	12.9	(11.8)	(53.5)	(349.1)	(1.4)%
2010	359.6	(90.5)	(0.2)	0.0	(32.3)	3.3	7.3	(0.3)	(442.1) ²	(195.2)	(0.7)%
2011 ¹	238.9	(164.3)	(22.9)	(5.7)	(25.9)	7.3	8.2	19.9	(344.4) ³	(288.9)	(1.0)%
2012	230.2	71.0	2.0	(3.0)	(24.7)	6.5	20.8	23.8	(89.0)	237.6	0.8 %
2013	141.5	811.5	(11.6)	(2.8)	(22.7)	3.2	15.7	45.1	(74.0)	905.9	2.8 %
2014 ¹	64.2	767.6	(19.3)	(4.9)	(19.7)	(2.2)	17.2	37.9	(1,274.8) ³	(434.0)	(1.3)%
2015	22.9	313.2	(28.5)	(4.7)	(16.8)	(3.4)	15.8	33.0	(100.6)	230.9	0.6 %

¹ Changes in assumptions due to the Experience Study.

² Includes one-time data changes of approximately \$250 million.

³ Includes Experience Study Changes.

**DEVELOPMENT OF FUNDING VALUE OF RETIREMENT SYSTEM ASSETS
GAIN (LOSS) FROM INVESTMENT RETURN
DURING THE CALENDAR YEAR 2015**

Year Ended December 31	2014	2015	2016	2017	2018	2019
A. Funding Value Beginning of Year	\$30,083,042,548	\$32,700,208,537				
B. Market Value End of Year	34,833,147,358	34,461,065,824				
C. Market Value Beginning of Year	33,203,014,332	34,833,147,358				
D. Non-Investment/Administrative Net Cash Flow	(391,932,022)	(532,824,752)				
E. Investment Return						
E1. Market Total: B-C-D	2,022,065,048	160,743,218				
E2. Assumed Rate of Return	7.50%	7.50%				
E3. Assumed Amount of Return	2,241,530,740	2,432,534,712	-----Scheduled-----			
E4. Return Subject to Phase-in: E1-E3	(219,465,692)	(2,271,791,494)				
F. Phased-In Recognition of Investment Return						
F1. Current Year: 0.20xE4	(43,893,138)	(454,358,299)	Unknown	Unknown	Unknown	Unknown
F2. First Prior Year	685,590,556	(43,893,138)	\$(113,015,411)	Unknown	Unknown	Unknown
F3. Second Prior Year	125,869,853	685,590,556	-	\$(113,015,411)	Unknown	Unknown
F4. Third Prior Year	-	125,869,853	-	-	\$(113,015,411)	Unknown
F5. Fourth Prior Year	-	-	-	-	-	\$(113,015,412)
F6. Funding Corridor Adjustment	-	-	-	-	-	-
F7. Total Scheduled Phase-in of Gain/(Loss)	767,567,271	313,208,972	(113,015,411)	(113,015,411)	(113,015,411)	(113,015,412)
G. Acceptable Phase-In of Investment Return						
G1. Projected Funding Value without Phase-In: A+D+E3	31,932,641,266	34,599,918,497				
G2. Limit on Phase-In: B-G1	2,900,506,092	(138,852,673)				
G3. Acceptable Phase-In Amount	767,567,271	313,208,972				
H. Funding Value End of Year: A+D+E3+G3	32,700,208,537	34,913,127,469				
I. Difference Between Market and Funding Value	2,132,938,821	(452,061,645)	(339,046,234)	(226,030,823)	(113,015,412)	-
J. Recognized Rate of Return	10.1 %	8.5 %				
K. Market Rate of Return	6.1 %	0.5 %				
L. Ratio of Funding Value to Market Value	93.9 %	101.3 %				

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 F7 and G2, if G2 is positive. If G2 is negative, the acceptable phase-in amount is the greater of Items F7 and G2.

