

NEBRASKA RETIREMENT SYSTEMS COMMITTEE

2022

LR 295

Report on Political Subdivision Underfunded Defined Benefit Retirement Plans

Committee Members

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2022 Summary of Underfunded Political Subdivision Defined Benefit Plan Reports

Background

In 2014, LB 759 was enacted to require reporting by political subdivisions with underfunded defined benefit plans in order to provide oversight of these entities by the Nebraska Retirement Systems Committee. The bill was codified at Neb. Rev. Stat. 13-2402. It requires any governing entity that offers a defined benefit plan which was open to new employees on January 2004, to file a report with the Nebraska Retirement Systems Committee if the most recent actuarial valuation report indicates that (1) the contributions do not equal the actuarial requirement for funding or (2) the funded ratio of the plan is less than eighty percent. The report must include, at a minimum, an analysis of the future benefit changes, contribution changes, or other proposed corrective action to improve the plan's funding condition.

Under Neb. Rev. Stat. 13-2402, the Nebraska Retirement Systems Committee may require the entity to present the report to the Committee at a public hearing. If a governmental entity fails to file the required information with the Committee, the State Auditor is authorized to audit the public pension system, or cause it to be audited at the political subdivision's own expense. The annual reporting requirement began November 1, 2014. In 2015, the reporting date was changed to October 15 of each year.

2022 Underfunded Pension Plans

In 2021, there were eight political subdivisions with defined benefit plans funded below the 80% funding level. This year, the Eastern Nebraska Health Agency Plan increased its funding level to 81% and Lincoln Police and Fire increased its funding level to 80%, so they were not required to report this year.

Below is a list of the six political subdivisions with defined benefit plans that remain funded below 80% and a summary of the 2020/2021 and 2021/2022 funding status for each plan:

- Douglas County Employees
- Metro Area Transit Hourly Employees
- Omaha Civilian Employees
- Omaha Police and Fire
- Omaha Public Power District
- Omaha Public Schools – Omaha School Employees Retirement

POLITICAL SUBDIVISION	2021/2022 FUNDING STATUS*	2020/2021 FUNDING STATUS*
Douglas County Employees	73.9%	70.9%
Metro Area Transit Hourly Employees	71.5%	68.5%
Omaha Civilian Employees	53.7%	52.4%
Omaha Police and Fire	57.5%	55.1%
Omaha Public Power District	75.5%	72.0%
Omaha Public Schools (OSERS plan)	63.0%	63.0%

*Funding status year varies because some plans are based on calendar year or a September through August plan year so current plan year data is not yet available.

Required Reporting Information

The Committee created a Reporting Form which was forwarded to each political subdivision in September 2022. Each entity was asked to submit the information identified on the Form. Reporting materials provided by each governmental entity are included in the Appendices to this Report. A public hearing was conducted by the Committee on November 22, 2022. The following information was presented:

1. Please list the following information for plan years 2018 through current plan year 2022:
 - a. Funding status
 - b. Assumed rate of return
 - c. Actual investment return
 - d. Member and employer contribution rates -- percentage
 - e. Normal cost – percentage
 - f. Actuarially required contribution (ARC) – percentage & dollar amount
 - g. ARC contribution – dollar amount contributed & percentage of ARC actually contributed
2. Please provide a brief narrative of the circumstances that led to the current underfunding of the retirement plan.
3. Have there been any changes in the actuarial methods and/or assumptions since the previous actuarial valuation report? If so, please describe.
4. In what year is the plan's funding ratio expected to reach 100%?
5. What is the method used to amortize the unfunded actuarial liability?
6. Please provide a description of corrective actions implemented to improve the funding status of the plan including, but not limited to, benefit changes, increased contribution rates and/or employer contributions. Please include any actuarial projections based on these changes and attach a copy of the actuarial projections.
7. Describe recent or ongoing negotiations with bargaining groups that may impact the plan's funding.
8. Please attach a copy of the most recent Actuarial Experience Study and year of next Study.
9. What is the current assumed rate of return? If the rate has been changed in the past year, or if there are plans to review the rate in the upcoming year, please describe.
10. Please attach the most recent actuarial valuation report. If the valuation report is completed biannually (or less often) please include an updated report for the interim year/s, if available.

Summaries of Plan Funding and Benefit Changes

Douglas County Employees:

The plan's funding ratio is currently 73.9% and the investment return was 12.5% compared to the previous year's return of 13.6%.

In the January 2020 Actuarial Valuation, two actuarial assumptions were updated:

- Pub G – 2010 Mortality Table with longer life expectancies were used
- Increased salary scales were implemented

Effective in 2021, Corrections guards were extended the same plan benefit provisions as sheriff deputies and the guard's member contribution rate was increased by an addition 2% of pay. Douglas County reports that this benefit change had no impact on the plan's funding status or actuarial accrued liability.

Douglas County reports that in order to understand why the plan is only funded at 73.9%, it is important to look at the history of changes to the Plan. In 1996, the Plan was 97.8% funded. In 1996 for law enforcement, and in 1997 the other plan participants, the following changes were made:

- Unreduced benefit upon Rule of 75
- Benefit formula increased from 1.5% of pay per year of service to 2% of pay per year of service

In 1998, a 3% COLA was approved, in 2000 a 4% COLA was approved and in 2002, a 3% COLA was approved. By 2004, the funding ratio had fallen to 64.8%. The County and member contributions each increased from 5.5% of pay in 2005 to the present level of 8.5% of pay by 2008. Poor stock market performance during the Great Recession also negatively impacted the Plan's funded ratio, which reached a low point of 57.8% in 2010.

To ensure the financial viability of the Plan for its current participants, the following provisions were put in place for all employees hired after December 31, 2011:

- No Rule of 75
- Benefit formula was reduced from 2% of pay per year of service to 1.5% of pay per year of service
- Maximum retirement income was reduced from 60% of final average compensation to 45%.

