Milliman

CITY OF OMAHA EMPLOYEES' RETIREMENT SYSTEM

Actuarial Valuation as of January 1, 2021
To Determine Funding for Fiscal Year 2021

Prepared by

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October 29, 2021

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Certification

We have performed an actuarial valuation of the Plan as of January 1, 2021 to determine funding for fiscal year 2021. This report presents the results of our valuation.

The ultimate cost of a pension plan is the total amount needed to provide benefits for plan members and beneficiaries and to pay the expenses of administering the plan. Pension costs are met by contributions and by investment return on plan assets. The principal purpose of this report is to set forth an actuarial recommendation of the contribution, or range of contributions, which will properly fund the plan, in accordance with applicable government regulations. In addition, this report provides:

- A valuation of plan assets and liabilities to review the year-to-year progress of funding.
- Information needed to meet disclosure requirements.
- Review of plan experience for the previous year to ascertain whether the assumptions and methods employed for valuation purposes are reflective of actual events and remain appropriate for prospective application.
- Assessment of the relative funded position of the plan, i.e., through a comparison of plan assets and projected plan liabilities.
- Comments on any other matters which may be of assistance in the funding and operation of the plan.

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Milliman's work is prepared solely for the internal business use of the City of Omaha ("City") and the City of Omaha Employees Retirement System ("System"). To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions: (a) the City and System may provide a copy of Milliman's work, in its entirety, to the City and System's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the City and System; and (b) the City and System may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law. No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

In preparing this report, we relied on employee census data and financial information as of the valuation date, furnished by the City and System. We performed a limited review of the data used directly in our analysis for reasonableness and consistency and have found them to be reasonably consistent and comparable with data used for other purposes. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete and our calculations may need to be revised. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

Certification

Figures for periods prior to January 1, 2021 have been obtained from actuarial valuation reports prepared by Cavanaugh Macdonald Consulting LLC and from the City's Comprehensive Annual Financial Reports. The actuarial assumptions used herein were adopted by the Board based on an experience study prepared by Cavanaugh Macdonald Consulting LLC for the period ending December 31, 2015. We are unable to judge the reasonableness of the assumptions or methods without performing a substantial amount of additional work beyond the scope of the assignment, and have not done so. We will perform an experience study in the near future and will report the results of that analysis when it is complete.

The valuation results were developed using models employing standard actuarial techniques. In addition, Milliman has developed certain models to develop the expected long term rate of return on assets. We have reviewed the models, including their inputs, calculations, and outputs for consistency, reasonableness, and appropriateness to the intended purpose and in compliance with generally accepted actuarial practice and relevant actuarial standards of practice. The models, including all input, calculations, and output, may not be appropriate for any other purpose.

The calculations reported herein have been made on a basis consistent with our understanding of ERISA and the related sections of the tax code. Additional determinations may be needed for purposes other than meeting funding requirements, such as judging benefit security at plan termination or meeting employer accounting requirements. On the basis of the foregoing, we hereby certify that, to the best of our knowledge, this report is complete and accurate and all costs and liabilities were determined in conformance with generally accepted actuarial principles and practices.

We further certify that, in our opinion, each actuarial method and technique used is reasonable taking into account the experience of the Plan and reasonable expectations. Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as, but not limited to, 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 the actuarial assignment, we did not perform an analysis of the potential range of such future measurement.

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

We are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Rebecca A. Sielman, FSA
Consulting Actuary

Yelena Pelletier, ASA
Consulting Actuary

Section I - Executive Summary
Changes Since the Prior Valuation

Plan Changes

None.

Changes in Actuarial Methods and Assumptions

None.

Other Significant Changes

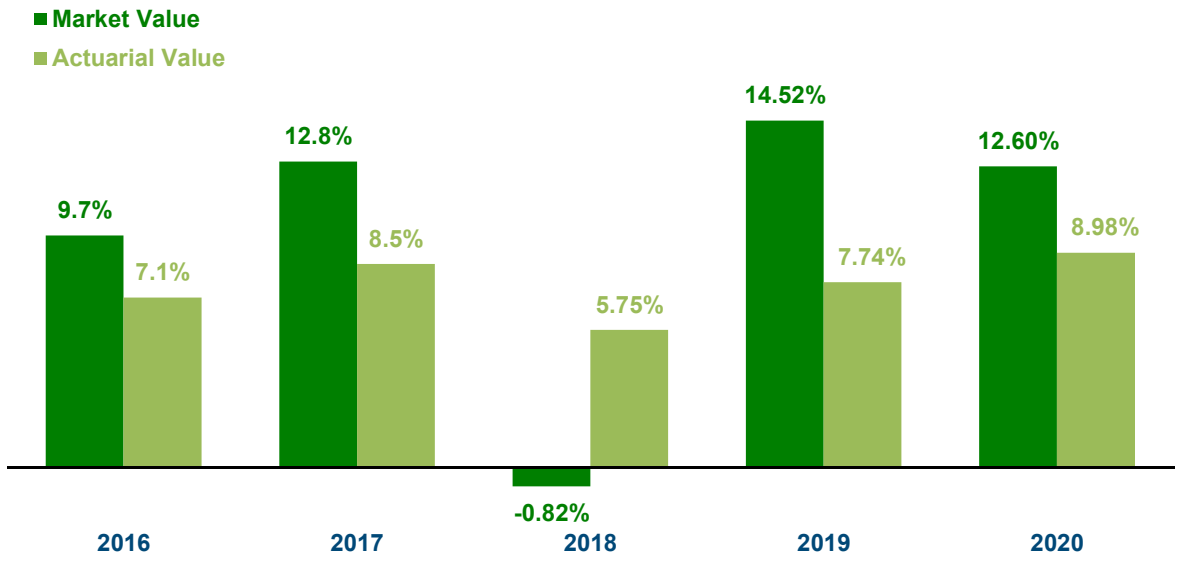
None.

Section I - Executive Summary
Assets

There are two different measures of the plan's assets that are used throughout this report. The Market Value is a snapshot of the plan's investments as of the valuation date. The Actuarial Value is a smoothed asset value designed to temper the volatile fluctuations in the market by recognizing investment gains or losses asymptotically over four years.

	Market	Actuarial
Value as of January 1, 2020	$255,460,062	$253,722,439
City and Member Contributions	23,244,261	23,244,261
Investment Income	31,262,191	22,111,632
Benefit Payments	(38,097,977)	(38,097,977)
Value as of January 1, 2021	271,868,537	260,980,355

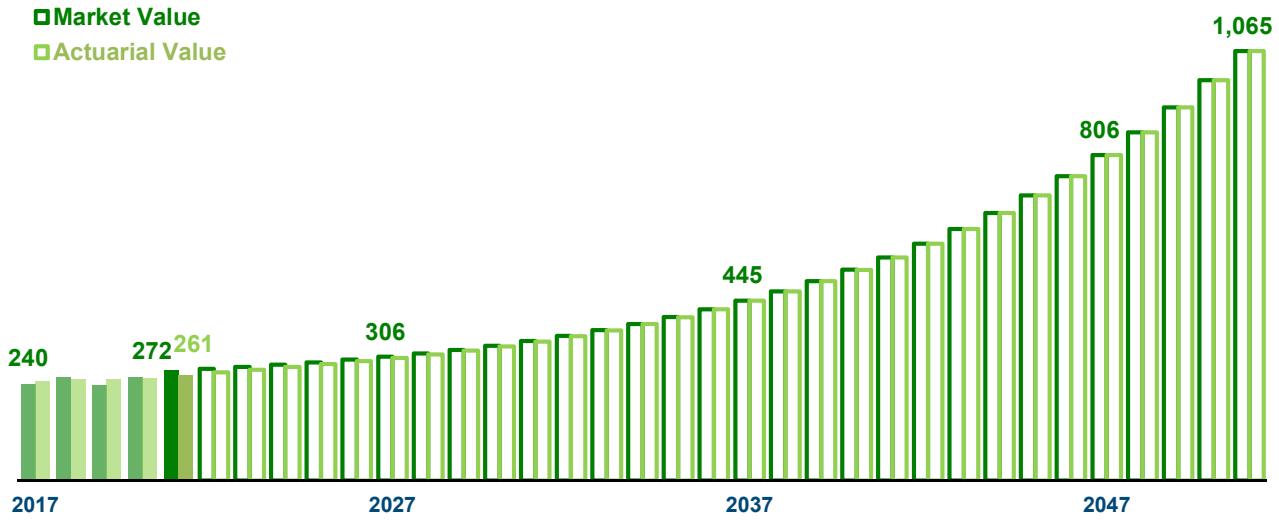
For fiscal year 2020, the plan's assets earned 12.60% on a Market Value basis and 8.98% on an Actuarial Value basis. The actuarial assumption for this period was 7.50%; the result is an asset gain of about $12.7 million on a Market Value basis and a gain of about $3.6 million on an Actuarial Value basis. Historical rates of return are shown in the graph below.



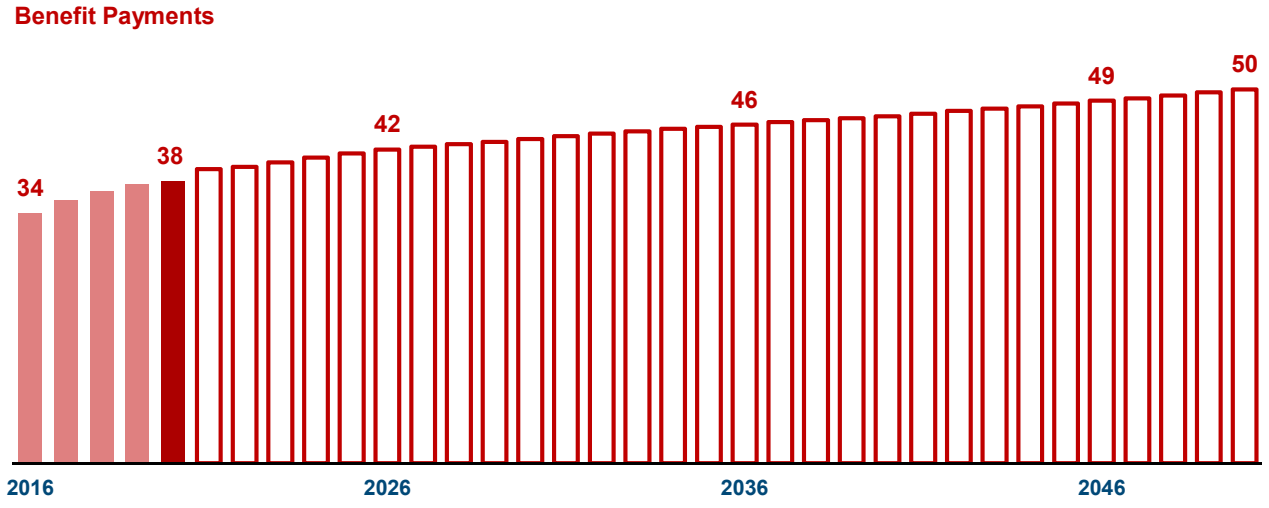
Please note that the Actuarial Value currently is less than the Market Value by $10.9 million. This figure represents investment gains that will be gradually recognized in future years. This process will exert downward pressure on the City's Actuarially Determined Contribution, unless there are offsetting market losses.

Section I - Executive Summary
Assets (continued)

The graph below shows how this year's asset values compare to where the plan's assets have been over the past several years and how they are projected to change over the next 30 years. For purposes of this projection, we have assumed that the City always contributes the 2021 City Ordinance Rate and the investments always earn the assumed interest rate each year.

