The City of Bismarck Employees' Pension Plan

Actuarial Valuation

January 1, 2020

Arthur J. Gallagher & Co.

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The City of Bismarck Employees' Pension Plan

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THE CITY OF BISMARCK EMPLOYEES' PENSION PLAN

ACTUARIAL CERTIFICATION
January 1, 2020 to December 31, 2020

In our opinion, the following report presents fairly the actuarial position of the plan in accordance with Generally Accepted Actuarial Principles and Practices. The purpose of this report is to develop a funding recommendation. Determinations for other purposes may be different; the results in this report should not be used for other purposes.

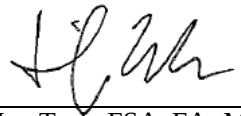
Our Actuarial Valuation has been completed with reliance upon participant and financial information provided to us by the City of Bismarck. We have reviewed the data provided to us for general reasonableness but did not audit the data. The accuracy of the information in this report is dependent on the quality and completeness of the data provided to us. Each assumption not specified by statute or regulations is reasonable taking into account the experience of the Plan, Plan-specific features, the purpose of the measurement and reasonable expectations.

The actuarial assumptions used in this report were selected by the City of Bismarck, in consultation with Gallagher Benefit Services, Inc. Based on a review of historic experience, Plan-specific features, and anticipated future outlook, the actuarial assumptions not specified by statute or regulation, each and in the aggregate, are reasonably related to the experience of the Plan and reflect a reasonable estimate of anticipated experience under the Plan.

Effective with this valuation, the mortality assumption was updated to RP-2014 Generational Mortality projected using scale MP-2019. There were no other changes in Plan provisions, assumptions, cost allocation procedures or contribution allocation procedures from the previous measurement. There were no adjustments of prior measurements or use of approximations which would materially impact the results. The accrued benefits valued in this report reflect the benefit attribution pattern described by the plan provisions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the Plan's funded status); and changes in Plan provisions or applicable law. Due to the limited scope of this engagement, we did not complete an analysis of the potential range of such future measurements.

To the best of our knowledge, the information contained in this report is complete, accurate and in accordance with generally accepted actuarial principles as recommended by the American Academy of Actuaries. The actuaries indicated below are each an Enrolled Actuary and are qualified to render the actuarial opinion contained in this report.

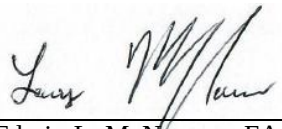


Jen Turk, FSA, EA, MAAA

Enrollment Number 20-07346

7/2/2020

Date



Edwin L. McNamara, EA, FSPA, MAAA, FRM, CFA

Enrollment Number 20-06568

7/2/2020

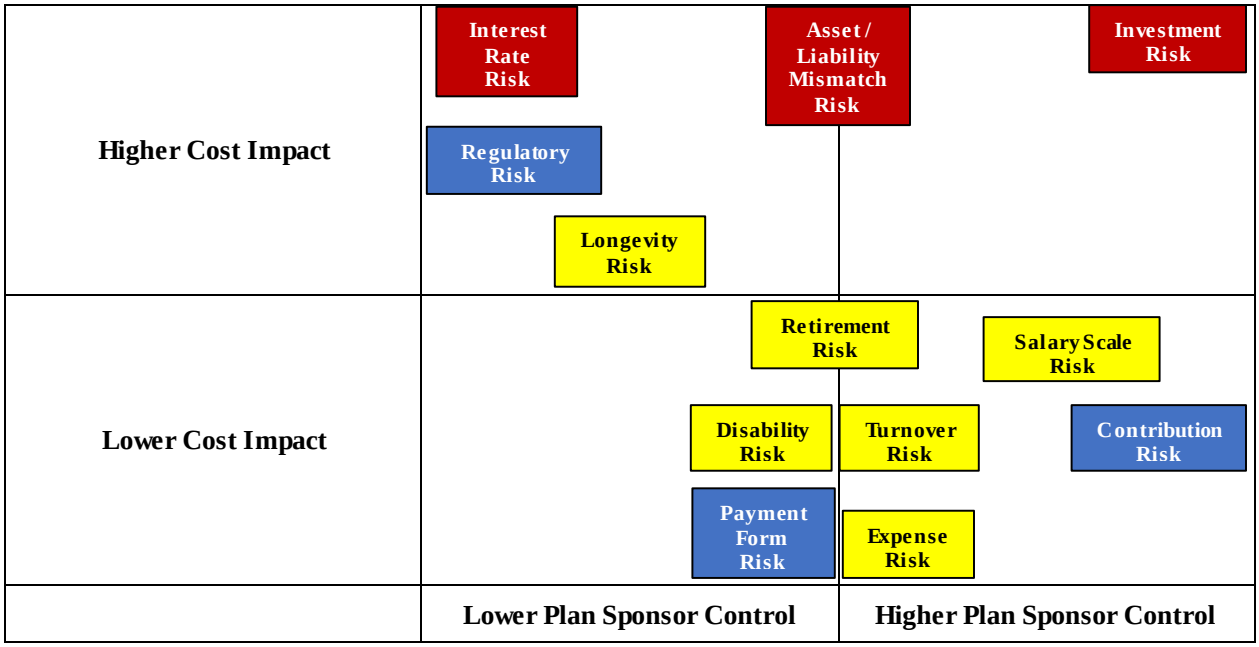
Date

RISK ASSESSMENT
January 1, 2020

This report provides values of Plan liabilities as of the measurement date as well as minimum required contribution amounts for purposes of satisfying ERISA and the Internal Revenue Code. These amounts are estimates based on current data, plan provisions, legal requirements and assumptions regarding future experience. This section assesses the risk that future measurements deviate from expected future measurements. This is not intended to be a comprehensive risk analysis, but rather, an overview of the nature and magnitude of various risks.

Nature of Pension Risk

Pension plans are exposed to numerous risks. The following table summarizes many of the most important risks. Items highlighted in red and yellow are discussed in greater detail.



Sensitivity Analysis

The red factors above represent the most significant risks to the Plan:

1. Interest Rate Risk: risk that interest rates will be different than expected
2. Investment Risk: risk that investment returns will be different than expected
3. Asset/Liability Mismatch Risk: risk that changes in asset values are not matched by changes in the value of liabilities

RISK ASSESSMENT
January 1, 2020

We estimated the impact of items 1 and 2 above on the Plan's funded status. Our estimates are based on the different interest rates used for minimum funding purposes as well as the impact of a 1% decrease in the funding interest rate and a 10% decrease in Plan asset values.

