

METROPOLITAN WATER RECLAMATION DISTRICT RETIREMENT FUND

ACTUARIAL VALUATION
AS OF DECEMBER 31, 2021

CONTRIBUTIONS APPLICABLE TO THE
PLAN/FISCAL YEAR ENDING DECEMBER 31, 2022

GASB DISCLOSURE INFORMATION AS OF
DECEMBER 31, 2021



FOSTER & FOSTER
ACTUARIES AND CONSULTANTS

April 19, 2022

Board of Trustees
Metropolitan Water Reclamation District Retirement Fund
111 E. Erie St.
Chicago, IL 60611

Dear Board:

We are pleased to present to the Board this report of the December 31, 2021 actuarial valuation of the Metropolitan Water Reclamation District Retirement Fund.

The valuation was performed as of December 31, 2021 to determine the current funding status and to develop the appropriate funding requirements for the applicable plan year. Successive valuations will be performed every year.

Included are the related results for GASB Statements No. 67 and No. 68. The total pension liability, net pension liability, and certain sensitivity information shown in the GASB results are based on an actuarial valuation performed as of the valuation date. The calculation of the liability for GASB results was performed for the purpose of satisfying the requirements of GASB Statements No. 67 and No. 68. Use of the results for other purposes may not be applicable and produce significantly different results.

Data Sources

In preparing this report, we have relied on personnel, plan design and asset information supplied by the Fund. The actuarial value of assets was determined based on audited financial statements supplied by Legacy Professionals LLP, the auditor for the Fund. In our opinion, the assumptions used in the valuation, as adopted by the Board of Trustees, represent reasonable expectations of anticipated fund experience. While we cannot verify the accuracy of all this information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy of the information and believe that it has produced appropriate results. This information, along with any adjustments or modifications, is summarized in various sections of this report.

Experience

The experience of the Fund over the last year is outlined in this report. Overall, the Fund experienced an actuarial gain of \$23,821,813 which consists of a \$29,048,737 gain on the Fund's actuarial value of assets and a \$5,226,924 loss on the Fund's actuarial accrued liability. Based on the actuarial value of assets, the Fund earned 9.18% compared to the assumed 7.25% return. The primary source of liability loss was due to more retirements than expected. These losses were offset somewhat by lower than assumed salary increases and higher than expected mortality experience for surviving spouses.

Changes Since Prior Report

The valuation reflects no changes since the prior report.

Contribution Amounts

The statutory funding objective of the Fund is to attain a funded ratio of at least 90% by the year 2050. However, an additional contribution requirement has been determined based on achieving a funding level of 100%. District contributions equal an amount that will be sufficient to meet the Fund's actuarially determined contribution requirement but shall not exceed an amount equal to the total employee contributions 2 years prior multiplied by 4.19.

Based on the results of this valuation, the actuarially determined contribution applicable for the fiscal year ending December 31, 2022 is \$76,680,499. This contribution is based on a 100% funding target. Based on the pension code, the maximum employer contribution (based on the 4.19 multiplier) is \$87,915,000.

We estimate that a multiplier of 3.65 is required to cover the full actuarially determined contribution requirement for the year 2022.

Illinois Public Act 97-0894 (effective 8/3/2012) provided for changes to member contribution requirements and the required multiplier. The expected member contributions reflect the same rates as the prior year valuation.

Schedules for Annual Financial Report

The report includes information and trend data schedules for use in the Annual Financial Report. The following information and exhibits are included in the body of the report and Supplementary Tables section:

- Recommended Employer Multiple
- Present Value of Future Benefits
- Membership Note Data
- Participant Statistics
- History of Change in Unfunded Accrued Liability
- History of Annuitants and Surviving Spouses Added/Dropped from Rolls
- Summary of Annuitants and Surviving Spouses by Age
- History of Average Annuities at Retirement
- Breakdown of Aggregate Accrued Liabilities

Actuarial Certification

The valuations have been conducted in accordance with generally accepted actuarial principles and practices, including the applicable Actuarial Standards of Practice as issued by the Actuarial Standards Board, and reflects laws and regulations issued to date pursuant to the provisions of Article 13, Illinois Pension Code, as well as applicable federal laws and regulations. Future actuarial measurements may differ significantly from the current measurements presented in this report for a variety of reasons including changes in applicable laws, changes in plan provisions, changes in assumptions, or plan experience differing from expectations. Due to the limited scope of the valuation, we did not perform an analysis of the potential range of such future measurements.

In our opinion, the assumptions and method used to determine the annual required contribution, as adopted by the Board of Trustees, represent reasonable expectations of anticipated plan experience.

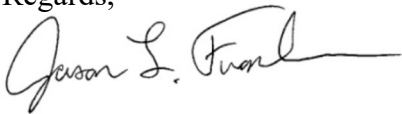
In our opinion, the following valuation results fairly present the financial condition of the Metropolitan Water Reclamation District Retirement Fund as of December 31, 2021.

The undersigned is familiar with the immediate and long-term aspects of pension valuations and meets the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. All the sections of this report are considered an integral part of the actuarial opinions.

To our knowledge, no associate of Foster & Foster, Inc. working on this report has any direct financial interest or indirect material interest in the Metropolitan Water Reclamation District, nor does anyone at Foster & Foster, Inc. act as a member of the Board of Trustees of the Metropolitan Water Reclamation District Retirement Fund. Thus, there is no relationship existing that might affect our capacity to prepare and certify this actuarial report.

We look forward to discussing the results with you.

Regards,



Jason L. Franken, FSA, EA, MAAA

Enrollment Number: 20-06888

Foster & Foster, Inc.

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SUMMARY OF RESULTS

The table below contains a summary of key valuation results compared to the prior year values.

	December 31, 2021	December 31, 2020
Total Actuarial Liability	\$ 2,756,489,008	\$ 2,714,192,284
Actuarial Value of Assets	<u>1,617,809,696</u>	<u>1,556,056,167</u>
Unfunded Actuarial Liability	\$ 1,138,679,312	\$ 1,158,136,117
Funded Ratio	58.7%	57.3%
Fair Value of Assets	\$ 1,724,180,047	\$ 1,580,890,628
Unfunded Liability (FVA basis)	\$ 1,032,308,961	\$ 1,133,301,656
Funded Ratio (FVA basis)	62.5%	58.2%
Employer Normal Cost as % of Payroll:		
Tier 1 Benefits	6.23%	6.36%
Tier 2 Benefits	2.89%	2.87%
Administrative Expenses	0.96%	0.85%
Total Employer Normal Cost	6.05%	6.14%
Applicable Fiscal Year ¹	2022	2021
Actuarially Determined Contribution	\$ 76,680,499	\$ 76,841,344
Contribution Requirement For Fiscal Year ²	\$ 76,680,499	\$ 76,841,344
Expected Employer Contribution for Fiscal Year	\$ 87,915,000	\$ 88,754,000

¹ The contribution requirements are levied in the applicable fiscal year and deposited into the Fund during the following fiscal year.

² See details of calculation on page 9.

ACTUARIAL LIABILITY AND FUNDED RATIO

Below are details regarding the actuarial liability and funded ratio as of December 31, 2021.

1.	Present Value of Future Benefits	\$	3,014,716,000
2.	Active Members		
	Retirement	\$	612,485,554
	Termination		20,497,886
	Death		21,734,624
	Disability		<u>6,615,501</u>
	Total	\$	661,333,565
3.	Members Receiving Benefits		
	Retirement Annuities	\$	1,837,596,506
	Survivor Annuities/Children		<u>245,186,612</u>
	Total	\$	2,082,783,118
4.	Inactive Members	\$	12,372,325
5.	Total Actuarial Liability (2. + 3. + 4.)	\$	2,756,489,008
6.	Actuarial Value of Assets	\$	1,617,809,696
7.	Unfunded Actuarial Liability	\$	1,138,679,312
8.	Funded Ratio		58.7%

EMPLOYER'S NORMAL COST

Below is a summary of the employer's share of the normal cost for the year beginning January 1, 2022.

Normal Cost	Tier 1		Tier 2		Total	
	Normal Cost	Percent of Total Payroll	Normal Cost	Percent of Total Payroll	Normal Cost	Percent of Total Payroll
Retirement	\$ 19,702,487	15.95%	\$ 5,119,995	8.04%	\$ 24,822,482	13.26%
Termination	1,059,096	0.86%	1,325,937	2.08%	2,385,033	1.27%
Death	1,379,798	1.12%	792,893	1.24%	2,172,691	1.16%
Disability	376,333	0.30%	336,622	0.53%	712,955	0.38%
Total Normal Cost	\$ 22,517,714	18.23%	\$ 7,575,447	11.89%	\$ 30,093,161	16.07%
Expected Member Contributions	\$ 14,822,022	12.00%	\$ 5,732,656	9.00%	\$ 20,554,678	10.98%
Employer's Share of Normal Cost	\$ 7,695,692	6.23%	\$ 1,842,791	2.89%	\$ 9,538,483	5.09%
Expected Administrative Expenses					\$ 1,787,903	0.96%
Employer's Share of Normal Cost, adjusted for expected administrative expenses					\$ 11,326,386	6.05%
Pensionable Payroll	\$ 123,516,853		\$ 63,696,173		\$ 187,213,026	

ACTUARIALLY DETERMINED CONTRIBUTION

The actuarially determined contribution requirement based on the provisions applicable for fiscal years 2013 and later, according to section 13-503 of Article 13 of the Illinois Pension Code, is below.

1. Employer's Share of Normal Cost	\$ 11,326,386
2. Amortization Payment (annual amount to amortize 100% of the unfunded liability by 2050)	
Actuarial Liability	\$ 2,756,489,008
Actuarial Assets	\$ 1,617,809,696
Unfunded Accrued Liability	\$ 1,138,679,312
Amortization Period	29 years
Amortization Payment	\$ 65,354,113
3. Actuarially Determined Contribution for Year Beginning January 1, 2022	\$ 76,680,499
as a percentage of pensionable payroll	40.96%
4. District's Funding Policy (4.19 x Total Member Contributions for two years prior)	\$ 87,915,000
as a percentage of pensionable payroll	46.96%
5. Statutory Employer Contribution (lesser of 3 and 4)	\$ 76,680,499

UNFUNDED ACTUARIAL LIABILITY

1. Unfunded Actuarial Accrued Liability (UAAL) as of December 31, 2020	\$ 1,158,136,117
2. Employer Normal Cost, Developed as of December 31, 2020	11,530,925
3. Expected Interest (7.25%) on 1. and 2.	84,800,861
4. Employer Contributions	88,803,958
5. Expected Interest (7.25%, mid-year) on 4.	3,162,820
6. Expected UAAL as of December 31, 2021 (1)+(2)+(3)-(4)-(5)	1,162,501,125
7. Change in UAAL Due to Actuarial (Gain)/Loss, by component	
Decrease in UAAL due to investment return higher than assumed	(29,048,737)
Decrease in UAAL due to salary increases lower than assumed	(7,730,245)
Increase in UAAL due to decrement experience	17,262,490
Decrease in UAAL due to inactive mortality experience	(7,425,859)
Increase in UAAL due to other changes	<u>3,120,538</u>
Net decrease in UAAL due to actuarial experience	(23,821,813)
8. Change in UAAL Due to Assumption Changes	-
9. Unfunded Actuarial Accrued Liability as of December 31, 2021	\$ 1,138,679,312

CHANGE IN FUNDED RATIO

1. Funded ratio as of December 31, 2020	57.3%
2. Expected funded ratio as of December 31, 2021	57.7%
3. Change in funded ratio Due to Actuarial (Gain)/Loss, by component	
Increase in funded ratio due to investment return higher than assumed	1.1%
Increase in funded ratio due to salary increases lower than assumed	0.2%
Decrease in funded ratio due to decrement experience	-0.4%
Increase in funded ratio due to inactive mortality experience	0.2%
Increase in funded ratio due to other changes	<u>-0.1%</u>
Net increase in funded ratio due to actuarial experience	1.0%
4. Change in UAAL Due to Assumption Changes	-
5. Funded Ratio as of December 31, 2021	58.7%

DEVELOPMENT OF ASSETS

Development of Actuarial Value of Assets

Fair Value of Assets, 12/31/2021	\$ 1,724,180,047
Less: Unrecognized Amounts as of 12/31/2021	106,370,351
Actuarial Value of Assets, 12/31/2021	<u>\$ 1,617,809,696</u>
Limited Actuarial Value of Assets, 12/31/2021	\$ 1,617,809,696

Development of Investment Gain/(Loss)

Fair Value of Assets, 12/31/2020	\$ 1,580,890,628
Contributions & Other Additions Less Benefit Payments & Admin Expenses	(77,487,428)
Expected Investment Earnings for 2021	111,854,797
Expected Fair Value of Assets, 12/31/2021	<u>\$ 1,615,257,997</u>
Actual Net Investment Income/(Loss) for 2021	\$ 220,776,847
2021 Investment Gain/(Loss), (Actual less Expected)	\$ 108,922,050

Plan Year		Gains/(Losses) Not Yet Recognized by Valuation Year			
Ending	Gain/(Loss)	2021	2022	2023	2024
12/31/2017	95,056,619	0	0	0	0
12/31/2018	(213,622,995)	(42,724,599)	0	0	0
12/31/2019	129,938,829	51,975,532	25,987,766	0	0
12/31/2020	16,636,297	9,981,778	6,654,519	3,327,259	0
12/31/2021	108,922,050	<u>87,137,640</u>	<u>65,353,230</u>	<u>43,568,820</u>	<u>21,784,410</u>
Total		106,370,351	97,995,515	46,896,079	21,784,410