**REGULAR EMPLOYEES IN VALUATION
BY AGE AND YEARS OF SERVICE
AS OF DECEMBER 31, 2014**

Age	Years of Service to Valuation Date								Total Number
	Men				Women				
	0-7	8-19	20-34	35 Plus	0-7	8-19	20-34	35 Plus	
24 & Under	2,239				3,072				5,311
25- 29	4,679	194			6,238	139			11,250
30- 34	3,996	1,526			5,676	1,533	1		12,732
35- 39	2,798	2,905	16		5,517	2,961	18		14,215
40- 44	2,406	3,051	487	1	6,606	4,145	398		17,094
45- 49	2,336	3,001	1,623	13	7,544	6,074	1,226	2	21,819
50	487	625	494	3	1,482	1,650	374		5,115
51	501	646	544	3	1,458	1,801	432		5,385
52	550	653	644	7	1,379	1,947	524	3	5,707
53	582	677	693	15	1,292	2,054	541	17	5,871
54	572	670	673	70	1,236	2,181	634	25	6,061
55	574	626	650	86	1,099	2,147	711	50	5,943
56	542	611	575	67	1,098	2,086	692	53	5,724
57	556	609	571	108	952	2,064	749	55	5,664
58	584	617	545	128	946	1,992	820	74	5,706
59	546	533	449	123	790	1,793	805	78	5,117
60	555	568	429	89	708	1,544	829	64	4,786
61	511	558	345	92	611	1,433	744	54	4,348
62	521	496	324	87	524	1,231	706	52	3,941
63	404	439	226	64	457	1,031	633	59	3,313
64	400	397	183	59	356	820	542	47	2,804
65	305	341	161	42	285	641	440	43	2,258
66	260	262	89	32	250	463	333	24	1,713
67	215	221	60	15	180	339	215	16	1,261
68	253	182	57	8	190	296	190	15	1,191
69	140	139	39	7	122	193	110	21	771
70 & Over	690	827	192	38	394	733	442	78	3,394
Totals	28,202	21,374	10,069	1,157	50,462	43,291	13,109	830	168,494

Figures on this page may not always match corresponding figures from the regular valuation due to differences in tabulation methods.

**ECO REGULAR EMPLOYEES IN VALUATION
BY AGE AND YEARS OF SERVICE
AS OF DECEMBER 31, 2014**

Age	Years of Service to Valuation Date								Total Number
	Men				Women				
	0-7	8-19	20-34	35 Plus	0-7	8-19	20-34	35 Plus	
24 & Under									
25- 29	1								1
30- 34	1								1
35- 39	5	4			1				10
40- 44	1	2	2		4				9
45- 49	5	5	6		2	6			24
50		1			1	3			5
51	1	1	2	1			3		8
52	5	4	2		2	1	1		15
53	4	3	1				2		10
54	2	1			1	1	2		7
55	1	2	2			1			6
56	3	4	1		2	2			12
57		5	2		1	2		2	12
58	2	6	1		1	5	1		16
59		6	1			1		1	9
60	2	5	3		1	2	1	1	15
61		4	1					1	6
62	3	3	2				4		12
63	2	3							5
64		3				1	1		5
65	2	5			1	1			9
66		2		1		2	1		6
67	1	2	1			1			5
68		1				1			2
69		2							2
70 & Over	3	3	3	1		3	2	1	16
Totals	44	77	30	3	17	33	18	6	228

Figures on this page may not always match corresponding figures from the regular valuation due to differences in tabulation methods.

**SLEP EMPLOYEES IN VALUATION
BY AGE AND YEARS OF SERVICE
AS OF DECEMBER 31, 2014**

Age	Years of Service to Valuation Date								Total Number
	Men				Women				
	0-7	8-19	20-34	35 Plus	0-7	8-19	20-34	35 Plus	
24 & Under	61				13				74
25- 29	306	6			42	1			355
30- 34	353	222			59	27			661
35- 39	191	373	3		37	61	1		666
40- 44	105	491	79		18	90	6		789
45- 49	71	296	303		13	38	39		760
50	11	32	71		1	13	10		138
51	4	31	46		3	8	8		100
52	8	22	41			11	9		91
53	3	26	39			6	3		77
54	8	20	18	1	1	12	5		65
55	9	18	27			4	5		63
56	7	17	24	2	1	4	4	1	60
57	9	9	22			1			41
58	4	11	18	1		4	3		41
59	7	17	14	1		8	1		48
60	5	10	9	1	1	1			27
61	6	12	7	2		3	1		31
62	6	15	7	2		2	2		34
63	2	10	1				2		15
64		5	4	1		1	1		12
65	3	5	3	1		3			15
66	1	5	5				2		13
67	2	3	1						6
68	1	2		1					4
69	1	2							3
70 & Over	1	1	2				1		5
Totals	1,185	1,661	744	13	189	298	103	1	4,194

Figures on this page may not always match corresponding figures from the regular valuation due to differences in tabulation methods.

**ECO SLEP EMPLOYEES IN VALUATION
BY AGE AND YEARS OF SERVICE
AS OF DECEMBER 31, 2014**

Age	Years of Service to Valuation Date								Total Number
	Men				Women				
	0-7	8-19	20-34	35 Plus	0-7	8-19	20-34	35 Plus	
24 & Under									
25- 29									
30- 34									
35- 39									
40- 44									
45- 49	2	2							4
50			1						1
51									
52									
53		1							1
54									
55									
56									
57									
58		1							1
59									
60									
61									
62									
63									
64			1	2					3
65									
66			1						1
67									
68									
69									
70 & Over									
Totals	2	4	3	2					11

Figures on this page may not always match corresponding figures from the regular valuation due to differences in tabulation methods.