These plan changes, along with no COLA increases given since 2022, have increased the plan funding ratio by 16.1% from the lower point in 2010 to 73.9% as of January 1, 2022. These plan changes have also materially impacted the Plan's forecast of funded percentage so the forecast now projects the plan achieving acceptable funded levels in the future as forecast by SilverStone in January 2022 as follows, assuming current plan assumptions are met:

2022	73.9%
2027	81.8%
2032	88.1%
2037	97.0%
2042	109.6%

Additional changes made:

- In 2015, the Long-Term Disability (LTD) program was removed from the Pension Plan and put into a separate fully insured benefit plan.
- In 2016, the interest crediting rate on member contributions was changed from 5% to the 10-year Treasury Rates in effect on November 1st of the preceding plan year. The combined impact of these changes was a \$3.6 million decrease in the AAL and a 0.6% increase in the Plan's funded ratio.
- In the 2017 Experience Study, actuarial updates were made to the mortality table, the amortization period of the unfunded liability was reduced, and the rates of early retirement and termination of employment were revised.

The amortization method is a 25-year amortization of the unfunded actuarial liability based on a closed, layered level percent of pay.

No recent or ongoing negotiations with any employee labor groups are expected to impact the funding of the pension plan.

Douglas County Employees Plan Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	CNTY RATES	UAL	% OF ARC PAID
2022	73.9%	7.5%	12.5%	10.8%	17.4%	8.5%	8.5%	\$150,355,000	98.9%
2021	70.9%	7.5%	13.6%	10.7%	17.3%	8.5%	8.5%	\$159,200,000	100%
2020	66.8%	7.5%	19.7%	11.0%	18.2%	8.5%	8.5%	\$173,600,000	94.3%
2019	65.6%	7.5%	-2.8%	10.8%	18.1%	8.5%	8.5%	\$168,000,000	100.8%
2018	68.0%	7.5%	16.8%	11.2%	18.0%	8.5%	8.5%	\$148,540,000	102.2%

Metro Area Transit Hourly Employees:

The most recent investment return was 12.21%, compared to last year's investment return of 14.24%. Since 2009, the assumed rate has been reduced numerous times. In 2009 it was reduced from 8% to 7.5%; in 2015 it was reduced to 7.0%; in 2016 it was reduced from to 6.75%, in 2020 it was reduced to 6.50%, and in 2021 it was reduced to 6.25% (which is currently the lowest assumed rate among all reporting underfunded plans). The current funded ratio is 71.5%, which is a 3% increase from last year's funding ratio of 68.5%.

Since last year, the mortality projection scale was updated from MP-2019 Ultimate to MP-2021 Ultimate. The impact of this change was a decrease in the Unfunded Accrued Liability of about \$501,000 and a decrease in the Actuarially Determined Contribution of about \$47,000.

Since 2017, the Metro Area Hourly Pension Committee members have amended the plan document to increase the employer and employee contribution rates.

- The employer contribution rate increased from 6.5% to 7.75% and the employee contribution rate increased from 6% to 7.5% during that same period.

For those employees hired on or after January 1, 2018, the Pension Committee also:

- changed the normal retirement date from age 65 to the age when the employee reaches full retirement for purposes of receiving Social Security benefits
- eliminated the early retirement option
- changed the benefit factor percentage used in the calculation of the monthly benefit to a tiered structure based on years of service in lieu of the current method of using the same benefit factor percentage regardless of years of service

The actuarial liability is amortized for 30 years starting in 2012, graded down for each successive year. The Individual Entry Age Normal Cost is the actuarial cost method used to value the liabilities. The amortization period will decrease each year until it reaches 10 years, after which it remains at 10 years

To reflect the increasing average age of the Plan participants, the asset allocation has been modified to reduce the volatility of returns and meet the actuarial assumed rate of return. To increase net investment returns, the entire portfolio has been indexed, reducing Plan investment management fees from 71 basis points to 9 basis points. An incremental change in the net asset allocation guidelines gradually reduces the bond investment while increasing the equity investment over a 5-year period beginning in 2021.

Metro Area Transit Hourly Employees Summary

YEAR	FUNDED RATIO*	ASSUMED INVEST. RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	METRO RATES	UAL	% OF ARC PAID
2022	71.5%	6.25%	12.21%	8.73%	N.A.	7.5%	7.75%	\$11,851,000	N.A.
2021	68.5%	6.25%	14.24%	8.81%	N.A.	7.5%	7.75%	\$12,800,000	80.89%
2020	66.7%	6.5%	20.06%	8.50%	N.A.	7.0%	7.5%**	\$12,900,000	110.35%
2019	67.3%	6.75%	-4.84%	7.36%	N.A.	7.0%	7.5%	\$11,700,000	93.84%
2018	77%	6.75%	13.35%	7.21%	N.A.	7.0%	7.5%	\$11,400,000	102.35%

* Funding Status for 2018 and prior is based on Market Value of Assets compared to Present Value of Accrued Benefits. Starting in 2019, Funding Status is based on Actuarial Value of Assets compared to Actuarial Accrued Liability in order to coincide with the basis for calculating the Actuarially Determined Contribution.

**The employer made a one-time lump sum contribution of \$350,000 to the Plan in November of 2020 to increase the actual contribution as a percentage of payroll effectively to 11.1%.

Omaha Civilian Employees:

The funded ratio last year increased slightly from 52.4% to 53.3%. Last year's return on investment was 12.98%.

The percentage of the ARC the City of Omaha has paid over the past 5 years has declined. In 2016, the City of Omaha paid 106.81%, in 2017 it paid 91.2%, in 2018 it paid 86.8%, in 2019 it paid 87.4% and last year the City paid 88.24% of the ARC. The City has paid **-\$7.573 million less** than the full amount of the ARC between 2017 through 2021. No more recent data is available. Last year the Unfunded Actuarial Liability decreased slightly from \$230.2 million to \$229 million.