Calculation of Rates of Return

Rates of return calculated below are based on a formula defined by the IRS. Therefore, the returns may differ from investment returns calculated for other purposes. The formula is defined as $(2 * I)$ divided by $(A + B - I)$ where A, B and I are as follows:

(A) 12/31/2020 Actuarial Assets:	\$ 1,556,056,167
(I) Net Investment Income:	
1. Interest, Dividends, Net Gross Securities Lending Income and Other Income	21,554,094
2. Change in Actuarial Value	122,744,103
3. Investment Expenses	(5,052,027)
Total	<u>\$ 139,246,170</u>
(B) 12/31/2021 Actuarial Assets:	\$ 1,617,809,696
Actuarial Asset Rate of Return = $2I/(A+B-I)$:	9.18%
Market Value of Assets Rate of Return (IRS formula):	14.32%

STATEMENT OF FIDUCIARY NET POSITION
December 31, 2021

<u>ASSETS</u>	FAIR VALUE
Cash	321,562
Total Cash and Equivalents	321,562
Receivables:	
District Contributions	88,754,000
Due From Broker	1,071,091
Accounts Receivable	91,630
Accrued Income	3,404,524
Total Receivables	93,321,245
Investments:	
Equities	425,507,625
U.S. Government and government agency obligations	102,415,486
Corporate and foreign government obligations	122,142,471
Mutual and Exchange Traded Funds	89,718,116
Pooled Funds - Equity	573,794,559
Pooled Funds - Fixed Income	158,608,118
Limited Partnership - Real Estate	62,195,564
Real estate investment trust	85,150,130
Short-Term Investment Funds	26,128,257
Securities Lending Collateral	11,615,269
Total Investments	1,657,275,595
Total Assets	1,750,918,402
<u>LIABILITIES</u>	
Liabilities:	
Payable:	
Securities Lending Collateral	11,615,269
Due to Broker	13,892,598
Accounts Payable	1,230,488
Total Liabilities	26,738,355
Net Assets:	
Active and Retired Members' Equity	1,724,180,047
Net Assets	
Active and Retired Members' Equity	1,724,180,047
NET POSITION RESTRICTED FOR PENSIONS	1,724,180,047
TOTAL LIABILITIES AND NET ASSETS	1,750,918,402

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
FOR THE YEAR ENDED December 31, 2021
Fair Value Basis

ADDITIONS

Contributions:

Member	20,630,052
District	88,803,958

Total Contributions	109,434,010
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Investment Income:

Interest & Dividends	21,453,090
Net Increase in Fair Value of Investments	204,279,993
Net Securities Lending Income	95,791
Less Investment Expense ¹	(5,052,027)

Net Investment Income	220,776,847
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Other Income	5,213
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Total Additions	330,216,070
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DEDUCTIONS

Distributions to Members:

Benefit Payments	182,857,341
Refunds of Employee Contributions	2,281,407

Total Distributions	185,138,748
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Administrative Expenses	1,787,903
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Other Deductions	0
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Total Deductions	186,926,651
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Net Increase in Net Position	143,289,419
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NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year	1,580,890,628
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End of the Year	1,724,180,047
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¹ Investment related expenses include investment management, investment consulting and custodial fees.

PARTICIPANT DATA

Participant Information	December 31, 2021	December 31, 2020	Change
Number Active Members - Total	1,737	1,769	-1.8%
Number Active Members - Fully Vested	965	1,095	-11.9%
Number Receiving Benefits			
Retirement Annuities	1,918	1,917	0.1%
Surviving Spouse Annuities	543	546	-0.5%
Children's Annuities	21	20	5.0%
Number Inactive Members - Total	128	132	-3.0%
Number Inactive Members - Vested	34	37	-8.1%
Total Members	4,347	4,384	-0.8%
Total Pensionable Salary	\$ 187,213,026	\$ 188,072,970	-0.5%
Active Statistics – Tier 1			
Number	1,044	1,124	-7.1%
Average Age	53.71	53.44	0.5%
Average Service	18.30	17.96	1.9%
Total Pensionable Salary	\$ 123,516,853	\$ 130,079,718	-5.0%
Average Salary	\$ 118,311	\$ 115,729	2.2%
Active Statistics – Tier 2			
Number	693	645	7.4%
Average Age	43.72	43.31	0.9%
Average Service	4.91	4.39	11.9%
Total Salary	\$ 64,296,858	\$ 58,463,131	10.0%
Average Salary	\$ 92,780	\$ 90,641	2.4%
Pensionable Salary	\$ 63,696,173	\$ 57,993,252	9.8%
Average Pensionable Salary	\$ 91,914	\$ 89,912	2.2%
Annual Benefit Payments for Members Receiving Benefits			
Retirement Annuities	\$ 154,398,273	\$ 149,537,047	3.3%
Surviving Spouse Annuities	\$ 29,684,725	\$ 27,722,263	7.1%
Children's Annuities	\$ 126,000	\$ 120,000	5.0%

Participant Reconciliation

	Active	Inactive Vested	Inactive Not Vested	Employee Annuitants	Survivor Annuitants	Child	Total Count
<i>As of 12/31/2020</i>	<i>1,769</i>	<i>37</i>	<i>95</i>	<i>1,917</i>	<i>546</i>	<i>20</i>	<i>4,384</i>
Terminations							
Vested	(6)	6					0
Not Vested	(23)		23				0
Retirements	(80)	(7)	(5)	92			0
Deaths							
w/o Beneficiary	(2)	(1)	(1)	(52)	(47)	3	(100)
w/ Beneficiary	(4)			(39)	43		0
w/ Child Beneficiary							0
w/ Rev. Annuitant							
New Member	87		2				89
Return to Work	3	(1)	(2)				0
Benefit expired						(2)	(2)
Refunds	(7)		(18)				(25)
Repaid Refunds							
Adjustments	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>
Net Change	(32)	(3)	(1)	1	(3)	1	(37)
<i>As of 12/31/2021</i>	<i>1,737</i>	<i>34</i>	<i>94</i>	<i>1,918</i>	<i>543</i>	<i>21</i>	<i>4,347</i>

Active Member Statistics by Tier

					Pensionable Salary ¹		Total Salary	
Tier	Sex	Count	Avg Age	Avg Svc	Total	Average	Total	Average
1	M	754	53.9	18.5	90,989,222	120,675	90,989,222	120,675
	F	<u>290</u>	53.3	17.9	<u>32,527,631</u>	112,164	<u>32,527,631</u>	112,164
	Total	1,044	53.7	18.3	123,516,853	118,311	123,516,853	118,311
2	M	526	44.5	5.0	50,023,846	95,102	50,418,167	95,852
	F	<u>167</u>	41.4	4.7	<u>13,672,327</u>	81,870	<u>13,878,691</u>	83,106
	Total	693	43.7	4.9	63,696,173	91,914	64,296,858	92,780
Total M		1,280	50.0	12.9	141,013,068	110,166	141,407,390	110,475
F		<u>457</u>	48.9	13.0	<u>46,199,958</u>	101,094	<u>46,406,322</u>	101,546
Total		1,737	49.7	13.0	187,213,026	107,780	187,813,712	108,125

¹ Pensionable Salary reflects the salary limitations established in the Illinois Pension Code for members hired on or after January 1, 2011. The statutory salary limitation is \$116,740.42 for calendar year 2021.

Active Age Service Grid - Total

Total Active Member Count and Pensionable Salary by Age and Service

Age	Years of Service									Total
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	
<25	2	6	1							9
	\$44,164	\$83,854	\$83,990							\$75,049
25-29	3	39	9							51
	\$62,221	\$74,379	\$88,609							\$76,175
30-34	3	68	44	4	1					120
	\$70,574	\$79,805	\$98,467	\$105,840	\$88,213					\$87,355
35-39	2	55	69	33	17					176
	\$66,414	\$88,811	\$91,207	\$120,486	\$128,230					\$99,242
40-44	3	63	69	40	51	13				239
	\$103,466	\$91,063	\$103,261	\$114,056	\$120,305	\$123,182				\$106,576
45-49		49	60	43	47	47	9			255
		\$96,806	\$105,393	\$110,695	\$128,497	\$134,251	\$156,137			\$116,005
50-54	3	30	57	29	39	75	39	10		282
	\$69,167	\$92,764	\$100,013	\$104,218	\$110,560	\$125,531	\$135,449	\$128,239		\$113,493
55-59	2	33	50	38	39	63	42	14	1	282
	\$51,944	\$92,898	\$101,138	\$106,480	\$113,178	\$115,477	\$133,512	\$138,599	\$107,489	\$112,117
60-64		22	35	30	42	47	15	15	3	209
		\$89,538	\$103,135	\$104,474	\$106,430	\$133,171	\$122,033	\$116,922	\$115,368	\$111,834
65-69	1	4	10	10	12	26	13	4	4	84
	\$78,660	\$86,570	\$104,198	\$91,277	\$112,444	\$119,334	\$128,921	\$101,724	\$146,581	\$113,106
70+		2	4	2	5	9	3	2	3	30
		\$92,383	\$74,777	\$102,346	\$100,680	\$116,907	\$118,600	\$111,721	\$110,254	\$105,138
Total	19	371	408	229	253	280	121	45	11	1,737
	\$69,473	\$87,723	\$99,668	\$109,353	\$116,568	\$125,053	\$133,533	\$124,599	\$124,607	\$107,780

Active Age Service Grid – Male Members
Male Active Member Count and Pensionable Salary by Age and Service

Age	Years of Service									Total
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	
<25	1	5								6
	\$61,027	\$82,010								\$78,513
25-29	1	26	7							34
	\$53,836	\$74,932	\$87,998							\$77,002
30-34	1	46	28	2	1					78
	\$74,256	\$84,152	\$100,060	\$109,190	\$88,213					\$90,430
35-39	2	42	44	28	10					126
	\$66,414	\$92,172	\$96,526	\$123,588	\$133,165					\$103,518
40-44	3	50	57	26	34	6				176
	\$103,466	\$93,173	\$104,069	\$114,111	\$124,857	\$133,646				\$107,471
45-49		38	45	35	38	35	4			195
		\$100,378	\$105,127	\$109,622	\$126,822	\$138,185	\$193,388			\$116,980
50-54	3	23	49	23	32	49	30	8		217
	\$69,167	\$98,742	\$101,073	\$110,984	\$110,360	\$129,015	\$138,058	\$123,988		\$115,072
55-59	1	26	35	25	29	49	31	11		207
	\$61,027	\$97,246	\$101,829	\$105,913	\$111,887	\$119,369	\$132,533	\$152,354		\$114,394
60-64		14	30	18	32	35	12	11	2	154
		\$99,463	\$108,497	\$108,829	\$108,352	\$130,046	\$125,974	\$119,609	\$128,946	\$115,003
65-69		4	10	6	10	19	11	4	3	67
		\$86,570	\$104,198	\$99,885	\$110,414	\$122,006	\$116,179	\$101,724	\$140,823	\$112,196
70+		2	2	2	4	5	2	1	2	20
		\$92,383	\$78,010	\$102,346	\$106,194	\$123,943	\$124,155	\$148,439	\$118,321	\$111,168
Total	12	276	307	165	190	198	90	35	7	1,280
	\$75,073	\$91,654	\$101,945	\$111,793	\$117,140	\$127,771	\$134,020	\$129,681	\$131,000	\$110,166

Active Age Service Grid – Female Members

Female Active Member Count and Pensionable Salary by Age and Service

Age	Years of Service									Total
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	
<25	1 \$27,300	1 \$93,075	1 \$83,990							3 \$68,122
25-29	2 \$66,414	13 \$73,273	2 \$90,748							17 \$74,522
30-34	2 \$68,734	22 \$70,715	16 \$95,678	2 \$102,489						42 \$81,644
35-39		13 \$77,954	25 \$81,844	5 \$103,117	7 \$121,179					50 \$88,467
40-44		13 \$82,950	12 \$99,426	14 \$113,954	17 \$111,202	7 \$114,214				63 \$104,075
45-49		11 \$84,465	15 \$106,192	8 \$115,388	9 \$135,572	12 \$122,776	5 \$126,336			60 \$112,837
50-54		7 \$73,122	8 \$93,522	6 \$78,282	7 \$111,475	26 \$118,966	9 \$126,749	2 \$145,245		65 \$108,222
55-59	1 \$42,861	7 \$76,749	15 \$99,525	13 \$107,572	10 \$116,923	14 \$101,855	11 \$136,273	3 \$88,164	1 \$107,489	75 \$105,835
60-64		8 \$72,171	5 \$70,961	12 \$97,941	10 \$100,282	12 \$142,286	3 \$106,267	4 \$109,532	1 \$88,213	55 \$102,961
65-69	1 \$78,660			4 \$78,366	2 \$122,598	7 \$112,081	2 \$199,003		1 \$163,855	17 \$116,691
70+			2 \$71,544		1 \$78,624	4 \$108,113	1 \$107,489	1 \$75,002	1 \$94,120	10 \$93,077
Total	7 \$59,874	95 \$76,302	101 \$92,746	64 \$103,061	63 \$114,842	82 \$118,492	31 \$132,120	10 \$106,811	4 \$113,419	457 \$101,094