**REGULAR EMPLOYEES IN VALUATION
BY AGE AND YEARS OF SERVICE
AS OF DECEMBER 31, 2015**

Age	Years of Service to Valuation Date								Total Number
	Men				Women				
	0-7	8-19	20-34	35 Plus	0-7	8-19	20-34	35 Plus	
24 & Under	2,312				3,005				5,317
25- 29	4,692	204			6,372	158			11,426
30- 34	4,068	1,564			5,745	1,517	2		12,896
35- 39	2,844	2,931	16		5,647	3,164	15		14,617
40- 44	2,418	3,040	443	3	6,457	4,013	359		16,733
45- 49	2,369	3,008	1,640	8	7,422	6,052	1,307	1	21,807
50	449	567	441	6	1,382	1,555	361	1	4,762
51	484	618	520	5	1,359	1,746	429		5,161
52	495	658	573	6	1,358	1,882	472	2	5,446
53	563	662	658	19	1,247	2,004	602	17	5,772
54	568	670	690	45	1,181	2,102	588	37	5,881
55	563	660	615	102	1,151	2,166	694	40	5,991
56	542	620	589	76	1,013	2,077	720	50	5,687
57	547	603	525	81	1,018	2,050	728	70	5,622
58	533	616	526	111	861	2,018	785	67	5,517
59	589	617	485	136	832	1,901	862	75	5,497
60	526	521	410	122	735	1,680	820	87	4,901
61	560	544	380	91	624	1,402	816	69	4,486
62	477	522	294	86	524	1,262	745	46	3,956
63	466	434	276	72	438	1,036	621	43	3,386
64	358	412	201	50	376	899	567	57	2,920
65	355	366	153	52	295	676	457	47	2,401
66	256	284	117	25	220	480	314	35	1,731
67	238	204	69	25	204	359	243	23	1,365
68	183	188	52	13	158	273	183	13	1,063
69	208	166	52	7	150	239	163	14	999
70 & Over	679	816	196	36	431	734	446	91	3,429
Totals	28,342	21,495	9,921	1,177	50,205	43,445	13,299	885	168,769

Figures on this page may not always match corresponding figures from the regular valuation due to differences in tabulation methods.

**ECO REGULAR EMPLOYEES IN VALUATION
BY AGE AND YEARS OF SERVICE
AS OF DECEMBER 31, 2015**

Age	Years of Service to Valuation Date								Total Number
	Men				Women				
	0-7	8-19	20-34	35 Plus	0-7	8-19	20-34	35 Plus	
24 & Under									
25- 29	1								1
30- 34	1								1
35- 39	5	1			1				7
40- 44	3	5	2		1	1			12
45- 49	5	5	4		3	3			20
50	1	1	1		1	2			6
51					1	3			4
52	2	1	1	1			2		7
53	5	4	1		2	1	1		14
54	4	3		1		1	2	1	12
55	2	1			1	1	2		7
56	1	2	2			1			6
57	2	2	1		2	1			8
58		4	1		1	3	1	1	11
59	2	6	1		1	5	1		16
60		6	1			1		1	9
61	2	5		1	1	2	1	1	13
62		6						1	7
63	3	2	2		2		4		13
64	2	3			1				6
65		3				1	1		5
66	2	5			1	1			9
67		1	1			2			4
68	1	2							3
69		1							1
70 & Over	3	6	2	1		3	2	1	18
Totals	47	75	20	4	19	32	17	6	220

Figures on this page may not always match corresponding figures from the regular valuation due to differences in tabulation methods.

**SLEP EMPLOYEES IN VALUATION
BY AGE AND YEARS OF SERVICE
AS OF DECEMBER 31, 2015**

Age	Years of Service to Valuation Date								Total Number
	Men				Women				
	0-7	8-19	20-34	35 Plus	0-7	8-19	20-34	35 Plus	
24 & Under	69				13				82
25- 29	305	5			41	2			353
30- 34	338	240			59	29			666
35- 39	176	409	2		36	65			688
40- 44	83	443	90		19	89	10		734
45- 49	69	327	315		11	40	37		799
50	6	31	61		2	5	6		111
51	9	29	42		1	12	9		102
52	5	27	36			9	8		85
53	9	20	30	1		9	6		75
54	3	23	32			5	3		66
55	8	19	19	1		13	5		65
56	6	18	19			6	3		52
57	5	18	20	1	1	2	4	1	52
58	8	11	13	1		1			34
59	6	9	12	1		3	2	1	34
60	8	15	12	1		7	1		44
61	5	10	4	1	1	1			22
62	6	8	5	2		3	1		25
63	5	14	4	2		2	1		28
64		6	5						11
65		4	2			1			7
66	2	2	1	1		2			8
67	1	3	3				1		8
68	2	2	1						5
69	1	2		1					4
70 & Over	1	4	2						7
Totals	1,136	1,699	730	13	184	306	97	2	4,167

Figures on this page may not always match corresponding figures from the regular valuation due to differences in tabulation methods.