Sensitivity Analysis – Investment & Interest Rate Risk			
	Funding Baseline	***1% Decrease in Interest Rate***	***Baseline with 10% Asset Decline***
Actuarial Value of Assets	$108,921,100	$108,921,100	$98,028,990
Liabilities	$118,861,965	$133,722,960	$118,861,965
Funded Ratio	92%	81%	82%
Interest Rate	7.50%	6.50%	7.50%

The interest rate sensitivity is shown comparing the funding baseline and a 1.00% decrease in the discount rate. The discount rate change of 1.00% changed the liabilities by 12.5%.

Historical Information

The risk factors highlighted in yellow on the previous page are assumptions which we routinely review as part of our annual gain/loss analysis for the Plan. The average impact of each of these assumptions on Plan liabilities has not been significant.

Maturity Measures

Pension plan maturity provides another way to assess risk. Shown below are certain maturity measures for the plan and a high level explanation of each measure.

	1/1/2020	1/1/2019
Retiree liability / Total funding liability	45.44%	43.20%
Market value of assets / Payroll	348.74%	386.65%
Benefit payments / Market value of assets	4.99%	5.19%
Employer Contributions / Benefit payments	52.86%	57.25%

Retiree liability / Total liability – illustrates the maturity of the plan, with a higher percentage indicating greater risk.

Market value of assets / Payroll – indicates the size of the plan in relation to the size of the workforce. A larger percentage shows that the plan is a more significant component of the organization, and consequently any contribution volatility could be more noticeable.

Benefit payments / Market value of assets – this cash flow indicator illustrates the portion of plan assets used each year to pay benefits. The measure is lower this year primarily due to good investment returns which increased the asset value.

Contributions / Benefit payments – this net cash flow figure illustrates how much is being contributed to the plan compared to how much is being paid to participants.

This is not intended to be a comprehensive risk analysis, but rather, an overview of the nature and magnitude of various risks faced by the Plan. We are available to complete a more in-depth review if the City of Bismarck Employees' Pension Plan decides that additional detail is warranted.

COMMENTARY

In this report we present the results of the January 1, 2020 Actuarial Valuation of the City of Bismarck Employees' Pension Plan. Effective with this valuation, the mortality assumption was updated to use RP-2014 Generational Mortality projected with Scale MP-2019. There were no other changes in actuarial assumptions or plan provisions since the January 1, 2019 report.

Annual Recommended Contribution

We recommend that the City contribution be at least equal to the annual recommended contribution developed under the Entry Age Normal actuarial cost method. On this basis, a contribution of $3,033,715 (10.8% of covered payroll) is recommended for the 2020 plan year. The calculation of this contribution is illustrated in Exhibit 12.

Expected City Contribution

The City commission has approved that the City contribution will be 10.4% of salary. The expected contribution for 2020 on this basis is $2,929,761.

Contribution Requirements

The valuation results are shown on page 5 in a comparison between 2019 and 2020. The 2019 calculation, developed in the first column, shows an UAAL of $18,817,097 and, with an actual City payment of $2,939,200 in 2019 and expected payment of $2,929,761 in 2020 plus future contributions of 10.4% of covered payroll, an amortization period of 19 years.

The calculation for 2020 shows an UAAL of $9,940,865 and, with an expected City payment of $2,929,761 for 2020, an infinite amortization period.

The most significant reason for the decreased UAAL is asset returns more than expected (2019 return of 16.47% vs. 7.50% assumption). Please see Exhibit 10 for a further breakdown.

Funding Ratio

Plan assets cover 111% of the Present Value of Accumulated Plan Benefits. More detail is contained in Exhibit 14. Last year plan assets covered 102% of the Present Value of Accumulated Plan Benefits. The Present Value of Accumulated Plan benefits is the value of benefits based only on salaries and service as of the valuation date and does not reflect the value of any future benefit accruals.

GASB No. 67 and No. 68

Gallagher will provide the required information for GASB No. 67 and No. 68 separately.

SUMMARY OF RESULTS

	1/1/19	1/1/20
1. Number of Participants		
(a) Active	460	471
(b) Terminated vested	62	67
(c) Retired	226	241
(d) Total Participants = (a)+(b)+(c)	748	779
2. Annual covered salaries for Participants under the assumed retirement age	$ 27,247,919	$ 28,170,781
3. Actuarial Accrued Liability		
(a) Active Participants	$ 60,901,933	$ 60,500,694
(b) Terminated vested Participants	3,755,123	4,342,529
(c) Retired Participants	49,183,694	54,018,742
(d) Total Actuarial Accrued Liability = (a)+(b)+(c)	$ 113,840,750	$ 118,861,965
4. Actuarial Value of Assets	$ 95,023,653	$ 108,921,100
5. Unfunded Actuarial Accrued Liability = (3)(d)-(4)	$ 18,817,097	$ 9,940,865
6. Actual 2019/Expected 2020 annual financial support by City	$ 2,939,200	$ 2,929,761[1]
7. Annual Recommended Contribution	$ 3,501,858	$ 3,033,715
8. Amortization period at expected level of funding	Infinite[2]	Infinite[2]

[1] Amortization period based on City Contributions of $2,833,784 in 2019, $2,929761 in 2020, and increasing due to total salary growth at the rate of 3.0% annually thereafter.

[2] Amortization period based on Employer contributions of 10.4% of payroll each year. Payroll is projected per the Plan's assumptions and considers new entrants to the plan (keeping a level number of actives) with similar pay, age, etc. as the prior three year's new entrants.

Input Information

Arthur J. Gallagher & Co.

EXHIBIT 1
Summary of Plan Provisions

The following summary has been prepared for valuation purposes only. It outlines the Provisions found in Chapter 9-07 (City Employees' Pension) necessary to perform the Actuarial Valuation, as interpreted by Gallagher Benefit Services Inc.