Inactive Age Service Grid

Inactive Member Count and Final Pensionable Salary by Age and Service at Termination

Age	Years of Service								Total
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	
<25	1 \$62,889	1 \$49,885							2 \$56,387
25-29		4 \$71,673							4 \$71,673
30-34	1	8 \$72,599	5 \$72,381						14 \$67,336
35-39	2 \$28,767	5 \$82,351	3 \$66,773	2 \$121,205					12 \$76,001
40-44	2 \$41,600	6 \$55,089	5 \$91,363	5 \$75,889	2 \$118,493				20 \$74,349
45-49	2 \$29,909	7 \$62,220	2 \$93,624	1 \$103,490	2 \$84,171				14 \$68,174
50-54		5 \$66,572	5 \$91,258	5 \$74,398	3 \$107,137	1 \$88,213			19 \$82,672
55-59	4 \$27,283	9 \$77,006	3 \$41,780	4 \$66,901	5 \$97,223				25 \$67,250
60-64	2 \$15,418	5 \$39,202	1 \$106,858		1 \$86,067	1 \$82,033			10 \$50,181
65-69	1 \$47,736	5 \$41,183		1 \$90,227	1 \$167,413				8 \$63,911
70+									
Total	15 \$30,076	55 \$64,055	24 \$78,949	18 \$80,842	14 \$104,738	2 \$85,123			128 \$70,005

Annuitant Statistics by Tier and Gender

Retirement Annuities

Tier	Sex	Count	Avg Age	Total Annuity	Average Annuity
1	M	1,448	73.0	123,547,695	85,323
	F	<u>468</u>	70.9	<u>30,809,075</u>	65,831
	Total	1,916	72.5	154,356,770	80,562
2	M	1	67.1	16,038	16,038
	F	<u>1</u>	71.9	<u>25,465</u>	25,465
	Total	2	69.5	41,503	20,752
Total	M	1,449	73.0	123,563,733	85,275
	F	<u>469</u>	70.9	<u>30,834,540</u>	65,745
	Total	1,918	72.5	154,398,273	80,500

Surviving Spouse Annuities

Tier	Sex	Count	Avg Age	Total	Average
1	M	25	75.7	1,084,563	43,383
	F	<u>517</u>	79.7	<u>28,591,778</u>	55,303
	Total	542	79.5	29,676,341	54,753
2	M	0	0.0	0	0
	F	<u>1</u>	43.2	<u>8,385</u>	0
	Total	1	43.2	8,385	0
Total	M	25	75.7	1,084,563	43,383
	F	<u>518</u>	79.6	<u>28,600,162</u>	55,213
	Total	543	79.5	29,684,725	54,668

Distribution of Retirement Annuities by Age and Gender

	Male			Female			Total		
	Count	Total Annuities	Average Annuities	Count	Total Annuities	Average Annuities	Count	Total Annuities	Average Annuities
x < 45	0	0	0	0	0	0	0	0	0
45 <= x < 50	0	0	0	0	0	0	0	0	0
50 <= x < 55	17	1,661,930	97,761	9	712,825	79,203	26	2,374,755	91,337
55 <= x < 60	93	8,125,624	87,372	45	3,282,262	72,939	138	11,407,887	82,666
60 <= x < 65	188	15,190,068	80,798	79	6,411,872	81,163	267	21,601,939	80,906
65 <= x < 70	266	20,879,622	78,495	83	5,596,536	67,428	349	26,476,158	75,863
70 <= x < 75	296	26,797,922	90,534	111	6,945,625	62,573	407	33,743,547	82,908
75 <= x < 80	274	23,698,429	86,491	66	4,040,171	61,215	340	27,738,601	81,584
80 <= x < 85	164	14,350,754	87,505	42	2,230,981	53,119	206	16,581,735	80,494
85 <= x < 90	90	8,018,359	89,093	26	1,334,849	51,340	116	9,353,208	80,631
90 <= x	61	4,841,024	79,361	8	279,420	34,928	69	5,120,444	74,209
Total	1,449	123,563,733	85,275	469	30,834,540	65,745	1,918	154,398,273	80,500

Distribution of Surviving Spouse Annuities by Age and Gender

	Male			Female			Total		
	Count	Total Annuities	Average Annuities	Count	Total Annuities	Average Annuities	Count	Total Annuities	Average Annuities
x < 45	0	0	0	2	62,485	31,243	2	62,485	31,243
45 <= x < 50	0	0	0	2	84,986	42,493	2	84,986	42,493
50 <= x < 55	2	15,293	7,647	9	340,360	37,818	11	355,653	32,332
55 <= x < 60	1	4,501	4,501	14	668,062	47,719	15	672,563	44,838
60 <= x < 65	0	0	0	22	1,029,484	46,795	22	1,029,484	46,795
65 <= x < 70	2	182,472	91,236	40	2,390,478	59,762	42	2,572,951	61,261
70 <= x < 75	3	220,329	73,443	66	4,012,933	60,802	69	4,233,262	61,352
75 <= x < 80	9	369,321	41,036	85	5,120,076	60,236	94	5,489,397	58,398
80 <= x < 85	7	225,248	32,178	99	6,074,012	61,354	106	6,299,260	59,427
85 <= x < 90	0	0	0	94	5,560,439	59,154	94	5,560,439	59,154
90 <= x	1	67,398	67,398	85	3,256,847	38,316	86	3,324,245	38,654
Total	25	1,084,563	43,383	518	28,600,162	55,213	543	29,684,725	54,668

ACTUARIAL ASSUMPTIONS AND METHODS

Below is a summary of the actuarial assumptions for the December 31, 2021 valuation. An experience study was performed in September of 2018 based on data for the period December 31, 2012 through December 31, 2017. The assumptions below are based on the experience study and were adopted effective December 31, 2018.

Interest Rate	7.25%
Mortality Rates – Healthy and Disabled Lives	RP-2000 Combined Healthy Mortality Table with Generational Mortality Improvements (Scale AA). Female rates are adjusted by a factor of 1.04 and male rates are unadjusted.
Cost-of-Living Adjustment - Annuitants	
Members Hired On Or After January 1, 2011	1.25%
Members Hired Before January 1, 2011	3.00%
Inflation	2.50%
Salary Increases	See Table 1
Retirement Rates	See Table 2
Termination Rates	See Table 3
Disability Rates	See Table 4
Load for Reciprocal Benefits	1.5% of active member costs and liabilities.
Percent Married	76%
Spousal Age Difference	Spouse of male member assumed to be 4 years younger than member; Spouse of female member assumed to be 4 years older than member.

Actuarial Cost Method	Entry Age Normal, with costs allocated on basis of earnings. Actuarial gains and losses are reflected in the unfunded actuarial liability.
Actuarially Determined Contribution Requirement	<p>Section 13-503. Employer's normal cost plus the annual amount needed to amortize the unfunded liability by the year 2050 as a level percent of payroll.</p> <p>The funding goal is to attain a funded ratio of at least 100% by the year 2050.</p>
Actuarial Asset Method	Fair value of assets adjusted by the unrecognized investment gains and losses for each of the five years prior to the valuation date. Gains and losses are recognized at a rate of 20% per year. Actuarial Assets shall not be less than 80% nor greater than 120% of Fair value of assets.
Payroll Growth	3.00%
Assumed Administrative Expenses	Administrative expenses paid from the trust during the prior year.
Source of Data	Data and audited financial information is provided by the Fund.
Valuation Date	December 31, 2021.

Changes in Funding Assumptions/Methods Since the Prior Valuation

The valuation reflects no assumption or method changes since the prior year.

Table 1 – Salary Increase Rates

Service	Salary Increase Rate
0	7.00%
1	6.50%
2	5.75%
3	5.50%
4	5.25%
5	6.00%
6	5.00%
7	4.75%
8	4.50%
9	4.25%
10	5.00%
11 - 14	4.00%
15	5.00%
16 - 19	4.00%
20	5.00%
21+	3.50%

Table 2 – Retirement Rates

Age	Retirement Rate
50 - 59	7%
60	20%
61 - 64	10%
65	15%
66	18%
67	25%
68	15%
69	30%
70	35%
71 - 74	20%
75	100%

Table 3 – Termination Rates

Service	Male Rate	Female Rate
0	5.00%	7.75%
1	3.50%	6.75%
2	3.50%	5.75%
3	2.60%	4.75%
4	2.24%	4.52%
5	2.15%	4.49%
6	1.75%	4.19%
7	1.70%	3.94%
8	1.65%	3.74%
9	1.55%	3.54%
10	1.55%	3.34%
11	1.55%	3.14%
12	1.45%	2.94%
13	1.40%	2.85%
14	1.35%	2.52%
15	1.20%	2.52%
16+	1.00%	2.52%

Table 4 – Disability Rates (Sample Rates)

Age	Disability Rate
20	0.002%
25	0.003%
30	0.006%
35	0.014%
40	0.033%
45	0.065%
50	0.120%
55	0.225%
60	0.490%
65	0.000%

GLOSSARY

Total Annual Payroll is the annual pensionable salary as of the valuation date.

Present Value of Benefits is the single sum value on the valuation date of all future benefits to be paid to current Members, Retirees, Beneficiaries, Disability Retirees and Vested Terminations.

Normal (Current Year's) Cost is the current year's cost for benefits yet to be funded.

Unfunded Accrued Liability is the excess of the Accrued Actuarial Liability over the Actuarial Value of Assets.

Total Recommended Contribution is equal to the Normal Cost plus an amount sufficient to amortize 100% of the Unfunded Accrued Liability over a period ending in 2050.

Entry Age Normal Cost Method - Under this method, the normal cost is the sum of the individual normal costs for all active participants. For an active participant, the normal cost is the participant's normal cost accrual rate, multiplied by the participant's current compensation.

- (a) The normal cost accrual rate equals:
 - (i) the present value of future benefits for the participant, determined as of the participant's entry age, divided by
 - (ii) the present value of the compensation expected to be paid to the participant for each year of the participant's anticipated future service, determined as of the participant's entry age.
- (b) In calculating the present value of future compensation, the salary scale is applied both retrospectively and prospectively to estimate compensation in years prior to and subsequent to the valuation year based on the compensation used for the valuation.
- (c) The accrued liability is the sum of the individual accrued liabilities for all participants and beneficiaries. A participant's accrued liability equals the present value, at the participant's attained age, of future benefits less the present value at the participant's attained age of the individual normal costs payable in the future. A beneficiary's accrued liability equals the present value, at the beneficiary's attained age, of future benefits. The unfunded accrued liability equals the total accrued liability less the actuarial value of assets.
- (d) Under this method, the entry age used for each active participant is the participant's age at the time he or she would have commenced participation if the plan had always been in existence under current terms, or the age as of which he or she first earns service credits for purposes of benefit accrual under the current terms of the plan.

DISCUSSION OF RISK

ASOP No. 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions, states that the actuary should identify risks that, in the actuary's professional judgment, may reasonably be anticipated to significantly affect the plan's future financial condition.

Throughout this report, actuarial results are determined under various assumption scenarios. These results are based on the premise that all future plan experience will align with the plan's actuarial assumptions; however, there is no guarantee that actual plan experience will align with the plan's assumptions. It is possible that actual plan experience will differ from anticipated experience in an unfavorable manner that will negatively impact the plan's funded position.

Below are examples of ways in which plan experience can deviate from assumptions and the potential impact of that deviation. Typically, this results in an actuarial gain or loss representing the current-year financial impact on the plan's unfunded liability of the experience differing from assumptions; this gain or loss is amortized over a period of time determined by the plan's amortization method. When assumptions are selected that adequately reflect plan experience, gains and losses typically offset one another in the long term, resulting in a relatively low impact on the plan's contribution requirements associated with plan experience. When assumptions are too optimistic, losses can accumulate over time and the plan's amortization payment could potentially grow to an unmanageable level.

- Investment Return: When the rate of return on the Actuarial Value of Assets falls short of the assumption, this produces a loss representing assumed investment earnings that were not realized. Further, it is unlikely that the plan will experience a scenario that matches the assumed return in each year as capital markets can be volatile from year to year. Therefore, contribution amounts can vary in the future.
- Salary Increases: When a plan participant experiences a salary increase that was greater than assumed, this produces a loss representing the cost of an increase in anticipated plan benefits for the participant as compared to the previous year. The total gain or loss associated with salary increases for the plan is the sum of salary gains and losses for all active participants.
- Payroll Growth: The plan's payroll growth assumption, if one is used, causes a predictable annual increase in the plan's amortization payment in order to produce an amortization payment that remains constant as a percentage of payroll if all assumptions are realized. If payroll does not increase according to the plan's payroll growth assumption, the plan's amortization payment can increase significantly as a percentage of payroll even if all assumptions other than the payroll growth assumption are realized.
- Demographic Assumptions: Actuarial results take into account various potential events that could happen to a plan participant, such as retirement, termination, disability, and death. Each of these potential events is assigned a liability based on the likelihood of the event and the financial consequence of the event for the plan. Accordingly, actuarial liabilities reflect a blend of financial consequences associated with various possible outcomes (such as retirement at one of various possible ages). Once the outcome is known (e.g. the participant retires) the liability is adjusted to reflect the known outcome. This adjustment produces a gain or loss depending on whether the outcome was more or less favorable than other outcomes that could

have occurred.

