

**METROPOLITAN WATER RECLAMATION DISTRICT
RETIREMENT FUND**

ACTUARIAL VALUATION
AS OF DECEMBER 31, 2019

CONTRIBUTIONS APPLICABLE TO THE
PLAN/FISCAL YEAR ENDING DECEMBER 31, 2020

GASB DISCLOSURE INFORMATION AS OF
DECEMBER 31, 2019



FOSTER & FOSTER
ACTUARIES AND CONSULTANTS

April 8, 2020

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, 2019 actuarial valuation of the Metropolitan Water Reclamation District Retirement Fund.

The valuation was performed as of December 31, 2019 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 loss of \$42,228,169 which consists of a \$23,071,682 loss on the Fund's actuarial value of assets and a \$17,372,326 loss on the Fund's actuarial accrued liability. Based on the actuarial value of assets, the Fund earned 5.60% compared to the assumed 7.25% return. The primary source of liability loss was earlier than expected retirement experience. For example, for the period ending December 31, 2019, the Fund experienced 60 retirements before age 64. However, the expected number of retirements before age 64 for the period based on assumed retirement rates was 47.

Changes Since Prior Report

The valuation reflects no changes since the prior report.

Contribution Amounts

The 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%. Employer contributions come from a property tax levied by the District equal to 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, 2020 is \$77,392,414. The maximum tax levy (based on the 4.19 tax multiple) is \$88,127,000.

We estimate that a tax multiple of 3.68 is required to cover the full actuarially determined contribution requirement for the year 2020.

Illinois Public Act 97-0894 (effective 8/3/2012) provided for changes to member contribution requirements and the required tax levy multiplier. The expected member contributions in 2019 reflect the same rates expected in 2018.

Schedules for CAFR

The report includes information and trend data schedules for use in the Comprehensive Annual Financial Report (CAFR). 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.

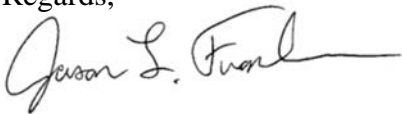
In our opinion, the following valuation results fairly present the financial condition of the Metropolitan Water Reclamation District Retirement Fund as of December 31, 2019.

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, 2019	December 31, 2018
Total Actuarial Liability	\$ 2,666,221,630	\$ 2,601,163,632
Actuarial Value of Assets	<u>1,489,266,144</u>	<u>1,470,308,639</u>
Unfunded Actuarial Liability	\$ 1,176,955,486	\$ 1,130,854,993
Funded Ratio	55.9%	56.5%
Market Value of Assets	\$ 1,506,834,278	\$ 1,343,994,268
Unfunded Liability (MVA basis)	\$ 1,159,387,352	\$ 1,257,169,364
Funded Ratio (MVA basis)	56.5%	51.7%
Employer Normal Cost as % of Payroll:		
Tier 1 Benefits	6.38%	6.48%
Tier 2 Benefits	3.19%	3.39%
Administrative Expenses	0.86%	0.90%
Total Employer Normal Cost	6.38%	6.67%
Applicable Fiscal Year ¹	2020	2019
Actuarially Determined Contribution	\$ 77,392,414	\$ 74,279,999
Contribution Requirement For Fiscal Year ²	\$ 77,392,414	\$ 74,279,999
Expected Employer Contribution from Tax Levy for Fiscal Year	\$ 88,127,000	\$ 87,319,000

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, 2019.

1.	Present Value of Future Benefits	\$	2,937,449,951
2.	Active Members		
	Retirement	\$	667,726,584
	Termination		18,222,113
	Death		23,353,487
	Disability		<u>6,863,535</u>
	Total	\$	716,165,719
3.	Members Receiving Benefits		
	Retirement Annuities	\$	1,701,020,936
	Survivor Annuities/Children		<u>228,919,931</u>
	Total	\$	1,929,940,867
4.	Inactive Members	\$	20,115,044
5.	Total Actuarial Liability	\$	2,666,221,630
6.	Actuarial Value of Assets	\$	1,489,266,144
7.	Unfunded Actuarial Liability	\$	1,176,955,486
8.	Funded Ratio		55.9%

EMPLOYER'S NORMAL COST

Below is a summary of the employer's share of the normal cost for the year beginning January 1, 2020.

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	\$ 22,264,954	16.09%	\$ 4,191,668	8.12%	\$ 26,456,622	13.93%
Termination	1,092,782	0.79%	1,086,075	2.10%	2,178,857	1.15%
Death	1,636,709	1.18%	721,405	1.40%	2,358,114	1.24%
Disability	434,545	0.31%	291,857	0.57%	726,402	0.38%
Total Normal Cost	\$ 25,428,990	18.38%	\$ 6,291,005	12.19%	\$ 31,719,995	16.70%
Expected Member Contributions	\$ 16,602,304	12.00%	\$ 4,644,763	9.00%	\$ 21,247,067	11.18%
Employer's Share of Normal Cost	\$ 8,826,686	6.38%	\$ 1,646,242	3.19%	\$ 10,472,928	5.52%
Expected Administrative Expenses					\$ 1,642,209	0.86%
Employer's Share of Normal Cost, adjusted for expected administrative expenses					\$ 12,115,137	6.38%
Pensionable Payroll	\$ 138,352,537		\$ 51,608,473		\$ 189,961,010	

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	\$	12,115,137
2. Amortization Payment (annual amount to amortize 100% of the unfunded liability by 2050)		
Actuarial Liability	\$	2,666,221,630
Actuarial Assets	\$	1,489,266,144
Unfunded Accrued Liability	\$	1,176,955,486
Amortization Period		31 years
Amortization Payment	\$	65,277,277
3. Actuarially Determined Contribution for Year Beginning January 1, 2020	\$	77,392,414
as a percentage of pensionable payroll		40.74%
4. District's Funding Policy (4.19 x Total Member Contributions for two years prior)	\$	88,127,000
as a percentage of pensionable payroll		46.39%
5. Statutory Tax Levy (lesser of 3 and 4)	\$	77,392,414

UNFUNDED ACTUARIAL LIABILITY

1. Unfunded Actuarial Accrued Liability (UAAL) as of December 31, 2018	\$ 1,130,854,993
2. Employer Normal Cost, Developed as of December 31, 2018	12,537,329
3. Expected Interest (7.25%) on 1. and 2.	82,895,943
4. Employer Contributions	87,446,476
5. Expected Interest (7.25%, mid-year) on 4.	3,114,473
6. Expected UAAL as of December 31, 2019 (1)+(2)+(3)-(4)-(5)	1,135,727,316
7. Change in UAAL Due to Actuarial (Gain)/Loss, by component	
Increase in UAAL due to investment return lower than assumed	23,071,682
Decrease in UAAL due to salary increases lower than assumed	(4,517,433)
Increase in UAAL due to decrement experience	21,233,555
Decrease in UAAL due to inactive mortality experience	(1,301,600)
Increase in UAAL due to other changes	<u>2,741,966</u>
Net increase in UAAL due to actuarial experience	41,228,170
8. Change in UAAL Due to Assumption Changes	-
9. Unfunded Actuarial Accrued Liability as of December 31, 2019	\$ 1,176,955,486

CHANGE IN FUNDED RATIO

1. Funded ratio as of December 31, 2018	56.5%
2. Expected funded ratio as of December 31, 2019	57.1%
3. Change in funded ratio Due to Actuarial (Gain)/Loss, by component	
Decrease in funded ratio due to investment return lower than assumed	-0.9%
Increase in funded ratio due to salary increases lower than assumed	0.1%
Decrease in funded ratio due to decrement experience	-0.4%
Increase in funded ratio due to inactive mortality experience	0.0%
Increase in funded ratio due to other changes	<u>0.0%</u>
Net decrease in funded ratio due to actuarial experience	-1.2%
4. Change in UAAL Due to Assumption Changes	0.0%
5. Funded Ratio as of December 31, 2019	55.9%

DEVELOPMENT OF ASSETS

Development of Investment Gain/(Loss)

Market Value of Assets, 12/31/2018	\$ 1,343,994,268
Contributions & Other Additions Less Benefit Payments & Admin Expenses	(62,318,870)
Expected Investment Earnings for 2019	<u>95,220,051</u>
Expected Market Value of Assets, 12/31/2019	\$ 1,376,895,449
Actual Net Investment Income/(Loss) for 2019	\$ 225,158,880
2019 Investment Gain/(Loss), (Actual less Expected)	\$ 129,938,829