Definitions

Actuarial Equivalence Factors:	In calculating the actuarial equivalence of one form of benefit to another, the interest rate to be used shall be 7.0% and the mortality table to be used shall be the "applicable mortality table" as defined by Section 417(e)(3) of the Code (9-07-10).
Average Basic Monthly Compensation:	The average of the monthly base compensation of a Participant over the highest 36 month period of employment. Monthly base compensation excludes overtime, bonuses, severance payments, and other remuneration in excess of base compensation (9-07-15(1)).
Effective Date of the Plan:	January 1, 1966.
Early Retirement Date:	Participants who have completed 60 consecutive months of contributing service and have attained age 50 are eligible for a monthly pension benefit (9-07-15(2)).
Membership Fee:	Every full-time employee of the City of Bismarck except police officers and fire fighters shall be assessed and required to pay an amount of 5.0% of their basic salary (9-07-01).
Normal Form of Benefit:	Married Participants receive a Joint & Two-Thirds to Survivor annuity. Single Participants receive a Life Only annuity.
Normal Retirement Date:	Participants who have attained age 62 are eligible for a monthly pension benefit (9-07-15(1)).
Plan Year:	January 1st through December 31st (9-07-08).
Recognized Service:	Full and fractional years of contributing service during which the employee contributed to the fund (9-07-23). Military service will be included as part of the period of service with the City provided that the period does not exceed 5 years and the employee pays into the fund 5.0% of the lesser of the last full year's salary paid by the City or military salary for each year of military service (9-07-05).

EXHIBIT 1 (Continued)
Summary of Plan Provisions

Plan Provisions

Eligibility:

Every full-time employee, other than members of the Police Department who are sworn officers, members of the firefighter's relief association, and employees who perform fire suppression duties. (9-07-11).

Normal Retirement Benefit:

Participants serving until the Normal Retirement Date are eligible for a monthly pension benefit computed by multiplying his or her highest 36 months of Average Basic Monthly Compensation times 1.75% times his or her number of full and fractional years of Recognized Service prior to January 1, 2005 plus 2.25% times his or her number of full and fractional years of Recognized Service after December 31, 2004. (9-07-15(1)).

Early Retirement Benefit:

The monthly pension benefit shall be equal to the Normal Retirement Benefit actuarially reduced for payments commencing prior to age 62 (9-07-15(2)). The reduction factors are as follows:

Age	Factor	Age	Factor
50	.4287	57	.6841
51	.4567	58	.7353
52	.4870	59	.7918
53	.5199	60	.8542
54	.5557	61	.9233
55	.5947	62	1.000
56	.6373		

Termination Benefit:

After 60 consecutive months of contributing service and termination of employment, a Participant may elect a deferred retirement benefit to commence at an elected age 50 to 62. The Participant's deferred benefit shall equal the Normal Retirement Benefit (based on service and compensation to the date of termination) actuarially reduced for early commencement (9-07-15(3)).

EXHIBIT 1 (Continued)
Summary of Plan Provisions

Death Benefit:

The surviving spouse (while unmarried) receives 2/3 of the actuarially reduced pension to which the Participant would have been entitled, but not less than $65 per month provided the Participant served at least 60 consecutive months of contributing service (9-07-15(4)).

The surviving spouse has the option to elect a refund of contributions in lieu of the above-mentioned benefit (9-07-15(5)).

If there is no surviving spouse, the Participant's contributions are paid to the Participant's estate (9-07-15(6)).

Refund of Contributions:

Any Participant who has contributed to the plan and terminates employment before being entitled to a pension shall be entitled to a refund of all contributions made by him to the pension system with accumulated interest. Interest of 5% per year will be credited on such contributions made after July 1, 1972. Interest of 2.5% per year will be credited on such contributions made prior to July 1, 1972.

Any Participant electing a refund of contributions forfeits all rights to any other form of benefit under this plan (9-07-14).

Cost of Living Adjustments:

Persons receiving pension payments shall be eligible for cost of living adjustments in an amount determined by the Board of Trustees. The adjustment may not exceed the lesser of the City employees' salary adjustment or 3% (9-07-16).

EXHIBIT 2
Census Summary and Reconciliation

	1/1/19	1/1/20
Active Participants		
▪ Number of Participants		
– Fully vested	274	303
– Non-vested	186	168
– Total	460	471
▪ Average age	47.3	47.0
▪ Average service	11.4	11.1
▪ Average salary	$ 56,669	$ 57,211
Terminated Vested Participants		
▪ Number of Participants	62	67
▪ Average age	48.6	48.2
▪ Average years since termination	6.5	6.3
▪ Average monthly benefit at Normal Retirement	$ 851	$ 890
Retired Participants		
▪ Number of Participants	226	241
▪ Average age	73.3	73.1
▪ Average years since retirement	9.6	9.0
▪ Average monthly benefit	$ 1,909	$ 1,966