The most recent Experience Study for 2016-2020, adopted in August, 2022, includes the following assumption changes:

- Reducing the Cash Balance Interest Crediting Rate from 6% to 5.25%
- Moving the RP-2014 Mortality Table to the Pub-2010 General Mortality Tables with MP-2021 projection scale

The Omaha Civilian plan has been underfunded for a number of years based on various reasons. According to information reported by the City of Omaha, when the system was fully funded in the late 1990s, benefits were increased and even though the actuarial cost was calculated, the benefits exceeded those costs. There have also been some years when the investment loss was historically large. Other factors include reduction in the number of civilian employees over the past 20 years, lack of wage increases in some instances, and the delay in replacing retired personnel.

In 2013, in an effort to improve the condition of the system, the City entered into labor agreements with all its civilian bargaining groups which included the following changes 2013 – 2017:

- Contributions by the City increased 7% over the four years of the agreements from 11.775% to 18.775%
- Existing employees receive 1.9% per year for future years of service instead of 2.25%
- Rule of 80 changed to the Rule of 85 and the minimum retirement age was raised from 60 to 65 with some grandfathering
- The smoothing of the salary of the member's pension changed from a highest one year in the last five years to the average of the last five years of employment
- Dramatically decreased disability benefit for the existing employees
- Implemented a Cash Balance Plan for employees hired on or after March 1, 2015
 - The pay credit for Cash Balance Plan started at 13% and increases 1% for each 8 years of service
 - The interest credit is guaranteed at 4% with an additional amount of three quarters of the amount earned by the Plan over 7% on a 5-year rolling average, with the interest credit capped at 7%
 - Vesting originally set at 10 years in the Cash Balance Plan

When the changes were originally approved, the Plan was projected to be fully funded by 2048. The projection in the Actuarial Report effective January 1, 2022 projects the Plan to be fully funded in 2040.

The City of Omaha has agreements with all its civilian bargaining groups until the end of the 2025 payroll year. There were no additional pension changes/reform in the agreements that have been negotiated and approved in the last year.

There was one change to the system which resulted in both the City and the employees increasing their contributions by 0.055% respectively. This was to account for changing the period of time for vesting in the Cash Balance Plan from 10 years to 5 years.

The unfunded actuarial liability (UAL) is funded on a “layered” basis, with the initial base funded as a level-percent of payroll over a 26-year closed period that began January 1, 2016. Each experience base is funded as a level percent of payroll over a 20-year closed period.

[See the Addendum in the Report Conclusion – “Committee Concerns about City of Omaha Charter Pension Language”]

Omaha Civilian Employees Plan Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	CITY RATES	UAL	% OF ARC PAID
2021*	53.7%	7.5%	12.98%	10.23%	31.32%	10.13%	18.83%	\$236,500,000	N.A.
2020	53.3%	7.5%	12.6%	10.34%	30.269%	10.075%	18.775%	\$229,116,410	88.24%
2019	52.4%	7.5%	12.7%	9.74%	30.954%	10.075%	18.775%	\$230,182,264	87.40%
2018	51.8%	7.5%	14.7%	9.818%	31.662%	10.075%	18.775%	\$232,506,762	86.80%
2017	53.0%	7.5%	-.3%	9.923%	31.056%	10.075%	18.775%	\$223,286,679	91.02%

*Omaha Civilian Plan Year ends December 31, therefore the valuation report based on the 2022 Plan year is not yet available.

Omaha Police and Fire:

The investment return was 22.15%, compared to the previous year's investment return of 9.23%. The funded ratio increased from 55.1% to 57.5%. The Unfunded Actuarial Liability decreased slightly from \$230.2 to \$229.1 million. The City has paid **-\$14.846 million less** than the full amount of the ARC from 2016 through 2021.

An Experience Study was completed last year for the 2016-2020 time period. The investment assumption rate remains unchanged at 7.75%; the rate has been 7.75% since 2017.

A number of new assumption changes were adopted including:

- Pay increase assumption (Fire) – years 4 to 16 – decreased by 0.25% to 0.50% per year
- Mortality assumption moved from the RP-2014 Mortality Table to the Pub-2010 General Mortality Tables with MP-2021 projection scale
- Adjustments were made to police and fire termination rates, disability and Career Overtime Average (COTA) rates
- Assumption of the number of members who entered DROP was changed from 75% to 80% for police and from 75% to 90% for fire

The City of Omaha reports that there are numerous circumstances that led to the current underfunding of the Omaha Police & Fire Plan. When the system was fully funded in the late 1990s, benefits were increased and even though the actuarial cost was calculated, the benefits exceeded those costs. There have also been some years when the investment loss was historically large.

During the economic downturn of the early 2000s, there were some additional benefits (compensatory time paid at end of career) negotiated as part of wage and other compensation deferments. The City reports that it was anticipated that members would take advantage of the additional time off, but many did not – resulting in an increase in the compensation amount upon which the pension was calculated. Another factor noted was that wages were not increased at the rate in the actuarial assumptions.

In 2008, in an effort to improve the funding status, the City increased contributions and modified pension benefits through labor agreements with the police union in October 2010 and with the fire union in December 2012. The changes in contributions and benefits included:

- Changing minimum retirement age from 45 to 50
- Requiring 30 years of service instead of 25 years to get the maximum benefit
- Implementing a Career Overtime Average (COTA) so that employees could not artificially enhance members' pension by working a lot of overtime or selling comp time in members' last year of employment
- Smoothing the salary on which a pension calculation was based from highest 1 year to highest 3 years
- Pensions or new hires based only on base salary
- For all groups excluding the police union, capping pension for new hires at 65% and requiring 30 years of service
- Increased City contributions to the system by 13% to 14%

The employees who are part of the COPFRS Plan are from four bargaining groups. The Omaha Police Officers Association entered into a collective bargaining agreement for 2021 through 2025. As part of that agreement, the City of Omaha and the employees have agreed to contribute an additional 0.75% of wages into the system from 2021 to 2023. The Agreement also made another prospective change providing that COPFRS is no longer responsible for medical payments for those who receive service-connected disability pensions and whose bills are not covered under Workers Compensation.

