

Illinois Municipal Retirement Fund

Gain/Loss Analysis of Financial Experience Among
Active Members During the Period

January 1, 2021 to December 31, 2021



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Report of IMRF Gain/Loss Analysis

During Calendar Year 2021

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March 11, 2022

Board of Trustees
Illinois Municipal Retirement Fund
Oak Brook, Illinois

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, 2021 to December 31, 2021.**

This is one of several documents comprising the full actuarial report. For additional information please see the Annual Actuarial Valuation report dated March 11, 2022.

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 audit the data. We are not responsible for the accuracy or completeness of the information provided by IMRF Staff. GRS is not responsible for unauthorized use of this report.

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.

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.

This report was prepared using our proprietary valuation model and related software, which in our professional judgment, has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled. We are relying on the GRS actuaries and Internal Software, Training, and Processes Team who developed and maintain the model.

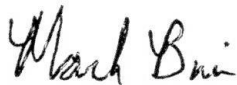
Mark Buis, Francois Pieterse, and Laura Frankowiak are Members of the American Academy of Actuaries (MAAA). These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein.

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



Mark Buis, FSA, EA, FCA, MAAA



Francois Pieterse, ASA, FCA, MAAA



Laura Frankowiak, ASA, FCA, MAAA

MB/FP/LF:ah



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.***

Data Used. The 2021 gain/loss analysis is based on the active member population as reported for use in preparing the December 31, 2020 and December 31, 2021 regular annual actuarial valuations. Please note however, that counts shown in this report may not match the December 31, 2021 or the December 31, 2020 valuations since data records for members who have more than one record have been combined. The 2020 reported active member data was matched with the 2021 reported active/inactive member data and the 2021 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 on the following page.

Comments

	Active Population Reconciliation						
	Actual					Total	Expected
	Regular	SLEP	ECO				
			Regular	SLEP			
Beginning of Year Census	165,945	4,059	66	4	170,074		
+ New People	26,513	440	8	0	26,961		
- Normal Retirement	4,991	188	1	2	5,182	5,030	
- Early Retirement	1,043	0	0	0	1,043	1,043	
- Vested Deferred Retirements	2,276	51	1	0	2,328	1,236	
- Deaths	217	2	0	0	219	350	
- Disabilities	320	7	0	0	327	38	
- Other Terminations	16,032	205	0	0	16,237	13,171	
End of Year Census	167,579	4,046	72	2	171,699		

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 \$2,155 million** during the 2021 observation year, which is 4.40% of the beginning accrued liabilities. During the 2021 observation year, IMRF experienced a return on the Market Value of Assets of 16.7% (12.0% on Funding Value of Assets). The gain of \$2,174 million related to investment return and described on the following page 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 loss is combined with portions of the gains or losses from the prior four years to arrive at the AVA. See page 7 for a full description of this method.

Changes in Unfunded Actuarial Accrued Liabilities During Calendar Year 2021

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	
	2021	2020
Unfunded Liability January 1	\$ 2,905,510,366	\$ 4,421,715,330
(Assumed Payments)	(217,755,192)	(327,270,697)
Assumed Interest	202,847,945	308,849,181
Expected Unfunded Liability December 31	2,890,603,119	4,403,293,814
Change Due to Change in Assumptions	0	(357,008,491)
Change Due to Benefit Changes	0	0
Change Due to Investment Experience	(2,174,486,990)	(1,177,273,755)
Change Due to Demographic and Other Sources	19,887,070	36,498,798
Actual Unfunded Liability December 31	736,003,199	2,905,510,366
Gain (Loss) for the Year	\$ 2,154,599,920	\$ 1,497,783,448

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

	Regular	SLEP	ECO	Total
Prior Year	8.59 %	19.81 %	61.37 %	9.13 %
Tier 2 Structure	(0.12)%	(0.21)%	0.00 %	(0.12)%
Investment Return	(2.02)%	(3.39)%	(18.99)%	(2.17)%
Pay Increases	0.08 %	0.41 %	(0.41)%	0.12 %
Demographic	0.02 %	(0.02)%	(1.73)%	0.02 %
Payroll Growth	(0.00)%	0.07 %	(2.36)%	0.01 %
Death and Disability Rate Change	(0.04)%	(0.04)%	(0.04)%	(0.04)%
Other	0.04 %	(0.25)%	0.29 %	0.05 %
Current Year	6.55 %	16.38 %	38.13 %	7.00 %