**ECO SLEP EMPLOYEES IN VALUATION
BY AGE AND YEARS OF SERVICE
AS OF DECEMBER 31, 2015**

Age	Years of Service to Valuation Date								Total Number
	Men				Women				
	0-7	8-19	20-34	35 Plus	0-7	8-19	20-34	35 Plus	
24 & Under									
25- 29									
30- 34									
35- 39									
40- 44									
45- 49	2	2							4
50									
51			1						1
52									
53									
54		1							1
55									
56									
57									
58									
59	1	2							3
60									
61									
62									
63									
64									
65			1	2					3
66									
67			1						1
68									
69									
70 & Over									
Totals	3	5	3	2					13

Figures on this page may not always match corresponding figures from the regular valuation due to differences in tabulation methods.

RETIREMENT EXPERIENCE

**ACTIVE REGULAR GROUP MEMBERS WHO BECAME AGE & SERVICE
RETIREES DURING CALENDAR YEAR 2015
(RETIREMENT WITH BENEFIT BEGINNING IMMEDIATELY)**

Male		
Age	Retirements	Exposure
Under 55	30	30
55	53	138
56	29	108
57	21	109
58	29	161
59	34	168
60	117	1,155
61	124	1,093
62	185	1,027
63	145	893
64	107	746
65	154	638
66	142	507
67	102	361
68	60	305
69	60	264
70	39	174
71	41	187
72	25	161
73	33	143
74	33	131
75 & Up	123	474
Total (55 & Up)	1,656	8,943

Female		
Age	Retirements	Exposure
Under 55	23	23
55	21	64
56	16	79
57	12	83
58	13	76
59	22	116
60	258	2,736
61	227	2,484
62	369	2,205
63	315	1,919
64	250	1,700
65	329	1,299
66	296	983
67	174	740
68	122	580
69	99	416
70	72	294
71	56	222
72	55	232
73	45	185
74	22	157
75 & Up	91	397
Total (55 & Up)	2,864	16,967

**ACTIVE REGULAR GROUP MEMBERS WHO BECAME EARLY SERVICE
RETIREES DURING CALENDAR YEAR 2015**

Male		
Age	Retirements	Exposure
55	88	1,379
56	71	1,216
57	64	1,218
58	71	1,260
59	59	1,072
Total	353	6,145

Female		
Age	Retirements	Exposure
55	145	3,032
56	150	3,020
57	126	2,863
58	163	3,005
59	177	2,826
Total	761	14,746

**ACTIVE SLEP GROUP MEMBERS WHO BECAME AGE & SERVICE
RETIREES DURING CALENDAR YEAR 2015
(RETIREMENT WITH BENEFIT BEGINNING IMMEDIATELY)**

Male		
Age	Retirements	Exposure
Under 50	-	-
50	20	75
51	25	65
52	16	45
53	6	36
54	6	33
55	7	26
56	8	29
57	6	21
58	5	19
59	8	19
60	6	30
61	4	23
62	5	23
63	3	15
64	3	15
65	4	9
66	5	9
67	4	8
68	-	4
69	-	1
70	-	1
71	-	1
72	-	-
73	-	2
74	-	-
75 & Up	-	1
Total (50 & Up)	141	510

Female		
Age	Retirements	Exposure
Under 50	-	-
50	3	11
51	2	8
52	3	12
53	1	6
54	-	5
55	1	5
56	1	7
57	1	2
58	1	2
59	-	4
60	1	5
61	-	3
62	1	4
63	-	2
64	2	2
65	2	4
66	-	1
67	1	2
68	-	-
69	-	-
70	-	-
71	-	-
72	-	-
73	-	-
74	-	-
75 & Up	1	1
Total (50 & Up)	21	86

**ACTIVE ECO GROUP MEMBERS WHO BECAME AGE & SERVICE
RETIREES DURING CALENDAR YEAR 2015
(RETIREMENT WITH BENEFIT BEGINNING IMMEDIATELY)**

Male		
Age	Retirements	Exposure
Under 55	-	-
55	-	1
56	2	6
57	1	9
58	-	6
59	-	6
60	1	6
61	1	8
62	-	5
63	1	4
64	-	1
65	-	5
66	-	6
67	-	1
68	-	2
69	-	1
70	-	2
71	-	-
72	-	3
73	-	-
74	-	1
75 & Up	-	5
Total (55 & Up)	6	78