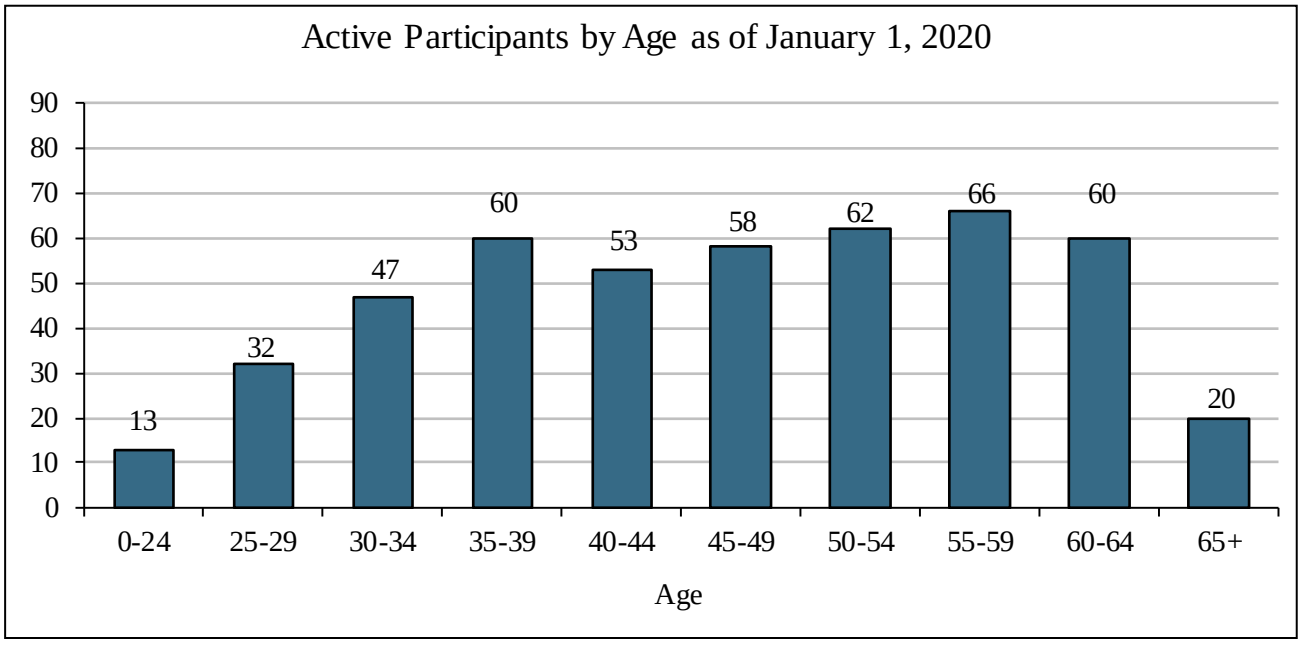
EXHIBIT 3
Participant Reconciliation

The following information provides the reconciliation from January 1, 2019 to January 1, 2020 of Plan Participants.

	Active	Terminated Vested	Retired	Disabled	Beneficiary	Total
1/1/2019 Participants	460	62	191	0	35	748
New Participants	53	-	-	-	-	53
Rehired	-	-	-	-	-	-
Terminated vested	(7)	7	-	-	-	-
Terminated non-vested	(20)	-	-	-	-	(20)
Retired	(15)	(2)	17	-	-	-
Disabled	-	-	-	-	-	-
Died with beneficiary	-	-	(4)	-	4	-
Died without beneficiary	-	-	(1)	-	(1)	(2)
Benefit stopped	-	-	-	-	-	-
Paid-out lump sum	-	-	-	-	-	-
Data corrections	-	-	-	-	-	-
1/1/2020 Participants	471	67	203	0	38	779

During 2019, the total Participant count increased by 31 due to 53 new Participants offset by 20 Participants that terminated employment and received a return of their employee contributions, 1 Participant death with no beneficiary and 4 Participants who died with a beneficiary. There were 17 Participants that retired and 7 Participants that moved from active to terminated vested status.

EXHIBIT 4
Active Participant Data



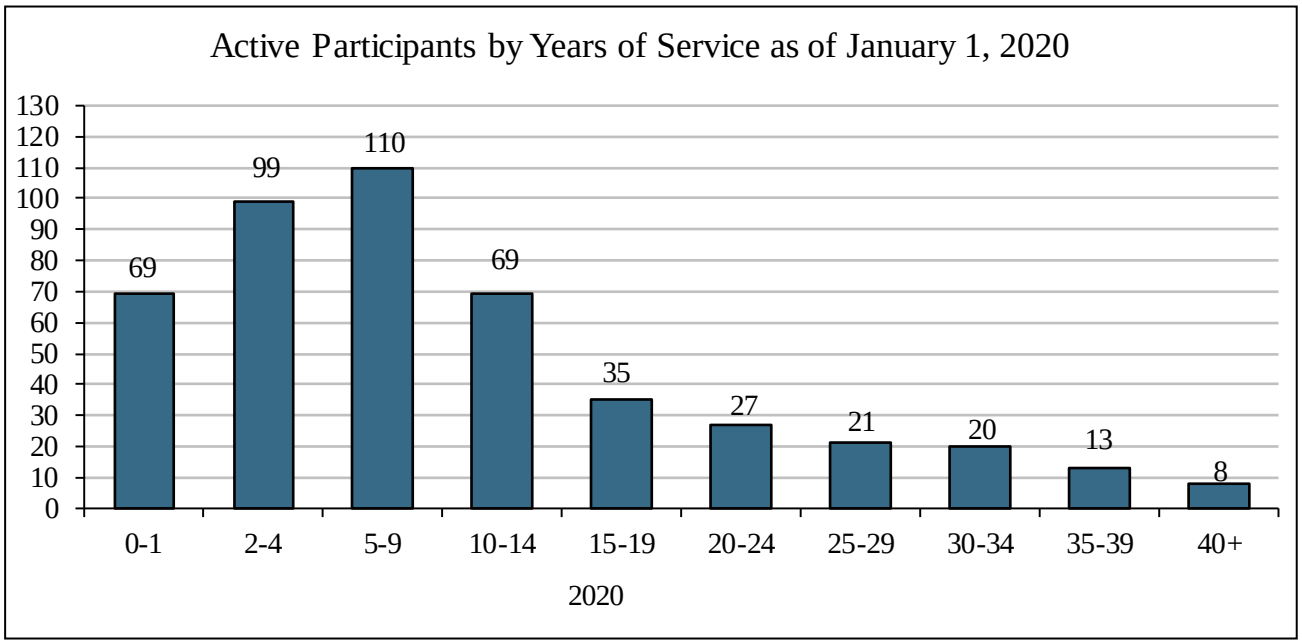
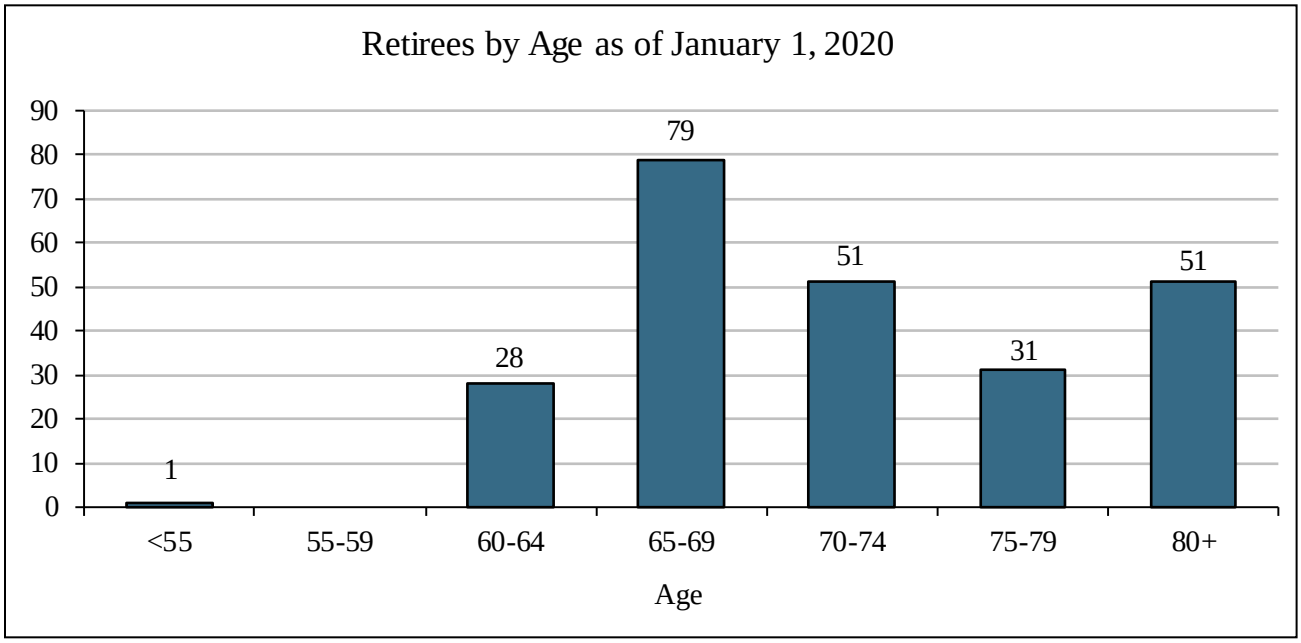