- **Contribution Risk:** This risk results from the potential that actual employer contributions may deviate from actuarially determined contributions, which are determined in accordance with the Board's funding policy. The funding policy is intended to result in contribution requirements that if paid when due, will result in a reasonable expectation that assets will accumulate to be sufficient to pay plan benefits when due. Contribution deficits, particularly large deficits and those that occur repeatedly, increase future contribution requirements and put the plan at risk for not being able to pay plan benefits when due.

Impact of Plan Maturity on Risk

For newer pension plans, most of the participants and associated liabilities are related to active members who have not yet reached retirement age. As pension plans continue in operation and active members reach retirement ages, liabilities begin to shift from being primarily related to active members to being shared amongst active and retired members. Plan maturity is a measure of the extent to which this shift has occurred. It is important to understand that plan maturity can have an impact on risk tolerance and the overall risk characteristics of the plan. For example, plans with a large amount of retired liability do not have as long of a time horizon to recover from losses (such as losses on investments due to lower than expected investment returns) as plans where the majority of the liability is attributable to active members. For this reason, less tolerance for investment risk may be warranted for highly mature plans with a substantial inactive liability. Similarly, mature plans paying substantial retirement benefits resulting in a small positive or net negative cash flow can be more sensitive to near term investment volatility, particularly if the size of the fund is shrinking, which can result in less assets being available for investment in the market.

To assist with determining the maturity of the Fund, we have provided some relevant metrics in the table following titled "Fund Maturity Measures and Other Risk Metrics". Highlights of this information are discussed below:

- The Support Ratio, determined as the ratio of active to inactive members, has decreased from 71.3% on December 31, 2018 to 66.6% on December 31, 2021, indicating that the plan has been rapidly maturing.
- The Accrued Liability Ratio, determined as the ratio of the Inactive Accrued Liability, which is the liability associated with members who are no longer employed but are due a benefit from the Fund, to the Total Accrued Liability, is 76.0%. With a plan of this maturity, losses due to lower than expected investment returns or demographic factors will need to be made up for over a shorter time horizon than would be needed for a less mature plan.
- The Funded Ratio, determined as the ratio of the Actuarial Value of Assets to the Total Accrued Liability, has increased from 56.5% on December 31, 2018 to 58.7% on December 31, 2021 due to favorable plan experience and contributions in excess of the actuarially determined amount.
- The Net Cash Flow Ratio, determined as the ratio of the Net Cash Flow (contributions minus benefit payments and administrative expenses) to the Fair Value of Assets, stayed approximately the same from December 31, 2018 to December 31, 2021. The current Net Cash Flow Ratio of -4.5% indicates that contributions are not currently covering the plan's benefit payments and administrative expenses.

It is important to note that the actuary has identified the risks above as the most significant risks based on the characteristics of the Fund and the nature of the project, however, it is not an exhaustive list of potential risks that could be considered. Additional advanced modeling, as well as the identification of additional risks, can be provided at the request of the audience addressed in the cover letter of this report.

Fund Maturity Measures and Other Risk Metrics

	12/31/2021	12/31/2020	12/31/2019	12/31/2018
<u>Support Ratio</u>				
Total Actives	1,737	1,769	1,817	1,832
Total Inactives	2,610	2,615	2,596	2,570
Actives / Inactives	66.6%	67.6%	70.0%	71.3%
<u>Asset Volatility Ratio</u>				
Fair Value of Assets (FVA)	1,724,180,047	1,580,890,628	1,506,834,278	1,343,994,268
Total Annual Payroll	187,813,712	188,542,849	190,294,933	188,156,185
FVA / Total Annual Payroll	918.0%	838.5%	791.8%	714.3%
<u>Accrued Liability (AL) Ratio</u>				
Inactive Accrued Liability	2,095,155,443	2,033,769,790	1,950,055,911	1,859,384,499
Total Accrued Liability	2,756,489,008	2,714,192,284	2,666,221,630	2,601,163,632
Inactive AL / Total AL	76.0%	74.9%	73.1%	71.5%
<u>Funded Ratio</u>				
Actuarial Value of Assets (AVA)	1,617,809,696	1,556,056,167	1,489,266,144	1,470,308,639
Total Accrued Liability	2,756,489,008	2,714,192,284	2,666,221,630	2,601,163,632
AVA / Total Accrued Liability	58.7%	57.3%	55.9%	56.5%
<u>Net Cash Flow Ratio</u>				
Net Cash Flow ¹	(77,487,428)	(50,043,109)	(62,321,928)	(54,809,061)
Fair Value of Assets (FVA)	1,724,180,047	1,580,890,628	1,506,834,278	1,343,994,268
Ratio	-4.5%	-3.2%	-4.1%	-4.1%

¹ Determined as total contributions and other income minus benefit payments and administrative expenses.

PLAN PROVISIONS

The following describe and reflect provisions in effect as described in Article 13 of the Illinois Pension Code. The provisions below reflect changes included in Public Act 96-0889 and Public Act 96-1490, which created the second “tier” of benefits for members hired on or after January 1, 2011 and provided clarifying changes.

Eligibility	All employees of the District whose duties indicate service during the calendar year for a minimum of 120 days are eligible.
Normal Retirement Eligibility	<p>Hired before January 1, 2011: Age 60 and 5 years of service</p> <p>Hired on or after January 1, 2011: Age 67 and 10 years of service</p>
Normal Retirement Benefit	<p>The annual benefit payable immediately is equal to the sum of:</p> <ul style="list-style-type: none">(a) 2.2% of Average Final Salary for each year of service up to 20 years.(b) 2.4% of Average Final Salary for each year of service in excess of 20 years <p>The benefit shall not exceed 80% of Average Final Salary.</p>
Early Retirement Eligibility	<p>Hired before January 1, 2011: Age 55 (50 if hired before June 13, 1997) and 10 years of service</p> <p>Hired on or after January 1, 2011: Age 62 and 10 years of service</p>
Early Retirement Benefit	<p>Normal Retirement Benefit reduced as follows:</p> <p>Hired before January 1, 2011: If member retires before reaching age 60 with less than 30 years of service, 0.5% for each full month the member is less than age 60 or service is less than 30 years, whichever is less.</p> <p>Hired on or after January 1, 2011: 0.5% per month the member is less than age 67</p>
Deferred Retirement Eligibility	Tier 1: Age 55 (50 if hired before June 13, 1997) and 5 years of service. Tier 2: 10 years of service

Deferred Retirement Benefit	<p>The annual benefit payable at the following ages:</p> <p>Hired before January 1, 2011:</p> <p>Age 62, if withdraw on or after age 55 (50 if hired before June 13, 1997) with at least 5 years of service and less than 10 years</p> <p>Age 55 (50 if hired before June 13, 1997), if withdraw with 10 years of service</p> <p>Hired on or after January 1, 2011: Age 62, if withdraw with 10 years of service</p> <p>The annual benefit amount equals the Normal Retirement Benefit reduced with Early Retirement Reductions.</p>
Minimum Retirement Annuity	<p>10 years of service: \$500 per month plus \$25 per month for each year of service in excess of 10 years, not to exceed \$750 with 20 years of service</p> <p>Less than 10 years of service or retirement before age 60: \$250 per month</p>
Duty Disability Eligibility	<p>Member incurs injury or sickness due to employment with the District and is compensable under the Workers' Compensation Act or the Occupational Disease Act.</p>
Duty Disability Benefit	<p>75% of salary earned on the date of disability, less the amount paid by Workers' Compensation</p> <p>Benefit is 50% of salary if disability resulted from physical defect or disease that existed at the time injury was sustained.</p> <p>Benefits are payable during period of disablement, but not beyond attainment of age 65. If disability occurs at age 60 or older, benefits are payable for a maximum of 5 years.</p>
Ordinary Disability Eligibility	<p>Member becomes disabled due to any cause other than injury or illness incurred in the performance of duty.</p>
Ordinary Disability Benefit	<p>50% of earnable salary at the date of disability</p> <p>Member may receive ordinary disability benefits for a maximum period of the lesser of 25% of member's actual service prior to disablement or 5 years.</p>

Surviving Spouse Annuity Eligibility

Hired before June 13, 1997: Immediately eligible if married to member on date of member's death while in service or married to member on member's date of termination from service and remained married until member's death. Dissolution of marriage after retirement shall not divest the member's spouse of entitlement if marriage was in effect for at least 10 years on the date of retirement.

Hired on or after June 13, 1997: Eligible after 3 years of service. Conditions for marriage described for members hired prior to June 13, 1997 apply.

Surviving Spouse Benefit

Hired before January 1, 2011: Retirement annuity earned at the time of death multiplied by a factor of 60% plus 1% for each year of member's total service, to a maximum of 85%. If hired after January 1, 1992, annuity is reduced by 0.25% for each full month spouse is younger than member to maximum reduction of 60%. Discount is reduced by 10% for each year marriage is in effect.

Hired on or after January 1, 2011: 66 2/3% of retirement annuity earned at the time of death.

Minimum Surviving Spouse Annuity

Member with 10 years of service: greater of (a) \$500 per month plus \$25 per month for each year of service in excess of 10, not to exceed \$750 per month, or (b) 50% of the retirement annuity of member at time of death.

Member with less than 10 years of service: \$250 per month.

Children's Annuity Eligibility

Member parent dies in service or deceased parent was former member with at least 10 years of service. Child is unmarried and less than age 18 (23, if full-time student).

Children's Annuity Benefit

\$500 per month for each child if have living parent and \$1,000 per month for each child if neither parent is living to a maximum of \$5,000 per month.

Cost-of-Living Adjustments

Hired before January 1, 2011: Retirement annuity is increased on the anniversary of retirement by 3% of the monthly annuity payable at the time of increase.

Spouse annuity is increased on the earlier of the anniversary of the member's death or retirement (whichever occurs first) by 3% of the monthly annuity payable at the time of increase.

Hired on or after January 1, 2011: increase percentage is the lesser of 3% or ½ the increase in CPI-U during the previous calendar year. Increase is based on the originally granted retirement or spouse's annuity.

Member Contributions – retiree annuity

<u>Pay period:</u>	<u>Contribution % Annuity:</u>	<u>Contribution % Annual Inc.:</u>
Before January 1, 2013	7.0%	0.5%
During calendar year 2013	7.5%	1.0%
During calendar year 2014	8.0%	1.5%
During calendar year 2015 and until Fund is 90% funded	8.5%	1.5%
After Fund is 90% funded	7.0%	0.5%

Members hired on or after January 1, 2011 have member contributions of 7.5% (7.0% of pay for the annuity and 0.5% of pay for annual increases).

Member Contributions – spouse annuity

<u>Pay period:</u>	<u>Contribution percentage:</u>
Before January 1, 2015	1.5%
During calendar year 2015 and until Fund is 90% funded	2.0%
After Fund is 90% funded	1.5%

Members hired on or after January 1, 2011 contribute 1.5% of pay.

Refund to Member upon Termination	<p>Hired before January 1, 2011: Eligible for refund of all member contributions without interest if under age 55 (50 if hired before June 13, 1997); if age 60 with less than 20 years of service; or if 60 with less than 5 years of service. Upon receipt of refund, member forfeits rights to benefits from the Fund.</p> <p>Hired on or after January 1, 2011: Eligible for refund of all member contributions without interest if under age 62; or if have less than 10 years of service on termination. Upon receipt of refund, member forfeits rights to benefits from the Fund.</p>
Refund for Surviving Spouse's Annuity	<p>Members unmarried at the time of retirement will receive a refund of contributions for spouse annuity with interest at 3% per year, compounded annually.</p>
Refund of Remaining Amounts	<p>If upon death the total amount contributed by the member with 3% interest per year has not been paid to the member, the spouse or designated beneficiaries or estate receives a refund of the excess amount.</p>
Required Contribution – Illinois Pension Code	<p>Lesser of actuarially determined contribution and 4.19 multiplied by total member contributions for the two years prior.</p>
District's Funding Policy	<p>Effective August 27, 2014, the District implemented a policy of contributing an amount equal to 4.19 multiplied by total member contributions for the two years prior until the Fund reaches a funded ratio of 100%.</p>
Pension Service	<p>Any employment, excluding overtime or extra service for which salary is received.</p>
Average Final Salary	<p>Hired before January 1, 2011: Highest average annual salary for any 52 consecutive bi-weekly pay periods within the last 10 years of service immediately preceding the date of retirement.</p> <p>Hired on or after January 1, 2011: Highest average annual salary for 96 consecutive months of service within last 120 months of service, limited to \$106,800 (automatically increased by lesser of 3% or ½ the increase in CPI-U during the previous calendar year).</p>

Pensionable Salary

Salary paid to a Fund member for service to the District or to the Fund, including salary paid for vacation and sick leave and any amounts deferred under a deferred compensation plan established under the Code, but excluding the following: payment for unused vacation or sick leave, overtime pay, termination pay and any compensation in the form of benefits other than salary.

Salary for members hired on or after January 1, 2011 is subject to the salary limitations established in the Illinois Pension Code. The statutory salary limitation is \$116,740.42 for calendar 2021 and \$119,892.41 for calendar 2022.