Female		
Age	Retirements	Exposure
Under 55	1	1
55	-	2
56	1	2
57	-	3
58	-	5
59	-	4
60	-	3
61	1	2
62	-	2
63	-	3
64	-	2
65	-	1
66	1	1
67	-	2
68	1	2
69	-	-
70	-	1
71	-	1
72	-	-
73	-	-
74	-	1
75 & Up	-	3
Total (55 & Up)	4	40

**ACTIVE ECO SLEP GROUP MEMBERS WHO BECAME AGE & SERVICE
RETIREES DURING CALENDAR YEAR 2015
(RETIREMENT WITH BENEFIT BEGINNING IMMEDIATELY)**

Male		
Age	Retirements	Exposure
Under 50	-	-
50	-	1
51	-	-
52	-	-
53	-	-
54	-	-
55	-	-
56	-	-
57	-	-
58	-	-
59	-	1
60	-	-
61	-	-
62	-	-
63	-	-
64	-	2
65	-	1
66	-	-
67	-	1
68	-	-
69	-	-
70	-	-
71	-	-
72	-	-
73	-	-
74	-	-
75 & Up	-	-
Total (50 & Up)	-	6

Female		
Age	Retirements	Exposure
Under 50	-	-
50	-	-
51	-	-
52	-	-
53	-	-
54	-	-
55	-	-
56	-	-
57	-	-
58	-	-
59	-	-
60	-	-
61	-	-
62	-	-
63	-	-
64	-	-
65	-	-
66	-	-
67	-	-
68	-	-
69	-	-
70	-	-
71	-	-
72	-	-
73	-	-
74	-	-
75 & Up	-	-
Total (50 & Up)	-	-

DISABILITY EXPERIENCE

**REGULAR GROUP MEMBERS WHO BECAME DISABILITY RETIREES
DURING CALENDAR YEAR 2015**

Male		
Age	Disabilities*	Exposure
Under 20	-	73
20-24	1	1,771
25-29	2	4,718
30-34	6	5,527
35-39	9	5,669
40-44	9	5,817
45-49	18	6,914
50-54	51	8,837
55-59	56	9,303
60-64	31	7,095
65-69	7	3,153
70-74	6	1,224
75 and Over	1	675
Totals	197	60,776

Female		
Age	Disabilities*	Exposure
Under 20	-	93
20-24	-	2,347
25-29	7	6,344
30-34	9	7,056
35-39	9	8,333
40-44	20	10,658
45-49	23	14,555
50-54	41	18,662
55-59	54	19,378
60-64	41	13,389
65-69	9	4,935
70-74	5	1,363
75 and Over	-	494
Totals	218	107,607

** The numbers shown above may be overstated due to inclusion of temporary disability cases. Actual numbers may vary once the permanent cases have been determined.*

**SLEP GROUP MEMBERS WHO BECAME DISABILITY RETIREES
DURING CALENDAR YEAR 2015**

Male		
Age	Disabilities*	Exposure
Under 20	-	-
20-24	-	43
25-29	-	272
30-34	2	571
35-39	1	579
40-44	2	656
45-49	1	688
50-54	2	412
55-59	1	214
60-64	2	124
65-69	-	38
70-74	-	1
75 and Over	-	-
Totals	11	3,598

Female		
Age	Disabilities*	Exposure
Under 20	-	-
20-24	-	7
25-29	-	38
30-34	-	88
35-39	-	100
40-44	1	113
45-49	-	92
50-54	2	90
55-59	-	38
60-64	-	17
65-69	-	7
70-74	-	-
75 and Over	-	-
Totals	3	590

** The numbers shown above may be overstated due to inclusion of temporary disability cases. Actual numbers may vary once the permanent cases have been determined.*

**ECO GROUP MEMBERS WHO BECAME DISABILITY RETIREES
DURING CALENDAR YEAR 2015**

Male		
Age	Disabilities	Exposure
Under 20	-	-
20-24	-	-
25-29	-	1
30-34	-	1
35-39	-	7
40-44	-	7
45-49	-	14
50-54	-	29
55-59	-	34
60-64	-	31
65-69	-	18
70-74	-	7
75 and Over	-	5
Totals	-	154

Female		
Age	Disabilities	Exposure
Under 20	-	-
20-24	-	-
25-29	-	-
30-34	-	-
35-39	-	1
40-44	-	3
45-49	-	6
50-54	-	18
55-59	-	20
60-64	-	13
65-69	-	7
70-74	-	3
75 and Over	-	3
Totals	-	74