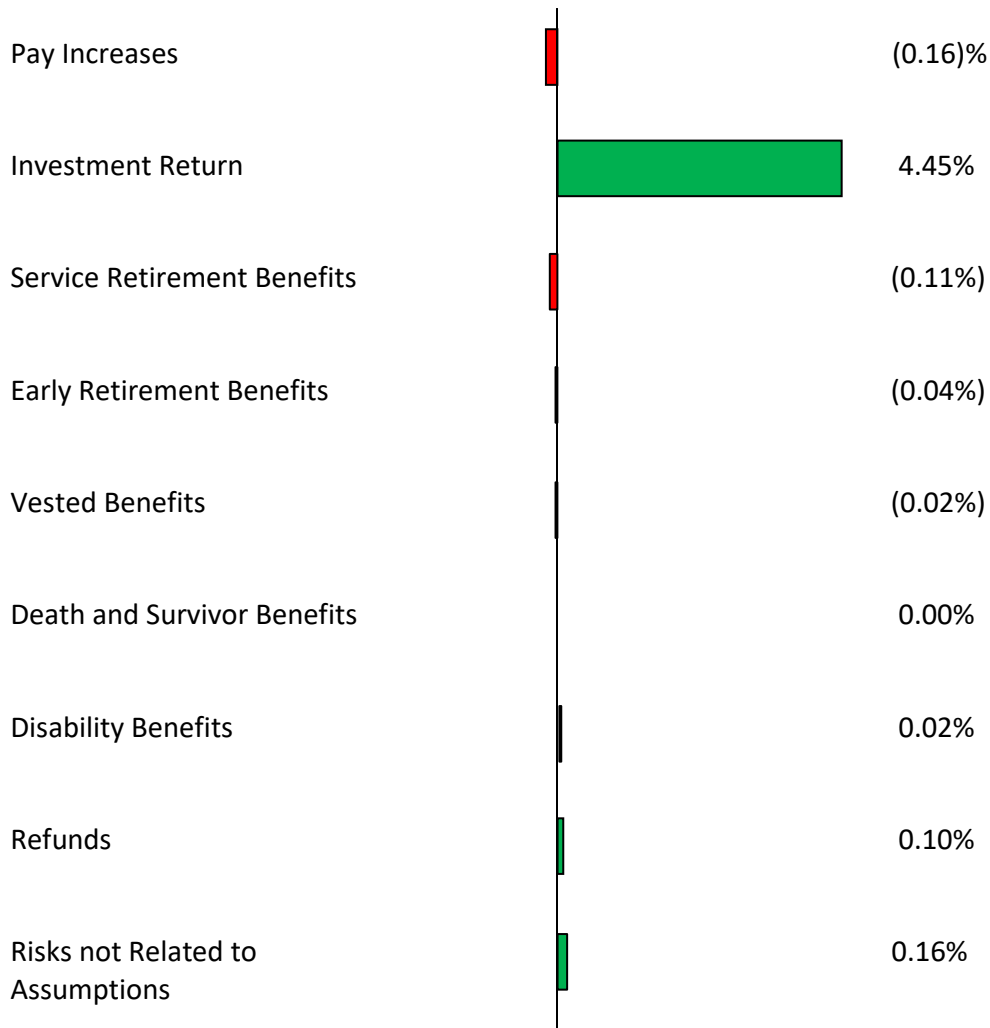
The next page shows the breakdown of the total gain or loss by source. Risk areas related to assumptions include economic risks and demographic risks. Economic risks relate to pay increases and investment return. Demographic risks relate to rates of retirement, death, disability, and other terminations. Actual number counts for each decrement are shown on pages 16 to 35. 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 2021

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>	\$(57.9)	\$(18.3)	\$ (76.2)	(0.16)%
<i>Investment Return</i>			2,174.5	4.45%
Demographic Risk Areas				
<i>Service Retirements</i>	(47.6)	(6.4)	(54.0)	(0.11)%
<i>Early Retirements</i>	(17.2)	0.0	(17.2)	(0.04)%
<i>Vested Deferred Retirements</i>	(8.6)	0.2	(8.4)	(0.02)%
<i>Death and Survivor Benefits</i>	1.3	(0.1)	1.2	0.00%
<i>Disability Benefits</i>	8.4	0.5	8.9	0.02%
<i>Terminated with Refund</i>	42.8	6.8	49.6	0.10%
Risks not Related to Assumptions			76.2	0.16%
Total Gain (or Loss) During Period			2,154.6	4.40%
Beginning of Year Accrued Liabilities			\$48,922.9	100.0%

Gain/Loss Experience During Calendar Year 2021

Gain/Loss Experience Expressed as a % of Beginning of Year Liabilities



Experience Gains & Losses by Risk Area Comparative Statement (\$ in Millions)

Experience Period	Pay Increases	Investment Return	Service Retirement	Early Retirement	Vested Deferred Retirement	Death and Survivor Benefits	Disability Benefits	Terminated with Refund	Experience Study / Change in Discount Rate ³	Other	Total Gain (Loss)	
											\$	Percent of Liabilities
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	\$ (181.1)	(163.3)	(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	(1,309.7)	34.9	(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 %
2016	312.7	(109.9)	(20.2)	(2.6)	(14.1)	(3.3)	12.0	35.7		(185.5)	24.8	0.1 %
2017 ¹	104.3	475.5	(21.8)	(2.6)	(17.8)	(8.2)	9.7	22.4	1,094.6	(32.6)	1,623.5	3.9 %
2018 ⁴	(40.1)	(385.8)	(19.5)	(5.3)	(14.5)	(7.7)	11.5	31.2	(1,191.0)	92.9	(1,528.3)	(3.6)%
2019	(45.1)	367.2	(20.2)	(7.4)	(18.2)	(10.3)	17.0	32.4		(222.9)	92.5	0.2 %
2020 ¹	(27.0)	1,177.3	(25.6)	(6.6)	(23.7)	(2.3)	10.6	15.6	357.0	22.5	1,497.8	3.2 %
2021	(76.2)	2,174.5	(54.0)	(17.2)	(8.4)	1.2	8.9	49.6		76.2	2,154.6	4.4 %

¹ Changes in assumptions due to the Experience Study.