Police Management has a collective bargaining agreement for 2021 which does not include any additional pension contributions.

The City has a new collective bargaining agreement with the Professional Firefighters' Association for a term of 2019 through 2023. This agreement did not include any additional pension contributions or any changes in the pension system.

The City has a collective bargaining agreement with the Fire Management group that expires the end of 2022. That agreement did not include any additional pension contributions or any changes to the pension system.

[See the Addendum in the Report Conclusion – “Committee Concerns about City of Omaha Charter Pension Language”]

Omaha Police and Fire Plan Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EMPLOYEE RATES	CITY RATES	UAL	% OF ARC PAID
2021*	57.5%	7.75%	22.15%	20.23%	52.82%	16.10%-17.15%	32.97%-34.44%	\$229,100,000	N.A.
2020	55.1%	7.75%	9.23%	21.29%	53.87%	16.10%-17.15%	32.97%-34.44%	\$230,200,000	95.31%
2019	54.3%	7.75%	9.28%	21.92%	52.955%	16.10%-17.23%	32.97%-34.44%	\$232,507,000	94.15%
2018	52.4%	7.75%	17.24%	22.03%	53.447%	16.10%-17.23%	32.97%-34.44%	\$223,287,000	96.06%
2017	52.1%	7.75%	-2.33%	22.21%	53.199%	16.10%-17.23%	32.97%-34.44%	\$197,500,000	96.29%

*Omaha Police & Fire Plan Year ends December 31, therefore the valuation report based on the 2022 Plan year is not yet available.

Omaha Public Power District:

The Omaha Public Power District (OPPD) Plan year is based on the calendar year so the 2022 Valuation Report is not yet available. In 2021 the funding ratio increased to 75.5% from the previous year's funding ratio of 72% -- a 3.5% increase. The investment return in 2021 was 6.4%, compared to the previous year's investment return of 13.30%. OPPD has consistently paid 100% of its ARC in each of the previous five reporting years. In 2021, the District contributed an additional \$95 million to the plan in addition to the \$56.5 million ARC.

The District changed its discount rate from 7.0% to 6.5% and adopted updated mortality tables in 2022. In 2021, the actuarial value of assets method was changed to a 5-year smoothing.

The Plan's unfunded liability is amortized over 20 years as a level dollar amount. A new amortization base is established each year for unexpected changes in the unfunded liability such as plan amendments, assumption changes or gains/losses.

In 2017, negotiations with bargaining units resulted in an increase in employee contributions, which gradually increased beginning in 2018 to 6.7%, to 7.2% in 2019, 7.7% in 2020, 8.3% in 2021, and to 9.0% in 2022 where it remains. During 2022, the District agreed to new three-year agreements with its bargaining groups, however, there were limited modifications in the agreements related to the retirement plan.

OPPD reports that the primary reasons for the pension's present funding level are lower investment performance from 2000 – 2008, increase in mortality tables due to longer life expectancy, and reduction of the plan's projected earnings rate (discount rate).

In response, OPPD has been working to address funding and long-term sustainability of the plan. In 2012 the Board moved to a Cash Balance Plan for employees hired on and after January 1, 2013. In 2013, OPPD changed early retirement eligibility, which generally prevents employees from receiving early retirement benefits before age 55.

Omaha Public Power District Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	DISTRICT RATES	UAL	% OF ARC PAID
2022*	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2021	75.5%	6.5%	6.4%	13.4%	28%	9.0%	28.0%	\$422,067,662	100%
2020	72.0%	7.0%	13.30%	12.2%	29.4%	8.3%	29.4%	\$449,607,761	100%
2019	68.9%	7.0%	18.99%	12.1%	31.6%	7.7%	31.6%	\$488,075,940	100%
2018	67.8%	7.0%	-6.34%	12.3%	33.0%	7.2%	33.0%	\$495,772,429	100%

*Omaha Public Power District Plan year ends December 31 so the 2022 Valuation Report is not yet available.

Omaha Public School (OSERS):

The Omaha School Employees Retirement System (OSERS) plan is based on the calendar year. The investment return in 2021 was 8.9%, following the previous year's investment return of 6.0%. The Omaha Public School district (OPS) has exceeded its required contributions to the OSERS Plan for four consecutive years. In 2019 it contributed \$3.1 million more than the recommended ARC. In 2020, OPS contributed an additional \$1.8 million, in 2021 OPS contributed an additional \$1.945, and in 2022 OPS contributed \$7.7 million more than the recommended ARC.

The OSERS' Plan funding status has remained unchanged at 63% and the unfunded actuarial liability decreased slightly from \$914 million to \$913 million. The current projected actuarial required contributions (ARCs), if all assumptions are met, for the next five years are as follows:

<u>Year</u>	<u>Amount of Projected ARC</u>
2023	\$23.0 million
2024	\$24.8 million
2025	\$29.0 million
2026	\$28.8 million
2027	\$29.7 million

A new Experience Study was conducted last year. Several demographic assumptions were adopted including generational mortality improvements modeled using the NPERS projection scale. The investment return assumption was reduced from 7.5% to 7.0% which will be phased in over the next four years as follows: 7.4% in 2021, 7.3% in 2022, 7.2% in 2023 and 7.0% in 2024. Under LB 147, passed in 2021, the management of the OSERS plan transfers to NPERS on September 1, 2024.