Development of Actuarial Value of Assets

Plan Year Ending	Gain/(Loss)	Gains/(Losses) Not Yet Recognized by Valuation Year			
		2019	2020	2021	2022
12/31/2015	(99,931,928)	0	0	0	0
12/31/2016	18,841,099	3,768,220	0	0	0
12/31/2017	95,056,619	38,022,648	19,011,324	0	0
12/31/2018	(213,622,995)	(128,173,797)	(85,449,198)	(42,724,599)	0
12/31/2019	129,938,829	<u>103,951,063</u>	<u>77,963,297</u>	<u>51,975,532</u>	<u>25,987,766</u>
Total		17,568,134	11,525,423	9,250,933	25,987,766

Market Value of Assets, 12/31/2019	\$ 1,506,834,278
Less: Unrecognized Amounts as of 12/31/2019	<u>17,568,134</u>
Actuarial Value of Assets, 12/31/2019	\$ 1,489,266,144

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) 12/31/2018 Actuarial Assets:	\$ 1,470,308,639
(I) Net Investment Income:	
1. Interest, Dividends, Gross Securities Lending Income and Other Income	26,376,059
2. Change in Actuarial Value	60,236,099
3. Investment Expenses and Security Lending Expenses	<u>(5,332,725)</u>
Total	\$ 81,279,433
(B) 12/31/2019 Actuarial Assets:	\$ 1,489,266,144
Actuarial Asset Rate of Return = $2I/(A+B-I)$:	5.6%
Market Value of Assets Rate of Return:	17.2%

STATEMENT OF FIDUCIARY NET POSITION
December 31, 2019

<u>ASSETS</u>	MARKET VALUE
Cash	243,150
Total Cash and Equivalents	243,150
Receivables:	
District Contributions	87,319,000
Due From Broker	38,456,244
Accounts Receivable	77,846
Accrued Income	3,501,623
Total Receivables	129,354,713
Investments:	
Fixed Income	212,632,131
Equities	546,409,484
Short-Term Investment Funds	44,259,054
Mutual Funds:	
Mutual and Exchange Traded Funds	96,417,811
Pooled/Commingled Funds:	
Fixed Income	165,734,711
Equity	250,570,901
Real Estate	106,871,867
Total Investments	1,422,895,959
Securities Lending Collateral	12,776,445
Total Assets	1,565,270,267
<u>LIABILITIES</u>	
Liabilities:	
Payable:	
Securities Lending Collateral	12,776,445
Due to Broker	44,436,866
Accounts Payable	1,222,678
Total Liabilities	58,435,989
Net Assets:	
Active and Retired Members' Equity	1,506,834,278
Net Assets	
Active and Retired Members' Equity	1,506,834,278
NET POSITION RESTRICTED FOR PENSIONS	1,506,834,278
TOTAL LIABILITIES AND NET ASSETS	1,565,270,267

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
FOR THE YEAR ENDED December 31, 2019
Market Value Basis

ADDITIONS

Contributions:

Member	21,182,425
District	87,446,476

Total Contributions 108,628,901

Investment Income:

Interest & Dividends	25,941,353
Net Increase in Fair Value of Investments	204,118,604
Securities Lending Income	431,648
Less Investment Expense ¹	(5,332,725)

Net Investment Income 225,158,880

Other Income 3,058

Total Additions 333,790,839

DEDUCTIONS

Distributions to Members:

Benefit Payments	167,480,736
Termination Payments	1,827,884

Total Distributions 169,308,620

Administrative Expenses 1,642,209

Other Deductions 0

Total Deductions 170,950,829

Net Increase in Net Position 162,840,010

NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year 1,343,994,268

End of the Year 1,506,834,278

¹ Investment related expenses include investment management, investment consulting, custodial and securities lending bank fees.

PARTICIPANT DATA

Participant Information	December 31, 2019	December 31, 2018	Change
Number Active Members - Total	1,817	1,832	-0.8%
Number Active Members - Fully Vested	1,174	1,208	-2.8%
Number Receiving Benefits			
Retirement Annuities	1,883	1,848	1.9%
Surviving Spouse Annuities	561	571	-1.8%
Children's Annuities	21	24	-12.5%
Number Inactive Members - Total	131	127	3.1%
Number Inactive Members - Vested	38	35	8.6%
Total Members	4,413	4,402	0.2%
Total Pensionable Salary	\$ 189,961,010	\$ 187,849,708	1.1%
Active Statistics – Tier 1			
Number	1,225	1,322	-7.3%
Average Age	53.20	52.75	0.8%
Average Service	17.68	17.35	1.9%
Total Pensionable Salary	\$ 138,352,537	\$ 145,118,272	-4.7%
Average Salary	\$ 112,941	\$ 109,772	2.9%
Active Statistics – Tier 2			
Number	592	510	16.1%
Average Age	42.95	42.67	0.7%
Average Service	3.80	3.38	12.4%
Total Salary	\$ 51,942,396	\$ 43,037,914	20.7%
Average Salary	\$ 87,741	\$ 84,388	4.0%
Pensionable Salary	\$ 51,608,473	\$ 42,731,436	20.8%
Average Pensionable Salary	\$ 87,176	\$ 83,787	4.0%
Annual Benefit Payments for Members Receiving Benefits			
Retirement Annuities	\$ 142,324,135	\$ 135,435,622	5.1%
Surviving Spouse Annuities	\$ 27,127,117	\$ 25,965,116	4.5%
Children's Annuities	\$ 126,000	\$ 144,000	-12.5%

Participant Reconciliation

	Active	Inactive Vested	Inactive Not Vested	Retiree	Surviving Spouse	Child	Total Count
<i>As of 12/31/2018</i>	1,832	35	92	1,848	571	24	4,402
Terminations							
Vested	(13)	13					0
Not Vested	(18)		18				0
Retirements	(82)	(7)	(5)	94			0
Deaths							
w/o Beneficiary	(3)			(36)	(38)		(77)
w/ Beneficiary	(3)	(2)		(23)	28		0
w/ Child Beneficiary						2	2
w/ Rev. Annuitant							
New Member	107						107
Return to Work							0
Benefit expired						(5)	(5)
Refunds	(3)	(1)	(12)				(16)
Repaid Refunds							
Adjustments	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Net Change	(15)	3	1	35	(10)	(3)	11
<i>As of 12/31/2019</i>	1,817	38	93	1,883	561	21	4,413

Active Member Statistics by Tier

Tier	Sex	Count	Avg Age	Avg Svc	Pensionable Salary		Total Salary	
					Total	Average	Total	Average
1	M	898	53.4	17.7	103,371,270	115,113	103,371,270	115,113
	F	<u>327</u>	52.6	17.6	<u>34,981,268</u>	106,976	<u>34,981,268</u>	106,976
	Total	1,225	53.2	17.7	138,352,537	112,941	138,352,537	112,941
2	M	446	43.9	3.9	40,600,979	91,034	40,819,243	91,523
	F	<u>146</u>	39.9	3.6	<u>11,007,494</u>	75,394	<u>11,123,153</u>	76,186
	Total	592	42.9	3.8	51,608,473	87,176	51,942,396	87,741
Total	M	1,344	50.3	13.1	143,972,249	107,122	144,190,512	107,285
	F	<u>473</u>	48.7	13.3	<u>45,988,762</u>	97,228	<u>46,104,421</u>	97,472
	Total	1,817	49.9	13.2	189,961,010	104,547	190,294,933	104,730