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

³ Includes Experience Study Changes.

⁴ Change in Investment Rate of Return.



Development of Funding Value of Retirement System Assets Gain (Loss) from Investment Return During the Calendar Year 2021

Year Ended December 31	2020	2021	2022	2023	2024	2025
A. Funding Value Beginning of Year	\$42,936,185,938	\$46,017,438,373				
B. Market Value End of Year	50,229,709,593	57,215,398,205				
C. Market Value Beginning of Year	44,923,481,136	50,229,709,593				
D. Non-Investment/Administrative Net Cash Flow	(1,166,605,356)	(1,289,883,565)				
E. Investment Return						
E1. Market Total: B-C-D	6,472,833,813	8,275,572,177				
E2. Assumed Rate of Return	7.25%	7.25%				
E3. Assumed Amount of Return	3,070,584,036	3,289,506,003	-----Scheduled-----			
E4. Return Subject to Phase-in: E1-E3	3,402,249,777	4,986,066,174				
F. Phased-In Recognition of Investment Return						
F1. Current Year: 0.20x E4	680,449,955	997,213,235	Unknown	Unknown	Unknown	Unknown
F2. First Prior Year	496,823,800	680,449,955	\$997,213,235	Unknown	Unknown	Unknown
F3. Second Prior Year	-	496,823,800	680,449,955	\$997,213,235	Unknown	Unknown
F4. Third Prior Year	-	-	496,823,800	680,449,955	\$997,213,235	Unknown
F5. Fourth Prior Year	-	-	-	496,823,798	680,449,957	\$997,213,234
F6. Funding Corridor Adjustment						
F7. Total Scheduled Phase-in of Gain/(Loss)	1,177,273,755	2,174,486,990	2,174,486,990	2,174,486,988	1,677,663,192	997,213,234
G. Acceptable Phase-In of Investment Return						
G1. Projected Funding Value without Phase-In: A+D+E3	44,840,164,618	48,017,060,811				
G2. Limit on Phase-In: B-G1	5,389,544,975	9,198,337,394				
G3. Acceptable Phase-In Amount	1,177,273,755	2,174,486,990				
H. Funding Value End of Year: A+D+E3+G3	46,017,438,373	50,191,547,801				
I. Difference Between Market and Funding Value	4,212,271,220	7,023,850,404	4,849,363,414	2,674,876,426	997,213,234	-
J. Recognized Rate of Return (Funding Value)	10.0 %	12.0 %				
K. Market Rate of Return	14.6 %	16.7 %				
L. Ratio of Funding Value to Market Value	91.6 %	87.7 %				

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, 2020

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	2,363				3,008				5,371
25- 29	4,760	110			6,637	69			11,576
30- 34	4,414	1,215			6,940	1,062			13,631
35- 39	3,308	2,789	34		6,796	2,741	23		15,691
40- 44	2,730	2,960	665		7,276	3,718	530	1	17,880
45- 49	2,298	2,388	1,620	7	7,044	4,259	1,399	3	19,018
50	511	500	502	5	1,440	1,210	466	1	4,635
51	467	504	485	4	1,496	1,277	457		4,690
52	492	459	527	2	1,357	1,161	533	2	4,533
53	480	460	523	12	1,352	1,304	601	7	4,739
54	483	498	596	22	1,222	1,402	618	10	4,851
55	487	484	529	45	1,223	1,444	686	19	4,917
56	606	498	535	52	1,131	1,566	734	26	5,148
57	511	541	544	61	1,092	1,549	751	41	5,090
58	591	545	562	73	1,026	1,484	905	61	5,247
59	525	577	474	123	1,038	1,440	947	60	5,184
60	536	531	474	96	898	1,473	947	70	5,025
61	546	514	392	101	828	1,286	958	73	4,698
62	452	471	370	82	778	1,193	838	79	4,263
63	474	435	274	93	556	1,051	819	57	3,759
64	426	411	281	68	537	942	763	47	3,475
65	358	345	200	42	427	707	578	45	2,702
66	332	302	123	35	361	466	414	44	2,077
67	255	252	95	22	271	334	259	16	1,504
68	234	234	96	17	196	291	205	17	1,290
69	176	161	54	11	147	223	168	17	957
70 & Over	868	775	205	66	708	744	533	95	3,994
Totals	29,683	18,959	10,160	1,039	55,785	34,396	15,132	791	165,945