Omaha School Employees Retirement System Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	OPS RATES	UAL in millions	**STATE 2% PAID in millions	% OF ARC PAID
2022*	N.A.	7.3%	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	\$7.9	N.A.
2021	63%	7.4%	8.9%	12.59%	27.19%	9.78%	9.878%	\$913	\$7.5	113%
2020	62%	7.5%	6.0%	12.76%	27.53%	9.78%	9.878%	\$914	\$7.3	109%
2019	63%	7.5%	5.2%	12.88%	27.25%	9.78%	9.878%	\$848	\$7.42	108%
2018	63%	7.5%	-2.4%	12.96%	26.97%	9.78%	9.878%	\$814	\$7.11	107%

*Omaha School Employees Retirement Plan year ends December 31 so the 2022 Valuation Report is not yet available.

**The percent of ARC paid as noted in the actuarial valuation reports includes the State's statutorily required contribution which equals 2% of the total compensation of all OSERS members. Here is a list of the State's annual 2% contributions:

<u>Year</u>	<u>Amount of State Contribution</u>
2022	\$7.9 million
2021	\$7.5 million
2020	\$7.3 million
2019	\$7.42 million

Summary Charts of 2017/18 through 2021/22 Actuarial and Investment Information

Douglas County Employees Plan Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	CNTY RATES	UAL	% OF ARC PAID
2022	73.9%	7.5%	12.5%	10.8%	17.4%	8.5%	8.5%	\$150,355,000	98.9%
2021	70.9%	7.5%	13.6%	10.7%	17.3%	8.5%	8.5%	\$159,200,000	100%
2020	66.8%	7.5%	19.7%	11.0%	18.2%	8.5%	8.5%	\$173,600,000	94.3%
2019	65.6%	7.5%	-2.8%	10.8%	18.1%	8.5%	8.5%	\$168,000,000	100.8%
2018	68.0%	7.5%	16.8%	11.2%	18.0%	8.5%	8.5%	\$148,540,000	102.2%

Metro Area Transit Hourly Employees Summary

YEAR	FUNDED RATIO*	ASSUMED INVEST. RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	METRO RATES	UAL	% OF ARC PAID
2022	71.5%	6.25%	12.21%	8.73%	N.A.	7.5%	7.75%	\$11,851,000	N.A.
2021	68.5%	6.25%	14.24%	8.81%	N.A.	7.5%	7.75%	\$12,800,000	80.89%
2020	66.7%	6.5%	20.06%	8.50%	N.A.	7.0%	7.5%**	\$12,900,000	110.35%
2019	67.3%	6.75%	-4.84%	7.36%	N.A.	7.0%	7.5%	\$11,700,000	93.84%
2018	77%	6.75%	13.35%	7.21%	N.A.	7.0%	7.5%	\$11,400,000	102.35%

* Funding Status for 2018 and prior is based on Market Value of Assets compared to Present Value of Accrued Benefits. Starting in 2019, Funding Status is based on Actuarial Value of Assets compared to Actuarial Accrued Liability in order to coincide with the basis for calculating the Actuarially Determined Contribution.

**The employer made a one-time lump sum contribution of \$350,000 to the Plan in November of 2020 to increase the actual contribution as a percentage of payroll effectively to 11.1%.

Omaha Civilian Employees Plan Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	CITY RATES	UAL	% OF ARC PAID
2021*	53.7%	7.5%	12.98%	10.23%	31.32%	10.13%	18.83%	\$236,500,000	N.A.
2020	53.3%	7.5%	12.6%	10.34%	30.269%	10.075%	18.775%	\$229,116,410	88.24%
2019	52.4%	7.5%	12.7%	9.74%	30.954%	10.075%	18.775%	\$230,182,264	87.40%
2018	51.8%	7.5%	14.7%	9.818%	31.662%	10.075%	18.775%	\$232,506,762	86.80%
2017	53.0%	7.5%	-3%	9.923%	31.056%	10.075%	18.775%	\$223,286,679	91.02%

*Omaha Civilian Plan Year ends December 31, therefore the valuation report based on the 2022 Plan year is not yet available.

Omaha Police and Fire Plan Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EMPLOYEE RATES	CITY RATES	UAL	% OF ARC PAID
2021*	57.5%	7.75%	22.15%	20.23%	52.82%	16.10%-17.15%	32.97%-34.44%	\$229,100,000	N.A.
2020	55.1%	7.75%	9.23%	21.29%	53.87%	16.10%-17.15%	32.97%-34.44%	\$230,200,000	95.31%
2019	54.3%	7.75%	9.28%	21.92%	52.955%	16.10%-17.23%	32.97%-34.44%	\$232,507,000	94.15%
2018	52.4%	7.75%	17.24%	22.03%	53.447%	16.10%-17.23%	32.97%-34.44%	\$223,287,000	96.06%
2017	52.1%	7.75%	-2.33%	22.21%	53.199%	16.10%-17.23%	32.97%-34.44%	\$197,500,000	96.29%

*Omaha Police & Fire Plan Year ends December 31, therefore the valuation report based on the 2022 Plan year is not yet available.

Omaha Public Power District Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	DISTRICT RATES	UAL	% OF ARC PAID
2022*	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2021	75.5%	6.5%	6.4%	13.4%	28%	9.0%	28.0%	\$422,067,662	100%
2020	72.0%	7.0%	13.30%	12.2%	29.4%	8.3%	29.4%	\$449,607,761	100%
2019	68.9%	7.0%	18.99%	12.1%	31.6%	7.7%	31.6%	\$488,075,940	100%
2018	67.8%	7.0%	-6.34%	12.3%	33.0%	7.2%	33.0%	\$495,772,429	100%

*Omaha Public Power District Plan year ends December 31 so the 2022 Valuation Report is not yet available.