Changes in Fund Provisions Since the Prior Valuation

- None

SUPPLEMENTARY TABLES

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Table 1 – History of the Development of Unfunded Actuarial Accrued Liability

	Year Ending December 31				
	2021	2020	2019	2018	2017
1. Unfunded Actuarial Accrued Liability (UAAL), as of beginning of year	1,158,136,117	1,176,955,486	1,130,854,993	1,041,694,303	1,070,919,694
2. Employer Normal Cost, as of beginning of year	11,530,925	12,115,137	12,537,329	11,897,996	12,094,866
3. Expected Interest on 1. and 2.	84,800,861	86,207,620	82,895,943	79,019,422	81,226,842
4. Employer Contributions, with interest	91,966,778	111,693,429	90,560,949	90,377,021	93,166,990
5. Employer Contributions in Excess of Normal Cost plus Interest (4) - (2) - (3)	(4,365,008)	13,370,672	(4,872,323)	(540,397)	(154,718)
6. Expected UAAL as of December 31, 2021 (1)+(2)+(3)-(4)	1,162,501,125	1,163,584,814	1,135,727,316	1,042,234,700	1,071,084,412
7. Change in UAAL Due to Actuarial (Gain)/Loss, by component:					
a. Investment Return	(29,048,737)	(10,483,804)	23,071,682	40,260,410	(27,925,002)
b. Salary Increases	(7,730,245)	(6,558,614)	(4,517,433)	(7,369,068)	(11,576,111)
c. Other Changes:					
Decrement Experience	17,262,490	18,970,774	21,233,555	14,320,903	13,672,315
Inactive Mortality Experience	(7,425,859)	(1,824,785)	(1,301,600)	4,104,912	(2,787,776)
Miscellaneous Changes	3,120,538	(5,552,268)	2,741,966	(135,723)	(773,535)
Total Other Changes	12,957,169	11,593,721	22,673,921	18,290,092	10,111,004
Total change due to (Gain)/Loss (a. + b. + c.)	(23,821,813)	(5,448,697)	41,228,170	51,181,434	(29,390,109)
8. Change in UAAL Due to Assumption Changes/ Method Changes	-	-	-	37,438,859	-
9. Total Increase / (Decrease) in UAL	(19,456,805)	(18,819,369)	46,100,493	89,160,690	(29,235,391)
10. Unfunded Actuarial Accrued Liability, as of end of the year	1,138,679,312	1,158,136,117	1,176,955,486	1,130,854,993	1,041,694,303

Table 2 – History of Active Member Data

Actuarial Valuation Date	Active Members	Percent Increase	Annual Payroll	Percent Increase	Annual Pensionable Payroll	Percent Increase	Average Pensionable Payroll	Percent Increase	CPI Chicago ¹
12/31/2012	1,856		163,816,934		163,816,934		88,263		
12/31/2013	1,858	0.1%	169,375,857	3.4%	169,375,857	3.4%	91,160	3.3%	1.1%
12/31/2014	1,873	0.8%	176,183,941	4.0%	176,183,941	4.0%	94,065	3.2%	1.7%
12/31/2015	1,846	-1.4%	177,792,308	0.9%	177,507,159	0.8%	96,158	2.2%	-0.3%
12/31/2016	1,843	-0.2%	182,980,055	2.9%	182,640,163	2.9%	99,099	3.1%	0.7%
12/31/2017	1,835	-0.4%	184,807,353	1.0%	184,385,188	1.0%	100,482	1.4%	1.9%
12/31/2018	1,832	-0.2%	188,156,185	1.8%	187,849,708	1.9%	102,538	2.0%	1.8%
12/31/2019	1,817	-0.8%	190,294,933	1.1%	189,961,010	1.1%	104,547	2.0%	1.5%
12/31/2020	1,769	-2.6%	188,542,849	-0.9%	188,072,970	-1.0%	106,316	1.7%	1.1%
12/31/2021	1,737	-1.8%	187,813,712	-0.4%	187,213,026	-0.5%	107,780	1.4%	4.2%
5-year Average Increase/ (Decrease)		-1.2%		0.5%		0.5%		1.7%	2.1%

¹ Average annual increase in CPI-U, All items in Chicago-Naperville-Elgin, IL-IN-WI, all.

Table 3 – History of Employee Annuitant Data

Actuarial Valuation Date	Employee Annuitant	Total Annuities (Annual)	Average Annuities (Annual)	Increase in Average Benefit	Average Age
12/31/2012	1,681	104,021,486	61,881	n/a	n/a
12/31/2013	1,704	108,173,524	63,482	2.59%	n/a
12/31/2014	1,729	113,079,769	65,402	3.02%	n/a
12/31/2015	1,760	118,892,219	67,552	3.29%	n/a
12/31/2016	1,779	123,491,448	69,416	2.76%	n/a
12/31/2017	1,809	129,366,688	71,513	3.02%	n/a
12/31/2018	1,848	135,435,622	73,288	2.48%	n/a
12/31/2019	1,883	142,324,135	75,584	3.13%	72.4
12/31/2020	1,917	149,537,047	78,006	3.20%	72.4
12/31/2021	1,918	154,398,273	80,500	3.20%	72.5

Table 4 – History of Survivor/Child Annuitants

Actuarial Valuation Date	Surviving Spouse Annuitants	Total Spouse Annuities (Annual)	Average Spouse Annuities (Annual)	Increase in Average Spouse Benefit	Child Annuitants	Total Child Annuities
12/31/2012	619	19,071,845	30,811	7.73%	17	114,000
12/31/2013	605	19,768,391	32,675	6.05%	20	138,000
12/31/2014	593	20,683,050	34,879	6.74%	21	132,000
12/31/2015	580	21,835,988	37,648	7.94%	19	114,000
12/31/2016	590	23,770,312	40,289	7.01%	25	150,000
12/31/2017	576	24,615,058	42,734	6.07%	23	138,000
12/31/2018	571	25,965,116	45,473	6.41%	24	144,000
12/31/2019	561	27,127,117	48,355	6.34%	21	126,000
12/31/2020	546	27,722,263	50,773	5.00%	20	120,000
12/31/2021	543	29,684,725	54,668	7.67%	21	126,000

Table 5 – History of New Annuitants

Year of Retirement	Number of New Employee Annuitants	Average Annual Benefit at Retirement	Average Age at Retirement	Average Service at Retirement
2012	60	51,464	61.7	n/a
2013	75	45,960	60.6	n/a
2014	80	55,123	61.7	n/a
2015	101	56,673	61.3	n/a
2016	87	57,656	62.6	n/a
2017	98	59,842	59.6	n/a
2018	99	61,111	60.5	n/a
2019	94	73,717	60.9	24.2
2020	104	70,592	61.1	24.0
2021	92	75,529	63.1	24.3

Table 6 – History of Employee Annuitants and Survivor Annuitants Added to Payroll

Employee Annuitants								
Year	Added		Removed		Annual Payroll		Average Annuity Benefits	Increase to Avg Benefits
	Number	Annual Benefits ¹	Number	Annual Benefits	Number	Annual Benefits		
2012	60	6,027,239	62	3,098,526	1,681	104,021,486	61,881	3.0%
2013	75	6,497,171	52	2,345,333	1,704	108,173,524	63,482	2.6%
2014	80	7,583,277	55	2,677,032	1,729	113,079,769	65,402	3.0%
2015	101	9,640,885	70	3,828,434	1,760	118,892,219	67,552	3.3%
2016	87	8,688,540	68	4,089,312	1,779	123,491,448	69,416	2.8%
2017	98	14,254,728	68	3,780,260	1,809	129,366,688	71,513	3.0%
2018	99	6,049,960	60	3,769,202	1,848	135,435,622	73,288	2.5%
2019	94	10,830,012	59	3,941,499	1,883	142,324,135	75,584	3.1%
2020	104	11,484,248	70	4,271,335	1,917	149,537,047	78,006	3.2%
2021	92	11,244,741	91	6,383,515	1,918	154,398,273	80,500	3.2%

Survivor Annuitants								
Year	Added		Removed		Annual Payroll		Average Annuity Benefits	Increase to Avg Benefits
	Number	Annual Benefits ¹	Number	Annual Benefits	Number	Annual Benefits		
2012	38	1,969,114	47	858,542	619	19,071,845	30,811	7.7%
2013	29	1,718,098	43	1,021,552	605	19,768,391	32,675	6.1%
2014	28	1,846,441	40	931,782	593	20,683,050	34,879	6.7%
2015	34	2,313,674	47	1,160,738	580	21,835,988	37,648	7.9%
2016	42	3,096,415	32	1,162,089	590	23,770,312	40,289	7.0%
2017	25	1,991,463	39	1,146,717	576	24,615,058	42,734	6.1%
2018	30	1,798,261	35	1,046,607	571	25,965,116	45,473	6.4%
2019	28	2,408,555	38	1,246,555	561	27,127,117	48,355	6.3%
2020	34	2,659,591	49	2,064,444	546	27,722,263	50,773	5.0%
2021	44	3,536,201	47	1,573,739	543	29,684,725	54,668	7.7%

¹ Annual benefits added to the payroll include annuity amounts for new annuitants during the year and cost-of-living increases for existing annuitants.

Table 7 – Changes in Participant Counts, Current Valuation Year

YEAR 2021

Changes in Active Participants	Number at Beginning of Year	Additions	Decreases	Number at Year End
Tier 1				
Male	821	8	75	754
Female	303	6	19	290
Total Active	1,124	14	94	1,044
Tier 2				
Male	484	59	17	526
Female	161	17	11	167
Total Active	645	76	28	693
Total Active				
Male	1,305	67	92	1,280
Female	464	23	30	457
Total Active	1,769	90	122	1,737
Changes in Annuitants and Beneficiaries				
Employee Annuitants				
Male	1,452	73	76	1,449
Female	465	19	15	469
Total Employee Annuitants	1,917	92	91	1,918
Spouse Annuitants				
Male	24	2	1	25
Female	522	42	46	518
Total Spouse Annuitants	546	44	47	543
Child Annuities	20	3	2	21
Total Annuitants	2,483	139	140	2,482
Percentage of Active Participants to Annuitants and Beneficiaries	71.2%			70.0%

Table 8 – History of Development of Actuarial Value of Assets

Year Ended	Employer Contributions	Employee Contributions	Gross Investment Income	Administrative/ Investment Expenses	Benefit Payments	Refunds	Actuarial Value of Assets, End of Year	Market Value Return
12/31/2012	65,097,835	14,714,496	121,081,385	6,052,080	122,713,908	1,195,737	1,076,740,164	11.9%
12/31/2013	92,944,381	16,890,798	231,567,647	6,856,698	127,205,981	1,128,922	1,188,503,716	21.7%
12/31/2014	73,906,168	18,974,954	87,504,592	7,306,073	132,913,502	984,346	1,263,287,068	6.7%
12/31/2015	71,041,361	21,385,212	4,143,814	7,202,753	139,160,911	1,348,845	1,307,982,039	-0.2%
12/31/2016	80,259,713	20,830,779	118,306,730	6,116,322	145,325,385	2,010,630	1,372,361,950	9.5%
12/31/2017	89,858,224	20,839,829	199,445,312	6,234,729	152,152,914	2,560,129	1,456,195,876	15.6%
12/31/2018	87,167,339	21,032,601	(97,717,715)	6,958,411	159,561,047	1,762,475	1,470,308,639	-7.4%
12/31/2019	87,446,476	21,182,425	230,494,663	6,974,934	167,480,736	1,827,884	1,489,266,144	18.3%
12/31/2020	107,852,191	20,982,056	128,773,718	6,264,304	174,996,453	2,290,858	1,556,056,167	8.7%
12/31/2021	88,803,958	20,630,052	225,834,087	6,839,930	182,857,341	2,281,407	1,617,809,696	15.1%
Average 5-Year Return								9.6%
Average 10-Year Return								9.7%

Table 9 – Funding Progress

Fiscal Year	Actuarial Accrued Liability	Actuarial Value of Assets	Fair Value of Net Assets	AVA / FVA	UAAL (AVA)	UAAL (FVA)	Funded Ratio (AVA)	Funded Ratio (FVA)	Covered Payroll
2012	2,136,508,223	1,076,740,164	1,092,402,602	98.57%	1,059,768,059	1,044,105,621	50.4%	51.1%	163,816,934
2013	2,194,911,693	1,188,503,716	1,298,613,827	91.52%	1,006,407,977	896,297,866	54.1%	59.2%	169,375,857
2014	2,296,438,698	1,263,287,068	1,337,795,620	94.43%	1,033,151,630	958,643,078	55.0%	58.3%	176,183,941
2015	2,371,031,195	1,307,982,039	1,286,653,498	101.66%	1,063,049,156	1,084,377,697	55.2%	54.3%	177,507,159
2016	2,443,291,644	1,372,361,950	1,352,598,383	101.46%	1,070,929,694	1,090,693,261	56.2%	55.4%	182,640,163
2017	2,497,890,179	1,456,195,876	1,501,793,976	96.96%	1,041,694,303	996,096,203	58.3%	60.1%	184,385,188
2018	2,601,163,632	1,470,308,639	1,343,994,268	109.40%	1,130,854,993	1,257,169,364	56.5%	51.7%	187,849,708
2019	2,666,221,630	1,489,266,144	1,506,834,278	98.83%	1,176,955,486	1,159,387,352	55.9%	56.5%	189,961,010
2020	2,714,192,284	1,556,056,167	1,580,890,628	98.43%	1,158,136,117	1,133,301,656	57.3%	58.2%	188,072,970
2021	2,756,489,008	1,617,809,696	1,724,180,047	93.83%	1,138,679,312	1,032,308,961	58.7%	62.5%	187,213,026