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, 2020

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		3				1			4
45- 49	1	1	3			2			7
50						2			2
51		2				2			4
52			1						1
53			1						1
54		1	3				1		5
55		2	1			1			4
56						4			4
57	1	1							2
58		3	1				1	1	6
59		2				1		1	4
60		1				1			2
61	1	1	1						3
62						2			2
63				1			1		2
64			1			1	1		3
65							1		1
66		2							2
67		1	1						2
68									
69									
70 & Over		3					1	1	5
Totals	3	23	13	1		17	6	3	66

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, 2020

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	85				15				100
25- 29	383	5			49	1			438
30- 34	374	91			57	15			537
35- 39	203	391			30	62			686
40- 44	116	414	70		17	73	11		701
45- 49	47	215	317		12	48	50		689
50	12	53	72	1	1	5	8		152
51	8	42	48		3	5	7		113
52	14	35	46		1	4	7		107
53	15	26	33		1	5	4		84
54	7	20	37		1	4	2		71
55	5	17	23	1	1	5	1		53
56	9	20	8	1		6	6		50
57	7	12	20		1	2	4		46
58	8	11	13	1		4	4		41
59	4	12	8			2	1		27
60	8	8	8	2		3	2		31
61	6	12	10	1		2			31
62	1	11	7	1		2	2	1	25
63	3	9	2			1			15
64	3	2	1	1			2	1	10
65	2	6	1	1			1		11
66		2	4	1		1			8
67	4	6	2				1		13
68	2	6		2					10
69		1							1
70 & Over	2	6					1		9
Totals	1,328	1,433	730	13	189	250	114	2	4,059

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, 2020

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									
50									
51									
52									
53									
54		1							1
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59									
60									
61									
62									
63									
64		1							1
65									
66									
67									
68									
69									
70 & Over				2					2
Totals		2		2					4

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, 2021

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	2,650				3,577				6,227
25- 29	4,791	133			6,955	55			11,934
30- 34	4,551	1,219	1		7,291	1,015			14,077
35- 39	3,409	2,759	41		7,088	2,667	28		15,992
40- 44	2,847	2,963	670	2	7,777	3,612	578		18,449
45- 49	2,367	2,341	1,633	6	7,195	4,074	1,467	3	19,086
50	489	447	459	2	1,439	1,053	419	2	4,310
51	545	484	547	7	1,434	1,224	516	1	4,758
52	488	484	525	3	1,435	1,289	526	3	4,753
53	502	451	547	5	1,346	1,185	579	6	4,621
54	501	439	540	22	1,328	1,277	651	18	4,776
55	509	482	572	36	1,187	1,341	665	18	4,810
56	505	472	467	40	1,180	1,359	695	30	4,748
57	600	485	486	65	1,114	1,457	793	28	5,028
58	530	529	508	67	1,060	1,454	778	54	4,980
59	594	506	518	73	999	1,353	940	64	5,047
60	529	533	441	125	996	1,329	937	62	4,952
61	537	485	410	95	865	1,282	903	71	4,648
62	521	467	358	96	760	1,118	922	72	4,314
63	441	410	278	58	716	1,003	750	69	3,725
64	458	384	232	79	514	841	786	50	3,344
65	367	372	229	59	493	751	659	46	2,976
66	296	276	134	32	356	487	398	28	2,007
67	285	249	69	22	293	338	284	24	1,564
68	227	201	72	13	250	256	197	11	1,227
69	209	206	70	13	177	217	169	17	1,078
70 & Over	907	787	224	56	788	762	528	96	4,148
Totals	30,655	18,564	10,031	976	58,613	32,799	15,168	773	167,579

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, 2021

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		3							3
45- 49		1	2			1			4
50	1		1			1			3
51						2			2
52		2				2			4
53			1						1
54			1						1
55		1	3				1		5
56		1	2			1			4
57						3	1		4
58	1	1							2
59		3	1			1	1	1	7
60		2				1		1	4
61	1	1				1			3
62	2	1	1						4
63					1	2			3
64			1	1			1	1	4
65			1			1	2		4
66							1		1
67		2							2
68		1	2						3
69									
70 & Over		2					1	1	4
Totals	5	21	16	1	1	16	8	4	72

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, 2021

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	107				22				129
25- 29	421	1			53				475
30- 34	399	102			57	19			577
35- 39	227	355			28	53			663
40- 44	104	416	79		12	67	14		692
45- 49	53	201	289		11	44	50		648
50	11	33	80		1	4	12		141
51	12	49	50	1	1	4	7		124
52	8	35	42		3	4	5		97
53	13	32	38		3	3	3		92
54	13	22	26		1	4	3		69
55	8	16	26	1	1	4	1		57
56	5	12	16	1	2	2	2		40
57	6	13	7	2		4	4		36
58	9	12	7		1	2	2		33
59	5	8	11	1		3	3		31
60	5	9	6			1	2		23
61	3	6	7			3	1		20
62	2	12	4	2		1			21
63	1	8	6			2	1	1	19
64	2	8	1			1			12
65	2	2	1	1			2		8
66	1	7		1			1		10
67		1	2						3
68	2	8					1		11
69	2	3	1						6
70 & Over	3	4	1	1					9
Totals	1,424	1,375	700	11	196	225	114	1	4,046