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	13								15
	\$55,756	\$68,561								\$66,853
25-29	5	37	9							51
	\$88,437	\$66,422	\$88,421							\$72,463
30-34	10	62	37	14						123
	\$87,798	\$78,103	\$87,584	\$109,065						\$85,267
35-39	5	66	45	62	13					191
	\$86,033	\$85,768	\$94,365	\$112,278	\$125,165					\$99,087
40-44	4	64	33	63	39	17				220
	\$93,057	\$92,652	\$97,611	\$106,537	\$116,327	\$118,179				\$103,549
45-49	3	43	43	56	47	57	9	1		259
	\$72,059	\$92,741	\$97,881	\$107,066	\$122,075	\$127,383	\$160,010	\$120,502		\$111,844
50-54	2	51	38	55	44	60	50	9		309
	\$74,220	\$92,144	\$97,840	\$102,472	\$103,723	\$123,077	\$119,025	\$118,102		\$107,328
55-59	2	38	35	50	50	60	62	14	1	312
	\$79,966	\$86,340	\$99,342	\$98,463	\$114,843	\$126,038	\$128,272	\$128,911	\$104,341	\$112,203
60-64	1	22	20	38	42	41	21	23	1	209
	\$105,872	\$93,828	\$101,170	\$96,812	\$106,908	\$120,475	\$118,058	\$125,151	\$91,978	\$108,859
65-69		8	8	23	16	20	20	3	3	101
		\$76,709	\$83,874	\$94,375	\$108,466	\$111,953	\$112,446	\$131,498	\$139,792	\$103,887
70+			1	1	7	10	2	3	3	27
			\$62,566	\$120,466	\$90,917	\$98,714	\$90,437	\$115,499	\$116,954	\$99,438
Total	34	404	269	362	258	265	164	53	8	1,817
	\$84,250	\$85,217	\$95,408	\$104,212	\$112,672	\$122,198	\$123,495	\$124,673	\$120,820	\$104,547

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	9								10
	\$59,241	\$72,554								\$71,223
25-29	5	16	8							29
	\$88,437	\$70,769	\$87,984							\$78,564
30-34	7	38	20	11						76
	\$94,061	\$81,182	\$93,008	\$112,061						\$89,950
35-39	5	51	34	41	6					137
	\$86,033	\$88,611	\$95,081	\$115,650	\$127,331					\$99,911
40-44	4	53	31	45	27	10				170
	\$93,057	\$95,846	\$98,608	\$106,970	\$119,695	\$117,043				\$104,263
45-49	3	35	33	46	36	38	7			198
	\$72,059	\$93,746	\$98,589	\$109,048	\$123,202	\$138,456	\$174,476			\$114,570
50-54	1	42	29	42	31	44	42	7		238
	\$76,367	\$95,090	\$99,615	\$106,334	\$107,307	\$121,011	\$121,262	\$116,073		\$109,166
55-59	1	25	26	38	36	43	44	10		223
	\$102,648	\$96,455	\$100,107	\$100,446	\$116,300	\$121,911	\$135,142	\$134,832		\$115,055
60-64	1	19	18	26	35	32	18	16	1	166
	\$105,872	\$98,066	\$103,916	\$100,443	\$109,781	\$118,121	\$119,826	\$116,885	\$91,978	\$109,592
65-69		6	6	19	11	15	15	2	1	75
		\$82,565	\$81,671	\$99,413	\$110,871	\$114,498	\$107,717	\$151,566	\$179,483	\$105,462
70+			1	1	6	8	1	2	3	22
			\$62,566	\$120,466	\$93,925	\$106,105	\$105,872	\$127,572	\$116,954	\$104,877
Total	28	294	206	269	188	190	127	37	5	1,344
	\$87,975	\$90,184	\$97,193	\$106,721	\$114,733	\$122,866	\$127,079	\$124,034	\$124,465	\$107,122

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 \$52,270	4 \$59,576								5 \$58,115
25-29		21 \$63,111	1 \$91,910							22 \$64,420
30-34	3 \$73,185	24 \$73,228	17 \$81,202	3 \$98,079						47 \$77,696
35-39		15 \$76,100	11 \$92,153	21 \$105,695	7 \$123,308					54 \$96,999
40-44		11 \$77,264	2 \$82,144	18 \$105,456	12 \$108,749	7 \$119,802				50 \$101,120
45-49		8 \$88,344	10 \$95,543	10 \$97,951	11 \$118,388	19 \$105,236	2 \$109,382	1 \$120,502		61 \$102,995
50-54	1 \$72,072	9 \$78,398	9 \$92,122	13 \$89,995	13 \$95,178	16 \$128,757	8 \$107,281	2 \$125,202		71 \$101,166
55-59	1 \$57,283	13 \$66,890	9 \$97,132	12 \$92,183	14 \$111,097	17 \$136,477	18 \$111,480	4 \$114,109	1 \$104,341	89 \$105,058
60-64		3 \$66,984	2 \$76,458	12 \$88,945	7 \$92,543	9 \$128,846	3 \$107,446	7 \$144,047		43 \$106,030
65-69		2 \$59,141	2 \$90,482	4 \$70,446	5 \$103,176	5 \$104,317	5 \$126,634	1 \$91,364	2 \$119,947	26 \$99,343
70+					1 \$72,873	2 \$69,151	1 \$75,002	1 \$91,354		5 \$75,506
Total	6 \$66,863	110 \$71,942	63 \$89,570	93 \$96,955	70 \$107,138	75 \$120,504	37 \$111,193	16 \$126,149	3 \$114,745	473 \$97,228

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		35+
<25										
25-29		4	1							5
		\$57,890	\$89,274							\$64,166
30-34	3	8								11
	\$40,404	\$64,788								\$58,138
35-39	2	4	4	2						12
	\$28,767	\$63,387	\$75,681	\$100,432						\$67,889
40-44	4	6	4	2	2					18
	\$61,146	\$50,284	\$95,940	\$33,596	\$118,493					\$68,568
45-49		9	3	2	1					15
		\$57,231	\$76,661	\$91,369	\$91,063					\$67,924
50-54	2	6	4	7	5					24
	\$1,742	\$74,062	\$57,429	\$72,305	\$105,963					\$71,396
55-59	3	8	2	2	4	1	1	1		22
	\$35,216	\$45,701	\$51,500	\$58,285	\$91,731	\$111,738	\$82,148	\$118,036		\$62,258
60-64	3	5	5		2		2	1		18
	\$54,201	\$42,880	\$72,844		\$101,048		\$164,031	\$118,036		\$77,190
65-69		3			2					5
		\$38,958			\$113,430					\$68,746
70+						1				1
						\$125,908				\$125,908
Total	17	53	23	15	16	2	3	2		131
	\$40,886	\$55,876	\$74,029	\$71,566	\$103,359	\$118,823	\$136,736	\$118,036		\$68,476

Annuitant Statistics by Tier

Retirement Annuities

Tier	Sex	Count	Avg	Total Annuity	Average
			Age		Annuity
1	M	1,431	73.0	115,296,182	80,570
	F	<u>452</u>	70.4	<u>27,027,953</u>	59,796
	Total	1,883	72.4	142,324,135	75,584
2	M	0	0.0	0	0
	F	<u>0</u>	0.0	<u>0</u>	0
	Total	0	0.0	0	0
Total	M	1,431	73.0	115,296,182	80,570
	F	<u>452</u>	70.4	<u>27,027,953</u>	59,796
	Total	1,883	72.4	142,324,135	75,584

Surviving Spouse Annuities

Tier	Sex	Count	Avg	Total	Average
			Age		Annuity
1	M	21	73.6	830,699	39,557
	F	<u>540</u>	79.9	<u>26,296,418</u>	48,697
	Total	561	79.6	27,127,117	48,355
2	M	0	0.0	0	0
	F	<u>0</u>	0.0	<u>0</u>	0
	Total	0	0.0	0	0
Total	M	21	73.6	830,699	39,557
	F	<u>540</u>	79.9	<u>26,296,418</u>	48,697
	Total	561	79.6	27,127,117	48,355

Distribution of Retirement Annuities by Age

	Male			Female			Total		
	Count	Total	Average	Count	Total	Average	Count	Total	Average
		Annuities	Annuities		Annuities	Annuities		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	19	1,582,913	83,311	15	1,026,409	68,427	34	2,609,322	76,745
55 <= x < 60	95	7,454,594	78,469	55	3,920,401	71,280	150	11,374,995	75,833
60 <= x < 65	180	14,310,498	79,503	70	4,821,267	68,875	250	19,131,765	76,527
65 <= x < 70	246	18,982,127	77,163	79	4,666,082	59,064	325	23,648,209	72,764
70 <= x < 75	322	28,240,766	87,704	102	6,367,161	62,423	424	34,607,927	81,622
75 <= x < 80	264	20,922,099	79,250	61	3,047,110	49,953	325	23,969,209	73,751
80 <= x < 85	150	11,974,167	79,828	35	1,618,978	46,257	185	13,593,145	73,476
85 <= x < 90	105	8,351,130	79,535	26	1,273,390	48,977	131	9,624,519	73,470
90 <= x	50	3,477,888	69,558	9	287,155	31,906	59	3,765,043	63,814
Total	1,431	115,296,182	80,570	452	27,027,953	59,796	1,883	142,324,135	75,584