**ECO SLEP MEMBERS WHO BECAME DISABILITY RETIREES
DURING CALENDAR YEAR 2015**

Male		
Age	Disabilities	Exposure
Under 20	-	-
20-24	-	-
25-29	-	-
30-34	-	-
35-39	-	-
40-44	-	-
45-49	-	4
50-54	-	2
55-59	-	1
60-64	-	2
65-69	-	2
70-74	-	-
75 and Over	-	-
Totals	-	11

Female		
Age	Disabilities	Exposure
Under 20	-	-
20-24	-	-
25-29	-	-
30-34	-	-
35-39	-	-
40-44	-	-
45-49	-	-
50-54	-	-
55-59	-	-
60-64	-	-
65-69	-	-
70-74	-	-
75 and Over	-	-
Totals	-	-

WITHDRAWAL EXPERIENCE

**REGULAR GROUP MEMBERS WHO LEFT ACTIVE STATUS
DURING CALENDAR YEAR 2015
WITH MORE THAN EIGHT YEARS OF SERVICE**

Male		
Age	Withdrawals	Exposure
25-29	9	192
30-34	86	1,585
35-39	148	2,950
40-44	129	3,537
45-49	142	4,681
50-54	166	6,334
55 & Over	183	183
Totals	863	19,462

Female		
Age	Withdrawals	Exposure
25-29	18	155
30-34	150	1,582
35-39	227	3,100
40-44	280	4,501
45-49	348	7,350
50-54	536	12,078
55 & Over	364	364
Totals	1,923	29,130

**SLEP GROUP MEMBERS WHO LEFT ACTIVE STATUS
DURING CALENDAR YEAR 2015
WITH MORE THAN SEVEN YEARS OF SERVICE**

Male		
Age	Withdrawals	Exposure
25-29	-	16
30-34	7	307
35-39	11	447
40-44	5	577
45-49	12	633
50-54	2	133
55 & Over	1	70
Totals	38	2,183

Female		
Age	Withdrawals	Exposure
25-29	-	4
30-34	1	40
35-39	1	72
40-44	1	99
45-49	1	82
50-54	-	46
55 & Over	-	17
Totals	4	360

**ECO GROUP MEMBERS WHO LEFT ACTIVE STATUS
DURING CALENDAR YEAR 2015
WITH MORE THAN EIGHT YEARS OF SERVICE**

Male		
Age	Withdrawals	Exposure
25-29	-	-
30-34	-	-
35-39	-	2
40-44	-	6
45-49	-	10
50-54	1	16
55 & Over	-	-
Totals	1	34

Female		
Age	Withdrawals	Exposure
25-29	-	-
30-34	-	-
35-39	-	-
40-44	-	-
45-49	1	4
50-54	-	14
55 & Over	-	-
Totals	1	18

**ECO SLEP GROUP MEMBERS WHO LEFT ACTIVE STATUS
DURING CALENDAR YEAR 2015
WITH MORE THAN SEVEN YEARS OF SERVICE**

Male		
Age	Withdrawals	Exposure
25-29	-	-
30-34	-	-
35-39	-	-
40-44	-	-
45-49	-	2
50-54	-	1
55 & Over	-	-
Totals	-	3

Female		
Age	Withdrawals	Exposure
25-29	-	-
30-34	-	-
35-39	-	-
40-44	-	-
45-49	-	-
50-54	-	-
55 & Over	-	-
Totals	-	-

**REGULAR GROUP MEMBERS WHO LEFT ACTIVE STATUS
WITH NO MONTHLY BENEFIT
DURING CALENDAR YEAR 2015
(NON-VESTED SEPARATIONS)**

Male		
Service Index	Withdrawals	Exposure
1	823	3,352
2	1,077	5,491
3	657	4,092
4	487	3,455
5	280	2,698
6	222	2,288
7	212	2,727
8	175	2,297
9	139	1,752
10	96	1,589
11	79	1,390
12	66	1,206
13	62	1,138
14	66	1,212
15	57	1,236
16	43	1,208
17	37	1,048
18	29	874
19	20	773
20	23	707
21	15	582
22	14	537
23	10	429
24	10	425
25	14	506
26	13	517
27	12	456
28	8	373
29	5	313
30 and Over	45	1,014
Totals (Less Than or Equal to 8 Years of Service)	3,933	26,400

Female		
Service Index	Withdrawals	Exposure
1	1,878	6,650
2	2,197	9,533
3	1,397	7,304
4	904	5,636
5	576	4,484
6	466	4,145
7	431	4,824
8	393	4,543
9	376	3,735
10	283	3,198
11	224	2,605
12	161	2,173
13	149	1,989
14	139	2,135
15	122	2,187
16	96	1,931
17	74	1,528
18	57	1,296
19	50	1,028
20	28	816
21	25	673
22	30	555
23	12	428
24	16	379
25	10	390
26	12	390
27	13	306
28	8	254
29	6	193
30 and Over	32	582
Totals (Less Than or Equal to 8 Years of Service)	8,242	47,119