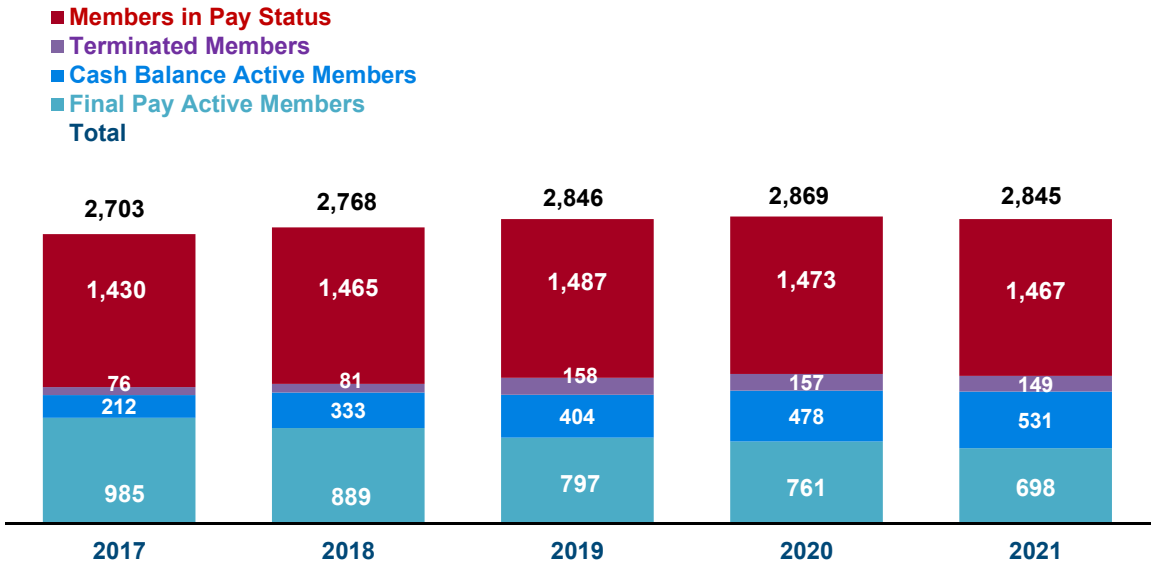


In 2020, the plan paid out $38.1 million in benefits to members. Over the next 30 years, the plan is projected to pay out a total of $1,361 million in benefits to members.



Section I - Executive Summary
Membership

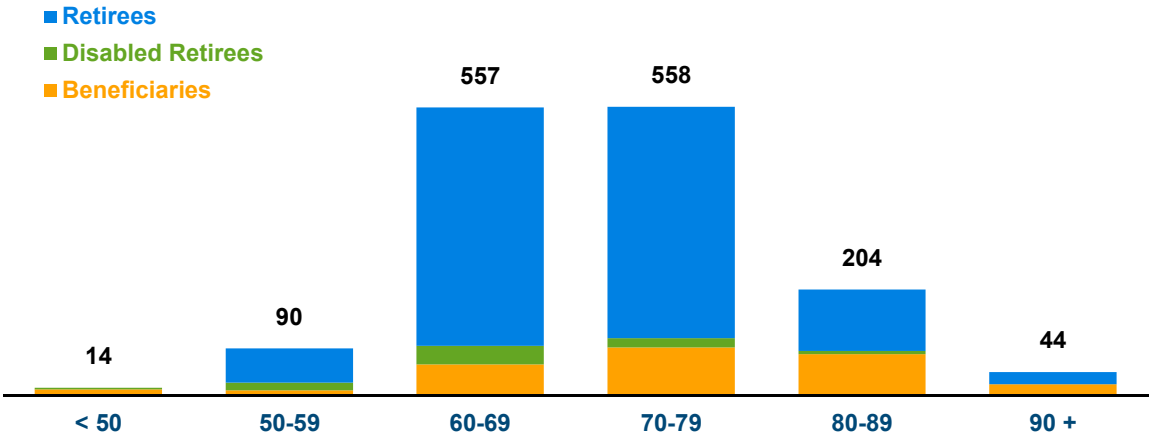
There are four basic categories of plan members included in the valuation: (1) members who are receiving monthly pension benefits, (2) former employees who have a right to benefits but have not yet started collecting, (3) Final Pay active employees who have met the eligibility requirements for membership, and (4) Cash Balance active employees who have met the eligibility requirements for membership.



Members in Pay Status on January 1, 2021

Retirees	1,118	Average Age	71.4
Disabled Retirees	78	Total Annual Benefit	$39,740,495
Beneficiaries	271	Average Annual Benefit	27,090
Total	1,467		

The members in pay status fall across a wide distribution of ages:



Section I - Executive Summary
Membership (continued)

Terminated Vested Members on January 1, 2021

Count	100
Average Age	48.3
Total Annual Benefit	$1,401,365
Average Annual Benefit	14,014

Nonvested Members Due Refunds on January 1, 2021

Count	49

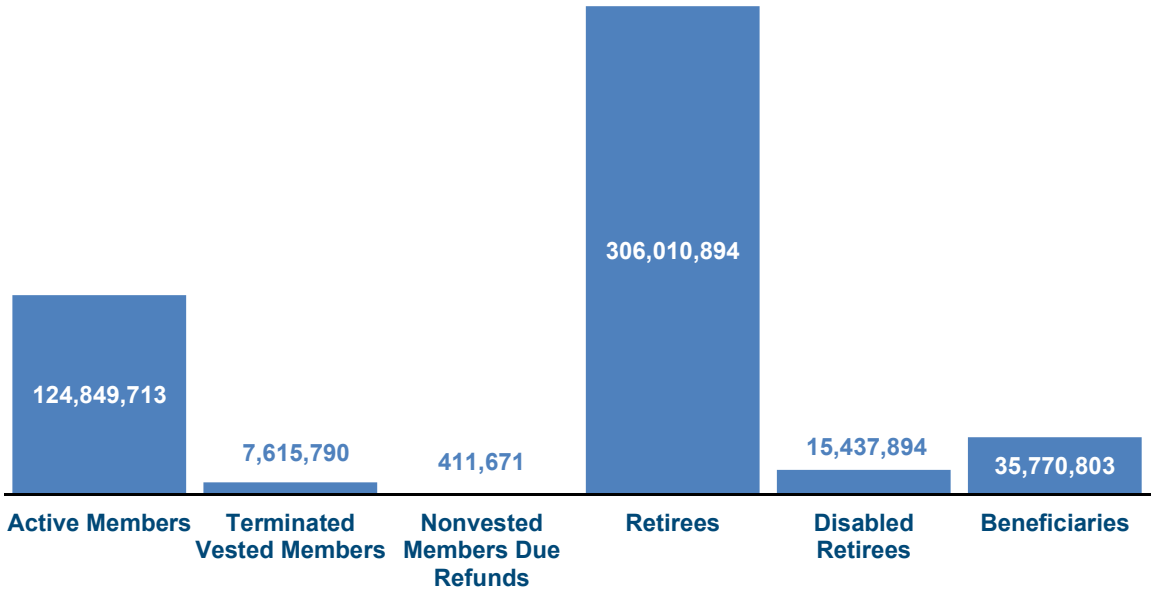
Active Members on January 1, 2021

	Final Pay	Cash Balance	Total
Count	698	531	1,229
Average Age	49.9	40.1	45.7
Average Service	13.9	2.8	9.1
Covered Payroll ($ millions)	$52.8	$33.5	$86.3
Average Payroll	75,649	63,001	70,185

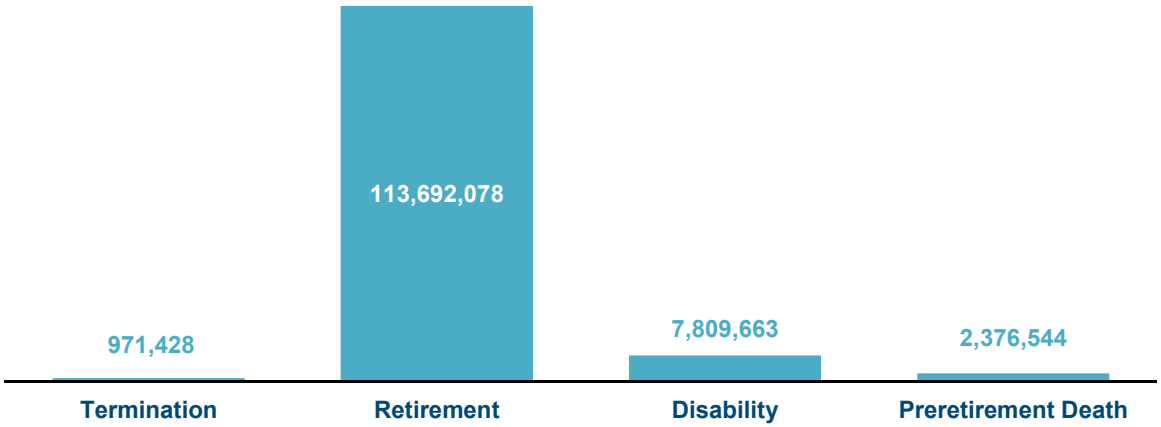
	Years of Service							
Age	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total
< 25	28							28
25-29	72	15						87
30-34	88	51	11					150
35-39	83	58	32	8				181
40-44	62	47	38	15	3			165
45-49	25	33	35	15	11	5		124
50-54	38	32	47	22	28	11	1	179
55-59	33	28	31	20	27	9	10	158
60-64	17	23	35	15	2	4	3	99
65+	8	10	13	7	12	5	3	58
Total	454	297	242	102	83	34	17	1,229

Section I - Executive Summary
Accrued Liability

The total Accrued Liability as of January 1, 2021 equals $490,096,765, which consists of the following pieces:

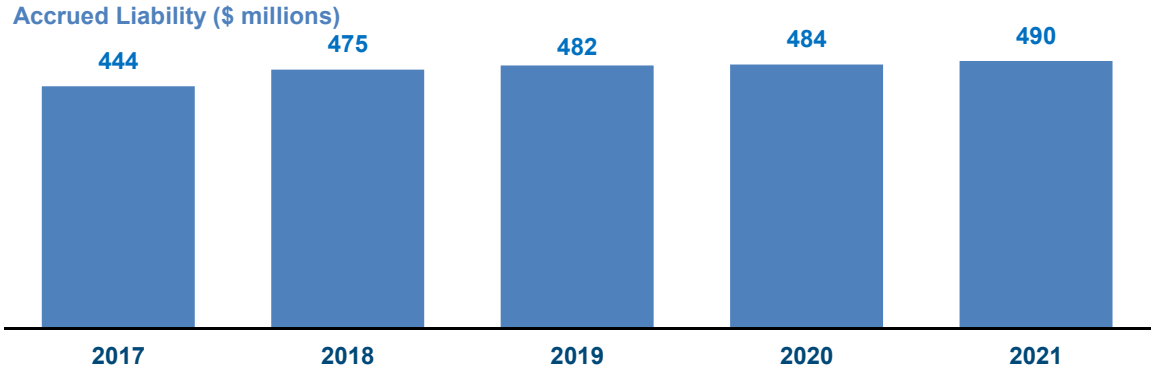


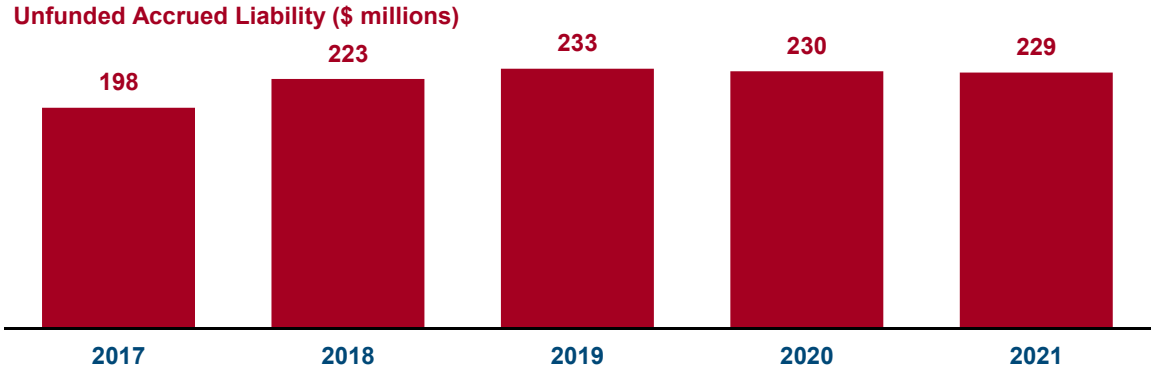
The Accrued Liability for active members can be broken down further by the different types of benefits provided by the plan:

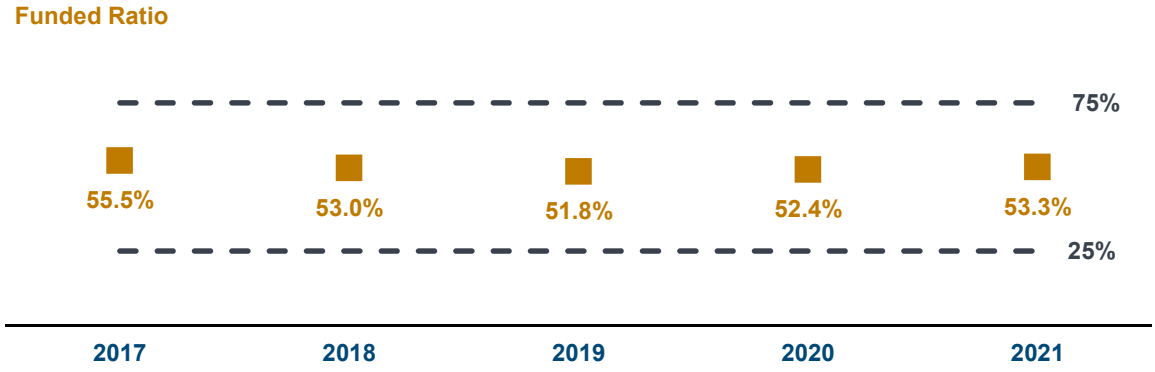


Section I - Executive Summary
Funded Status

The Accrued Liability grows over time as active members earn additional benefits, and goes down over time as members receive benefits; it may also change when there are changes to the plan provisions or changes in the actuarial assumptions. The Unfunded Accrued Liability is the dollar difference between the Accrued Liability and the Actuarial Value of Assets; the Funded Ratio is the ratio of the two.

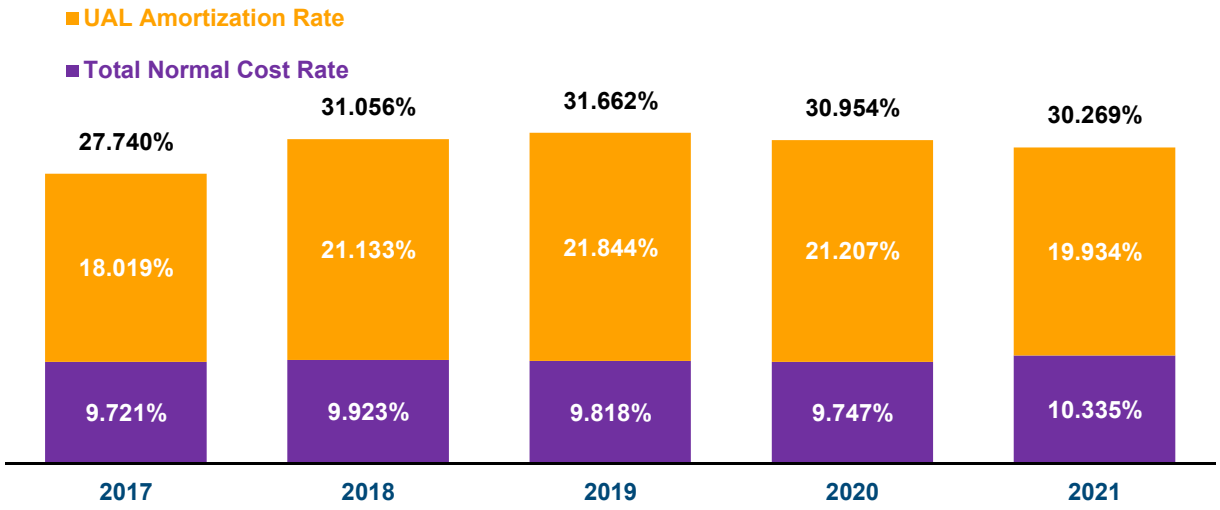






Section I - Executive Summary
Actuarially Determined Total Contribution

The Actuarially Determined Total Contribution consists of two pieces: a Normal Cost payment to fund the benefits earned each year and an amortization payment to gradually fund the remainder of the Unfunded Accrued Liability (UAL) over a period of years. These figures are first calculated as dollar amounts. The dollar amounts are then divided by the expected payroll for active members to arrive at a contribution rate. The Actuarially Determined Total Contribution Rate for the current valuation and the prior four valuations are shown below.



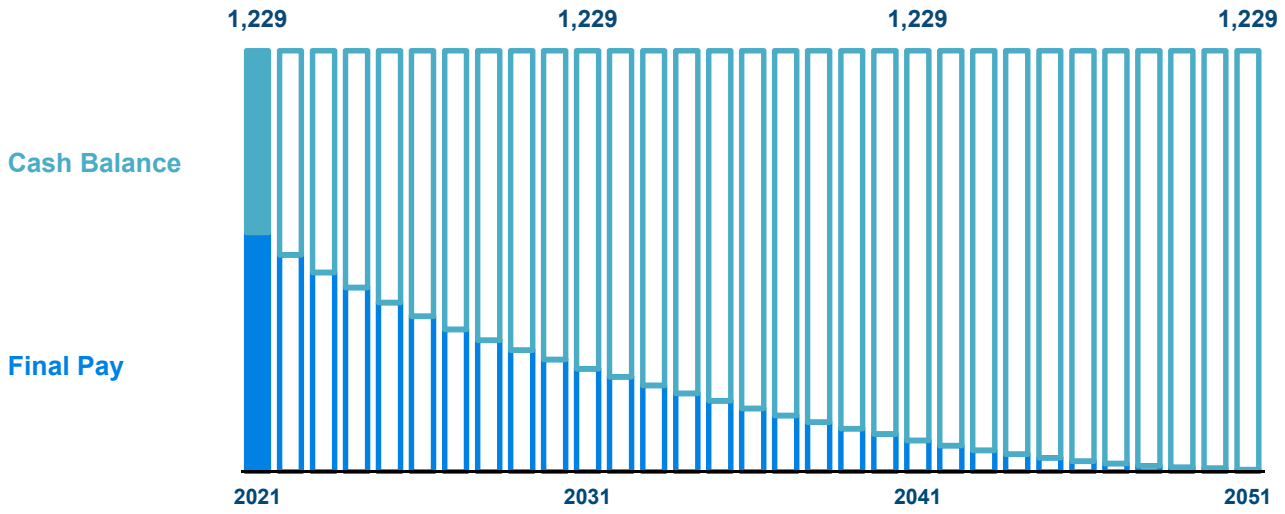
The Actuarially Determined Employer Contribution is equal to the Actuarially Determined Total Contribution less the amounts that are contributed by the active members. Per Ordinance Section 22-26(b), the City contributes a specified percentage of each active member's pensionable earnings. In any given year, these fixed City contributions may be more or less than the Actuarially Determined Employer Contribution:

	2020	2021
Total Normal Cost Rate	9.747%	10.335%
UAL Amortization Rate	21.207%	19.934%
Actuarially Determined Total Contribution Rate	30.954%	30.269%
Less Employee Contribution Rate	-10.075%	-10.075%
Actuarially Determined Employer Contribution Rate	20.879%	20.194%
City Ordinance Contribution Rate	18.775%	18.775%
Contribution Rate (Shortfall)/Margin	-2.104%	-1.419%

Section I - Executive Summary
Long-Range Forecast

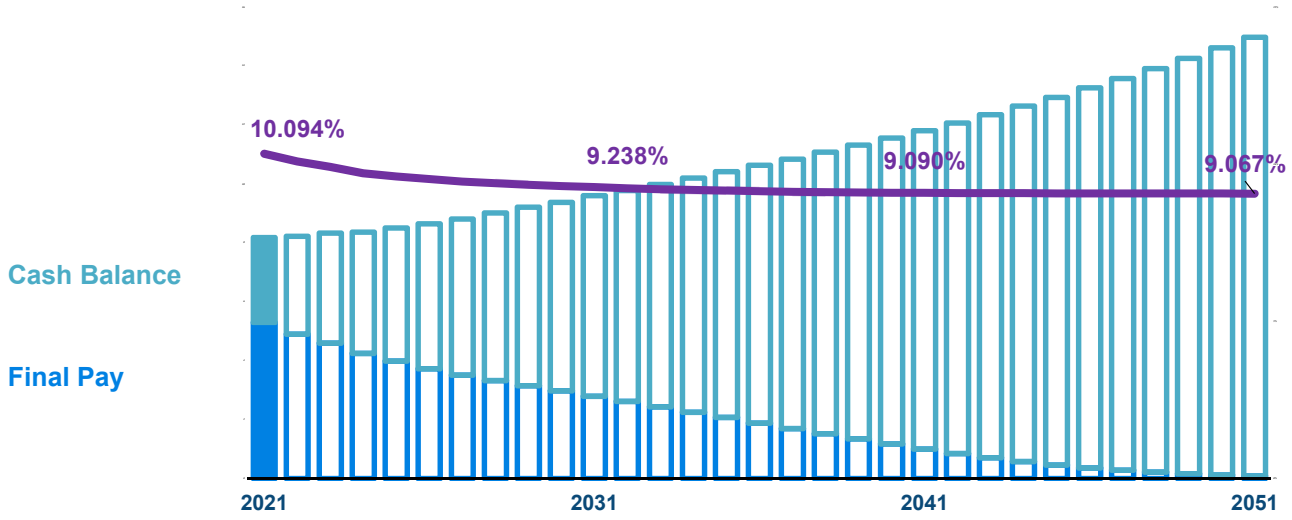
For purposes of our long-range forecast, we assume that the overall number of active members remains constant. However, over time the composition of the active membership will change, as terminating and retiring Final Pay members are replaced with employees who are covered by the lower cost Cash Balance. This shift is illustrated in the graph below.