Distribution of Surviving Spouse Annuities by Age

	Male			Female			Total		
	Count	Total	Average	Count	Total	Average	Count	Total	Average
		Annuities	Annuities		Annuities	Annuities		Annuities	
x < 45	0	0	0	1	50,995	50,995	1	50,995	50,995
45 <= x < 50	0	0	0	4	151,158	37,790	4	151,158	37,790
50 <= x < 55	2	14,415	7,208	13	585,141	45,011	15	599,556	39,970
55 <= x < 60	1	4,501	4,501	12	491,504	40,959	13	496,005	38,154
60 <= x < 65	1	155,853	155,853	25	1,442,846	57,714	26	1,598,699	61,488
65 <= x < 70	1	16,145	16,145	39	1,902,926	48,793	40	1,919,071	47,977
70 <= x < 75	4	230,727	57,682	61	4,003,256	65,627	65	4,233,983	65,138
75 <= x < 80	6	200,175	33,363	87	4,300,245	49,428	93	4,500,421	48,392
80 <= x < 85	5	145,353	29,071	118	6,415,584	54,369	123	6,560,937	53,341
85 <= x < 90	0	0	0	79	3,691,505	46,728	79	3,691,505	46,728
90 <= x	1	63,529	63,529	101	3,261,258	32,290	102	3,324,787	32,596
Total	21	830,699	39,557	540	26,296,418	48,697	561	27,127,117	48,355

ACTUARIAL ASSUMPTIONS AND METHODS

Below is a summary of the actuarial assumptions for the December 31, 2019 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	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. The funding goal is to attain a funded ratio of at least 100% by the year 2050.
Actuarial Asset Method	Market 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 Market 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, 2019.

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 a liability which arises when a pension plan is initially established or improved and such establishment or improvement is applicable to all years of past service.

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 72.9% on December 31, 2016 to 70.0% as of December 31, 2019, indicating that the Fund's maturity level has not significantly changed during the period
- 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 73.1%. With a plan of this maturity, losses due to lower than expected investment returns or demographic factors must be made up 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 remained relatively stable over the four-year period ending December 31 2019.
- The Net Cash Flow Ratio, determined as the ratio of the Net Cash Flow (contributions minus benefit payments and administrative expenses) to the Market Value of Assets, is around -3.0% to -4.1%. A Net Cash Flow Ratio in this range indicates that contributions are not sufficient to cover the Fund'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

	12/31/2019	12/31/2018	12/31/2017	12/31/2016
<u>Support Ratio</u>				
Total Actives	1,817	1,832	1,835	1,843
Total Inactives	2,596	2,570	2,545	2,529
Actives / Inactives	70.0%	71.3%	72.1%	72.9%
<u>Asset Volatility Ratio</u>				
Market Value of Assets (MVA)	1,506,834,278	1,343,994,268	1,501,794,000	1,352,598,000
Total Annual Payroll	190,294,933	188,156,185	184,807,353	182,980,055
MVA / Total Annual Payroll	791.8%	714.3%	812.6%	739.2%
<u>Accrued Liability (AL) Ratio</u>				
Inactive Accrued Liability	1,950,055,911	1,859,384,499	1,761,257,761	1,694,554,067
Total Accrued Liability	2,666,221,630	2,601,163,632	2,497,890,179	2,443,291,644
Inactive AL / Total AL	73.1%	71.5%	70.5%	69.4%
<u>Funded Ratio</u>				
Actuarial Value of Assets (AVA)	1,489,266,144	1,470,308,639	1,456,195,876	1,372,361,950
Total Accrued Liability	2,666,221,630	2,601,163,632	2,497,890,179	2,443,291,644
AVA / Total Accrued Liability	55.9%	56.5%	58.3%	56.2%
<u>Net Cash Flow Ratio</u>				
Net Cash Flow ¹	(62,321,928)	(54,809,061)	(45,628,966)	(47,748,162)
Market Value of Assets (MVA)	1,506,834,278	1,343,994,268	1,501,794,000	1,352,598,000
Ratio	-4.1%	-4.1%	-3.0%	-3.5%

¹ Determined as total contributions 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	Hired before January 1, 2011: Age 60 and 5 years of service Hired on or after January 1, 2011: Age 67 and 10 years of service
Normal Retirement Benefit	The annual benefit payable immediately is equal to the sum of: <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 The benefit shall not exceed 80% of Average Final Salary.
Early Retirement Eligibility	Hired before January 1, 2011: Age 55 (50 if hired before June 13, 1997) and 10 years of service Hired on or after January 1, 2011: Age 62 and 10 years of service
Early Retirement Benefit	Normal Retirement Benefit reduced as follows: 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. Hired on or after January 1, 2011: 0.5% per month the member is less than age 67
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 Tax Levy – 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. For calendar year 2020, the statutory salary limitation is \$115,928.92.

Changes in Fund Provisions Since the Prior Valuation

- None

SUPPLEMENTARY TABLES

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

	Year Ending December 31				
	2019	2018	2017	2016	2015
1. Unfunded Actuarial Accrued Liability (UAAL), as of beginning of year	1,130,854,993	1,041,694,303	1,070,919,694	1,063,049,156	1,033,151,630
2. Employer Normal Cost, as of beginning of year	12,537,329	11,897,996	12,094,866	12,130,605	12,317,916
3. Expected Interest on 1. and 2.	82,895,943	79,019,422	81,226,842	80,638,482	78,410,216
4. Employer Contributions, with interest	90,560,949	90,377,021	93,166,990	83,215,042	73,657,251
5. Employer Contributions in Excess of Normal Cost plus Interest (4) - (2) - (3)	(4,872,323)	(540,397)	(154,718)	(9,554,045)	(17,070,881)
6. Expected UAAL as of December 31, 2019 (1)+(2)+(3)-(4)	1,135,727,316	1,042,775,097	1,071,084,412	1,072,603,201	1,050,222,511
7. Change in UAAL Due to Actuarial (Gain)/Loss, by component:					
Investment Return	23,071,682	40,260,410	(27,925,002)	(15,960,567)	3,056,008
Salary Increases	(4,517,433)	(7,369,068)	(11,576,111)	(844,096)	(3,201,181)
Decrement Experience	21,252,946	14,320,903	13,672,315	12,199,482	16,704,404
Inactive Mortality Experience	(1,301,600)	4,104,912	(2,787,776)	311,000	(2,856,395)
Other Changes	2,722,575	(135,723)	(773,535)	2,620,674	3,594,463
Total change due to (Gain)/Loss	41,228,170	51,181,434	(29,390,109)	(1,673,507)	17,297,299
8. Change in UAAL Due to Assumption Changes/ Method Changes	-	37,438,859	-	-	(4,470,654)
9. Unfunded Actuarial Accrued Liability, as of end of the year	1,176,955,486	1,130,854,993	1,041,694,303	1,070,929,694	1,063,049,156

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
12/31/2011	1,888		164,275,424		164,275,424		87,010	
12/31/2012	1,856	-1.7%	163,816,934	-0.3%	163,816,934	-0.3%	88,263	1.4%
12/31/2013	1,858	0.1%	169,375,857	3.4%	169,375,857	3.4%	91,160	3.3%
12/31/2014	1,873	0.8%	176,183,941	4.0%	176,183,941	4.0%	94,065	3.2%
12/31/2015	1,846	-1.4%	177,792,308	0.9%	177,507,159	0.8%	96,158	2.2%
12/31/2016	1,843	-0.2%	182,980,055	2.9%	182,640,163	2.9%	99,099	3.1%
12/31/2017	1,835	-0.4%	184,807,353	1.0%	184,385,188	1.0%	100,482	1.4%
12/31/2018	1,832	-0.2%	188,156,185	1.8%	187,849,708	1.9%	102,538	2.0%
12/31/2019	1,817	-0.8%	190,294,933	1.1%	189,961,010	1.1%	104,547	2.0%
5-year Average Increase/ (Decrease)		-0.6%		1.6%		1.5%		2.1%

Table 3 – History of Retiree Annuitant Data

Actuarial Valuation Date	Employee Annuitant	Total Annuities (Annual)	Average Annuities (Annual)	Increase in Average Benefit	Average Age
12/31/2011	1,683	101,092,773	60,067		
12/31/2012	1,681	104,021,486	61,881	3.02%	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