**SLEP GROUP MEMBERS WHO LEFT ACTIVE STATUS
WITH NO MONTHLY BENEFIT
DURING CALENDAR YEAR 2015
(NON-VESTED SEPARATIONS)**

Male		
Service Index	Withdrawals	Exposure
1	16	85
2	15	167
3	11	137
4	7	134
5	10	126
6	6	103
7	6	152
8	7	194
9	4	153
10	5	161
11	2	155
12	2	145
13	5	129
14	1	140
15	2	123
16	-	112
17	1	127
18	-	123
19	1	127
20	1	104
21	2	99
22	1	52
23	-	49
24	1	55
25	-	44
26	1	35
27	-	34
28	2	14
29	-	8
30 and Over	-	4
Totals (Less Than or Equal to 7 Years of Service)	71	904

Female		
Service Index	Withdrawals	Exposure
1	3	9
2	1	22
3	4	21
4	1	26
5	1	18
6	1	19
7	3	30
8	1	30
9	1	31
10	-	15
11	-	26
12	-	31
13	1	18
14	-	31
15	-	26
16	-	27
17	-	22
18	-	18
19	-	24
20	-	13
21	-	8
22	-	11
23	-	3
24	-	7
25	-	7
26	1	4
27	-	7
28	-	-
29	-	1
30 and Over	-	-
Totals (Less Than or Equal to 7 Years of Service)	14	145

**ECO GROUP MEMBERS WHO LEFT ACTIVE STATUS
WITH NO MONTHLY BENEFIT
DURING CALENDAR YEAR 2015
(NON-VESTED SEPARATIONS)**

Male		
Service Index	Withdrawals	Exposure
1	-	-
2	-	-
3	-	1
4	-	1
5	-	15
6	-	7
7	1	16
8	-	2
9	-	3
10	-	-
11	-	5
12	-	1
13	-	2
14	-	-
15	-	4
16	-	4
17	-	-
18	-	1
19	-	-
20	-	-
21	-	4
22	-	-
23	1	6
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	-	1
30 and Over	-	3
Totals (Less Than or Equal to 8 Years of Service)	1	42

Female		
Service Index	Withdrawals	Exposure
1	-	-
2	-	-
3	-	-
4	-	-
5	-	5
6	-	1
7	-	7
8	-	4
9	-	-
10	-	-
11	-	1
12	-	1
13	-	2
14	-	1
15	-	2
16	-	1
17	-	-
18	1	1
19	-	2
20	-	-
21	-	-
22	-	-
23	-	1
24	-	-
25	-	-
26	-	1
27	-	-
28	-	1
29	-	1
30 and Over	-	3
Totals (Less Than or Equal to 8 years of Service)	-	17

**ECO SLEP GROUP MEMBERS WHO LEFT ACTIVE STATUS
WITH NO MONTHLY BENEFIT
DURING CALENDAR YEAR 2015
(NON-VESTED SEPARATIONS)**

Male		
Service Index	Withdrawals	Exposure
1	-	-
2	-	-
3	-	-
4	-	-
5	-	2
6	-	-
7	-	-
8	-	-
9	-	1
10	-	-
11	-	-
12	-	-
13	-	1
14	-	-
15	-	-
16	-	1
17	-	-
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30 and Over	-	-
Totals (Less Than or Equal to 7 Years of Service)	-	2

Female		
Service Index	Withdrawals	Exposure
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30 and Over	-	-
Totals (Less Than or Equal to 7 Years of Service)	-	-

MORTALITY EXPERIENCE

**ACTIVE MEMBERS DEATHS
DURING CALENDAR YEAR 2015**

Male		
Age	Deaths	Exposure
Under 20	-	73
20-24	1	1,814
25-29	3	4,991
30-34	1	6,099
35-39	2	6,255
40-44	2	6,480
45-49	5	7,620
50-54	12	9,280
55-59	13	9,552
60-64	16	7,268
65-69	5	3,219
70-74	8	1,234
75 and Over	4	680
Totals	72	64,565

Female		
Age	Deaths	Exposure
Under 20	-	93
20-24	-	2,354
25-29	-	6,382
30-34	2	7,144
35-39	-	8,434
40-44	3	10,774
45-49	2	14,653
50-54	9	18,770
55-59	11	19,436
60-64	15	13,475
65-69	9	4,973
70-74	4	1,370
75 and Over	5	498
Totals	60	108,356

**RETIRED MEMBERS DEATHS
DURING CALENDAR YEAR 2015**

Male		
Age	Deaths	Exposure
Under 55	7	472
55-59	44	3,477
60-64	106	6,602
65-69	123	7,899
70-74	169	6,055
75-79	193	4,414
80-84	246	3,116
85-89	272	1,969
90-94	157	772
95-99	53	156
100-104	8	18
105 & Over	-	-
Totals	1,378	34,950