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, 2021

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									
50									
51									
52									
53									
54									
55		1							1
56									
57									
58									
59									
60									
61									
62									
63									
64									
65									
66									
67									
68									
69									
70 & Over				1					1
Totals		1		1					2

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 2021 (Retirement with Benefit Beginning Immediately)

Male		
Age	Retirements	Exposure
Under 55	19	19
55	23	60
56	25	74
57	25	96
58	22	84
59	29	126
60	132	1,093
61	122	1,039
62	178	881
63	159	814
64	116	746
65	187	654
66	163	464
67	132	396
68	94	327
69	68	309
70	50	219
71	45	181
72	21	121
73	23	99
74	26	114
75 & Up	99	404
Total (55 & Up)	1,739	8,301
Average Rate:	0.2095	

Female		
Age	Retirements	Exposure
Under 55	8	8
55	6	30
56	10	38
57	14	50
58	14	71
59	18	88
60	300	2,419
61	258	2,332
62	342	2,162
63	309	1,903
64	268	1,751
65	437	1,573
66	365	1,070
67	247	786
68	131	543
69	117	441
70	108	378
71	64	236
72	50	211
73	42	170
74	26	142
75 & Up	99	422
Total (55 & Up)	3,225	16,816
Average Rate:	0.1918	

Active Regular Group Members Who Became Early Service Retirees During Calendar Year 2021

Male		
Age	Retirements	Exposure
55	68	994
56	77	925
57	66	984
58	63	1,039
59	100	958
Total	374	4,900
Average Rate:	0.0763	

Female		
Age	Retirements	Exposure
55	126	1,933
56	127	2,076
57	119	2,222
58	123	2,229
59	174	2,168
Total	669	10,628
Average Rate:	0.0629	

Active SLEP Group Members Who Became Age & Service Retirees During Calendar Year 2021 (Retirement with Benefit Beginning Immediately)

Male		
Age	Retirements	Exposure
Under 50	-	-
50	29	94
51	12	58
52	11	50
53	17	58
54	10	27
55	13	37
56	11	25
57	11	20
58	9	17
59	4	11
60	6	18
61	6	19
62	6	22
63	2	11
64	2	8
65	1	7
66	2	7
67	3	8
68	2	8
69	1	5
70	-	1
71	-	1
72	-	2
73	-	-
74	-	1
75 & Up	1	1
Total (50 & Up)	159	516
Average Rate:	0.3081	

Female		
Age	Retirements	Exposure
Under 50	-	-
50	2	12
51	4	8
52	3	7
53	3	5
54	1	5
55	2	2
56	3	6
57	2	7
58	1	2
59	2	5
60	1	6
61	1	2
62	1	3
63	-	4
64	-	-
65	1	4
66	-	-
67	1	1
68	-	1
69	-	-
70	-	-
71	1	1
72	-	-
73	-	-
74	-	-
75 & Up	-	-
Total (50 & Up)	29	81
Average Rate:	0.3580	

**Active ECO Group Members Who Became Age & Service Retirees
During Calendar Year 2021
(Retirement with Benefit Beginning Immediately)**

Male		
Age	Retirements	Exposure
Under 55	-	-
55	-	5
56	-	1
57	-	-
58	-	2
59	-	4
60	-	2
61	-	-
62	-	2
63	-	-
64	-	2
65	-	-
66	-	-
67	-	4
68	-	-
69	-	-
70	-	-
71	-	1
72	1	2
73	-	-
74	-	-
75 & Up	-	-
Total (55 & Up)	1	25
Average Rate:	0.0400	

Female		
Age	Retirements	Exposure
Under 55	-	-
55	-	1
56	-	4
57	-	1
58	-	1
59	-	1
60	-	2
61	-	1
62	-	-
63	-	3
64	-	1
65	-	2
66	-	-
67	-	-
68	-	-
69	-	-
70	-	1
71	-	-
72	-	-
73	-	-
74	-	-
75 & Up	-	1
Total (55 & Up)	-	19
Average Rate:	-	

Active ECO SLEP Group Members Who Became Age & Service Retirees During Calendar Year 2021 (Retirement with Benefit Beginning Immediately)

Male		
Age	Retirements	Exposure
Under 50	-	-
50	-	-
51	-	-
52	-	-
53	-	-
54	-	-
55	-	1
56	-	-
57	-	-
58	-	-
59	-	-
60	-	-
61	-	-
62	-	-
63	-	-
64	-	-
65	1	1
66	-	-
67	-	-
68	-	-
69	-	-
70	1	2
71	-	-
72	-	-
73	-	-
74	-	-
75 & Up	-	-
Total (50 & Up)	2	4
Average Rate:	0.5000	