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
12/31/2011	628	17,961,273	28,601		17	114,000
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

Table 5 – History of New Annuitants

Year of Retirement	Number of New Retirees	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

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

Year of Retirement	Employee Annuitants				Survivor Annuitants			
	Added		Removed		Added		Removed	
	Number	Annual Benefits ¹	Number	Annual Benefits	Number	Annual Benefits ¹	Number	Annual Benefits
2010	72	6,730,274	65	2,721,715	28	1,433,075	34	602,769
2011	146	12,073,715	66	2,827,418	34	1,528,506	38	460,244
2012	60	6,027,239	62	3,098,526	38	1,969,114	47	858,542
2013	75	6,497,171	52	2,345,333	29	1,718,098	43	1,021,552
2014	80	7,583,277	55	2,677,032	28	1,846,441	40	931,782
2015	101	9,640,885	70	3,828,434	34	2,313,674	47	1,160,738
2016	87	8,688,540	68	4,089,312	42	3,096,415	32	1,162,089
2017	98	14,254,728	68	3,780,260	25	1,991,463	39	1,146,717
2018	99	6,049,960	60	3,769,202	30	1,798,261	35	1,046,607
2019	94	10,830,012	59	3,941,499	28	2,408,555	38	1,246,555

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 – 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
12/31/2010	29,917,793	15,872,560	146,521,908	4,883,958	108,219,186	1,380,310	1,151,595,245	15.9%
12/31/2011	37,379,137	15,031,961	3,012,778	5,787,836	118,102,369	2,711,115	1,097,397,206	-0.3%
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%
							Average 5-Year Return	6.7%
							Average 10-Year Return	8.8%

Table 8 – 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
2010	2,036,679,763	1,151,595,245	1,092,648,055	105.39%	885,084,518	944,031,708	56.5%	53.6%	174,485,734
2011	2,101,319,098	1,097,397,206	1,021,470,611	107.43%	1,003,921,892	1,079,848,487	52.2%	48.6%	164,275,424
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

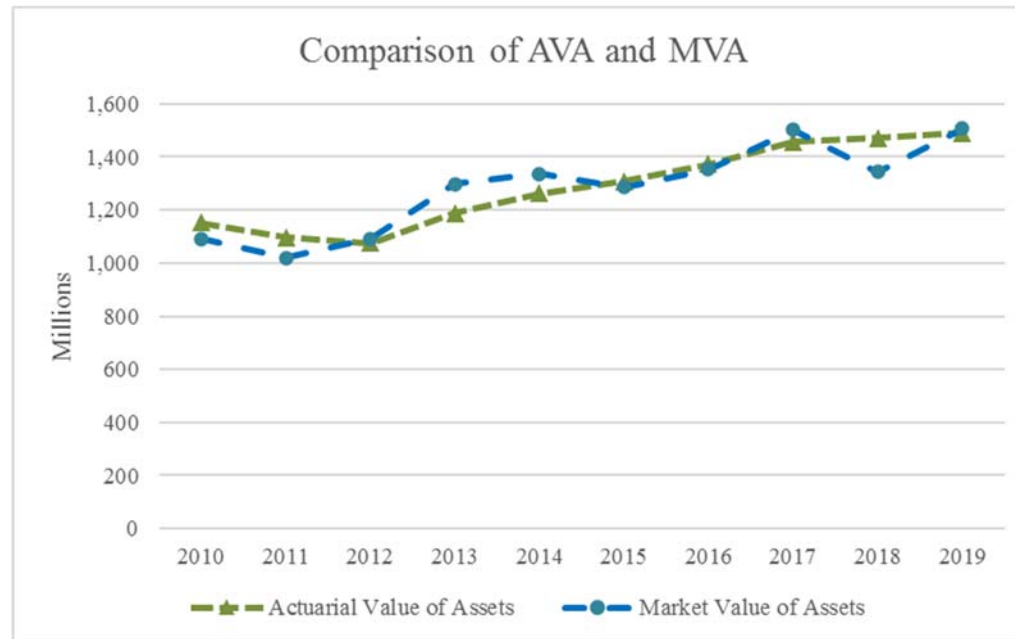


Table 9 – Solvency Test

Year Ended	Actuarial Accrued Liabilities			Actuarial Value of Assets	Portion of Liabilities Covered by Assets		
	(1) Active and Inactive Member Contributions	(2) Retirees and Survivors	(3) Active and Inactive Members (ER Financed)		(1) Active and Inactive Member Contributions	(2) Retirees and Survivors	(3) Active and Inactive Members (ER Financed)
12/31/2010	206,933,701	1,313,366,530	516,379,532	1,151,595,245	100%	72%	0%
12/31/2011	199,015,897	1,433,294,765	469,008,436	1,097,397,206	100%	63%	0%
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%

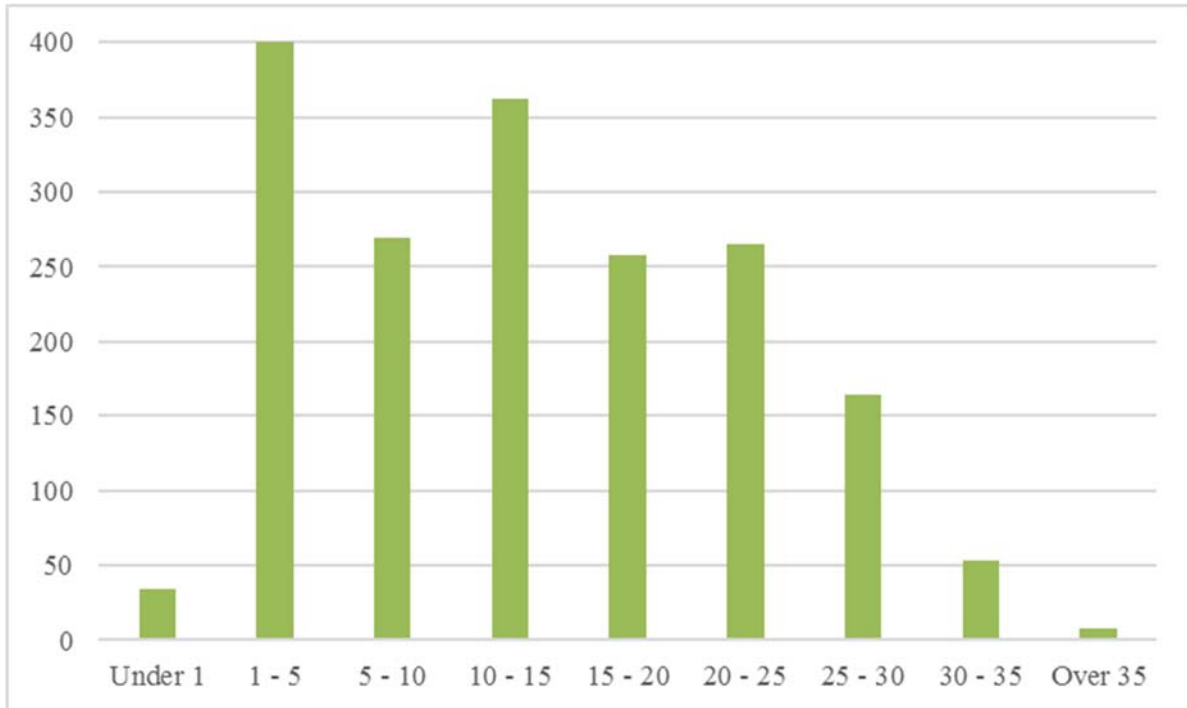
Table 10 – Contribution History

Year Ended	Actuarially Determined Contribution for Fiscal Year End	Tax Levy	Employer Contribution	% of Actuarially Determined Contribution Contributed	Estimated Multiplier Necessary to Match ADC
12/31/2010	61,872,925	32,307,000	29,917,793	48.35%	4.19
12/31/2011	69,393,171	34,362,000	37,379,137	53.87%	4.42
12/31/2012	74,828,844	34,761,000	65,097,835	87.00%	2.82
12/31/2013	74,774,148	62,984,000	92,944,381	124.30%	2.98
12/31/2014	69,924,438	61,654,000	73,906,168	105.69%	3.94
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