Projected Active Member Count



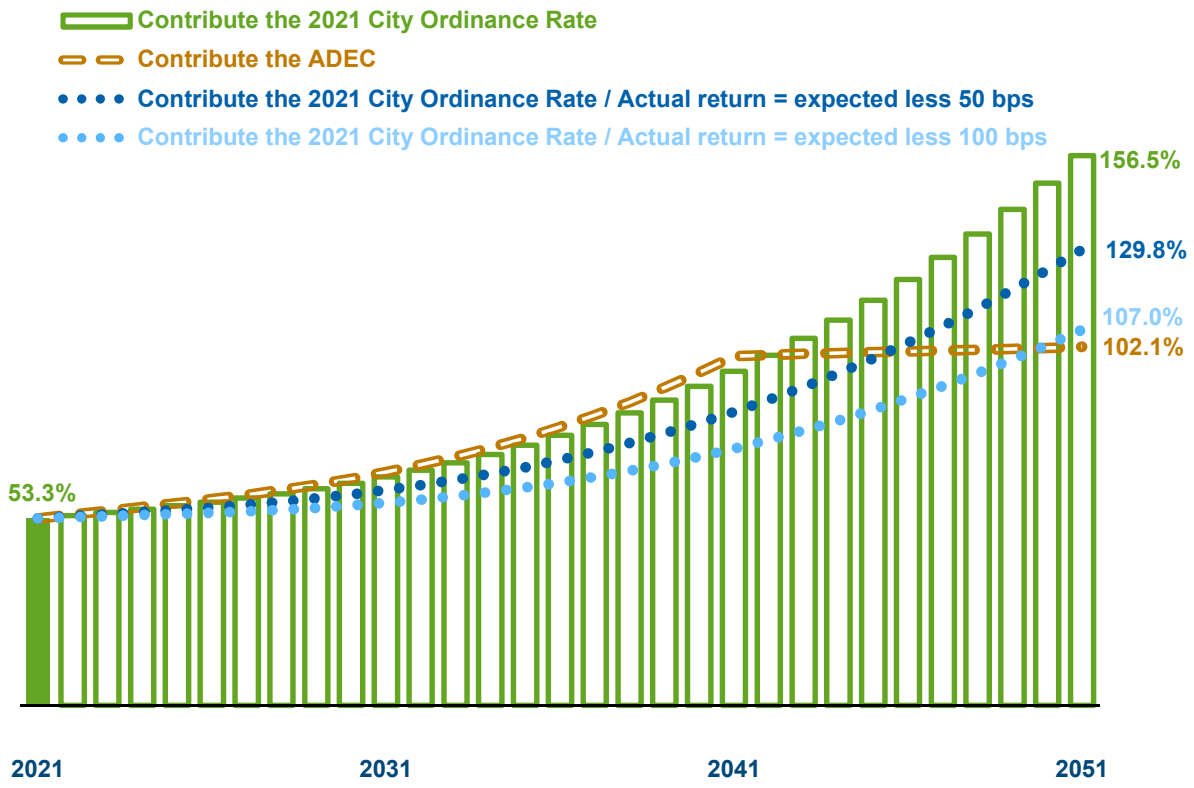
The Normal Cost Rate component of the Actuarially Determined Contribution will reflect this shift, as Final Pay active members with higher Normal Costs are gradually replaced by Cash Balance active members with lower Normal Costs. Note that each individual active member's Normal Cost (in dollars) is expected to go up over time with salary growth, so for the plan as a whole the Normal Cost (in dollars) is projected to increase over the long term while the Normal Cost Rate (the purple line below) is expected to decline.

Projected Normal Cost ($ millions)



Section I - Executive Summary
Long-Range Forecast (continued)

Pension benefits are paid for through a combination of contributions from the City and from employees, and from investment income. If the City pays less than the Actuarially Determined Employer Contribution each year, or if the investments persistently earn less than the assumed interest rate, then the plan's funded status would suffer. The impact on the plan's funded ratio of contributing an amount different than the ADC and underearning are illustrated in the hypothetical scenarios below:



The scenarios illustrated above are based on deterministic projections that assume emerging plan experience always exactly matches the actuarial assumptions; in particular that actual asset returns will be constant in every year of the projection period. Variation in asset returns, contribution amounts, and many other factors may have a significant impact on the long-term financial health of the plan, the liquidity constraints on plan assets, and the City's future contribution levels. Stochastic projections could be prepared that would enable the City to understand the potential range of future results based on the expected variability in asset returns and other factors. Such analysis was beyond the scope of this engagement.

Section I - Executive Summary
Summary of Principal Results

Membership as of	January 1, 2020	January 1, 2021
Active Members	1,239	1,229
Terminated Members	157	149
Members in Pay Status	1,473	1,467
Total Count	2,869	2,845

Assets and Liabilities as of	January 1, 2020	January 1, 2021
Market Value of Assets	$255,460,062	$271,868,537
Actuarial Value of Assets	253,722,439	260,980,355
Accrued Liability for Active Members	120,858,908	124,849,713
Accrued Liability for Terminated Members	8,360,327	8,027,461
Accrued Liability for Members in Pay Status	354,685,468	357,219,591
Total Accrued Liability	483,904,703	490,096,765
Unfunded Accrued Liability	230,182,264	229,116,410
Funded Ratio	52.4%	53.3%

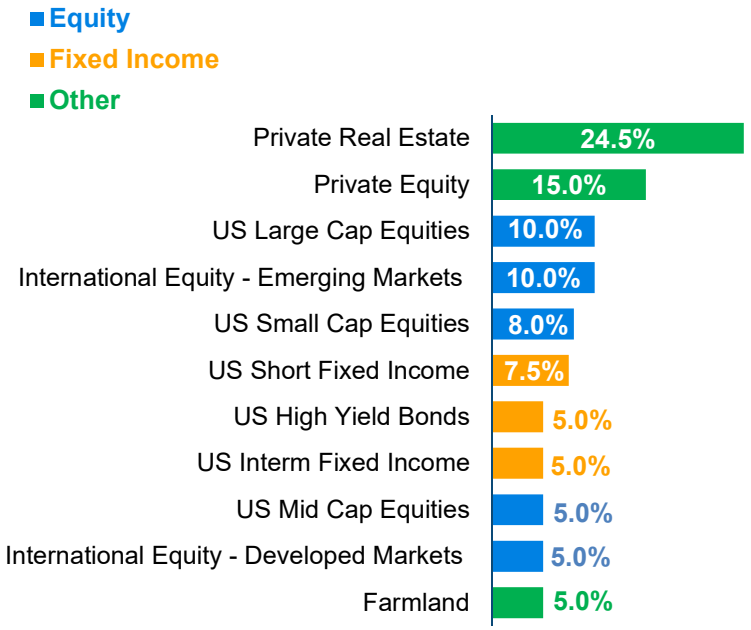
Contribution Rate for Fiscal Year	2020	2021
Total Normal Cost Rate	9.747%	10.335%
UAL Amortization Rate	21.207%	19.934%
Actuarially Determined Total Contribution Rate	30.954%	30.269%
Employee Contribution Rate	-10.075%	-10.075%
Actuarially Determined Employer Contribution Rate	20.879%	20.194%
City Ordinance Contribution Rate	18.775%	18.775%
Contribution Rate (Shortfall)/Margin	-2.104%	-1.419%

Section II - Plan Assets
A. Summary of Fund Transactions

Market Value as of January 1, 2020	$255,460,062
City Contributions	15,120,763
Member Contributions	8,123,498
Net Investment Income	31,262,191
Benefit Payments	(38,097,977)
Market Value as of December 31, 2020	271,868,537
Expected Return on Market Value of Assets	18,608,447
Market Value (Gain)/Loss	(12,653,744)
Approximate Rate of Return *	12.60%

* The rate shown here is not the dollar or time weighted investment yield rate which measures investment performance. It is an approximate net return assuming all activity occurred on average midway through the fiscal year.

Target Asset Allocation as of December 31, 2020



Section II - Plan Assets
B. Development of Actuarial Value of Assets

In order to minimize the impact of market fluctuations on the contribution level, we use an Actuarial Value of Assets that recognizes gains and losses asymptotically over a four year period. The Actuarial Value of Assets as of January 1, 2021 is determined below.

1.	Expected Actuarial Value of Assets:	
	a. Actuarial Value of Assets as of January 1, 2020	$253,722,439
	b. City and Member Contributions	23,244,261
	c. Benefit Payments	(38,097,977)
	d. Expected Earnings Based on 7.50% Interest	18,482,238
	e. Expected Actuarial Value of Assets as of January 1, 2021	257,350,961
2.	Market Value of Assets as of January 1, 2021	271,868,537
3.	Unrecognized Gains/(Losses): (2) - (1e)	14,517,576
4.	Amount Recognized as of January 1, 2021: 25% of (3)	3,629,394
5.	Preliminary Actuarial Value of Assets as of January 1, 2021: (1e) + (4)	260,980,355
6.	Preliminary Actuarial Value of Assets as a % of Market Value: (5) / (2)	96.0%
7.	Actuarial Value of Assets as of January 1, 2021: (5), within +/- 20% of (2)	260,980,355
8.	Actual Earnings on Actuarial Value of Assets: (7) - [(1a) + (1b) + (1c)]	22,111,632
9.	Approximate Rate of Return on Actuarial Value of Assets	8.98%
10.	Actuarial Value (Gain)/Loss: (1d) - (8)	(3,629,394)

Section III - Development of Contribution
A. Actuarial Balance Sheet

The Actuarial Balance Sheet sets forth the value in today's dollars of all benefits that are expected to be paid from the Plan over the course of the current members' combined lifetimes. It also identifies the sources of assets that are available or will be required in future years in order to fully fund all of the benefits.

	January 1, 2020	January 1, 2021
Liabilities: Present Value of Future Benefits		
Active Members	$181,084,918	$192,500,457
Terminated Vested Members	7,955,765	7,615,790
Nonvested Members Due Refunds	404,562	411,671
Retirees	336,186,265	306,010,894
Disabled Retirees	18,499,203	15,437,894
Beneficiaries	incl. with retirees	35,770,803
Total Liabilities	544,130,713	557,747,509
Assets		
Actuarial Value of Current Assets (see Section II B)	$253,722,439	$260,980,355
Present value of future employer normal costs	**	(3,255,932)
Present value of future employee contributions	**	70,906,676
Present value of future UAL amortization payments	230,182,264	229,116,410
Total Assets	544,130,713	557,747,509

*** breakdown not available; total is $60,226,010*

Per Ordinance Section 22-26(b), the City contributes a specified percentage of each active member's pensionable earnings, which is designed to fund the employer portion of the normal cost plus the UAL amortization payments. If the present value of future City contributions per these specified rates is lower than the present value of future UAL amortization payments plus the present value of future employer normal costs shown above, then the Plan may experience a shortfall of Assets relative to Liabilities. Based on the January 1, 2021 valuation, the City's Ordinance Contribution Rate is lower than the Actuarially Determined Employer Contribution Rate by 1.419%, indicating that such a shortfall may occur.

Section III - Development of Contribution
B. Unfunded Accrued Liability

Section III A set forth the Plan's Present Value of Future Benefits. The actuarial cost method used to calculate the Actuarially Determined Contribution is the Entry Age Normal Cost Method. Under this method, the Present Value of Future Benefits for each active member is allocated as a level percentage of earnings to past years of service (the Accrued Liability), the current year (the Normal Cost), and future years. That is, the Accrued Liability for active members is equal to the portion of the Present Value of Future Benefits that will not be funded through future Normal Cost payments. For each non-active member, the Accrued Liability is equal to the Present Value of Future Benefits. The Actuarial Value of Assets is subtracted from the Accrued Liability to determine the Unfunded Accrued Liability.

		January 1, 2020	January 1, 2021
1.	Present Value of Future Benefits (see Section III A)	$544,130,713	$557,747,509
2.	Present Value of Future Normal Costs	60,226,010	67,650,744
3.	Accrued Liability		
	Active Members	120,858,908	124,849,713
	Terminated Vested Members	7,955,765	7,615,790
	Nonvested Members Due Refunds	404,562	411,671
	Retirees	336,186,265	306,010,894
	Disabled Retirees	18,499,203	15,437,894
	Beneficiaries	incl. with retirees	35,770,803
	Total = (1) - (2)	483,904,703	490,096,765
4.	Actuarial Value of Assets (see Section II B)	253,722,439	260,980,355
5.	Unfunded Accrued Liability: (3) - (4)	230,182,264	229,116,410
6.	Funded Ratio: (4) / (3)	52.4%	53.3%

Section III - Development of Contribution
C. UAL Amortization Payments

The Unfunded Accrued Liability that is developed in Section III B is amortized as as follows. The initial base was funded as a level percent of payroll over a 25-year closed period that began January 1, 2016. A new base is created in each subsequent year based on any change in the Unfunded Accrued Liability that arises from actual experience being different than is expected based on the actuarial method and assumptions; this amount is amortized as a level percent over a closed 20-year period. If assumption changes are made, a separate base is established based on the resulting change in the Unfunded Accrued Liability; this amount is amortized as a level percent over a closed period selected by the Board.