EXHIBIT 5
Retired Participant Data



Retirees include those on service retirement, disability retirement and beneficiaries with survivor benefits.

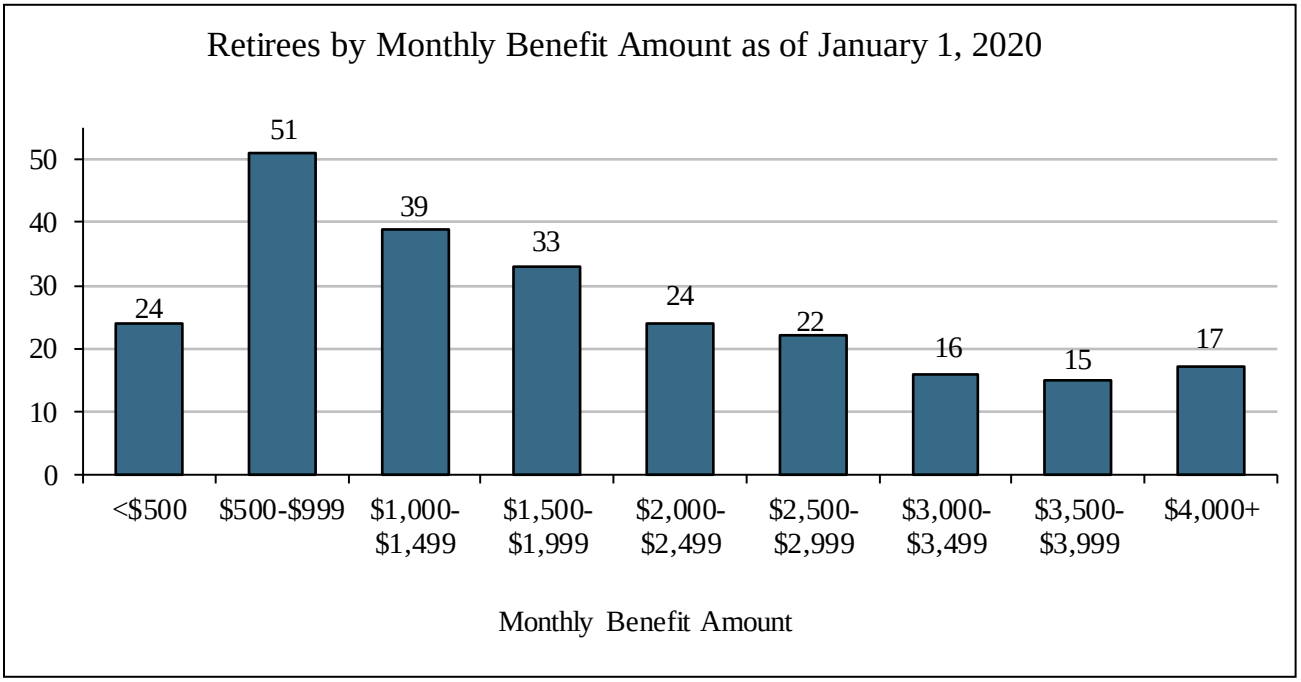
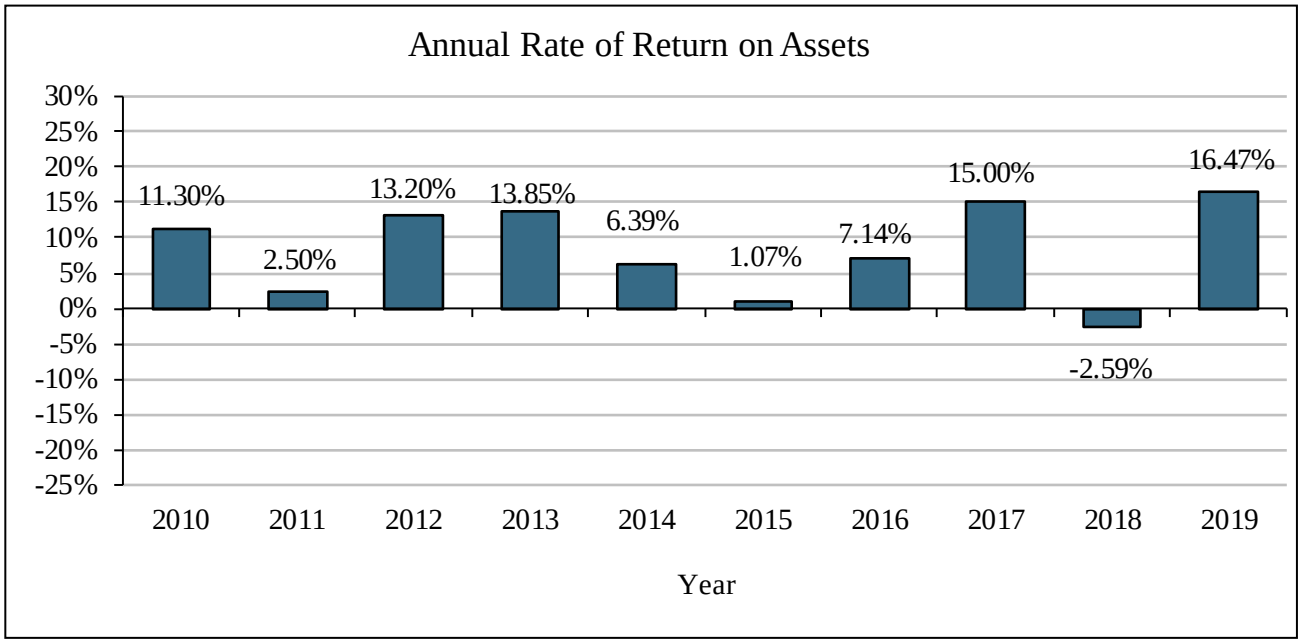