Table 11 – Contribution Rates

Year	Total Actuarially Determined Contribution Rate	Actual Employer Contribution	Actual Employee Contribution	Deficiency (Excess) in Annual Contribution
2010	43.97%	16.91%	8.97%	18.09%
2011	48.77%	21.42%	8.62%	18.73%
2012	54.54%	39.62%	8.96%	5.96%
2013	55.62%	56.74%	10.31%	-11.43%
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%	46.39% (Est)	11.18% (Est)	-5.64% (Est)

Graph 12 – Distribution of Active Members by Service



Graph 13 – Distribution of Active Members by Age

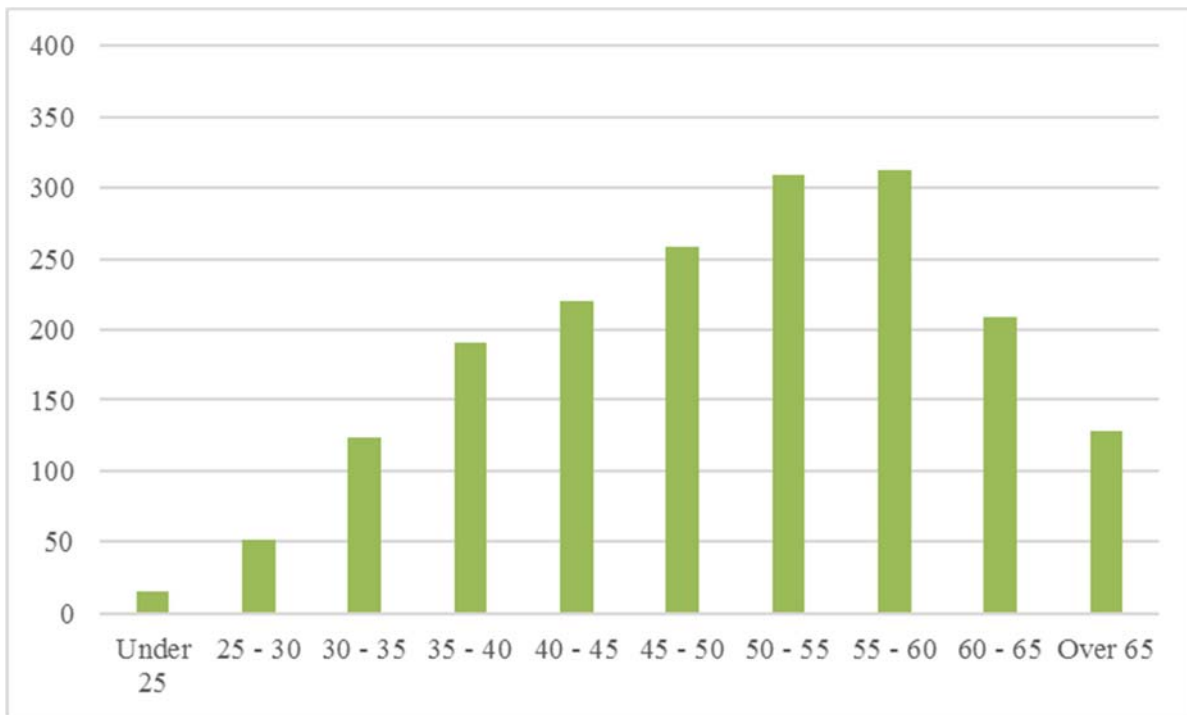
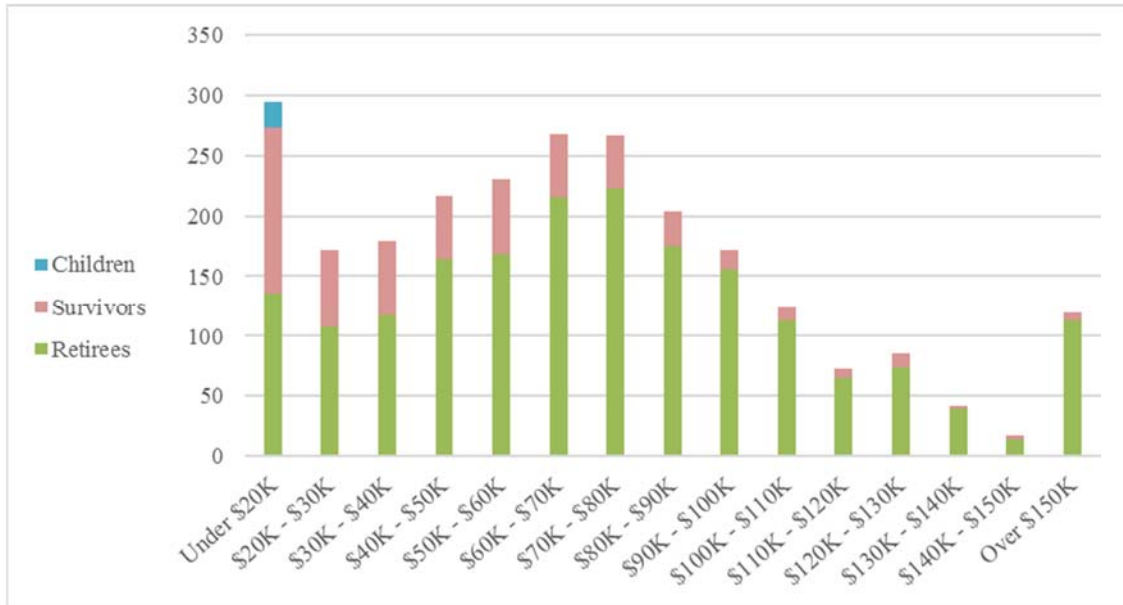
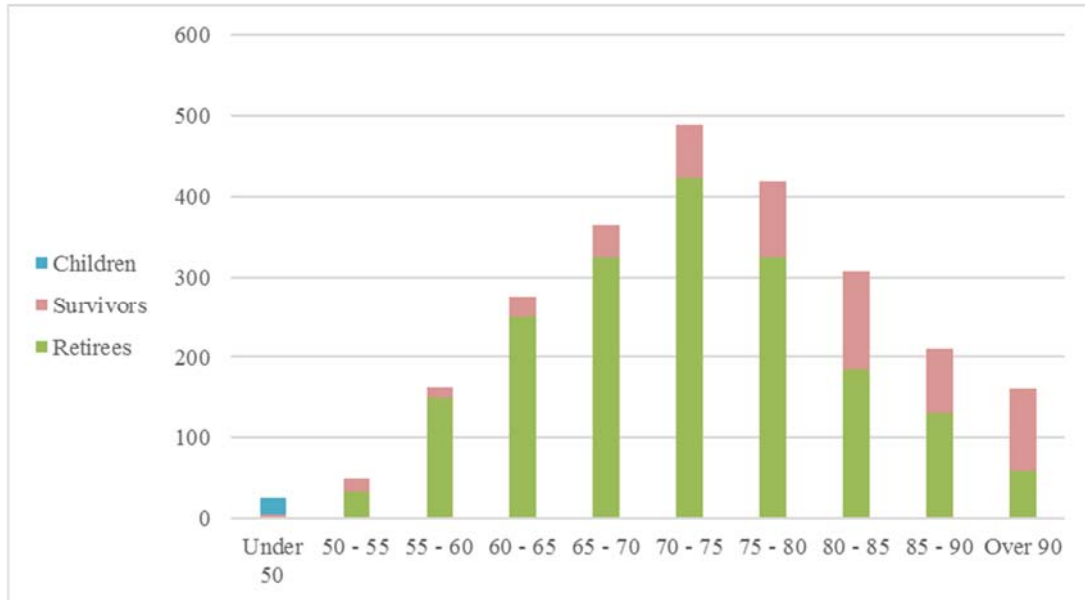


Table 14 – Distribution of Annuitants by Annual Benefit



Annual Benefit	Retirees	Survivors	Children	Total
Under \$20K	136	137	21	294
\$20K - \$30K	108	64	0	172
\$30K - \$40K	117	62	0	179
\$40K - \$50K	164	53	0	217
\$50K - \$60K	169	62	0	231
\$60K - \$70K	216	52	0	268
\$70K - \$80K	223	44	0	267
\$80K - \$90K	175	29	0	204
\$90K - \$100K	156	16	0	172
\$100K - \$110K	113	11	0	124
\$110K - \$120K	65	8	0	73
\$120K - \$130K	74	11	0	85
\$130K - \$140K	40	2	0	42
\$140K - \$150K	14	3	0	17
Over \$150K	113	7	0	120
Total	1,883	561	21	2,465