1. Amortization Bases Established in Prior Years

Date Established	(a) Outstanding Balance January 1, 2021	Years Remaining January 1, 2021	(b) Annual Amortization Payment
January 1, 2016	$199,621,700	20	$15,072,522
January 1, 2017	1,087,233	16	95,233
January 1, 2018	27,869,159	22	1,983,982
January 1, 2018	(4,175,392)	17	(350,780)
January 1, 2019	8,337,853	18	674,072
January 1, 2020	(2,675,266)	19	(208,743)
Total	230,065,287		17,266,286

2.	Unfunded Accrued Liability as of January 1, 2021 (see Section III B)	229,116,410
3.	New Amortization Base Established January 1, 2021: (2) - (1a Total)	(948,877)
4.	Amortization Period for New Amortization Base	20
5.	Amortization Growth Rate	3.00%
6.	Amortization Payment for January 1, 2021: (3) amortized over (4)	(71,645)
7.	Total UAL Amortization Payments: (1b Total) + (6)	17,194,641
8.	Expected Payroll for Active Members	86,257,017
9.	UAL Amortization Payment Rate: (7) ÷ (8)	19.934%

Section III - Development of Contribution
D. Normal Cost

The Normal Cost is the portion of the Present Value of Future Benefits that is allocated to the current year for active members.

		2020	2021
1.	Total Normal Cost by Type of Benefit - Final Pay Actives		
	Retirement		$3,688,173
	Termination		965,111
	Preretirement Death		118,319
	Disability		523,689
	Total	not available	5,295,292
2.	Total Normal Cost by Type of Benefit - Cash Balance Actives		
	Retirement		$1,702,725
	Termination		848,892
	Preretirement Death		76,395
	Disability		252,072
	Total	not available	2,880,084
3.	Total Normal Cost by Type of Benefit - All Actives		
	Retirement		$5,390,898
	Termination		1,814,003
	Preretirement Death		194,714
	Disability		775,761
	Total	$7,014,480	8,175,376
4.	Expected Payroll for Active Members		
	Final Pay		$48,399,839
	Cash Balance		30,701,027
	Total	71,962,791	79,100,866
5.	Total Normal Cost Rate: Total Normal Cost ÷ Expected Payroll		
	Final Pay		10.941%
	Cash Balance		9.381%
	Total	9.747%	10.335%

Section III - Development of Contribution
E. Employee Contributions

A portion of the Normal Cost is funded through employee contributions from active members.

		2020	2021
1.	Employee Contribution Rate		
	Final Pay	10.075%	10.075%
	Cash Balance	10.075%	10.075%
2.	Expected Payroll for Active Members		
	Final Pay		48,399,839
	Cash Balance		30,701,027
	Total		79,100,866
3.	Expected Employee Contributions in Current Year: (1) x (2)		
	Final Pay		4,876,284
	Cash Balance		3,093,128
	Total		7,969,412

Section III - Development of Contribution
F. City Contributions Per Ordinance

Per Ordinance Section 22-26(b), the City contributes a specified percentage of each active member's pensionable earnings, which is designed to fund the employer portion of the Normal Cost plus the UAL amortization payments.

		2020	2021
1.	City Contribution Rate Per Ordinance		
	Final Pay	18.775%	18.775%
	Cash Balance	18.775%	18.775%
2.	Covered Payroll for Active Members		
	Final Pay		52,803,285
	Cash Balance		33,453,732
	Total		86,257,017
3.	Expected City Contribution Dollars: (1) x (2)		
	Final Pay		9,913,817
	Cash Balance		6,280,938
	Total		16,194,755

Section III - Development of Contribution
G. Actuarially Determined Contribution

		2020	2021
In Dollars			
1.	Actuarially Determined Total Contribution		
	a. Total Normal Cost (see Section III D)		$8,175,376
	b. UAL Amortization Payment (see Section III C)		17,194,641
	c. Total		25,370,017
2.	Expected Employee Contributions (see Section III E)		7,969,412
3.	Actuarially Determined Employer Contributions: (1) - (2)	$17,297,752	17,400,605
4.	City Contributions per Ordinance (see Section III F)	15,120,763	16,194,755
5.	Contribution (Shortfall) / Margin: (4) - (3)	(2,176,989)	(1,205,850)
As a Percentage of Expected Payroll			
1.	Actuarially Determined Total Contribution Rate		
	a. Total Normal Cost Rate (see Section III D)	9.747%	10.335%
	b. UAL Amortization Rate (see Section III C)	21.207%	19.934%
	c. Total	30.954%	30.269%
2.	Expected Employee Contribution Rate (see Section III E)	10.075%	10.075%
3.	Actuarially Determined Employer Contribution Rate: (1) - (2)	20.879%	20.194%
4.	City Contribution Rate per Ordinance (see Section III F)	18.775%	18.775%
5.	Contribution Rate (Shortfall) / Margin: (4) - (3)	-2.104%	-1.419%

Section III - Development of Contribution
H. Long Range Forecast

This forecast is based on the results of the January 1, 2021 actuarial valuation and assumes that the City will pay the City Ordinance Rate, the assets will return the assumed interest rate on a market value basis each year, and there are no future changes in the actuarial methods or assumptions or in the plan provisions. Actual results at each point in time will yield different values, reflecting the actual experience of the plan membership and assets. Amounts are shown in millions.

Valuation Date	Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Ratio	Fiscal Year	City Contributions	Member Contributions	Benefit Payments	Net Cash Flows
1/1/2021	$490.1	$261.0	$229.1	53.3%	2021	$16.6	$8.2	($40.0)	($15.2)
1/1/2022	494.4	267.4	226.9	54.1%	2022	17.0	8.5	(40.6)	(15.1)
1/1/2023	498.7	274.1	224.6	55.0%	2023	17.5	8.7	(41.2)	(15.0)
1/1/2024	502.8	280.9	221.8	55.9%	2024	18.0	8.9	(41.8)	(14.9)
1/1/2025	506.6	288.0	218.6	56.8%	2025	18.4	9.1	(42.3)	(14.7)
1/1/2026	510.3	295.4	214.9	57.9%	2026	18.9	9.4	(42.7)	(14.4)
1/1/2027	513.8	303.3	210.5	59.0%	2027	19.4	9.7	(43.1)	(13.9)
1/1/2028	517.4	311.9	205.5	60.3%	2028	20.0	9.9	(43.3)	(13.4)
1/1/2029	521.1	321.5	199.6	61.7%	2029	20.5	10.2	(43.7)	(13.1)
1/1/2030	525.0	332.2	192.7	63.3%	2030	21.0	10.4	(44.1)	(12.7)
1/1/2031	528.9	344.0	184.9	65.0%	2031	21.5	10.7	(44.4)	(12.2)
1/1/2032	533.0	357.0	176.0	67.0%	2032	22.0	10.9	(44.8)	(11.8)
1/1/2033	537.2	371.3	165.9	69.1%	2033	22.6	11.2	(45.1)	(11.4)
1/1/2034	541.6	387.1	154.5	71.5%	2034	23.1	11.5	(45.3)	(10.8)
1/1/2035	546.3	404.5	141.7	74.1%	2035	23.6	11.7	(45.7)	(10.3)
1/1/2036	551.2	423.8	127.4	76.9%	2036	24.2	12.0	(46.0)	(9.9)
1/1/2037	556.5	445.0	111.4	80.0%	2037	24.7	12.2	(46.3)	(9.3)
1/1/2038	562.0	468.3	93.7	83.3%	2038	25.3	12.5	(46.5)	(8.7)
1/1/2039	567.9	493.8	74.1	87.0%	2039	25.9	12.8	(46.8)	(8.1)
1/1/2040	574.2	521.9	52.4	90.9%	2040	26.5	13.1	(47.1)	(7.6)

Section III - Development of Contribution
H. Long Range Forecast

This forecast is based on the results of the January 1, 2021 actuarial valuation and assumes that the City will pay the City Ordinance Rate, the assets will return the assumed interest rate on a market value basis each year, and there are no future changes in the actuarial methods or assumptions or in the plan provisions. Actual results at each point in time will yield different values, reflecting the actual experience of the plan membership and assets. Amounts are shown in millions.

Valuation Date	Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Ratio	Fiscal Year	City Contributions	Member Contributions	Benefit Payments	Net Cash Flows
1/1/2041	$581.0	$552.6	$28.4	95.1%	2041	$27.1	$13.4	($47.5)	($7.1)
1/1/2042	588.2	586.3	2.0	99.7%	2042	27.7	13.7	(47.8)	(6.4)
1/1/2043	595.9	622.9	(27.1)	104.5%	2043	28.3	14.0	(48.1)	(5.8)
1/1/2044	604.1	663.0	(58.9)	109.8%	2044	29.0	14.4	(48.5)	(5.2)
1/1/2045	612.9	706.7	(93.9)	115.3%	2045	29.7	14.7	(48.9)	(4.5)
1/1/2046	622.2	754.4	(132.2)	121.2%	2046	30.4	15.1	(49.2)	(3.7)
1/1/2047	632.3	806.4	(174.1)	127.5%	2047	31.2	15.5	(49.6)	(3.0)
1/1/2048	643.1	863.0	(219.9)	134.2%	2048	31.9	15.8	(50.0)	(2.2)
1/1/2049	654.7	924.7	(270.0)	141.2%	2049	32.7	16.2	(50.4)	(1.4)
1/1/2050	667.1	991.8	(324.7)	148.7%	2050	33.6	16.7	(50.9)	(0.7)
1/1/2051	680.3	1,064.6	(384.3)	156.5%	2051	34.4	17.1	(51.5)	(0.1)

This forecast has been developed by assuming that members will terminate, retire, become disabled, and die according to the actuarial assumptions with respect to these causes of decrement, and that pay increases, cost of living adjustments, and so forth will likewise occur according to the actuarial assumptions. For those unions whose new employees are eligible to participate in this plan, members who are projected to leave active employment are assumed to be replaced by new active members with the same age, service, gender, and pay characteristics as those hired in the past few years. The forecasts assume the current blended member and City contribution rates remain fixed during the projection period.

Section III - Development of Contribution
I. History of Funded Status

Valuation Date	Actuarial Value of Assets	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
January 1, 2011	$240,291,310	$409,442,601	$169,151,291	58.69%
January 1, 2012	236,741,347	420,810,359	184,069,012	56.26%
January 1, 2013	235,591,941	436,270,409	200,678,468	54.00%
January 1, 2014	237,579,690	442,754,113	205,174,423	53.66%
January 1, 2015	242,248,074	431,160,038	188,911,964	56.19%
January 1, 2016	244,543,841	437,133,012	192,589,171	55.94%
January 1, 2017	246,234,597	443,771,621	197,537,024	55.49%
January 1, 2018	251,320,837	474,607,516	223,286,679	52.95%
January 1, 2019	249,518,547	482,025,309	232,506,762	51.76%
January 1, 2020	253,722,439	483,904,703	230,182,264	52.43%
January 1, 2021	260,980,355	490,096,765	229,116,410	53.25%

Section III - Development of Contribution
J. History of City Contributions

Fiscal Year	Actuarially Determined Contribution	Actual City Contribution	Payroll	Actual Contribution as a Percent of Payroll
2011	$14,564,847	$6,618,110	$59,235,591	11.2%
2012	15,658,045	7,216,050	62,825,685	11.5%
2013	17,406,168	7,194,482	63,327,394	11.4%
2014	17,162,883	12,326,643	63,413,206	19.4%
2015	14,676,786	12,401,231	64,876,227	19.1%
2016	11,794,456	12,779,968	69,005,865	18.5%
2017	12,383,422	13,227,230	70,873,306	18.7%
2018	14,990,504	13,645,009	72,754,142	18.8%
2019	17,313,632	15,028,329	75,407,531	19.9%
2020	17,297,752	15,120,763	79,047,555	TBD
2021	17,400,605	TBD	86,257,017	TBD

Section IV - Membership Data
A. Reconciliation of Membership from Prior Valuation

Details of the changes in the Plan membership since the last valuation are shown below. Additional details on the Plan membership are provided in the remainder of Section IV.