Female		
Age	Deaths	Exposure
Under 55	9	334
55-59	28	4,788
60-64	78	11,487
65-69	137	15,436
70-74	176	12,574
75-79	254	9,254
80-84	317	6,643
85-89	409	4,640
90-94	402	2,426
95-99	175	652
100-104	24	77
105 & Over	1	4
Totals	2,010	68,315

SALARY EXPERIENCE

**SALARY INCREASES BY AGE
DURING CALENDAR YEAR 2015***

Age Group Beginning of Year	Pay Increase During the Next Year		
	Regular	SLEP	ECO
25-29	7.82 %	13.68 %	0.00 %
30-34	6.44 %	11.82 %	0.00 %
35-39	5.80 %	8.78 %	(0.26)%
40-44	5.43 %	9.80 %	1.21 %
45-49	4.95 %	8.08 %	3.83 %
50-54	4.35 %	8.96 %	1.29 %
55-59	4.01 %	9.85 %	3.41 %
60-64	3.72 %	8.22 %	5.05 %
65-69	3.75 %	7.61 %	2.44 %
70-74	3.72 %	5.57 %	5.35 %
75 & Over	3.24 %	(3.61)%	5.35 %
Averages:			
Expected	4.14 %	4.80 %	4.08 %
Actual	4.33 %	9.09 %	3.22 %

* *Members active both at the beginning and end of year and have 6 or more years of service at the beginning of the year for Regular and ECO groups and 0 or more years of service for SLEP and ECO SLEP groups (increases for SLEP groups are correlated primarily with service).*

**SALARY INCREASES BY YEARS OF SERVICE
DURING CALENDAR YEAR 2015***

Service Index	Pay Increase During the Next Year		
	Regular	SLEP	ECO
1	18.98 %	24.53 %	0.00 %
2	11.82 %	14.67 %	0.00 %
3	7.76 %	7.85 %	0.00 %
4	6.88 %	10.59 %	0.00 %
5	6.22 %	9.28 %	5.10 %
6	5.80 %	11.59 %	2.91 %
7	5.65 %	11.84 %	(0.81)%
8	5.21 %	8.74 %	0.92 %
9	5.05 %	8.54 %	4.53 %
10	5.12 %	9.96 %	6.24 %
11	4.89 %	9.46 %	2.35 %
12	4.65 %	8.27 %	1.40 %
13	4.05 %	8.25 %	6.38 %
14	4.12 %	7.02 %	1.13 %
15	4.11 %	5.78 %	3.56 %
16	4.07 %	10.17 %	2.64 %
17	4.13 %	9.29 %	4.09 %
18	3.66 %	8.50 %	5.62 %
19	3.97 %	7.24 %	5.77 %
20	3.76 %	8.72 %	19.89 %
21	3.92 %	7.37 %	10.21 %
22	3.55 %	9.81 %	3.62 %
23	3.56 %	7.30 %	3.91 %
24	3.59 %	11.42 %	0.00 %
25	3.34 %	7.47 %	9.76 %
26	3.45 %	7.88 %	(2.28)%
27	3.07 %	7.99 %	1.53 %
28	2.83 %	9.25 %	8.79 %
29	3.54 %	7.26 %	3.90 %
30	2.90 %	5.41 %	0.00 %
31	3.24 %	16.04 %	1.66 %
32	3.32 %	5.71 %	1.46 %
33	3.28 %	(0.11)%	3.84 %
34	3.36 %	6.95 %	0.00 %
35	2.97 %	11.63 %	5.81 %
36	3.55 %	0.43 %	3.93 %
37	3.24 %	11.85 %	(1.21)%
38	3.25 %	0.00 %	4.86 %
39	4.23 %	5.26 %	4.76 %
40	3.87 %	0.00 %	1.47 %
Averages:			
Expected	4.71 %	4.80 %	4.12 %
Actual	5.40 %	9.09 %	3.16 %

* Reported pay for most people with less than 1 year of service may have been for only a portion of a year.

April 12, 2016

Mr. Mark F. Nannini
Chief Financial Officer
Illinois Municipal Retirement Fund
2211 South York Road, Suite 500
Oak Brook, Illinois 60523

Dear Mark:

Enclosed are 5 copies of the Gain/Loss Analysis of Financial Experience Among Active Members during the period of January 1, 2015 to December 31, 2015 for the Illinois Municipal Retirement Fund (IMRF).

Your comments and/or questions will be welcome.

Sincerely,



Mark Buis, FSA, EA, MAAA

MB:mr
Enclosures

cc: Audrey Brown-Ryce, IMRF