Table 15 – Distribution of Annuitants by Age



Age	Retirees	Survivors	Children	Total
Under 50	0	5	21	26
50 - 55	34	15	0	49
55 - 60	150	13	0	163
60 - 65	250	26	0	276
65 - 70	325	40	0	365
70 - 75	424	65	0	489
75 - 80	325	93	0	418
80 - 85	185	123	0	308
85 - 90	131	79	0	210
Over 90	59	102	0	161
Total	1,883	561	21	2,465

GASB 67/68 RESULTS

SUMMARY OF PARTICIPANT DATA

Fund Membership:

	<u>12/31/2019</u>	<u>12/31/2018</u>
Inactive Fund Members or Beneficiaries Currently Receiving Benefits	2,465	2,443
Inactive Fund Members Entitled to But Not Yet Receiving Benefits	169	127
Active Fund Members	<u>1,817</u>	<u>1,832</u>
Total	4,451	4,402
Covered Payroll	\$189,961,010	\$187,849,708

SCHEDULE OF CHANGES IN NET PENSION LIABILITY

GASB 68 Reporting Period Ending	12/31/2020	12/31/2019
Measurement Date	12/31/2019	12/31/2018
Total Pension Liability		
Service Cost	33,039,382	32,212,530
Interest	183,916,142	182,881,416
Changes of Benefit Terms	-	-
Differences Between Expected and Actual Experience	17,732,815	12,157,757
Changes of Assumptions	-	35,593,015
Benefit Payments, Including Refunds of Employee Contributions	(169,308,620)	(161,323,522)
Net Change in Total Pension Liability	65,379,719	101,521,196
Total Pension Liability - Beginning	2,588,389,303	2,486,868,107
Total Pension Liability - Ending (a)	\$2,653,769,022	\$ 2,588,389,303
Fund Fiduciary Net Position		
Contributions - Employer	87,446,476	87,167,339
Contributions - Employee	21,182,425	21,032,601
Net Investment Income	225,158,880	(103,006,062)
Benefit Payments, Including Refunds of Employee Contributions	(169,308,620)	(161,323,522)
Administrative Expense	(1,642,209)	(1,685,479)
Other	3,058	15,415
Net Change in Fund Fiduciary Net Position	162,840,010	(157,799,708)
Fund Fiduciary Net Position - Beginning	1,343,994,268	1,501,793,976
Fund Fiduciary Net Position - Ending (b)	\$1,506,834,278	\$ 1,343,994,268
Net Pension Liability - Ending (a) - (b)	\$1,146,934,744	\$ 1,244,395,035
Fund Fiduciary Net Position as a Percentage of the Total Pension Liability	56.78%	51.92%
Covered Payroll	\$ 189,961,010	\$ 187,849,708
Net Pension Liability as a Percentage of Covered Payroll	603.77%	662.44%

STATEMENT OF CHANGES IN NET PENSION LIABILITY

	Increase (Decrease)		
	Total Pension Liability	Fund Fiduciary Net Position	Net Pension Liability
	(a)	(b)	(a)-(b)
Reporting Period Ending December 31, 2018	\$2,588,389,303	\$1,343,994,268	\$ 1,244,395,035
Changes for a Year:			
Service Cost	33,039,382	-	33,039,382
Interest	183,916,142	-	183,916,142
Differences Between Expected and Actual Experience	17,732,815	-	17,732,815
Changes of Assumptions	-	-	-
Changes of Benefit Terms	-	-	-
Contributions - Employer	-	87,446,476	(87,446,476)
Contributions - Employee	-	21,182,425	(21,182,425)
Net Investment Income	-	225,158,880	(225,158,880)
Benefit Payments, Including Refunds of Employee Contributions	(169,308,620)	(169,308,620)	-
Administrative Expense	-	(1,642,209)	1,642,209
Other Changes	-	3,058	(3,058)
Net Changes	65,379,719	162,840,010	(97,460,291)
Reporting Period Ending December 31, 2019	\$2,653,769,022	\$1,506,834,278	\$ 1,146,934,744

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	\$ 1,446,814,051	\$ 1,146,934,744	\$ 894,253,229

Pension Fund Fiduciary Net Position

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

FINAL PENSION EXPENSE AND DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS
 OF RESOURCES RELATED TO PENSIONS
 YEAR-END DECEMBER 31, 2019

For the year ended December 31, 2019, the Sponsor will recognize a pension expense of \$142,039,395. On December 31, 2019, 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	23,655,848	1,327,176
Changes of assumptions	29,660,845	0
Net difference between projected and actual earnings on pension fund investments	126,244,080	0
Employer contributions after the measurement date	87,446,476	0
Total	\$267,007,249	\$1,327,176

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 12/31/2019.

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:

2020	\$141,492,750
2021	\$32,256,660
2022	\$33,628,479
2023	\$50,343,722
2024	\$7,958,462
Thereafter	\$0

**PRELIMINARY PENSION EXPENSE AND DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED
 INFLOWS OF RESOURCES RELATED TO PENSIONS
 YEAR-END DECEMBER 31, 2020**

For the year ended December 31, 2020, the Sponsor will recognize a pension expense of \$133,237,886. On December 31, 2020, the Sponsor reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	<u>Deferred Outflows of Resources</u>	<u>Deferred Inflows of Resources</u>
Differences between actual and expected experience	29,890,761	995,382
Changes of assumptions	23,728,676	0
Net difference between projected and actual earnings on pension fund investments	0	17,642,159
Employer contributions after the measurement date	<u>TBD</u>	<u>0</u>
Total	TBD	\$18,637,541

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 12/31/2020.

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:

2021	\$9,216,436
2022	\$10,588,255
2023	\$27,303,498
2024	(\$15,081,762)
2025	\$2,955,469
Thereafter	\$0

FINAL COMPONENTS OF PENSION EXPENSE
 YEAR-END DECEMBER 31, 2019

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Beginning Balance	\$ 985,074,131	\$ 89,055,551	\$150,007,638	
Employer Contributions made after December 31, 2018	-	-	87,446,476	-
Total Pension Liability Factors:				
Service Cost	32,212,530	-	-	32,212,530
Interest	182,881,416	-	-	182,881,416
Changes in Benefit Terms	-	-	-	-
Contributions - Buy Back	-	-	-	-
Differences Between Expected and Actual Experience With Regard to Economic or Demographic Assumptions	12,157,757	-	12,157,757	-
Current Year Amortization	-	(331,794)	(8,542,431)	8,210,637
Changes in Assumptions About Future Economic or Demographic Factors or Other Inputs	35,593,015	-	35,593,015	-
Current Year Amortization	-	-	(5,932,170)	5,932,170
Benefit Payments, Including Refunds of Employee Contributions	(161,323,522)	-	-	-
Net Change	101,521,196	(331,794)	120,722,647	229,236,753
Fund Fiduciary Net Position:				
Contributions - Employer	87,167,339	-	(87,167,339)	-
Contributions - Employee	21,032,601	-	-	(21,032,601)
Contributions - Buy Back	-	-	-	-
Projected Net Investment Income	110,579,208	-	-	(110,579,208)
Difference Between Projected and Actual Earnings on Pension Fund Investments	(213,585,270)	-	213,585,270	-
Current Year Amortization	-	(22,793,016)	(65,537,403)	42,744,387
Benefit Payments, Including Refunds of Employee Contributions	(161,323,522)	-	-	-
Administrative Expenses	(1,685,479)	-	-	1,685,479
Other	15,415	-	-	(15,415)
Net Change	(157,799,708)	(22,793,016)	60,880,528	(87,197,358)
Adjustment to beginning of year	-	-	-	-
Ending Balance	\$1,244,395,035	\$ 65,930,741	\$331,610,813	\$142,039,395