	Actives Final Pay	Actives Cash Balance	Terminated Vested Members	Nonvested Members Due Refunds	Retirees	Disabled Retirees	Beneficiaries	Total
Count on January 1, 2020	761	478	96	61	1,118	91	264	2,869
Terminated, return of contribution due	-	(14)	-	14	-	-	-	0
Terminated, paid refund	(16)	(31)	(4)	(24)	-	-	-	(75)
Terminated, vested benefits due	(12)	-	12	-	-	-	-	0
Normal retirement	(34)	-	(4)	-	38	-	-	0
Disability retirement	-	-	-	-	-	-	-	0
Died with beneficiary	(1)	-	-	-	(13)	(1)	-	(15)
Died with no beneficiary	-	-	-	-	(25)	(12)	(8)	(45)
Benefits expired	-	-	-	-	-	-	-	0
New member	-	96	-	-	-	-	16	112
Rehired	-	2	-	(2)	-	-	-	0
Expired Payment	-	-	-	-	-	-	(1)	(1)
Correction	-	-	-	-	-	-	-	0
Count on January 1, 2021	698	531	100	49	1,118	78	271	2,845

Section IV - Membership Data
B. Statistics of Active Membership

		As of January 1, 2020	As of January 1, 2021
Count	Final Pay	761	698
	Cash Balance	478	531
	Total	1,239	1,229
Average Age	Final Pay		49.9
	Cash Balance		40.1
	Total	45.6	45.7
Average Service	Final Pay		13.9
	Cash Balance		2.8
	Total	9.1	9.1
Covered Payroll	Final Pay		$48,399,839
	Cash Balance		30,701,027
	Total	$71,962,791	79,100,866
Average Covered Payroll	Final Pay		$69,341
	Cash Balance		57,817
	Total	$58,081	64,362

Section IV - Membership Data
C. Distribution of Active Members as of January 1, 2021

Final Pay

	Years of Service							
Age	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total
< 25								0
25-29		9						9
30-34		37	11					48
35-39		46	32	8				86
40-44		37	38	15	3			93
45-49		26	35	15	11	5		92
50-54		18	47	22	28	11	1	127
55-59		22	31	20	27	9	10	119
60-64		16	35	15	2	4	3	75
65+		9	13	7	12	5	3	49
Total	0	220	242	102	83	34	17	698

Cash Balance

	Years of Service							
Age	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total
< 25	28							28
25-29	72	6						78
30-34	88	14						102
35-39	83	12						95
40-44	62	10						72
45-49	25	7						32
50-54	38	14						52
55-59	33	6						39
60-64	17	7						24
65+	8	1						9
Total	454	77	0	0	0	0	0	531

Section IV - Membership Data
F. Statistics of Inactive Membership

	As of January 1, 2020	As of January 1, 2021
Terminated Vested Members		
Number	96	100
Total Annual Benefit	$1,374,528	$1,813,036
Average Annual Benefit	14,318	18,130
Average Age	49.1	48.3
Nonvested Members Due Refunds		
Number	61	49
Retirees		
Number	1,118	1,118
Total Annual Benefit	$30,676,728	$31,126,021
Average Annual Benefit	27,439	27,841
Average Age	66.5	71.0
Disabled Retirees		
Number	91	78
Total Annual Benefit	$1,753,236	$2,299,863
Average Annual Benefit	19,266	29,485
Average Age	67.9	66.6
Beneficiaries		
Number	264	271
Total Annual Benefit	$4,386,708	$4,501,575
Average Annual Benefit	16,616	16,611
Average Age	72.6	74.4

Section IV - Membership Data
G. Distribution of Inactive Members as of January 1, 2021

	Age	Number	Annual Benefits
Terminated Vested Members	< 50	52	$51,621
	50 - 59	48	65,159
	60 - 69	0	0
	70 - 79	0	0
	80 - 89	0	0
	90 +	0	0
	Total	100	116,780
Retirees	< 50	0	$0
	50 - 59	66	212,251
	60 - 69	462	1,154,747
	70 - 79	448	985,983
	80 - 89	119	205,120
	90 +	23	35,735
	Total	1,118	2,593,835
Disabled Retirees	< 50	3	$5,486
	50 - 59	15	28,755
	60 - 69	36	65,607
	70 - 79	18	21,974
	80 - 89	6	6,924
	90 +	0	0
	Total	78	128,746
Beneficiaries	< 50	11	$3,032
	50 - 59	9	11,011
	60 - 69	59	78,049
	70 - 79	92	136,120
	80 - 89	79	121,078
	90 +	21	25,841
	Total	271	375,131

Section V - Analysis of Risk
A. Introduction

The results of this actuarial valuation are based on one set of reasonable assumptions. However, it is almost certain that future experience will not exactly match these assumptions. As an example, the plan's investments may perform better or worse than assumed in any single year and over any longer time horizon. It is therefore important to consider the potential impacts of these likely differences when making decisions that may affect the future financial health of the plan, or of the plan's members.

In addition, as plans mature they accumulate larger pools of assets and liabilities. The increase in size in turn increases the potential magnitude of adverse experience. As an example, the dollar impact of a 10% investment loss on a plan with $1 billion in assets and liabilities is much greater than the dollar impact for a plan with $1 million in assets and liabilities. Since pension plans make long-term promises and rely on long-term funding, it is important to consider how mature the plan is today, and how mature it may become in the future.

Actuarial Standard of Practice No. 51 (ASOP 51) directs actuaries to provide pension plan sponsors with information concerning the risks associated with the plan:

- Identify risks that may be significant to the plan.
- Assess the risks identified as significant to the plan. The assessment does not need to include numerical calculations.
- Disclose plan maturity measures and historical information that are significant to understanding the plan's risks.

This section of the report uses the framework of ASOP 51 to communicate important information about significant risks to the plan, the plan's maturity, and relevant historical plan data.

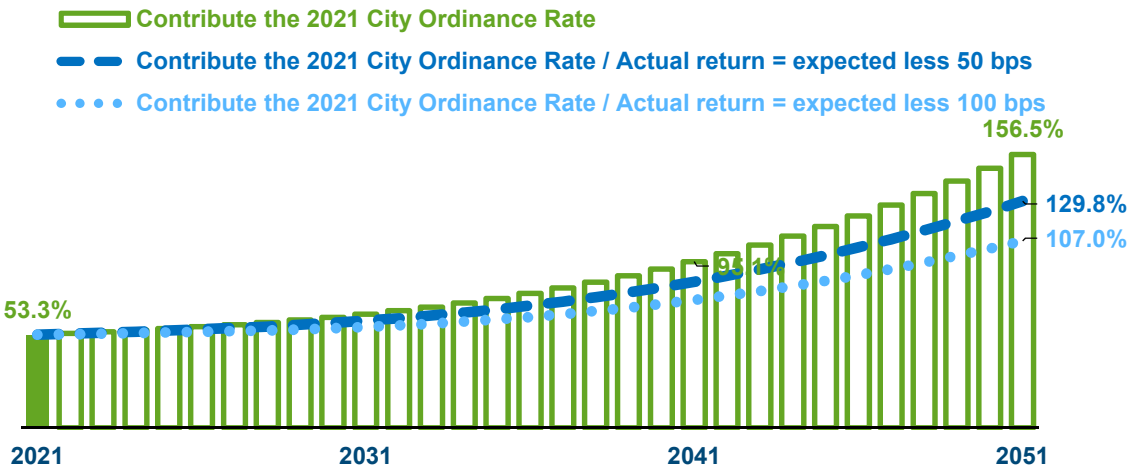
Please see Section III H for more information on the basis for the projected results shown on the following pages.

Section V - Analysis of Risk
B. Risk Identification and Assessment

Investment Risk

Definition: This is the potential that investment returns will be different than expected.

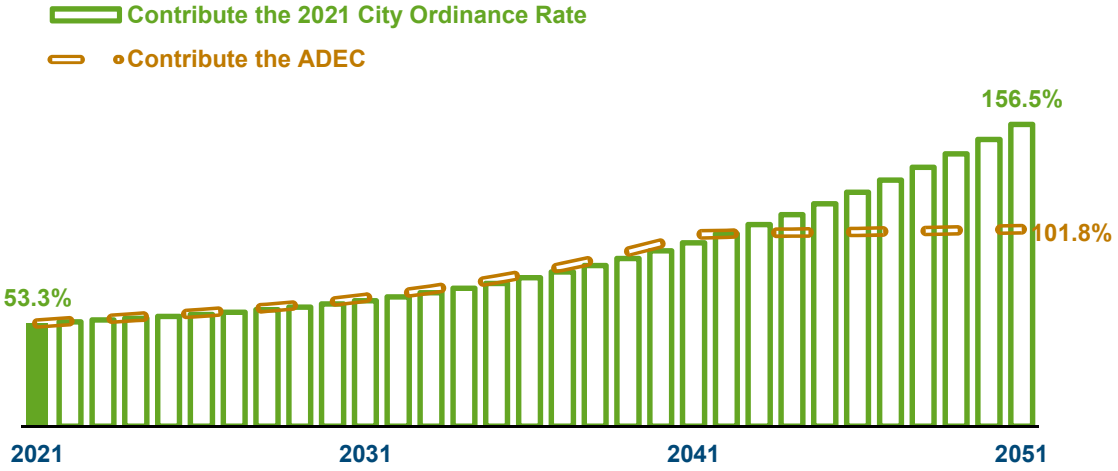
Identification: To the extent that actual investment returns differ from the assumed investment return, the plan's future assets, Actuarially Determined Contributions, and funded status may differ significantly from those presented in this valuation. The consequences of persistent underperformance on future funded ratio levels are illustrated below:



Contribution Risk

Definition: This is the potential that actual future contributions will be less than or greater than the Actuarially Determined Contribution.

Identification: Over the past 10 years, actual City contributions (in dollars) have been 75.4% of the Actuarially Determined Contribution in total. The consequences of contributing an amount different than the ADC on future funded ratio levels are illustrated below:



Section V - Analysis of Risk
B. Risk Identification and Assessment

Liquidity Risk

Definition: This is the potential that assets must be liquidated at a loss earlier than planned in order to pay for the plan's benefits and operating costs. This risk is heightened for plans with negative cash flows, in which contributions are not sufficient to cover benefit payments plus expenses.

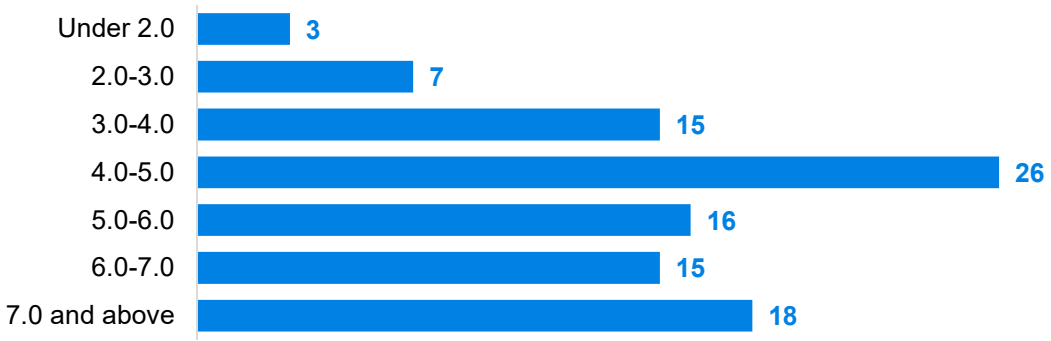
Identification: In 2020, the plan had negative cash flow, with city and member contributions to the plan of $23,244,261 compared to $38,097,977 of benefit payments paid out of the plan. We suggest that you consult with your investment advisors with respect to the liquidity characteristics of the plan's investment holdings.