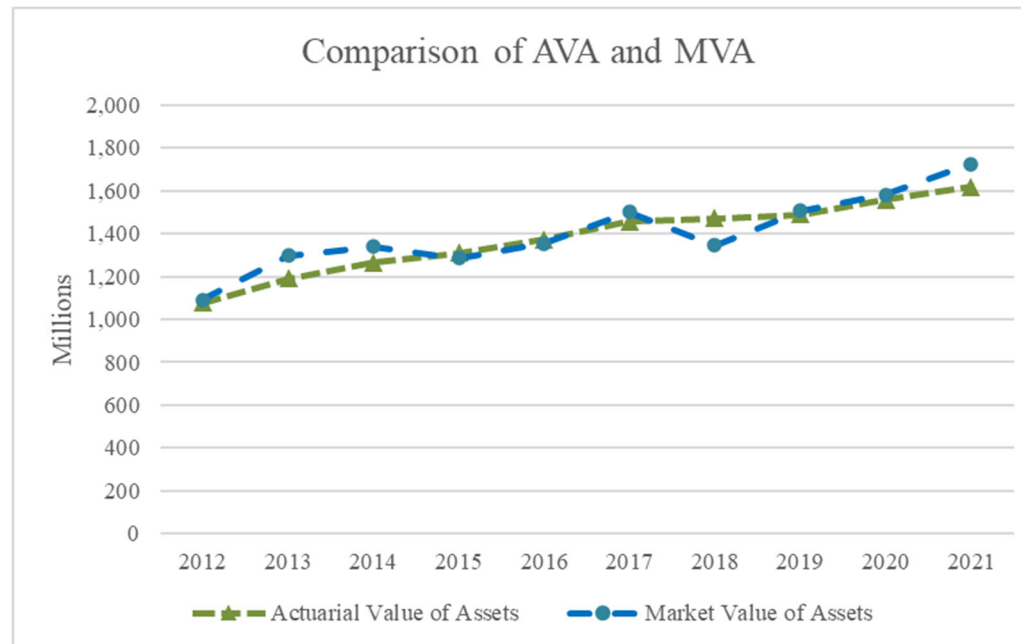


Table 10 – Solvency Test

	Actuarial Accrued Liabilities			Actuarial Value of Assets	Portion of Liabilities Covered by Assets		
	(1)	(2)	(3)		(1)	(2)	(3)
Year Ended	Active and Inactive Member Contributions	Retirees and Survivors	Active and Inactive Members (ER Financed)		Active and Inactive Member Contributions	Retirees and Survivors	Active and Inactive Members (ER Financed)
12/31/2012	213,323,414	1,431,829,221	491,355,588	1,076,740,164	100%	60%	0%
12/31/2013	223,354,127	1,463,856,177	507,701,389	1,188,503,716	100%	66%	0%
12/31/2014	231,430,077	1,541,326,692	422,154,924	1,263,287,068	100%	67%	0%
12/31/2015	236,967,954	1,616,195,435	517,867,805	1,307,982,039	100%	66%	0%
12/31/2016	244,239,334	1,676,732,070	522,320,240	1,372,361,950	100%	67%	0%
12/31/2017	247,730,731	1,745,598,298	504,561,150	1,456,195,876	100%	69%	0%
12/31/2018	251,845,144	1,843,563,888	505,754,600	1,470,308,639	100%	66%	0%
12/31/2019	251,719,321	1,929,940,867	484,561,442	1,489,266,144	100%	64%	0%
12/31/2020	249,921,777	2,013,763,878	450,506,629	1,556,056,167	100%	65%	0%
12/31/2021	249,356,777	2,082,783,118	424,349,113	1,617,809,696	100%	66%	0%

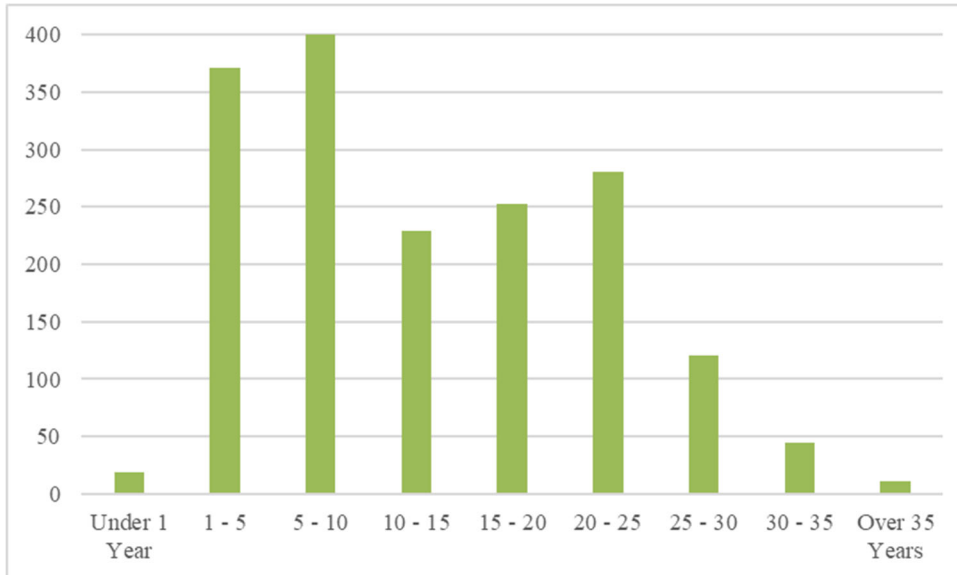
Table 11 – Contribution History

Contribution Year Ended	Actuarially Determined Contribution for Fiscal Year End	Maximum Employer Contribution	Employer Contribution	% of Actuarially Determined Contribution Contributed	Estimated Multiplier Necessary to Match ADC
12/31/2012	74,828,844	34,761,000	65,097,835	87.00%	4.71
12/31/2013	74,774,148	62,984,000	92,944,381	124.30%	4.97
12/31/2014	69,924,438	61,654,000	73,906,168	105.69%	4.75
12/31/2015	62,603,576	70,772,000	71,041,361	113.48%	3.71
12/31/2016	64,596,066	79,505,000	80,259,713	124.25%	3.40
12/31/2017	65,727,912	89,604,000	89,858,224	136.71%	3.07
12/31/2018	64,988,583	87,281,000	87,167,339	134.13%	3.12
12/31/2019	74,279,999	87,319,000	87,446,476	117.73%	3.56
12/31/2020	77,392,414	88,127,000	107,852,191	139.36%	3.68
12/31/2021	76,841,344	88,754,000	88,803,958	115.57%	3.63

Table 12 – Contribution Rates

Year	Total Actuarially Determined Contribution Rate	Actual Employer Contribution	Actual Employee Contribution	Deficiency (Excess) in Annual Contribution
2012	54.54%	39.62%	8.96%	5.96%
2013	55.62%	56.73%	10.31%	-11.42%
2014	52.18%	43.63%	11.20%	-2.65%
2015	47.28%	40.32%	12.14%	-5.18%
2016	48.06%	45.21%	11.74%	-8.89%
2017	47.52%	49.20%	11.41%	-13.09%
2018	46.67%	47.27%	11.41%	-12.01%
2019	50.86%	46.55%	11.28%	-6.97%
2020	51.93%	56.78%	11.05%	-15.90%
2021	51.93%	47.22%	10.97%	-6.26%
2022	51.94%	46.96% (Est)	10.98% (Est)	-6.00% (Est)

Graph 13 – Distribution of Active Members by Service



Graph 14 – Distribution of Active Members by Age

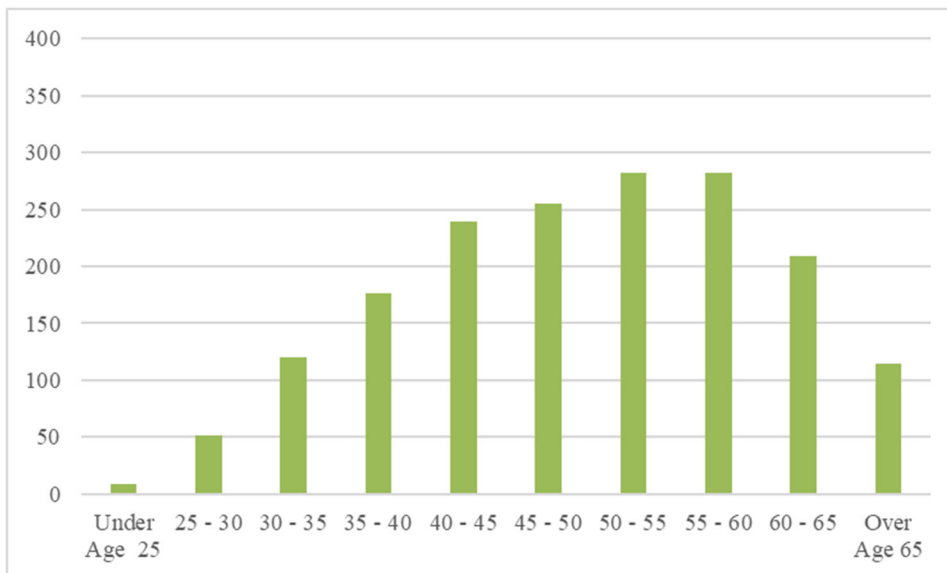
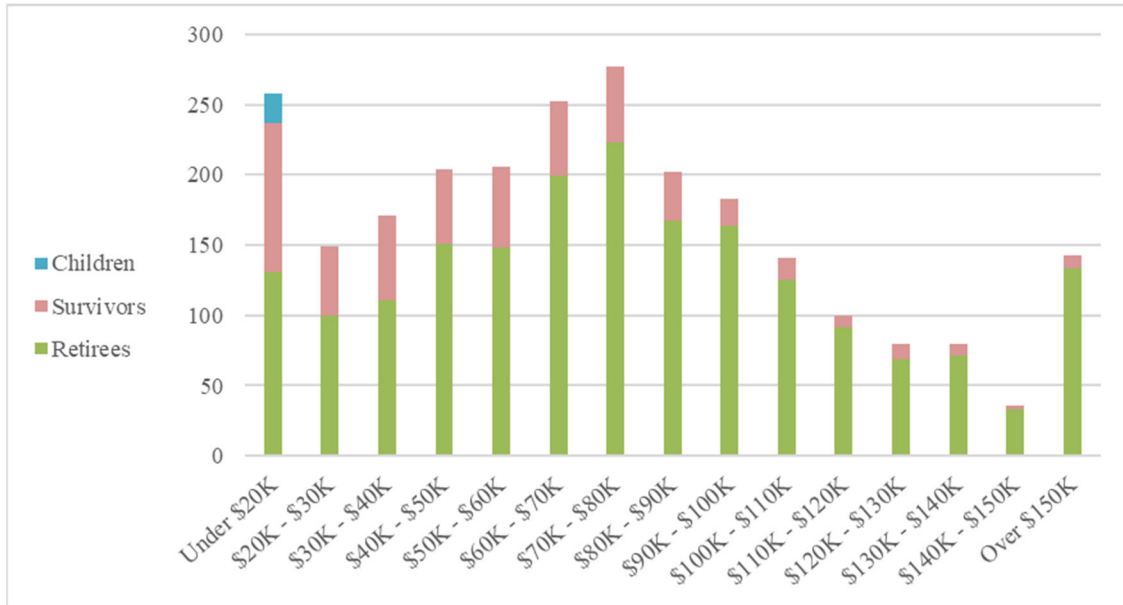
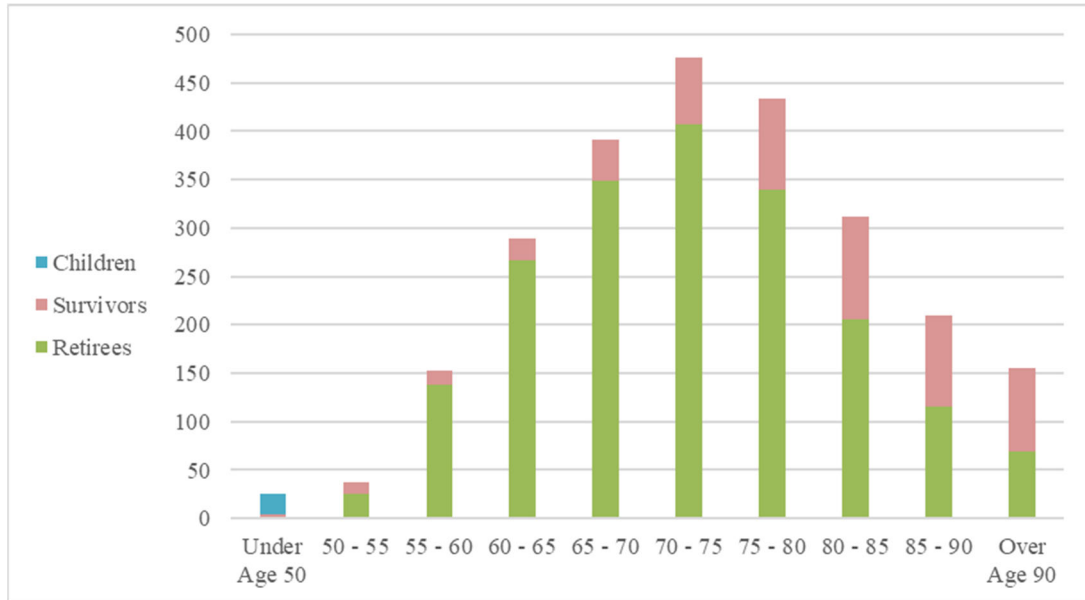