EXHIBIT 6
Reconciliation of Assets

1. Beginning Balance as of January 1, 2019			$ 95,023,653
2. Revenue			
(a) Employer's Contribution			
(i) Park & Rec. Contribution	$ 373,732		
(ii) Department Contribution	2,565,468		
(iii) Total City Contribution	$ 2,939,200		
(b) Employee's Contribution	1,365,868		
(c) Investment Income (Loss)	15,519,785		
(d) Total Revenue		$	19,824,853
3. Expenditure			
(a) Pension Benefit Payments	$ 5,437,721		
(b) Professional & Legal Fees	541		
(c) Management Consulting	26,725		
(d) Administration Fees	59,964		
(e) Investment Expense	276,265		
(f) Security Lending Expense	1,842		
(g) Pension Refund	122,555		
(h) Postage	1,793		
(i) Total Expenditure		$	5,927,406
4. Net Income (Loss)		$	13,897,447
5. Ending Balance as of December 31, 2019		$	108,921,100

Total assets increased $13,897,447 during 2019. This decrease was from investment gain of $15,519,785 combined with a negative net cash flow (total contributions less expenditures) of ($1,622,338). Some components were rounded up or down to ensure that the totals would add correctly. The rate of return on plan assets was 16.47%.

EXHIBIT 7
Historical Asset Information



Rates of return are determined after expenses.

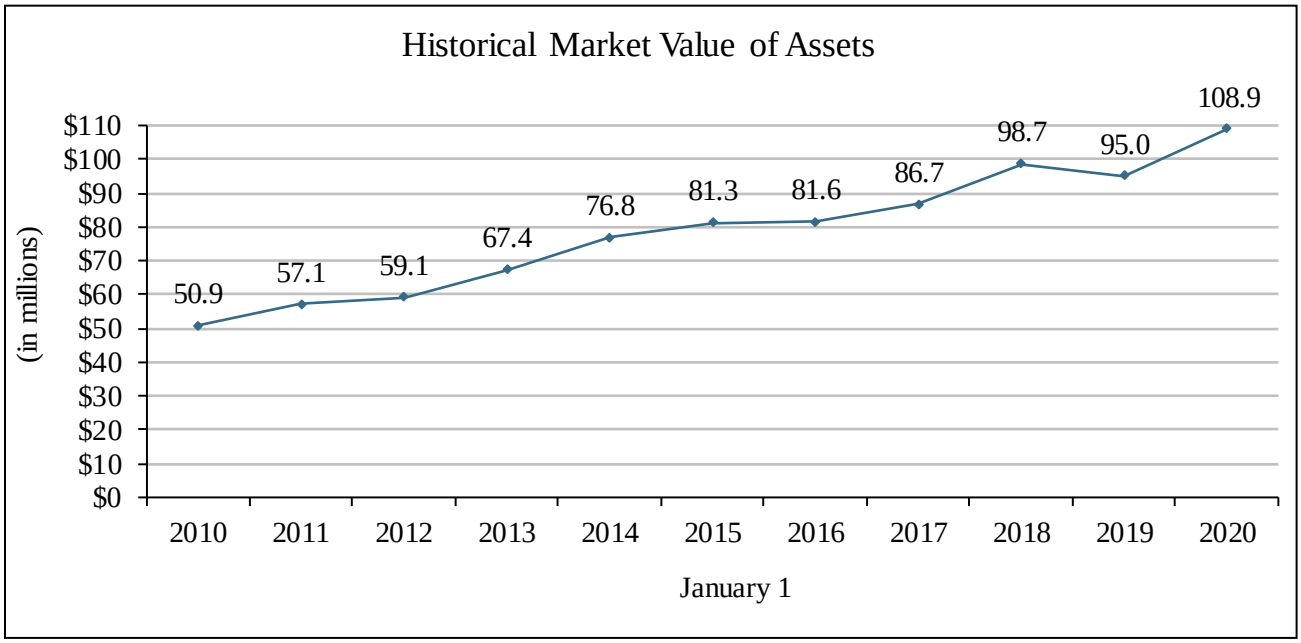


EXHIBIT 8
Actuarial Assumptions and Cost Methods

Economic Assumptions

Investment Return: The Fund is assumed to earn 7.5% per year.

Salary Scale: Active Participant Salaries are assumed to increase at rates according to the following table:

Years of Service	Rate
0-9	5.0%
10+	4.0%

Inflation: The amortization of the Unfunded Actuarial Accrued Liability is determined as a level percent of payroll using a 3% total payroll growth assumption.

Demographic Assumptions

Retirement: Active Participant retirement rates are based on plan experience between 1/1/05 and 12/31/11.

Mortality: RP-2014 Generational Mortality projected with Scale MP-2019

Disability: None.

Withdrawal: Active Participant termination rates are based on plan experience between 1/1/05 and 12/31/11.

Spouse Age: Male Participants are assumed to be 3 years older than female spouses. Female Participants are assumed to be 3 years younger than male spouses.

Marriage Rate: 85% of Participants are assumed to be married.