Maturity Risk

Definition: This is the potential for total plan liabilities to become more heavily weighted toward inactive liabilities over time, and for plan assets and/or liabilities to become larger relative to the active member liability.

Identification: The plan is subject to maturity risk because as plan assets and liabilities continue to grow, the dollar impact of any gains or losses on the assets or liabilities also becomes larger.

Assessment: As of January 1, 2021, the plan's Asset Volatility Ratio (the ratio of the market value of plan assets to Covered Payroll) is 3.2. According to Milliman's 2020 Public Pension Funding Study, the 100 largest US public pension plans have the following range of Asset Volatility Ratios:



Inflation Risk

Definition: This is the potential for a pension to lose purchasing power over time due to inflation.

Identification: The members of pension plans without fully inflation-indexed benefits are subject to the risk that their purchasing power will be reduced over time due to inflation.

Assessment: This plan provides for some postretirement benefit increases, but the increases are not directly tied to each year's rate of actual inflation; this leaves members bearing some inflation risk.

Section V - Analysis of Risk
B. Risk Identification and Assessment

Insolvency Risk

Definition: This is the potential that a plan will become insolvent; that is, assets will be fully depleted.

Identification: If a plan becomes insolvent, contractually required benefits must be paid from the plan sponsor's other remaining assets.

Assessment: Under the GASB 68 depletion date methodology, the plan is not projected to become insolvent. Please see the GASB 68 report for more details on the underlying analysis.

Demographic Risks

Definition: This is the potential that mortality, turnover, retirement, or other demographic experience will be different than expected.

Identification: The pension liabilities reported herein have been calculated by assuming that members will follow patterns of demographic experience as described in Appendix B. If actual demographic experience or future demographic assumptions are different from what is assumed to occur in this valuation, future pension liabilities, Actuarially Determined Contributions, and funded status may differ significantly from those presented in this valuation. Formal Experience Studies performed on a regular basis are helpful in ensuring that the demographic assumptions reflect emerging plan experience.

Retirement Risk

Definition: This is the potential for members to retire and receive subsidized benefits that are more valuable than expected.

Identification: This plan permits members with long service to retire at relatively young ages. If members retire at earlier ages than are anticipated by the actuarial assumptions, this will put upward pressure on subsequent Actuarially Determined Contributions.

Pensionable Earnings Risk

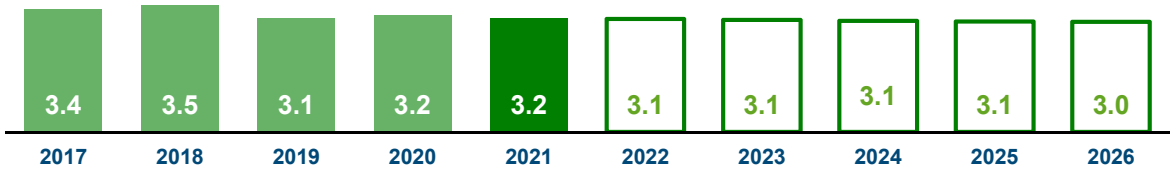
Definition: This is the potential for active members to add items to their pensionable earnings and receive pension benefits that are higher than expected.

Identification: This plan allows for some overtime pay for some members to be included in pensionable earnings. If members retire with higher pensionable earnings than are anticipated by the actuarial assumptions, this will put upward pressure on subsequent Actuarially Determined Contributions.

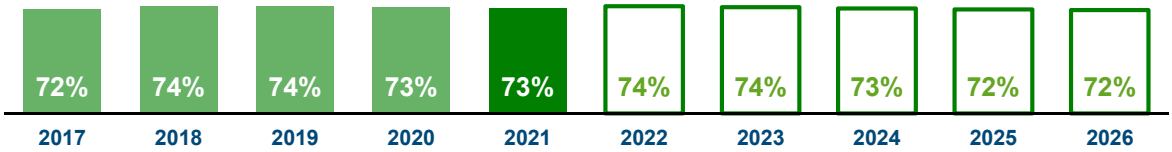
Section V - Analysis of Risk
C. Maturity Measures

The metrics presented below are different ways of understanding the plan's maturity level, both in the past and as it is expected to change in the coming years.

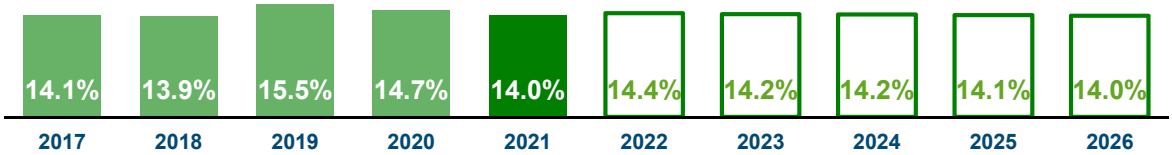
Asset Volatility Ratio: Market Value of Assets compared to Payroll



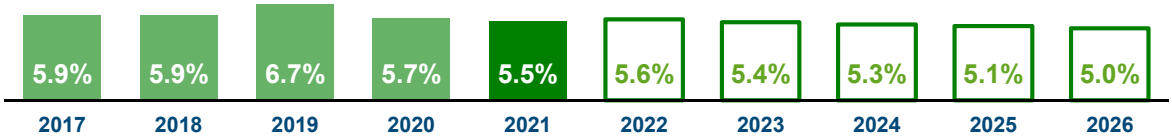
Accrued Liability for members in pay status compared to total Accrued Liability



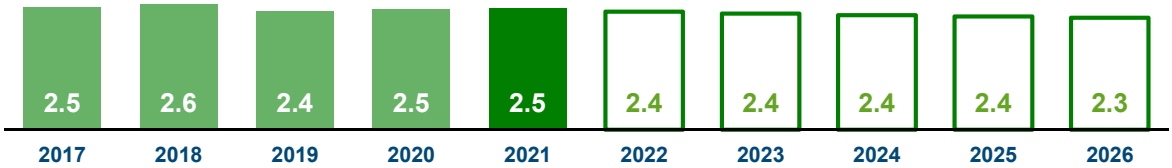
Benefit Payments compared to Market Value of Assets



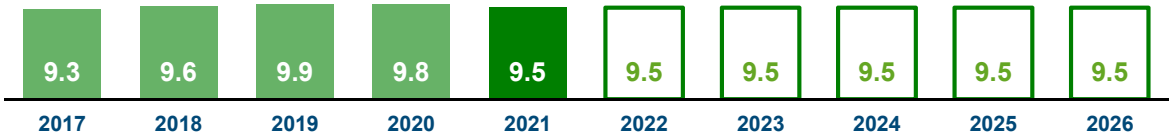
Net Cash Flows compared to Market Value of Assets



Benefit Payments compared to City Contributions



Duration of Accrued Liability (based on GASB 68 sensitivity disclosures)



Appendix A - Actuarial Funding Method

The actuarial funding method used in the valuation of this Plan is known as the Entry Age Normal Method. The Actuarially Determined Total Contribution consists of two pieces: a Normal Cost plus an amortization payment to gradually eliminate the Unfunded Accrued Liability (UAL) over a period of years. Amounts contributed by active members are netted out of this amount to arrive at the Actuarially Determined Employer Contribution (ADEC).

The Normal Cost is determined by calculating the present value of future benefits for present active Members that will become payable as the result of death, disability, retirement or termination. This cost is then spread as a level percentage of earnings from entry age to termination as an Active Member. If Normal Costs had been paid at this level for all prior years, a fund would have accumulated. Because this fund represents the portion of benefits that would have been funded to date, it is termed the Accrued Liability. In fact, it is calculated by adding the present value of benefits for Retired Members and Terminated Vested Members to the present value of benefits for Active Members and subtracting the present value of future Normal Cost contributions.

The funding cost of the Plan is derived by making certain specific assumptions as to rates of interest, mortality, turnover, etc. which are assumed to hold for many years into the future. Since actual experience may differ somewhat from the assumptions, the costs determined by the valuation must be regarded as estimates of the true costs of the Plan.

The Unfunded Accrued Liability is the excess of the Accrued Liability over the assets which have been accumulated for the plan. The initial base was funded as a level percent of payroll over a 25-year closed period that began January 1, 2016. A new base is created in each subsequent year based on any change in the Unfunded Accrued Liability that arises from actual experience being different than is expected based on the actuarial method and assumptions; this amount is amortized as a level percent over a closed 20-year period. If assumption changes are made, a separate base is established based on the resulting change in the Unfunded Accrued Liability; this amount is amortized as a level percent over a closed period selected by the Board.

The Actuarial Value of Assets is determined by recognizing market gains and losses asymptotically over a four year period, with the result constrained to within +/- 20% of the Market Value of Assets.

The long-range forecasts included in this report have been developed by assuming that members will terminate, retire, become disabled, and die according to the actuarial assumptions with respect to these causes of decrement, and that pay increases, cost of living adjustments, and so forth will likewise occur according to the actuarial assumptions. For those unions whose new employees are eligible to participate in this plan, members who are projected to leave active employment are assumed to be replaced by new active members with the same age, service, gender, and pay characteristics as those hired in the past few years.

Appendix B - Actuarial Assumptions

The actuarial assumptions used herein were adopted by the Board based on an experience study prepared by Cavanaugh Macdonald Consulting LLC for the period ending December 31, 2015. We are unable to judge the reasonableness of the assumptions or methods without performing a substantial amount of additional work beyond the scope of the assignment, and have not done so. We will perform an experience study in the near future and will report the results of that analysis when it is complete.

Interest Rate 7.50%

Inflation 2.50%

Amortization Growth Rate 3.00%

Salary Increases Annual increases consisting of 2.50% inflation, 0.60% productivity, and merit/longevity that reflect length of service; combined impact of these factors are per the table below:

Service	Increase
0	9.00%
1	8.00%
2	7.00%
3	6.00%
4	5.50%
5	4.50%
6	4.50%
7	4.00%
8	4.00%
9	4.00%
10	4.00%
11	4.00%
12	3.75%
13	3.75%
14	3.75%
15	3.75%
16-34	3.25%
35 or more	3.10%

Interest Credited to Cash Balance Accounts 6.00%

Decrement Timing Middle of year.

Spouse Age Difference Males are assumed to be 3 years older than Females.

Percent Married 75% of members are assumed to be married at death or retirement.

Children 0 children are assumed per member.

Appendix B - Actuarial Assumptions

Regular Mortality

RP-2014 Mortality Table, adjusted to 2006, with generational projection using the Ultimate Scale used by the Nebraska Public Employees Retirement System. For active members, none of the deaths are assumed to be service connected. This assumption includes a margin for future improvements in longevity.

Disabled Mortality

RP-2014 Disabled Mortality Table, adjusted to 2006, with generational projection using the MP-2016 Scale. This assumption includes a margin for future improvements in longevity.

Termination

Service	Male	Female
0	11.00%	15.00%
1	10.00%	14.00%
2	8.25%	12.00%
3	7.25%	10.50%
4	6.25%	9.00%
5	5.50%	8.00%
6	5.00%	7.00%
7	4.50%	6.00%
8	4.25%	5.00%
9	4.00%	4.50%
10	3.75%	4.30%
11	3.50%	4.00%
12	3.25%	3.80%
13	3.00%	3.50%
14	2.75%	3.00%
15	2.50%	2.50%
16	2.25%	2.00%
17+	2.00%	2.00%

Vested Terminations Electing Refund

50% of members hired prior to March 1, 2015 are assumed to elect a refund of contributions.