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)	-	-
Average Rate:	-	

DISABILITY EXPERIENCE

Regular Group Members Who Became Disability Retirees During Calendar Year 2021

Male		
Age	Disabilities*	Exposure
Under 20	-	71
20-24	1	1,915
25-29	5	4,716
30-34	4	5,563
35-39	10	6,091
40-44	11	6,335
45-49	12	6,238
50-54	12	7,409
55-59	35	8,302
60-64	30	7,338
65-69	9	3,760
70-74	4	1,414
75 and Over	1	689
Totals	134	59,841
Average Rate:	0.0022	

Female		
Age	Disabilities*	Exposure
Under 20	-	89
20-24	-	2,422
25-29	1	6,446
30-34	9	7,915
35-39	8	9,315
40-44	14	11,385
45-49	26	12,429
50-54	30	15,718
55-59	48	17,059
60-64	36	14,866
65-69	9	6,101
70-74	3	1,736
75 and Over	2	623
Totals	186	106,104
Average Rate:	0.0018	

** 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 2021

Male		
Age	Disabilities*	Exposure
Under 20	-	-
20-24	-	63
25-29	-	360
30-34	1	468
35-39	2	587
40-44	-	598
45-49	-	563
50-54	1	504
55-59	1	206
60-64	-	103
65-69	-	44
70-74	-	1
75 and Over	-	1
Totals	5	3,498
Average Rate:	0.0014	

Female		
Age	Disabilities*	Exposure
Under 20	-	-
20-24	-	9
25-29	-	54
30-34	-	69
35-39	-	90
40-44	-	101
45-49	-	106
50-54	1	64
55-59	1	40
60-64	-	15
65-69	-	6
70-74	-	-
75 and Over	-	-
Totals	2	554
Average Rate:	0.0036	

** 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 2021

Male		
Age	Disabilities	Exposure
Under 20	-	-
20-24	-	-
25-29	-	-
30-34	-	-
35-39	-	-
40-44	-	3
45-49	-	4
50-54	-	6
55-59	-	13
60-64	-	7
65-69	-	4
70-74	-	3
75 and Over	-	-
Totals	-	40
Average Rate:	-	

Female		
Age	Disabilities	Exposure
Under 20	-	-
20-24	-	-
25-29	-	-
30-34	-	-
35-39	-	-
40-44	-	1
45-49	-	1
50-54	-	5
55-59	-	8
60-64	-	7
65-69	-	2
70-74	-	1
75 and Over	-	1
Totals	-	26
Average Rate:	-	

ECO SLEP Members Who Became Disability Retirees During Calendar Year 2021

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

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	-	-
Average Rate:	-	

WITHDRAWAL EXPERIENCE

**Regular Group Members Who Left Active Status
During Calendar Year 2021
with Eight or More Years of Service**

Male		
Age	Withdrawals	Exposure
25-29	9	111
30-34	79	1,238
35-39	162	2,821
40-44	176	3,681
45-49	182	4,007
50-54	195	5,090
55 & Over	302	302
Total	1,105	17,250
Average Rate:	0.0641	

Female		
Age	Withdrawals	Exposure
25-29	13	68
30-34	133	1,077
35-39	251	2,798
40-44	315	4,311
45-49	357	5,595
50-54	532	9,013
55 & Over	637	637
Total	2,238	23,499
Average Rate:	0.0952	

**SLEP Group Members Who Left Active Status
During Calendar Year 2021
with Seven or More Years of Service**

Male		
Age	Withdrawals	Exposure
25-29	2	7
30-34	14	156
35-39	15	412
40-44	12	512
45-49	22	517
50-54	5	159
55 & Over	8	65
Total	78	1,828
Average Rate:	0.0427	

Female		
Age	Withdrawals	Exposure
25-29	1	4
30-34	4	28
35-39	3	61
40-44	5	89
45-49	3	95
50-54	-	19
55 & Over	-	16
Total	16	312
Average Rate:	0.0513	

**ECO Group Members Who Left Active Status
During Calendar Year 2021
with Eight or More Years of Service**

Male		
Age	Withdrawals	Exposure
25-29	-	-
30-34	-	-
35-39	-	-
40-44	-	3
45-49	-	3
50-54	-	6
55 & Over	-	-
Total	-	12
Average Rate:	-	

Female		
Age	Withdrawals	Exposure
25-29	-	-
30-34	-	-
35-39	-	-
40-44	1	1
45-49	-	1
50-54	-	5
55 & Over	-	-
Total	1	7
Average Rate:	0.1429	

**ECO SLEP Group Members Who Left Active Status
During Calendar Year 2021
with Seven or More Years of Service**

Male		
Age	Withdrawals	Exposure
25-29	-	-
30-34	-	-
35-39	-	-
40-44	-	-
45-49	-	-
50-54	-	-
55 & Over	-	-
Total	-	-
Average Rate:	-	-