PRELIMINARY COMPONENTS OF PENSION EXPENSE
 YEAR-END DECEMBER 31, 2020

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Beginning Balance	\$1,244,395,035	\$ 65,930,741	\$ 331,610,813	
Employer Contributions made after December 31, 2019	-	-	TBD ¹	-
Total Pension Liability Factors:				
Service Cost	33,039,382	-	-	33,039,382
Interest	183,916,142	-	-	183,916,142
Changes in Benefit Terms	-	-	-	-
Contributions - Buy Back	-	-	-	-
Differences Between Expected and Actual Experience With Regard to Economic or Demographic Assumptions				
Current Year Amortization	17,732,815	-	17,732,815	-
Changes in Assumptions About Future Economic or Demographic Factors or Other Inputs	-	-	-	-
Current Year Amortization	-	(331,794)	(11,497,902)	11,166,108
Benefit Payments, Including Refunds of Employee Contributions	(169,308,620)	-	-	-
Net Change	65,379,719	(331,794)	302,744	234,053,801
Fund Fiduciary Net Position:				
Contributions - Employer	87,446,476	-	(87,446,476)	-
Contributions - Employee	21,182,425	-	-	(21,182,425)
Contributions - Buy Back	-	-	-	-
Projected Net Investment Income	95,180,415	-	-	(95,180,415)
Difference Between Projected and Actual Earnings on Pension Fund Investments				
Current Year Amortization	129,978,465	129,978,465	-	-
Benefit Payments, Including Refunds of Employee Contributions	-	(48,788,709)	(62,696,483)	13,907,774
Administrative Expenses	(169,308,620)	-	-	-
Other	(1,642,209)	-	-	1,642,209
	3,058	-	-	(3,058)
Net Change	162,840,010	81,189,756	(150,142,959)	(100,815,915)
Adjustment to beginning of year	-	-	-	-
Ending Balance	\$1,146,934,744	\$ 146,788,703	TBD	\$ 133,237,886

¹ Employer contributions made after the December 31, 2019 measurement date, but before December 31, 2020 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)	2020	2021	2022	2023	2024	2025	2026
2019	\$ 17,732,815	6	\$ 2,955,470	\$ 2,955,469	\$ 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	\$ 2,026,293	\$ 2,026,293	\$ -	\$ -
2017	\$ (1,990,761)	6	\$ (331,794)	\$ (331,794)	\$ (331,794)	\$ (331,794)	\$ -	\$ -	\$ -
2016	\$ 13,813,742	6	\$ 2,302,290	\$ 2,302,290	\$ 2,302,290	\$ -	\$ -	\$ -	\$ -
2015	\$ 14,421,984	6	\$ 2,403,664	\$ 2,403,664	\$ -	\$ -	\$ -	\$ -	\$ -
2014	\$ 10,861,109	6	\$ 1,810,185	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			11,166,108	9,355,922	6,952,258	4,649,968	4,981,762	2,955,469	-

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)	2020	2021	2022	2023	2024	2025	2026
2018	\$ 35,593,015	6	\$ 5,932,169	\$ 5,932,169	\$ 5,932,169	\$ 5,932,169	\$ 5,932,169	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ 5,932,169	\$ 5,932,169	\$ 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		2020	2021	2022	2023	2024	2025
	Between Projected and Actual Earnings	Recognition Period (Years)						
2019	\$ (129,978,465)	5	\$ (25,995,693)	\$ (25,995,693)	\$ (25,995,693)	\$ (25,995,693)	\$ (25,995,693)	\$ -
2018	\$ 213,585,270	5	\$ 42,717,054	\$ 42,717,054	\$ 42,717,054	\$ 42,717,054	\$ -	\$ -
2017	\$ (95,087,666)	5	\$ (19,017,533)	\$ (19,017,533)	\$ (19,017,533)	\$ -	\$ -	\$ -
2016	\$ (18,877,416)	5	\$ (3,775,483)	\$ (3,775,483)	\$ -	\$ -	\$ -	\$ -
2015	\$ 99,897,144	5	\$ 19,979,429	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ 13,907,774	\$ (6,071,655)	\$ (2,296,172)	\$ 16,721,361	\$ (25,995,693)	\$ -

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
12/31/2019	74,279,999	87,446,476	(13,166,477)	189,961,010	46.03%
12/31/2018	64,988,583	87,167,339	(22,178,756)	187,849,708	46.40%

The following assumptions were used to determine the Actuarially Determined Contribution applicable for the plan year ending December 31, 2019.

Calculation Timing	The Actuarially Determined Contribution is calculated using a December 31, 2018 valuation date.
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.
Assumptions	All other assumptions and methods used for determining the Actuarially Determined Contribution can be found in the December 31, 2018 Actuarial Valuation Report for the Metropolitan Water Reclamation District Retirement Fund prepared by Foster & Foster.

SCHEDULE OF INVESTMENT RETURNS

For the year ended December 31, 2019, the annual money-weighted return on Pension Fund investments, net of pension fund investment expense, was 18.25 percent. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

<u>Plan Year-End</u>	<u>Annual Money-Weighted Rate of Return Net of Investment Expense</u>
12/31/2019	18.25%
12/31/2018	-7.44%

ASSUMPTIONS – TOTAL PENSION LIABILITY

The valuation reflects no assumption changes since the prior year .

The following assumptions were used to determine the Net Pension Liability:

Valuation Date	December 31, 2019
Measurement Date	December 31, 2019
GASB 68 Expense Measurement Period	January 1, 2019 - December 31, 2019
Reporting Period	January 1, 2020 - December 31, 2020
Discount 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.

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%

NOTES TO THE FINANCIAL STATEMENTS

Support for Long-Term Expected Rate of Return

The Long-Term Expected Rate of Return on Pension Fund 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 Fund 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 Fund's target asset allocation adopted as of December 31, 2019, as provided by Marquette Associates, are summarized in the following table:

Asset Class	Target Allocation	Long Term Expected Real Rate of Return ¹
Domestic Equity	41.00%	5.50%
International Equity	22.00%	5.70%
Bonds	27.00%	0.70%
Private Real Estate	10.00%	4.10%
Total	100.00%	
Inflation rate of investment advisor		2.25%

Concentrations

As of December 31, 2019, the Fund holds the following actively managed investments that represent 5 percent or more of the Pension Fund's fiduciary net position:

Investment Manager	Account Type	Market Value	Allocation
Ariel Investments - MCV	Mid-Cap Value	\$84,883,090	6.00%
Hexavest Inc	Non-U.S. Large-Cap Core	\$73,875,323	5.20%
LSV Asset Management - LCV	Large-Cap Value	\$70,737,064	5.00%
LSV International - SCV	Non-U.S. Small-Cap Value	\$88,433,582	6.20%
Neuberger Berman	Core Plus Fixed Income	\$112,828,646	7.90%
Wasatch Advisors - SCV	Small-Cap Value	\$74,798,862	5.30%

¹ Expected rates of return provided by the investment advisor are based on a 10-year time horizon.

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 Fund 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 Fund's Fiduciary Net Position was projected to be available to make all projected future benefit payments of current fund members. Therefore, the Long-Term Expected Rate of Return on Pension Fund 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 fund investments is 7.25 percent. The municipal bond rate is 3.26 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 FUND

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 Fund 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, 2019 for the Metropolitan Water Reclamation District Retirement Fund prepared by Foster & Foster.

HISTORY OF NET PENSION LIABILITY

	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a Percentage of Total Pension Liability
2014	2,285,095,580	1,337,795,620	947,299,960	58.54%
2015	2,359,766,327	1,286,653,498	1,073,112,829	54.52%
2016	2,432,163,441	1,352,598,383	1,079,565,058	55.61%
2017	2,486,868,107	1,501,793,976	985,074,131	60.39%
2018	2,588,389,303	1,343,994,268	1,244,395,035	51.92%
2019	2,653,769,022	1,506,834,278	1,146,934,744	56.78%

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

	1% Decrease	Current	1% Increase
2014			
Discount Rate	6.50%	7.50%	8.50%
Net Pension Liability	\$1,217,729,913	\$947,299,960	\$720,078,909
2015			
Discount Rate	6.50%	7.50%	8.50%
Net Pension Liability	\$1,349,610,381	\$1,073,112,829	\$840,620,797
2016			
Discount Rate	6.50%	7.50%	8.50%
Net Pension Liability	\$1,361,928,929	\$1,079,565,058	\$841,925,382
2017			
Discount Rate	6.50%	7.50%	8.50%
Net Pension Liability	\$1,269,993,791	\$985,074,131	\$745,011,954
2018			
Discount Rate	6.25%	7.25%	8.25%
Net Pension Liability	\$1,539,876,439	\$1,244,395,035	\$995,556,421
2019			
Discount Rate	6.25%	7.25%	8.25%
Net Pension Liability	\$1,446,814,051	\$1,146,934,744	\$894,253,229