Members hired on or after March 1, 2015 are assumed to elect the more valuable of a refund of contributions or the present value of an annuity at age 60. The basis for comparing the value of the two benefits is the valuation interest rate and regular mortality assumption.

Disability

Age	Rate
20	0.11%
30	0.14%
40	0.19%
50	0.41%
60	1.48%

20% of disabilities are assumed to be service connected. No Social Security offset is assumed.

Appendix B - Actuarial Assumptions

Retirement

Members who were within 5 years of Unreduced Retirement Eligibility as of March 1, 2015:

Rates for members who are eligible for Unreduced Retirement

Age	1st Year	Subsequent Years
50-53	35%	25%
54-55	35%	20%
56-60	30%	20%
61	25%	20%
62	25%	30%
63-64	25%	25%
65-69	50%	30%
70	100%	100%

Members eligible for Early, but not Unreduced Retirement, are assumed to retire at the rate of 3.50% per year from ages 55-59.

Members who were within 6-10 years of Unreduced Retirement Eligibility as of March 1, 2015:

Rates for members who are eligible for Unreduced Retirement

Age	1st Year	Subsequent Years
55	35%	20%
56-60	30%	20%
61	25%	20%
62	25%	30%
63-64	25%	25%
65-69	30%	30%
70	100%	100%

Members eligible for Early, but not Unreduced Retirement, are assumed to retire at the rate of 3.50% per year from ages 57-61.

Appendix B - Actuarial Assumptions

Retirement (continued)

Members who were more than 10 years from Unreduced Retirement Eligibility as of March 1, 2015:

Rates for members who are eligible for Unreduced Retirement

Age	1st Year	Subsequent Years
55	35%	20%
56-60	30%	20%
61	25%	20%
62	25%	30%
63-64	25%	25%
65	50%	30%
66-69	30%	30%
70	100%	100%

Members eligible for Early, but not Unreduced Retirement, are assumed to retire at the rate of 3.50% per year from ages 60-64.

Members who were hired on or after March 1, 2015:

Age	Rate
55-59	5%
60-61	7%
62-64	20%
65	35%
66	25%
67-69	20%
70	100%

Deferred vested members are assumed to commence receiving benefits at age 60.

Appendix C - Summary of Plan Provisions

This exhibit summarizes the major provisions of the Plan. It is not intended to be, nor should it be interpreted as a complete statement of all plan provisions. All eligibility requirements and benefit amounts shall be determined in strict accordance with the plan document itself. To the extent that this summary does not accurately reflect the plan provisions, then the results of this valuation may not be accurate.

Eligibility	All full-time city employees except police, fire and contract employees are eligible at date of hire.
Compensation	Included pay types for pensionable pay are defined in the Omaha City Ordinance and listed in an Appendix of the latest collective bargaining agreements. Certain overtime pay is excluded.
Final Average Compensation (FAC)	Members who were within 5 years of normal retirement as of March 1, 2015: Compensation during the highest 78 of the employee's last 130 pay periods divided by 3. All others: Compensation during the last 130 pay periods divided by 5. The minimum FAC for all employees is the FAC as of 2/29/2015 (Compensation during the highest 26 consecutive of the last 130 pay periods as of February 28, 2015 divided by 5).
Member Contributions	10.075% of Compenstion.
Interest on Member Contributions	For members who were hired prior to March 1, 2015, the interest rate on member contributions is set annually for the Board with a minimum of 1% and a maximum of 5%. For members who were hired after March 1, 2015, 4%.
City Contributions	Beginning January 1, 2015 the City contributes 18.775% of each employee's total compensation.
Service	Members receive service for each full pay period of employment. Military service is included if the member returns to work within 90 days of honorable discharge. Service continues to accrue for members receiving disability retirement; however total service will not exceed 30 years unless more than 30 years was earned as an active member prior to disability.
Service Retirement Eligibility	For members who were within 5 years of normal retirement as of March 1, 2015, the earlier of: (a) Age 60 with 5 years of service (b) The date at which the sum of a member's age and Service is equal to 80 (Rule of 80) with minimum age 50 (c) Age 55 with 5 years of service. Benefits are reduced by 8% per year prior to age 60

Appendix C - Summary of Plan Provisions

Service Retirement Eligibility (continued)

For members who were more than 5 but less than 10 years away from normal retirement as of March 1, 2015, the earlier of:

(a) Age 62 with 5 years of service
(b) The date at which the sum of a member's age and Service is equal to 85 (Rule of 85) with minimum age 55
(c) Age 57 with 5 years of service. Benefits are reduced by 8% per year prior to age 62

For members who were hired before March 1, 2015 and were more than 10 years away from normal retirement as of March 1, 2015, the earlier of:

(a) Age 65 with 5 years of service
(b) The date at which the sum of a member's age and Service is equal to 85 (Rule of 85) with minimum age 55
(c) Age 60 with 5 years of service. Benefits are reduced by 8% per year prior to age 65.

For members who were hired on or after March 1, 2015: age 55 with 10 years of service.

Service Retirement

Members who were hired prior to March 1, 2015: 2.25% of FAC multiplied by years of service prior to March 1, 2015 plus 1.90% FAC multiplied by years of service after March 1, 2015.

Members who were hired after March 1, 2015: A notional cash balance account is established for each employee equal to the sum of the employee's pay credits, interest credits and dividends as described below:

Interest credits and dividends: On the last day of each plan year, each cash balance account shall receive an interest credit equal to 4.0% of the balance at the beginning of the plan year. Additionally, each account may be credited with a dividend of 75% of the System's investment return in excess of 7.0% on a rolling 5-year market value basis . This dividend is capped at 3.0% until January 1, 2020. There is no dividend cap after January 1, 2020.

Pay credits are credited at the end of each plan year as follows:

Years of Service	Percentage
Less than 8	13.00%
8 - 15	14.00%
16 - 23	15.00%
24 and more	16.00%

Appendix C - Summary of Plan Provisions

Service Retirement (continued)

A member may receive benefit payments from their cash balance account in one of the following forms: single life annuity, life annuity with 10 or 15 years certain, or 50%, 75% or 100% Joint and Survivor annuity. The annuity conversion factor shall be based on 5% interest and the RP 2000 Mortality Table projected to 2034 using Scale AA with a 67%/33% male/female blend.

Non-Service Disability

Members who were hired prior to March 1, 2015 are eligible after 5 years of service. Members who were hired after March 1, 2015 are eligible after 10 years of service.

The benefit is 1.50% of FAC multiplied by years of service. This benefit is reduced for Social Security disability retirement benefits. This benefit is payable until age 65, at which point the service retirement pension starts. Service credits accrue while receiving a disability pension.

Service-Related Disability

Members are eligible after 6 months of service.

The benefit is 1.75% of FAC multiplied by years of service. This benefit is reduced for worker's compensation and/or social security disability retirement benefits. This benefit is payable until age 65, at which point the service retirement pension starts. Service credits accrue while receiving a disability pension.

Preretirement Surviving Spouse's Benefit

Members who were hired before March 1, 2015:
75% of the member's accrued pension paid to the surviving spouse until death or remarriage if the member had completed 5 years of service or suffered a service-connected death and had completed 6 months of service.

If the surviving spouse was married to the member for at least one year, and the member was eligible for retirement or retired on their date of death, the surviving spouse is eligible to receive 75% of the benefit that the member was receiving or entitled to receive. All spousal benefits cease upon remarriage.

Members who were hired after March 1, 2015:

For death of a member prior to retirement a lump sum of the member's cash balance account will be paid to the surviving spouse if the member had completed 10 years of service or suffered a service-connected death and had completed 6 months of service. If the member had completed fewer than 10 years of service the surviving spouse will receive a lump sum equal to the member's contributions with 4.0% interest. For death of a member post retirement, the spouse's benefit depends on the optional form of payment elected.

Appendix C - Summary of Plan Provisions

Children's Benefit

Members who were hired before March 1, 2015:

Dependent Children	% of Accrued Benefit*
1	5%
2	10%
3	15%
4 or more	20%

**until age 18*

If the member was eligible for retirement on their date of death and there is no eligible survivng spouse, surviving children (in total) are also eligible to receive 75% of the benefit that the member was receiving or entitled to receive until age 18.

Members who were hired after March 1, 2015:

For death of a member prior to retirement a lump sum of the member's cash balance account will be paid to member's surviving children if the member had completed 10 years of service or suffered a service-connected death and had completed 6 months of service and there is no eligible surviving spouse. If the member had completed fewer than 10 years of service the children will receive a lump sum equal to the member's contributions with 4.0% interest.

Lump Sum Death Benefits

$5,000

The beneficiary of an active or retired member without eligible dependents will also receive the accumulated member's contributions less any previous pension payments made.

Vesting

Members who were hired before March 1, 2015: 5 Years

Members who were hired after March 1, 2015: 10 Years

Termination Benefit

Members who were hired before March 1, 2015:

A member that severs employment with less than 5 years of service will receive a refund of the employee's employee contributions with interest.

A member that severs employment with more than 5 years of service but prior to service retirement eligibility may elect a deferred retirement, reduced for early retiement if applicable.

Appendix C - Summary of Plan Provisions

Termination Benefit (continued)

Members who were hired after March 1, 2015:
A member that severs employment with less than 10 years of service will receive a refund of the employee's employee contributions with 4.0% interest.

A member that severs employment with more than 10 years of service but prior to service retirement eligibility may elect a deferred reirement.

Cost of Living Adjustments

Cost of living adjustments (COLAs) begin five years after benefit commencement for all retirees and beneficiaries who retired prior to January 28, 1998. COLAs are equal to the lesser of 3% or $50 per month.

Appendix D - Glossary

Actuarial Cost Method - This is a procedure for determining the Actuarial Present Value of Benefits and allocating it to time periods to produce the Actuarial Accrued Liability and the Normal Cost.

Accrued Liability - This is the portion of the Actuarial Present Value of Benefits attributable to periods prior to the valuation date by the Actuarial Cost Method (i.e., that portion not provided by future Normal Costs).

Actuarial Assumptions - With any valuation of future benefits, assumptions of anticipated future events are required. If actual events differ from the assumptions made, the actual cost of the plan will vary as well. Some examples of key assumptions include the interest rate, salary scale, and rates of mortality, turnover and retirement.

Actuarial Present Value of Benefits - This is the present value, as of the valuation date, of future payments for benefits and expenses under the Plan, where each payment is: a) multiplied by the probability of the event occurring on which the payment is conditioned, such as the probability of survival, death, disability, termination of employment, etc.; and b) discounted at the assumed interest rate.

Actuarial Value of Assets - This is the value of cash, investments and other property belonging to the plan, typically adjusted to recognize investment gains or losses over a period of years to dampen the impact of market volatility on the Actuarially Determined Contribution.

Actuarially Determined Employer Contribution ("ADEC") - This is the employer's periodic contributions to a defined benefit plan, calculated in accordance with actuarial standards of practice.

Attribution Period - The period of an employee's service to which the expected benefit obligation for that employee is assigned. The beginning of the attribution period is the employee's date of hire and costs are spread across all employment.

Covered Payroll - This is the total projected pensionable earnings for all active members.

Expected Payroll - This is the total projected pensionable earnings for active members who have not yet reached the age where 100% are assumed to retire.

Interest Rate - This is the long-term expected rate of return on any investments set aside to pay for the benefits. In a financial reporting context (e.g., GASB 68) this is termed the Discount Rate.

Normal Cost - This is the portion of the Actuarial Present Value of Benefits allocated to a valuation year by the Actuarial Cost Method.

Past Service Cost - This is a catch-up payment to fund the Unfunded Accrued Liability over time (generally 10 to 30 years). A closed amortization period is a specific number of years counted from one date and reducing to zero with the passage of time; an open amortization period is one that begins again or is recalculated at each valuation date. Also known as the Amortization Payment.

Return on Plan Assets - This is the actual investment return on plan assets during the fiscal year.

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