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

**Regular Group Members Who Left Active Status
with No Monthly Benefit
During Calendar Year 2021
(Non-Vested Separations)**

Male		
Service Index	Withdrawals	Exposure
1	752	2,568
2	1,192	5,073
3	909	4,900
4	614	4,048
5	469	3,391
6	333	3,194
7	274	2,898
8	201	2,451
9	166	1,977
10	119	1,678
11	96	1,148
12	63	862
13	79	1,093
14	64	1,142
15	69	1,075
16	60	1,011
17	42	832
18	30	711
19	45	699
20	35	736
21	40	743
22	32	770
23	26	632
24	22	513
25	15	414
26	13	376
27	6	312
28	14	255
29	14	210
30 and Over	55	780
Totals (Less Than or Equal to 8 Years of Service) Average Rate	4,744 0.1663	28,523

Female		
Service Index	Withdrawals	Exposure
1	1,523	4,842
2	2,444	10,055
3	2,040	9,796
4	1,331	7,781
5	1,017	6,490
6	793	5,698
7	614	5,121
8	459	4,172
9	320	3,363
10	249	2,544
11	230	1,844
12	178	1,487
13	184	1,661
14	200	1,908
15	157	1,714
16	126	1,390
17	94	1,142
18	91	975
19	52	811
20	54	929
21	47	901
22	42	794
23	41	629
24	36	497
25	29	392
26	23	307
27	24	264
28	9	210
29	7	179
30 and Over	45	540
Totals (Less Than or Equal to 8 Years of Service) Average Rate	10,221 0.1894	53,955

**SLEP Group Members Who Left Active Status
with No Monthly Benefit
During Calendar Year 2021
(Non-Vested Separations)**

Male		
Service Index	Withdrawals	Exposure
1	15	79
2	45	227
3	18	234
4	23	174
5	11	152
6	12	140
7	12	128
8	10	136
9	10	109
10	9	92
11	5	77
12	2	73
13	5	118
14	2	159
15	5	114
16	5	139
17	-	127
18	5	124
19	1	105
20	2	92
21	4	72
22	4	55
23	2	71
24	1	59
25	3	49
26	-	27
27	2	26
28	1	13
29	-	2
30 and Over	-	4
Totals (Less Than or Equal to 7 Years of Service) Average Rate	136 0.1199	1,134

Female		
Service Index	Withdrawals	Exposure
1	5	20
2	4	28
3	6	29
4	2	23
5	3	22
6	2	20
7	4	18
8	4	21
9	2	13
10	1	18
11	1	15
12	-	18
13	2	19
14	-	26
15	1	21
16	-	16
17	1	22
18	-	24
19	1	17
20	1	20
21	1	15
22	-	14
23	-	10
24	-	7
25	-	5
26	-	4
27	-	5
28	-	1
29	-	-
30 and Over	1	1
Totals (Less Than or Equal to 7 Years of Service) Average Rate	26 0.1625	160

**ECO Group Members Who Left Active Status
with No Monthly Benefit
During Calendar Year 2021
(Non-Vested Separations)**

Male		
Service Index	Withdrawals	Exposure
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	1
7	-	2
8	-	-
9	-	-
10	-	-
11	-	1
12	-	-
13	-	1
14	-	1
15	-	2
16	-	-
17	-	2
18	-	-
19	-	-
20	-	-
21	-	-
22	-	3
23	-	-
24	-	-
25	-	-
26	-	-
27	-	1
28	-	-
29	-	1
30 and Over	-	-
Totals (Less Than or Equal to 8 Years of Service) Average Rate	-	3 0.0000

Female		
Service Index	Withdrawals	Exposure
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	1	2
12	-	-
13	-	1
14	-	2
15	-	-
16	-	-
17	-	-
18	-	-
19	-	2
20	-	-
21	-	-
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30 and Over	-	-
Totals (Less Than or Equal to 8 Years of Service) Average Rate	-	- 0.0000

**ECO SLEP Group Members Who Left Active Status
with No Monthly Benefit
During Calendar Year 2021
(Non-Vested Separations)**

Male		
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) Average Rate	-	-
	0.0000	

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) Average Rate	-	-
	0.0000	

MORTALITY EXPERIENCE

Active Members Deaths During Calendar Year 2021

Male		
Age	Deaths	Exposure
Under 20	-	71
20-24	-	1,978
25-29	2	5,076
30-34	4	6,031
35-39	5	6,678
40-44	4	6,936
45-49	7	6,805
50-54	16	7,919
55-59	18	8,522
60-64	30	7,448
65-69	19	3,809
70-74	7	1,418
75 and Over	7	690
Totals	119	63,381
Average Rate:	0.0019	