Table 15 – Distribution of Annuitants by Annual Benefit



Annual Benefit	Retirees	Survivors	Children	Total
Under \$20K	131	106	21	258
\$20K - \$30K	100	49	0	149
\$30K - \$40K	111	60	0	171
\$40K - \$50K	151	53	0	204
\$50K - \$60K	148	58	0	206
\$60K - \$70K	199	53	0	252
\$70K - \$80K	223	54	0	277
\$80K - \$90K	167	35	0	202
\$90K - \$100K	164	19	0	183
\$100K - \$110K	125	16	0	141
\$110K - \$120K	92	8	0	100
\$120K - \$130K	69	11	0	80
\$130K - \$140K	71	9	0	80
\$140K - \$150K	33	3	0	36
Over \$150K	134	9	0	143
Total	1,918	543	21	2,482

Table 16 – Distribution of Annuitants by Age



Age	Retirees	Survivors	Children	Total
Under 50	0	4	21	25
50 - 55	26	11	0	37
55 - 60	138	15	0	153
60 - 65	267	22	0	289
65 - 70	349	42	0	391
70 - 75	407	69	0	476
75 - 80	340	94	0	434
80 - 85	206	106	0	312
85 - 90	116	94	0	210
Over 90	69	86	0	155
Total	1,918	543	21	2,482

GASB 67/68 RESULTS

SUMMARY

Valuation Date	12/31/2021	12/31/2020
Measurement Date	12/31/2021	12/31/2020
Plan Membership:		
Inactives Currently Receiving Benefits	2,482	2,483
Inactives Not Yet Receiving Benefits	128	132
Active Plan Members	<u>1,737</u>	<u>1,769</u>
Total	4,347	4,384
Covered Payroll	\$ 187,213,026	\$ 188,072,970
Net Pension Liability		
Total Pension Liability	\$ 2,744,359,352	\$ 2,701,962,060
Plan Fiduciary Net Position	<u>1,724,180,047</u>	<u>1,580,890,628</u>
Net Pension Liability	\$ 1,020,179,305	\$ 1,121,071,432
Plan Fiduciary Net Position		
As a Percentage of Total Pension Liability	62.83%	58.51%
Net Pension Liability		
As a Percentage of Covered Payroll	544.93%	596.08%
Total Pension Expense	\$ 79,359,261	\$ 100,744,878
Development of Single Discount Rate		
Single Discount Rate	7.25%	7.25%
Long-Term Expected Rate of Return	7.25%	7.25%
High-quality Municipal Bond Rate	2.25%	1.93%
Number of Years Future Benefit Payments		
Are Expected to be Paid	99	99

SCHEDULE OF CHANGES IN NET PENSION LIABILITY
 PLAN REPORTING

Measurement Date	12/31/2021	12/31/2020
Total Pension Liability		
Service Cost	31,574,003	32,591,914
Interest	191,470,085	188,334,503
Changes of Benefit Terms	-	-
Differences Between Expected and Actual Experience	4,491,952	4,553,932
Changes of Assumptions	-	-
Benefit Payments, Including Refunds of Employee Contributions	(185,138,748)	(177,287,311)
Net Change in Total Pension Liability	42,397,292	48,193,038
Total Pension Liability - Beginning	2,701,962,060	2,653,769,022
Total Pension Liability - Ending (a)	\$2,744,359,352	\$ 2,701,962,060
Plan Fiduciary Net Position		
Contributions - Employer	88,803,958	107,852,191
Contributions - Employee	20,630,052	20,982,056
Net Investment Income	220,776,847	124,099,459
Benefit Payments, Including Refunds of Employee Contributions	(185,138,748)	(177,287,311)
Administrative Expense	(1,787,903)	(1,592,783)
Other	5,213	2,738
Net Change in Plan Fiduciary Net Position	143,289,419	74,056,350
Plan Fiduciary Net Position - Beginning	1,580,890,628	1,506,834,278
Plan Fiduciary Net Position - Ending (b)	\$1,724,180,047	\$ 1,580,890,628
Net Pension Liability - Ending (a) - (b)	\$1,020,179,305	\$ 1,121,071,432
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	62.83%	58.51%
Covered Payroll	\$ 187,213,026	\$ 188,072,970
Net Pension Liability as a Percentage of Covered Payroll	544.93%	596.08%

SENSITIVITY OF CHANGES IN DISCOUNT RATE
PLAN REPORTING

Sensitivity of Net Pension Liability to changes in the Discount Rate:

	1% Decrease 6.25%	Current Discount Rate 7.25%	1% Increase 8.25%
Sponsor's Net Pension Liability	\$ 1,323,687,955	\$ 1,020,179,305	\$ 764,018,343

SCHEDULE OF CHANGES IN NET PENSION LIABILITY
DISTRICT REPORTING

GASB 68 Reporting Period Ending	12/31/2021	12/31/2020
Measurement Date	12/31/2020	12/31/2019
Total Pension Liability		
Service Cost	32,591,914	33,039,382
Interest	188,334,503	183,916,142
Changes of Benefit Terms	-	-
Differences Between Expected and Actual Experience	4,553,932	17,732,815
Changes of Assumptions	-	-
Benefit Payments, Including Refunds of Employee Contributions	(177,287,311)	(169,308,620)
Net Change in Total Pension Liability	48,193,038	65,379,719
Total Pension Liability - Beginning	2,653,769,022	2,588,389,303
Total Pension Liability - Ending (a)	\$2,701,962,060	\$ 2,653,769,022
Plan Fiduciary Net Position		
Contributions - Employer	107,852,191	87,446,476
Contributions - Employee	20,982,056	21,182,425
Contributions - Buy Back	-	-
Net Investment Income	124,099,459	225,158,880
Benefit Payments, Including Refunds of Employee Contributions	(177,287,311)	(169,308,620)
Administrative Expense	(1,592,783)	(1,642,209)
Other	2,738	3,058
Net Change in Plan Fiduciary Net Position	74,056,350	162,840,010
Plan Fiduciary Net Position - Beginning	1,506,834,278	1,343,994,268
Plan Fiduciary Net Position - Ending (b)	\$1,580,890,628	\$ 1,506,834,278
Net Pension Liability - Ending (a) - (b)	\$1,121,071,432	\$ 1,146,934,744
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	58.51%	56.78%
Covered Payroll	\$ 188,072,970	\$ 189,961,010
Net Pension Liability as a Percentage of Covered Payroll	596.08%	603.77%

STATEMENT OF CHANGES IN NET PENSION LIABILITY
DISTRICT REPORTING YEAR-END DECEMBER 31, 2021

	Increase (Decrease)		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
	(a)	(b)	(a)-(b)
Reporting Period Ending December 31, 2020	\$2,653,769,022	\$1,506,834,278	\$1,146,934,744
Adjustment to beginning of year	-	-	-
Changes for a Year:			
Service Cost	32,591,914	-	32,591,914
Interest	188,334,503	-	188,334,503
Differences Between Expected and Actual Experience	4,553,932	-	4,553,932
Changes of Assumptions	-	-	-
Changes of Benefit Terms	-	-	-
Contributions - Employer	-	107,852,191	(107,852,191)
Contributions - Employee	-	20,982,056	(20,982,056)
Contributions - Buy Back	-	-	-
Net Investment Income	-	124,099,459	(124,099,459)
Benefit Payments, Including Refunds of Employee Contributions	(177,287,311)	(177,287,311)	-
Administrative Expense	-	(1,592,783)	1,592,783
Other Changes	-	2,738	(2,738)
Net Changes	48,193,038	74,056,350	(25,863,312)
Reporting Period Ending December 31, 2021	\$2,701,962,060	\$1,580,890,628	\$1,121,071,432

Sensitivity of Net Pension Liability to changes in the Discount Rate:

	Current Discount		
	1% Decrease	Rate	1% Increase
	6.25%	7.25%	8.25%
Sponsor's Net Pension Liability	\$ 1,422,861,759	\$ 1,121,071,432	\$ 866,595,596

Pension Plan Fiduciary Net Position

Detailed information about the Pension Plan's Fiduciary Net Position is available in a separately issued Plan financial report.

STATEMENT OF CHANGES IN NET PENSION LIABILITY
DISTRICT REPORTING YEAR-END DECEMBER 31, 2022

	Increase (Decrease)		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
	(a)	(b)	(a)-(b)
Reporting Period Ending December 31, 2021	\$2,701,962,060	\$1,580,890,628	\$1,121,071,432
Adjustment to beginning of year	-	-	-
Changes for a Year:			
Service Cost	31,574,003	-	31,574,003
Interest	191,470,085	-	191,470,085
Differences Between Expected and Actual Experience	4,491,952	-	4,491,952
Changes of Assumptions	-	-	-
Changes of Benefit Terms	-	-	-
Contributions - Employer	-	88,803,958	(88,803,958)
Contributions - Employee	-	20,630,052	(20,630,052)
Contributions - Buy Back	-	-	-
Net Investment Income	-	220,776,847	(220,776,847)
Benefit Payments, Including Refunds of Employee Contributions	(185,138,748)	(185,138,748)	-
Administrative Expense	-	(1,787,903)	1,787,903
Other Changes	-	5,213	(5,213)
Net Changes	42,397,292	143,289,419	(100,892,127)
Reporting Period Ending December 31, 2022	\$2,744,359,352	\$1,724,180,047	\$1,020,179,305

Sensitivity of Net Pension Liability to changes in the Discount Rate:

	Current Discount		
	1% Decrease	Rate	1% Increase
	6.25%	7.25%	8.25%
Sponsor's Net Pension Liability	\$ 1,323,687,955	\$ 1,020,179,305	\$ 764,018,343

Pension Plan Fiduciary Net Position

Detailed information about the Pension Plan's Fiduciary Net Position is available in a separately issued Plan financial report.

FINAL PENSION EXPENSE AND DEFERRED OUTFLOWS OF RESOURCES AND
 DEFERRED INFLOWS OF RESOURCES RELATED TO PENSIONS
 YEAR-END DECEMBER 31, 2021

For the year ended December 31, 2021, the Sponsor will recognize a pension expense of \$100,744,878. On December 31, 2021, the Sponsor reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between actual and expected experience	23,997,990	663,588
Changes of assumptions	17,796,507	0
Net difference between projected and actual earnings on pension plan investments	0	24,905,012
Employer contributions after the measurement date	88,803,958	0
Total	\$130,598,455	\$25,568,600

The outcome of the Deferred Outflows of resources related to pensions resulting from Employer contributions subsequent to the measurement date has been recognized as a reduction of the Net Pension Liability in the year ended 12/31/2021.

Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year-ended December 31:

2022	\$8,013,617
2023	\$24,728,860
2024	(\$17,656,400)
2025	\$380,831
2026	\$758,989
Thereafter	\$0

PRELIMINARY PENSION EXPENSE AND DEFERRED OUTFLOWS OF RESOURCES AND
 DEFERRED INFLOWS OF RESOURCES RELATED TO PENSIONS
 YEAR-END DECEMBER 31, 2022

For the year ended December 31, 2022, the Sponsor will recognize a pension expense of \$79,359,261. On December 31, 2022, the Sponsor reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between actual and expected experience	19,698,244	331,794
Changes of assumptions	11,864,338	0
Net difference between projected and actual earnings on pension plan investments	0	106,452,321
Employer contributions after the measurement date	TBD	0
Total	TBD	\$106,784,115

The outcome of the Deferred Outflows of resources related to pensions resulting from Employer contributions subsequent to the measurement date will be recognized as a reduction of the Net Pension Liability in the year ended 12/31/2022.

Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year-ended December 31:

2023	\$3,683,242
2024	(\$38,702,018)
2025	(\$20,664,787)
2026	(\$20,286,629)
2027	\$748,659
Thereafter	\$0

FINAL COMPONENTS OF PENSION EXPENSE
 YEAR-END DECEMBER 31, 2021

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Beginning Balance	\$1,146,934,744	\$146,788,703	\$289,622,790	
Employer Contributions made after December 31, 2020	-	-	88,803,958	-
Total Pension Liability Factors:				
Service Cost	32,591,914	-	-	32,591,914
Interest	188,334,503	-	-	188,334,503
Changes in Benefit Terms	-	-	-	-
Differences Between Expected and Actual Experience With Regard to Economic or Demographic Assumptions	4,553,932	-	4,553,932	-
Current Year Amortization	-	(331,794)	(10,446,703)	10,114,909
Changes in Assumptions About Future Economic or Demographic Factors or Other Inputs	-	-	-	-
Current Year Amortization	-	-	(5,932,169)	5,932,169
Benefit Payments, Including Refunds of Employee Contributions	(177,287,311)	-	-	-
Net Change	48,193,038	(331,794)	76,979,018	236,973,495
Plan Fiduciary Net Position:				
Contributions - Employer	107,852,191	-	(107,852,191)	-
Contributions - Employee	20,982,056	-	-	(20,982,056)
Projected Net Investment Income	107,431,323	-	-	(107,431,323)
Difference Between Projected and Actual Earnings on Pension Plan Investments	16,668,136	16,668,136	-	-
Current Year Amortization	-	(52,122,337)	(42,717,054)	(9,405,283)
Benefit Payments, Including Refunds of Employee Contributions	(177,287,311)	-	-	-
Administrative Expenses	(1,592,783)	-	-	1,592,783
Other	2,738	-	-	(2,738)
Net Change	74,056,350	(35,454,201)	(150,569,245)	(136,228,617)
Ending Balance	\$1,121,071,432	\$111,002,708	\$216,032,563	\$100,744,878

PRELIMINARY COMPONENTS OF PENSION EXPENSE
YEAR-END DECEMBER 31, 2022

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Beginning Balance	\$ 1,121,071,432	\$ 111,002,708	\$ 216,032,563	
Employer Contributions made after December 31, 2021	-	-	TBD ¹	-
Total Pension Liability Factors:				
Service Cost	31,574,003	-	-	31,574,003
Interest	191,470,085	-	-	191,470,085
Changes in Benefit Terms	-	-	-	-
Differences Between Expected and Actual Experience With Regard to Economic or Demographic Assumptions	4,491,952	-	4,491,952	-
Current Year Amortization	-	(331,794)	(8,791,698)	8,459,904
Changes in Assumptions About Future Economic or Demographic Factors or Other Inputs	-	-	-	-
Current Year Amortization	-	-	(5,932,169)	5,932,169
Benefit Payments, Including Refunds of Employee Contributions	(185,138,748)	-	-	-
Net Change	42,397,292	(331,794)	(10,231,915)	237,436,161
Plan Fiduciary Net Position:				
Contributions - Employer	88,803,958	-	(88,803,958)	-
Contributions - Employee	20,630,052	-	-	(20,630,052)
Projected Net Investment Income	111,805,462	-	-	(111,805,462)
Difference Between Projected and Actual Earnings on Pension Plan Investments	108,971,385	108,971,385	-	-
Current Year Amortization	-	(70,141,130)	(42,717,054)	(27,424,076)
Benefit Payments, Including Refunds of Employee Contributions	(185,138,748)	-	-	-
Administrative Expenses	(1,787,903)	-	-	1,787,903
Other	5,213	-	-	(5,213)
Net Change	143,289,419	38,830,255	(131,521,012)	(158,076,900)
Ending Balance	\$ 1,020,179,305	\$ 149,501,169	TBD	\$ 79,359,261

¹ Employer contributions made after the December 31, 2021 measurement date, but before December 31, 2022 need to be added.

AMORTIZATION SCHEDULE – EXPERIENCE

Increase (Decrease) in Pension Expense Arising from the Recognition of the
 Effects of Differences between Expected and Actual Experience

Year Base Established	Differences Between Expected and Actual Experience	Recognition Period (Years)	2022	2023	2024	2025	2026	Thereafter
2021	\$ 4,491,952	6	\$ 748,657	\$ 748,659	\$ 748,659	\$ 748,659	\$ 748,659	\$ 748,659
2020	\$ 4,553,932	6	\$ 758,989	\$ 758,989	\$ 758,989	\$ 758,989	\$ 758,989	\$ -
2019	\$ 17,732,815	6	\$ 2,955,469	\$ 2,955,469	\$ 2,955,469	\$ 2,955,469	\$ -	\$ -
2018	\$ 12,157,757	6	\$ 2,026,293	\$ 2,026,293	\$ 2,026,293	\$ -	\$ -	\$ -
2017	\$ (1,990,761)	6	\$ (331,794)	\$ (331,794)	\$ -	\$ -	\$ -	\$ -
2016	\$ 13,813,742	6	\$ 2,302,290	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			8,459,904	6,157,616	6,489,410	4,463,117	1,507,648	748,659

AMORTIZATION SCHEDULE – CHANGES OF ASSUMPTIONS

Increase (Decrease) in Pension Expense Arising from the Recognition of the
Effects of Changes of Assumptions

Year Base Established	Effects of Changes in Assumptions	Recognition Period (Years)	2022	2023	2024	2025	2026	Thereafter
2018	\$ 35,593,015	6	\$ 5,932,169	\$ 5,932,169	\$ 5,932,169	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ 5,932,169	\$ 5,932,169	\$ 5,932,169	\$ -	\$ -	\$ -

AMORTIZATION SCHEDULE – INVESTMENTS

Increase (Decrease) in Pension Expense Arising from the Recognition of the Differences Between Projected and Actual Earnings on Pension Plan Investments									
Year Base Established	Differences Between Projected and Actual Earnings	Recognition Period (Years)	2022	2023	2024	2025	2026	Thereafter	
2021	\$ (108,971,385)	5	\$ (21,794,277)	\$ (21,794,277)	\$ (21,794,277)	\$ (21,794,277)	\$ (21,794,277)	\$	-
2020	\$ (16,668,136)	5	\$ (3,333,627)	\$ (3,333,627)	\$ (3,333,627)	\$ (3,333,627)	\$ -	\$	-
2019	\$ (129,978,465)	5	\$ (25,995,693)	\$ (25,995,693)	\$ (25,995,693)	\$ -	\$ -	\$	-
2018	\$ 213,585,270	5	\$ 42,717,054	\$ 42,717,054	\$ -	\$ -	\$ -	\$	-
2017	\$ (95,087,666)	5	\$ (19,017,533)	\$ -	\$ -	\$ -	\$ -	\$	-
Net Increase (Decrease) in Pension Expense			\$ (27,424,076)	\$ (8,406,543)	\$ (51,123,597)	\$ (25,127,904)	\$ (21,794,277)	\$	-

SCHEDULE OF CONTRIBUTIONS

Plan Year-End	Actuarially Determined Contribution	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency (Excess)	Covered Payroll	Contributions as a Percentage of Covered Payroll
12/31/2021	76,841,344	88,803,958	(11,962,614)	187,213,026	47.43%
12/31/2020	77,392,414	107,852,191	(30,459,777)	188,072,970	57.35%

The following assumptions were used to determine the Actuarially Determined Contribution for the plan year ending December 31, 2021:

Calculation Timing	The Actuarially Determined Contribution is calculated using a December 31, 2020 valuation date.
Interest Rate	7.25%
Mortality Rate	<i>Healthy and Disabled Lives</i> RP-2000 Combined Healthy Mortality Table with Generational Mortality Improvements (Scale AA). Female rates are adjusted by a factor of 1.04 and male rates are unadjusted.
Assumptions	All other assumptions and methods used for determining the Actuarially Determined Contribution can be found in the December 31, 2020 Actuarial Valuation Report for the Metropolitan Water Reclamation District Retirement Fund prepared by Foster & Foster Actuaries and Consultants.

SCHEDULE OF INVESTMENT RETURNS

For the year ended December 31, 2021, the annual money-weighted return on Pension Plan investments, net of pension plan investment expense, was not available. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Plan Year-End	Annual Money-Weighted Rate of Return Net of Investment Expense
12/31/2021	15.10%
12/31/2020	8.67%

ASSUMPTIONS – GASB PENSION LIABILITY AND PENSION EXPENSE

The GASB 67 Pension Liability for Plan reporting as of December 31, 2021 and Preliminary GASB 68 Pension Expense for the District's January 1, 2022 - December 31, 2022 reporting period were determined as follows:

Valuation Date	December 31, 2021
Measurement Date	December 31, 2021
Discount Rate	7.25%
Inflation	2.50%
Salary Increases	Service-based rates
Other Assumptions	A summary of complete assumptions can be found in the accompanying Actuarial Valuation as of December 31, 2021 for the Metropolitan Water Reclamation District Retirement Fund prepared by Foster & Foster Actuaries and Consultants.

The GASB 67 Total Pension Liability and Preliminary GASB 68 Pension Expense reflect no assumption changes.

The GASB 68 Pension Liability and Final Pension Expense for the current District reporting period were determined as follows:

Valuation Date	December 31, 2020
Measurement Date	December 31, 2020
GASB 68 Expense Measurement Period	January 1, 2020 - December 31, 2020
Reporting Period	January 1, 2021 - December 31, 2021
Discount Rate	7.25%
Inflation	2.50%
Salary Increases	Service-based rates
Other Assumptions	A summary of complete assumptions can be found in the Actuarial Valuation as of December 31, 2020 for the Metropolitan Water Reclamation District Retirement Fund prepared by Foster & Foster Actuaries and Consultants.

The GASB 68 Total Pension Liability and Final GASB 68 Pension Expense reflect no assumption changes.

NOTES TO THE FINANCIAL STATEMENTS

Support for Long-Term Expected Rate of Return

The Long-Term Expected Rate of Return on Pension Plan investments can be determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of Pension Plan investment expenses and inflation) are developed for each major asset class.

These ranges are combined to produce the Long-Term Expected Rate of Return by weighting the expected future real rates of return by target asset allocation percentage and by adding expected inflation.

Best estimates of geometric real rates of return for each major asset class included in the Pension Plan's target asset allocation adopted as of December 31, 2021, as provided by Marquette Associates, are summarized in the following table:

Asset Class	Target Allocation	Long Term Expected Real Rate of Return
US Equity	38.00%	5.70%
Non-US Equity	20.00%	6.10%
Global Low Volatility	5.00%	5.60%
Fixed Income	27.00%	2.10%
Real Estate	10.00%	5.40%
Cash	0.00%	0.00%
Total	100.00%	

Inflation rate of investment advisor 2.00%

Concentrations

The Plan did not hold investments in any one organization that represent 5 percent or more of the Pension Plan's fiduciary net position.

Discount Rate

The Discount Rate used to measure the Total Pension Liability was 7.25 percent.

The projection of cash flows used to determine the Discount Rate assumed that Plan Member contributions will be made at the current contribution rate and that Sponsor contributions will be made at rates equal to the difference between actuarially determined contribution rates and the Member rate. Based on those assumptions, the Pension Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the Long-Term Expected Rate of Return on Pension Plan investments (7.25 percent) was applied to all periods of projected benefit payments to determine the Total Pension Liability.

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.25 percent. The municipal bond rate is 2.25 percent (based on the daily rate closest to, but not later than the measurement date of the S&P Municipal Bond 20 Year High Grade Rate Index). The resulting single discount rate is 7.25 percent.

SUMMARY OF CURRENT PLAN

Article 13 Pension Fund

The Fund is established and administered as prescribed by “Article 13. Metropolitan Water Reclamation District Retirement Fund” of the Illinois Pension Code.

Fund Administration

The Fund is a single employer defined benefit pension plan administered by a Board of Trustees comprised of:

- a.) Three members appointed by the Board of Commissioners of the Water Reclamation District, one of which must be a retiree participating in the Fund
- b.) Four elected employee members.

Benefits Provided

The Plan provides retirement, termination, disability and death benefits.

A summary of the benefit provisions can be found in the accompanying Actuarial Valuation as of December 31, 2021 for the Metropolitan Water Reclamation District Retirement Fund prepared by Foster & Foster Actuaries and Consultants.

HISTORY OF NET PENSION LIABILITY

Measurement Date	Total Pension Liability	Fund Net Position	Net Pension Liability	Fund Net Position as a Percentage of Total Pension Liability
12/31/2014	2,285,095,580	1,337,795,620	947,299,960	58.54%
12/31/2015	2,359,766,327	1,286,653,498	1,073,112,829	54.52%
12/31/2016	2,432,163,441	1,352,598,383	1,079,565,058	55.61%
12/31/2017	2,486,868,107	1,501,793,976	985,074,131	60.39%
12/31/2018	2,588,389,303	1,343,994,268	1,244,395,035	51.92%
12/31/2019	2,653,769,022	1,506,834,278	1,146,934,744	56.78%
12/31/2020	2,701,962,060	1,580,890,628	1,121,071,432	58.51%
12/31/2021	2,744,359,352	1,724,180,047	1,020,179,305	62.83%

HISTORY OF SENSITIVITY OF NET PENSION LIABILITY TO CHANGES IN THE DISCOUNT RATE

	1% Decrease	Current	1% Increase
12/31/2014			
Discount Rate	6.50%	7.50%	8.50%
Net Pension Liability	\$1,217,729,913	\$947,299,960	\$720,078,909
12/31/2015			
Discount Rate	6.50%	7.50%	8.50%
Net Pension Liability	\$1,349,610,381	\$1,073,112,829	\$840,620,797
12/31/2016			
Discount Rate	6.50%	7.50%	8.50%
Net Pension Liability	\$1,361,928,929	\$1,079,565,058	\$841,925,382
12/31/2017			
Discount Rate	6.50%	7.50%	8.50%
Net Pension Liability	\$1,269,993,791	\$985,074,131	\$745,011,954
12/31/2018			
Discount Rate	6.25%	7.25%	8.25%
Net Pension Liability	\$1,539,876,439	\$1,244,395,035	\$995,556,421
12/31/2019			
Discount Rate	6.25%	7.25%	8.25%
Net Pension Liability	\$1,446,814,051	\$1,146,934,744	\$894,253,229
12/31/2019			
Discount Rate	6.25%	7.25%	8.25%
Net Pension Liability	\$1,422,861,759	\$1,121,071,432	\$866,595,596
12/31/2021			
Discount Rate	6.25%	7.25%	8.25%
Net Pension Liability	\$1,323,687,955	\$1,020,179,305	\$764,018,343