Omaha School Employees Retirement System Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	OPS RATES	UAL in millions	**STATE 2% PAID in millions	% OF ARC PAID
2022*	N.A.	7.3%	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	\$7.9	N.A.
2021	63%	7.4%	8.9%	12.59%	27.19%	9.78%	9.878%	\$913	\$7.5	113.5%
2020	62%	7.5%	6.0%	12.76%	27.53%	9.78%	9.878%	\$914	\$7.3	109%
2019	63%	7.5%	5.2%	12.88%	27.25%	9.78%	9.878%	\$848	\$7.42	108%
2018	63%	7.5%	-2.4%	12.96%	26.97%	9.78%	9.878%	\$814	\$7.11	107%

*Omaha School Employees Retirement Plan year ends December 31 so the 2022 Valuation Report is not yet available.

**The percent of ARC paid as noted in the actuarial valuation reports includes the State's statutorily required contribution which equals 2% of the total compensation of all OSERS members.

The following is a list of the contribution amounts contributed by the State of Nebraska to the OSERS Plan:

<u>Year</u>	<u>Amount of State Contribution</u>
2022	\$7.9 million
2021	\$7.5 million
2020	\$7.3 million
2019	\$7.42 million

Conclusion

Six political subdivisions with underfunded defined benefit plans reported this year, which is two less than last year. Eastern Nebraska Human Services Agency and Lincoln Police and Fire had a funding status of 81% and 80% respectively so they were not required to file reports with the Nebraska Retirement Systems Committee. The Committee will continue to monitor these entities to determine if reporting may be required in the future.

Investment Returns

Five of the six plans reported strong investment returns, which exceeded their respective assumed investment return rates.

- Omaha Police and Fire reported a significant investment return of 22.15%, following last year's return of 9.23%.
- Omaha Civilian Employees reported a return of 12.98%, following last year's return of 12.6%.
- Metro Area Transit Hourly reported a return of 12.21%, following last year's return of 14.24%.
- Douglas County reported a return of 12.5%, following last year's return of 13.6%.
- Omaha School Employees Retirement System Plan (OSERS) had a return of 8.9% in 2021, following an investment return of 6.0% in the previous year.

Omaha Public Power District was the exception, though its investment return of 6.4% was just slightly lower than its assumed investment rate of 6.5%.

Funding Levels

All six plans experienced an increase in funding level compared to its funding level in the previous year. Increases ranged between .4% to 3.5%.

- Omaha Public Power District increased to 75.5% from 72.0% -- a 3.5% increase
- Douglas County's funding level increased to 73.9% from 70.9% -- an increase of 3.0%
- Metro Area Transit Hourly increased to 71.5% from 68.5% -- an increase of 3.0%
- Omaha Police and Fire increased to 57.5% from 55.1% -- an increase of 2.4%.
- Omaha School Employees Retirement (OSERS) increased to 63% from 62% -- an increase of 1%
- City of Omaha Civilian Employees funding level increased to 53.7% from 53.3% -- a .4% increase

ARC Contributions

Only two of the six political subdivisions contributed at least 100% of its ARC payment – Omaha Public Schools and the Omaha Public Power District.

For four consecutive years the Omaha Public School district (OPS) has exceeded its required contributions to the OSERS Plan. In 2019 it contributed \$3.1 million more than the recommended ARC. In 2020, OPS contributed an additional \$1.8 million, in 2021 OPS contributed an additional \$1.945 million, and in 2022 OPS contributed \$7.7 million more than the recommended ARC, for a total of \$14.545 million in contributions above the required ARC payments.

The Omaha Public Power District consistently contributes 100% of its ARC.

Metro Area Transit Hourly contributed the lowest percentage of its ARC – 80.89%, though two of the last four plan years it has contributed over 100% of its ARC.

Douglas County contributed 98.9% of its ARC -- slightly less than 100%. It has contributed at least 100% of its ARC in three of the last five years. In 2020 it contributed 94.3%.

The City of Omaha is consistently contributing less than its required ARCs for both the Omaha Civilian Employees Plan and the Omaha Police and Fire Plan. Between the Civilian and Police & Fire Plans, the City has underpaid a total of **-\$20.586 million less** than the required ARC amounts between 2017 through 2021.

For the Civilian Plan, the City of Omaha contributed 95.31% of its ARC last year – historical contribution percentages are 94.15% in 2019, 96.06% in 2018 and 96.29% in 2017. The City has paid **-\$7.573 million less** than the full amount of the ARC between 2017 through 2021.

For the Omaha Police & Fire Plan, the City of Omaha contributed 88.24% of its ARC last year – historical contribution percentages are 87.4% in 2019, 86.8% in 2018 and 91.02% in 2017. The City has paid **-\$13.013 million less** than the full amount of the ARC from 2017 through 2021.

It is important to note that the City and members from both plans negotiated plan changes between 2012 and 2016 to lower member benefits and increase contributions for the members and the City, which have helped raise the funding status of each plan. In addition, both plans have benefitted from very strong investment returns since 2016, with the exception of a low return in 2017.

Civilian Investment Returns & ARC Payments

PLAN YEAR	INVESTMENT RETURN	ARC	AMOUNT CITY PAID	AMOUNT PAID LESS OR MORE THAN ARC
2021	12.98%	\$17,400,000	\$15,354,000	-\$2,046,000
2020	12.6%	\$17,297,000	\$15,120,000	-\$2,177,000
2019	12.7%	\$17,313,000	\$16,028,000	-2,285,000
2018	14.7%	\$13,645,000	\$14,990,000	-\$1,345,000
2017	-.3%	\$1,519,000	\$12,799,000	+\$280,000
TOTAL	Investment return assumption is 7.5%			\$7,573,000

Omaha Police & Fire Investment Returns & ARC Payments

PLAN YEAR	INVESTMENT RETURN	ARC	AMOUNT CITY PAID	AMOUNT PAID LESS THAN ARC
2021	22.15%	\$55,590,000	\$52,983,000	-\$2.607
2020	9.23%	\$55,078,000	\$51,858,000	-\$3.22
2019	9.28%	\$51,822,000	\$48,779,000	-\$3.043
2018	17.24%	\$50,877,000	\$48,796,000	-\$2.081
2017	-2.33%	\$45,297,000	\$43,235,000	-\$2.062
TOTAL	Investment return assumption is 7.75%			\$13,013,000

Investment Return Assumptions

Metro Area Transit Authority Hourly reduced the investment assumption in 2021 to 6.25% (which is currently the lowest assumed rate among all reporting underfunded plans).