Female		
Age	Deaths	Exposure
Under 20	-	89
20-24	-	2,431
25-29	-	6,500
30-34	3	7,984
35-39	2	9,405
40-44	5	11,487
45-49	7	12,536
50-54	15	15,787
55-59	22	17,107
60-64	22	14,888
65-69	13	6,109
70-74	5	1,737
75 and Over	6	624
Totals	100	106,684
Average Rate:	0.0009	

Retired Members Deaths During Calendar Year 2021

Male		
Age	Deaths	Exposure
Under 55	4	498
55-59	18	2,958
60-64	113	7,198
65-69	202	10,306
70-74	285	9,562
75-79	260	5,797
80-84	295	3,719
85-89	283	1,996
90-94	179	834
95-99	58	187
100-104	8	18
105 & Over	-	-
Totals	1,705	43,073
Actual Average Rate	0.0396	
Expected Average Rate	0.0347	

Female		
Age	Deaths	Exposure
Under 55	-	235
55-59	36	4,954
60-64	88	13,555
65-69	190	21,059
70-74	285	19,768
75-79	335	12,838
80-84	394	8,239
85-89	452	5,039
90-94	421	2,651
95-99	206	813
100-104	47	118
105 & Over	3	7
Totals	2,457	89,276
Actual Average Rate	0.0275	
Expected Average Rate	0.0259	

SALARY EXPERIENCE

Salary Increases by Age During Calendar Year 2021*

Age Group Beginning of Year	Pay Increase During the Next Year		
	Regular	SLEP	ECO
25-29	15.35 %	11.98 %	0.00 %
30-34	7.65 %	7.09 %	0.00 %
35-39	6.28 %	5.22 %	0.00 %
40-44	5.23 %	4.78 %	0.00 %
45-49	5.05 %	4.32 %	1.79 %
50-54	4.66 %	4.61 %	3.75 %
55-59	4.62 %	5.19 %	0.54 %
60-64	4.87 %	4.43 %	0.72 %
65-69	4.57 %	5.22 %	(0.16)%
70-74	4.64 %	2.60 %	(1.74)%
75 & Over	5.02 %	4.88 %	4.24 %
Averages:			
Expected	3.12 %	4.13 %	3.04 %
Actual	4.93 %	5.00 %	0.88 %

* Members active both at the beginning and end of year and have 5 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 2021

Service Index	Pay Increase During the Next Year		
	Regular	SLEP	ECO
1	16.44 %	13.63 %	0.00 %
2	11.96 %	9.20 %	0.00 %
3	9.00 %	5.16 %	0.00 %
4	8.04 %	5.42 %	0.00 %
5	7.29 %	4.94 %	0.00 %
6	7.14 %	5.18 %	0.03 %
7	6.43 %	5.32 %	9.80 %
8	6.24 %	4.30 %	0.00 %
9	6.18 %	4.87 %	2.00 %
10	5.47 %	3.75 %	(1.24)%
11	5.55 %	4.88 %	(1.60)%
12	5.15 %	6.37 %	0.00 %
13	5.08 %	4.31 %	0.76 %
14	4.75 %	5.04 %	1.99 %
15	5.11 %	2.86 %	3.80 %
16	4.72 %	2.83 %	0.00 %
17	4.36 %	4.76 %	1.55 %
18	4.67 %	3.88 %	1.15 %
19	4.56 %	5.23 %	1.10 %
20	4.63 %	5.39 %	2.45 %
21	4.32 %	4.94 %	7.73 %
22	4.00 %	4.76 %	0.28 %
23	3.84 %	4.95 %	2.55 %
24	4.04 %	4.38 %	(2.71)%
25	4.02 %	6.94 %	2.28 %
26	3.62 %	5.78 %	0.07 %
27	4.10 %	4.94 %	3.06 %
28	3.75 %	(0.23)%	0.00 %
29	2.97 %	5.98 %	3.13 %
30	3.57 %	6.50 %	0.00 %
31	4.01 %	2.27 %	0.00 %
32	3.26 %	4.63 %	(1.91)%
33	3.40 %	7.62 %	(1.67)%
34	3.32 %	10.13 %	0.00 %
35	4.15 %	(0.46)%	0.00 %
36	3.85 %	8.91 %	0.00 %
37	3.76 %	0.93 %	1.54 %
38	2.62 %	(0.99)%	(6.86)%
39	3.01 %	0.00 %	0.00 %
40	6.31 %	0.00 %	0.00 %
Averages:			
Expected	3.86 %	4.13 %	3.04 %
Actual	6.13 %	5.00 %	0.88 %



March 11, 2022

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

Dear Mr. Nannini:

Enclosed are five copies of the Gain/Loss Analysis of Financial Experience Among Active Members during the period of January 1, 2021 to December 31, 2021 for the Illinois Municipal Retirement Fund (IMRF).

Your comments and/or questions will be welcome.

Sincerely,

GABRIEL, ROEDER, SMITH & COMPANY

A handwritten signature in black ink, appearing to read "Francois Pieterse".

Francois Pieterse, ASA, FCA, MAAA

FP:ah

Enclosures

cc: Audrey Brown-Ryce, IMRF