EXHIBIT 8 (Continued)
Actuarial Assumptions and Cost Methods

Cost Methods

Form of Benefit: Married Participants receive their benefit in the form of a Joint and Two Thirds to Survivor annuity. Single Participants receive their benefit in the form of a Life Only annuity.

Actuarial Asset Value: The Actuarial Value of Assets is equal to the Market Value of Assets reserved for employee pension benefits.

Expenses: Plan expenses are assumed to be 3.0% higher than the prior year and are added to the recommended contribution.

Funding Method: The contribution requirement is determined using the Entry Age Normal actuarial cost method.

Illustrations

Age	Rate of Withdrawal (per 1,000)	
	Male	Female
20-24	80	200
25-29	80	150
30-34	80	150
35-39	80	80
40-44	25	80
45-49	20	60
50-54	10	30
55+	0	0

Age	Rate of Retirement (per 1,000)	
	Male	Female
62-65	200	200
66	400	400
67	600	600
68	800	800
69+	1,000	1,000

Age	Rate of Disability (per 1,000)	
	Male	Female
25	0.00	0.00
30	0.00	0.00
35	0.00	0.00
40	0.00	0.00
45	0.00	0.00
50	0.00	0.00
55	0.00	0.00

Contribution Information

Arthur J. Gallagher & Co.

EXHIBIT 9
Development of Unfunded Actuarial Accrued Liability

		1/1/20
1. Actuarial Accrued Liability		
(a) Participants receiving benefits	$	54,018,742
(b) Terminated vested Participants		4,342,529
(c) Active Participants		60,500,694
(d) Total Participants = (a)+(b)+(c)	$	118,861,965
2. Adjustment for cost of living adjustments		0
3. Adjustment for assumption changes		0
4. Actuarial Accrued Liability after adjustments = (1)(d)+(2)+(3), not less than zero	$	118,861,965
5. Actuarial Value of Assets		108,921,100
6. Unfunded Actuarial Accrued Liability as of January 1, 2020 = (4)-(5)	$	9,940,865

Under the Entry Age Normal actuarial cost method, the Unfunded Actuarial Accrued Liability is recalculated each year. The Actuarial Accrued Liability is valued using participant data, plan provisions and assumptions as of the valuation date. Past demographic or economic experience different than assumed is called an actuarial gain or loss and is reflected in the Unfunded Actuarial Accrued Liability. A breakdown of actuarial gains and losses from the past year is shown on the next page.

The Unfunded Actuarial Accrued Liability is amortized over a fixed period of time. The amortization period was reset at 30 years as of January 1, 2009. Therefore, there are 19 years remaining in the amortization period. The resulting amortization payment is a component of the recommended contribution.

The Unfunded Actuarial Accrued Liability is scheduled to be reduced to $0 over the amortization period. However, this schedule is met only if all assumptions are met and the actual employer contribution equals the recommended contribution each year. If assumptions are not met, an actuarial gain or loss will either decrease or increase the UAAL. Also, if the employer contribution exceeds the recommended contribution, the UAAL will be reduced more rapidly. Alternatively, if the employer contribution is less than the recommended contribution, the UAAL will reduce more slowly or even increase.

EXHIBIT 10
Development of Actuarial (Gain)/Loss

Development of Liability (Gain) or Loss

Actual Actuarial Liability as of January 1, 2019		$ 113,840,750
Expected changes		
▪ Normal cost	$ 3,062,376	
▪ Interest at 7.5%	8,767,734	
▪ Cost of living adjustment	0	
▪ Benefit payments with interest to year end	(5,768,786)	
▪ Total expected changes		$ 6,061,324
Expected Actuarial Liability as of January 1, 2020		$ 119,902,074
Actual Actuarial Liability as of January 1, 2020		118,861,965
Actuarial Liability (gain) or loss		$ (1,040,109)

Breakdown of Actuarial Liability (gain) or loss by source	
▪ Participant experience different than assumed for death, retirement, termination, disability and other amounts	$ (174,837)
▪ Inactive mortality	(104,605)
▪ Salary increases different than expected	(760,667)
▪ New entrants	0
▪ Assumption changes	0
Actuarial Liability (gain) or loss	$ (1,040,109)

Development of Asset (Gain) or Loss

Market Value of Assets as of January 1, 2019	$ 95,023,653
▪ Interest at 7.5%	7,126,774
▪ Actual contributions with interest to year-end	4,466,508
▪ Actual benefit payments with interest to year-end	(5,768,786)
▪ Actual expenses with interest to year-end	(380,897)
Expected value of assets as of January 1, 2020	$ 100,467,252
Actual value of assets as of January 1, 2020	108,921,100
Asset (gain) or loss	$ (8,453,848)

A (gain)/loss occurs when actual demographic or economic experience is different from the valuation assumptions. For example, if salary increases are greater (lower) than expected the liability will go up (down). During 2019, an actuarial liability gain of $1,040,109 and an asset gain of $8,453,848 resulted in a decrease in UAAL of $9,493,957.

EXHIBIT 11
Recommended Amortization Schedule

Year	Unfunded Liability at Beginning of Year	Annual Amortization Payment	Unfunded Liability at End of Year
2020	$ 9,940,865	$ 748,109	$ 9,882,213
2021	9,882,213	770,552	9,795,036
2022	9,795,036	793,669	9,676,470
2023	9,676,470	817,479	9,523,415
2024	9,523,415	842,003	9,332,518
2025	9,332,518	867,263	9,100,149
2026	9,100,149	893,281	8,822,383
2027	8,822,383	920,079	8,494,977
2028	8,494,977	947,681	8,113,343
2029	8,113,343	976,111	7,672,524
2030	7,672,524	1,005,394	7,167,165
2031	7,167,165	1,035,556	6,591,480
2032	6,591,480	1,066,623	5,939,221
2033	5,939,221	1,098,622	5,203,644
2034	5,203,644	1,131,581	4,377,468
2035	4,377,468	1,165,528	3,452,836
2036	3,452,836	1,200,494	2,421,268
2037	2,421,268	1,236,509	1,273,616
2038	1,273,616	1,273,616	-

The Annual Amortization Payment is determined by amortizing the Unfunded Actuarial Accrued Liability (UAAL) over 19 years as a level percentage of total payroll. Total payroll is assumed to increase at 3% per year.