Omaha Public Power District (OPPD) reviewed assumptions in 2020 and did not recommend reducing the current investment rate assumption, which has remained 7.0% for many years.

The Omaha School Employees Retirement System (OSERS) conducted an Experience Study and is reducing the 7.5% investment rate incrementally over the next four years to 7.0%,

Douglas County conducted an Experience Study in 2021 and there was no recommendation to reduce the 7.5% investment return assumption.

Omaha Civilian Employees completed an Experience Study last year for the 2016-2020 time period. The investment assumption rate remains unchanged at 7.50%; the rate has been 7.50% since 2017.

Omaha Police & Fire completed an Experience Study last year for the 2016-2020 time period. The investment assumption rate remains unchanged at 7.75%; the rate has been 7.75% since 2017.

Contribution Increases

The most common changes recently to the plans to improve funding levels have been increases in the employee and employer contribution rates. Here is a summary of recent contribution increases:

- Douglas County -- effective in 2021, corrections guards were extended the same plan benefit provisions as sheriff deputies, and the guard's member contribution rate was increased by an additional 2% of pay.
- Metro Area Transit Hourly increased employee contribution rates from 6% to 7% and employer contribution rates from 6.5% to 7.5% in 2018.
- In 2017, Omaha Public Power District negotiations with bargaining units resulted in an increase in employee contributions, which gradually increased beginning in 2018 from 6.2% to 6.7%, to 7.2% in 2019, to 7.7% in 2020, and will continue to increase to 8.3% in 2021, and 9.0% in 2022 where it will remain.
- As part of the Police Officers agreement, the City of Omaha and the police officers in the City of Omaha Police and Fire Plan agreed to contribute an additional 0.75% of wages into the system for 2018 to 2020.

Benefit Changes

Only one plan has increased benefits for any of its members in the past two years. In the Douglas County Plan, effective in 2021, corrections guards were extended the same plan benefit provisions as sheriff deputies and the guard's member contribution rate was increased by an additional 2% of pay. Douglas County reports that this benefit change had no impact on the plan's funding status or actuarial accrued liability.

ADDENDUM: Committee Concerns about City of Omaha Charter Pension Language

The City of Omaha is a municipal corporation of the metropolitan class organized and existing under and by virtue of the Constitution and laws of the state and is governed by a home rule charter. The “Pension and Retirement System” provisions in the Omaha Charter appear in Section 6.09. The relevant portion of that Section states that “[E]ach pension and retirement system shall be financed on an actuarially funded basis, with the city and the employee making substantially equal contributions. . .”

Because of the “substantially equal contributions” language and the severe underfunding of the Omaha Civilian (54%) and the Omaha Police & Fire (58%) Pension Plans, members of the Retirement Committee, in particular Senator Mark Kolterman, Retirement Committee Chairman, have expressed concerns over the past 6 years about the ability of the plans’ funding to improve.

According to Reporting Form responses submitted by the City of Omaha each year, between 2013 and 2021, the City of Omaha paid **\$61 million less** than the full amount of the ARCs for the Civilian and Police & Fire Plans. Between 2012 and 2016 the city and plan members negotiated a reduction in benefits for both plans and increased member and city contributions. Since 2017, the City has continued to pay less than the full ARC amounts, however the required ARC amounts have been lower somewhat – partially in response to the negotiated benefit and contribution adjustments and partially in response to the very strong investment returns in 2018 through 2021.

Senator Mark Kolterman, Retirement Committee Chairman, has annually raised concerns about the Omaha Charter language that limits the City’s ability to fund the entire annual ARC and has asked questions about the process to amend the Charter. The City of Omaha has been urged to take a look at, and discuss amending its Charter to allow the city to annually appropriate the total actuarially required contributions.

The City of Omaha representative who has annually presented the underfunded plan reports for the Omaha Civilian and Omaha Police & Fire has advised the Committee that a Charter Convention is held every ten years and the city could propose a change to the Charter at the next Convention. [See Excerpt from November 22, 2022 hearing transcript under Appendix D – discussion between Chairman, Senator Mark Kolterman and Bernard in den Bosch, representing the City of Omaha].

A Charter Convention was convened in May 2022 by the Mayor. In response to Retirement Committee concerns, a Memorandum was submitted by Bernard in den Bosch, Deputy City Attorney regarding the language in Section 6.09. [See Memorandum from Bernard in den Bosch to the Charter Committee under Appendix D of this report].

In June, the Charter Committee forwarded its recommendations to the mayor. There were recommendations for twenty-four Amendments to the Charter, however, none of the recommendations included changes to the “substantially equal contributions” language in Section 6.09 of the Charter.

Final Observations

Reviewing reporting data that goes back to 2011, all but two of the plans have increased their funding levels, which is a positive trend.

- In 2011, Douglas County was funded at 61%; it is currently funded at 73.9%.
- Metro Area Transit Hourly was funded at 65% in 2012; it is currently funded at 71.5%.
- Omaha Police and Fire was 43% funded in 2011; the current funding level is 57.5%.
- Omaha Public Power District (OPPD) was funded at 69.7% in 2013; it is currently funded at 75.5%.