This schedule is in accordance with Governmental Accounting Standards Board No. 68 guidelines. The City commission has approved that the City contribution will be 10.4% of salary. Please see Exhibit 13 for more details.

EXHIBIT 12
Development of Annual Recommended Contribution

Annual Recommended Contribution (Dollar Amounts)

	2019	2020
1. Total Normal Cost	$ 3,062,376	$ 3,206,349
2. Expected Administrative Expenses	304,970	378,144
3. Expected employee contribution	(1,362,396)	(1,408,539)
4. City Normal Cost	$ 2,004,950	$ 2,175,954
5. Amortization of Unfunded Actuarial Accrued Liability	1,370,335	748,109
6. Total annual recommended contribution	$ 3,375,285	$ 2,924,063
7. Interest to mid-year at 7.5%	126,573	109,652
8. Recommended contribution, mid-year = (6)+(7)	$ 3,501,858	$ 3,033,715

Annual Recommended Contribution (As a Percent of Payroll)

	2019	2020
1. Total Normal Cost	11.3%	11.4%
2. Expected Administrative Expenses	1.1%	1.3%
3. Expected employee contribution	(5.0%)	(5.0%)
4. City Normal Cost	7.4%	7.7%
5. Amortization of Unfunded Actuarial Accrued Liability	5.0%	2.6%
6. Total annual recommended contribution	12.4%	10.4%
7. Interest to mid-year at 7.5%	0.5%	0.4%
8. Recommended contribution, mid-year = (6)+(7)	12.9%	10.8%

Percent of Payroll results are based on total expected covered payroll of $27,247,919 in 2019 and $28,170,781 in 2020. The expected city contribution of 10.4% of covered payroll is less than the 2020 annual recommended contribution of 10.8%.

EXHIBIT 13
10.4% of Payroll Funding Amortization Schedule

Year	Unfunded Liability B.O.Y.	Amortization Payment E.O.Y.	Unfunded Liability E.O.Y.
2020	$ 9,940,865	$ 659,152	$ 10,027,278
2021	$ 10,027,278	$ 644,042	$ 10,135,282
2022	$ 10,135,282	$ 649,193	$ 10,246,235
2023	$ 10,246,235	$ 640,185	$ 10,374,518
2024	$ 10,374,518	$ 628,106	$ 10,524,501
2025	$ 10,524,501	$ 619,986	$ 10,693,853
2026	$ 10,693,853	$ 614,996	$ 10,880,896
2027	$ 10,880,896	$ 602,172	$ 11,094,791
2028	$ 11,094,791	$ 591,625	$ 11,335,275
2029	$ 11,335,275	$ 582,594	$ 11,602,827
2030	$ 11,602,827	$ 580,337	$ 11,892,702
2031	$ 11,892,702	$ 572,472	$ 12,212,183
2032	$ 12,212,183	$ 563,711	$ 12,564,386
2033	$ 12,564,386	$ 563,545	$ 12,943,170
2034	$ 12,943,170	$ 561,978	$ 13,351,930
2035	$ 13,351,930	$ 558,554	$ 13,794,771
2036	$ 13,794,771	$ 553,181	$ 14,276,198
2037	$ 14,276,198	$ 547,185	$ 14,799,728
2038	$ 14,799,728	$ 544,393	$ 15,365,315
2039	$ 15,365,315	$ 541,660	$ 15,976,054
2040	$ 15,976,054	$ 537,990	$ 16,636,268
2041	$ 16,636,268	$ 530,555	$ 17,353,433
2042	$ 17,353,433	$ 523,688	$ 18,131,252
2043	$ 18,131,252	$ 514,377	$ 18,976,719
2044	$ 18,976,719	$ 499,908	$ 19,900,065
2045	$ 19,900,065	$ 481,294	$ 20,911,276
2046	$ 20,911,276	$ 458,316	$ 22,021,306
2047	$ 22,021,306	$ 432,450	$ 23,240,454
2048	$ 23,240,454	$ 405,299	$ 24,578,189

The City commission has approved that the City contribution will be 10.4% of salary. The expected contribution for 2020 on this basis is $2,929,761. The Annual Amortization Payment shown above represents the total expected City contribution available to reduce the UAAL at the end of that year after a reduction for payment of the annual City normal cost.

As shown above, a City contribution of 10.4% of salary per year will not amortize the UAAL over 30 years or any other period of time.

Accounting Information

Arthur J. Gallagher & Co.

EXHIBIT 14
Statement of Accumulated Plan Benefits

A measure of the degree of progress made in funding any plan is a comparison between the Accumulated Benefit Liability and the assets accumulated to date. The Accumulated Benefit Liability measures the present value of future benefit payments. However, benefit payments are based only on service and salaries earned as of the valuation date. This liability amount is less than the Actuarial Accrued Liability used to determine the annual recommended contribution, because the AAL anticipates future salary increases for active participants. The liabilities are determined using the regular valuation assumptions. The table below shows the actuarial present value of the Accumulated Benefit Liability.

Actuarial Present Value of Accumulated Plan Benefits (PVAB)

	1/1/19	1/1/20
Vested accrued benefits		
▪ Participants currently receiving payments	$ 49,183,694	$ 54,018,742
▪ Other Participants	43,813,313	44,213,152
Total vested accrued benefits	$ 92,997,007	$ 98,231,894
Non-vested accrued benefits	254,903	321,948
Total accrued benefits	$ 93,251,910	$ 98,553,842

Statement of Changes in Accumulated Plan Benefits

Beginning value, January 1, 2019	$	93,251,910
Increases (Decreases)		
▪ Benefits earned	$	3,698,423
▪ Cost of living adjustment		0
▪ Change in actuarial assumptions		(456,596)
▪ Experience (gain)/loss		557,616
▪ Increase for interest due to decrease in discount period		7,062,765
▪ Benefits paid		(5,560,276)
▪ Net increase (decrease)	$	5,301,932
Ending Value, January 1, 2020	$	98,553,842

The ratio of assets to the above liabilities (known as the Funding Ratio) represents the degree to which Accumulated Benefit liability has been funded. As of January 1, 2020, the Market Value of Assets was $108,921,100. The table below outlines the funding ratios.

Funding Ratio (Assets/PVAB)	
Vested accrued benefits	111%
Total accrued benefits	111%