The Omaha School Employees Retirement System (OSERS) Plan and Omaha Civilian Employees Plan are the exceptions.

- Omaha Civilian Employees Plan was funded at 56% in 2011; it is currently funded at 53.5%.
- In 2011, OSERS was funded at 73% and it is currently funded at 63%.

The Committee will continue to monitor and report the funding progress and/or decline of each plan and each political subdivision's corrective actions and commitment to meet or exceed the funding needs as recommended by its actuary.

Acknowledgement

The Retirement Committee Legal Counsel wishes to acknowledge and thank Katie Quintero for her tremendous assistance in preparing and publishing the annual reports. I am truly appreciative of Katie's skillful (and often humorous and artful) editing that reflects her attention to detail and supportive nature. Most of all – thank you Katie for being my “tech support guru” and partner in staffing the Retirement Committee.

APPENDICES

Appendix A
Douglas County

2022 Pension Plan Reporting Form

1)

	2022	2021	2020	2019	2018
Funding Status	73.9%	70.9%	66.8%	65.6%	68.0%
Assumed Rate of Return	7.5%	7.5%	7.5%	7.5%	7.5%
Actual Investment Return - Actuarial	12.6%	12.7%	11.6%	4.1%	11.4%
Actual Investment Return - Market	12.5%	13.6%	19.7%	(2.8%)	16.8%
Member & Employer Contribution Rates	8.5%	8.5%	8.5%	8.5%	8.5%
Normal Cost	10.8%	10.9%	11.0%	10.8%	11.2%
Actuarial Required Contribution (ARC)	26.3MM (17.4%)	\$26.0MM (17.7%)	\$26.4MM (18.2%)	\$24.8MM (18.1%)	\$23.1MM (18.0%)
ARC - Actual dollars contributed	\$26.0MM (expected)	\$26.0MM	\$25.4MM	\$25.0MM	\$23.6MM
ARC - Percentage of ARC contributed	98.9% (expected)	100%	96.2%	100.8%	102.2%

2) See attached narrative.

3) In the January, 2020 Actuarial Valuation, the following actuarial assumptions were updated:

- a) Pub G – 2010 Mortality Table with longer life expectancies was used.
- b) Increased salary scales were implemented.

The net impact of these changes was a 1.0% decrease to the funding status and a \$7.6 million increase in the actuarial unfunded liability.

Effective in 2021, Corrections guards were extended the same plan benefit provisions as Sheriff deputies and the guard's member contribution rate was increased by an additional 2% of pay. This benefit change had no impact on the plan's funding status or actuarial accrued liability.

4) Based on actuarial projections, the Douglas County Pension Plan is projected to reach 100% funding status in the year 2038.

5) The amortization method is a 25-year amortization of the unfunded actuarial liability based on a closed, layered level percent of pay.

6) See attached narrative.

7) There are no impacts on the Douglas County Pension Plan from any recent or ongoing labor negotiations.

8) The May, 2021 Actuarial Experience Analysis is attached. An experience study is done every other year.

9) The assumed rate of return of the plan is 7.5%. No changes have been made in the past year and none are contemplated in the near future.

10) The January 1, 2022, Actuarial Valuation Report is attached.

Douglas County, Nebraska

Analytical Report on Defined Benefit Pension Plan

The most recent actuarial valuation was performed by the Silverstone Group for the Douglas County Employees' Defined Benefit Pension Plan as of January 1, 2022. The report showed the plan was 73.9% funded, had net assets on an actuarial basis of \$425.4 million, and had an unfunded actuarial accrued liability of \$150.4 million. The plan had 4,148 participants and an equal member and employer contribution rate of 8.5% of pay. The normal cost was \$16.4 million and the actuarial required contribution was \$26.3 million. The funded ratio has increased from 70.9% on January 1, 2021.

To understand why the Douglas County DB Plan is only 73.9% funded, it is important to look at the recent history of changes to the Plan. In 1996, the Plan was 97.8% funded. In 1996 for law enforcement and in 1997 for all other plan participants, the following changes were made:

- Unreduced benefit upon Rule of 75.
- Benefit formula increased from 1.5% of pay per year of service to 2% of pay per year of service.

In 1998 a 3% COLA was approved, in 2000 a 4% COLA was approved, and in 2002 a 3% COLA was approved. By 2004, the funding ratio had fallen to 64.8%. The Plan is a contributory plan with the County's contribution equal to the Member's contribution. The County and Member contributions each increased from 5.5% of pay in 2005 to the present level of 8.5% of pay by 2008. Poor stock market performance during the Great Recession also negatively impacted the Plan's funded ratio which reached a low point of 57.8% in 2010.

The members of the Pension Committee and the County Board of Commissioners recognized that substantive changes had to be made to the Plan rules to ensure the financial viability of the Plan for its current participants. Accordingly, effective for all employees hired after December 31, 2011, the following pension provisions were put in place:

- No rule of 75.
- Benefit formula was reduced from 2% of pay per year of service to 1.5% of pay per year of service.
- Maximum retirement income was reduced from 60% of participant's final average compensation to 45%.

Sheriff Deputies and Corrections Guards (who account for about 22% of total plan participants) have slightly different plan provisions which provide for increased benefits with early retirement.

These plan changes, along with no COLA increases being given since 2002, have increased the plan funding ratio by 16.1 percentage points from its low point in 2010 to 73.9% as of January 1, 2022. These plan changes have also materially impacted the Plan's forecast of funded percentage so that the forecast now projects the plan achieving acceptable funded levels in the future as shown in the following forecast developed by Silverstone in January, 2022:

Estimated Funded Percentage*

2022	73.9%
2027	81.8%
2032	88.1%
2037	97.0%
2042	109.6%

**Forecast based on current plan assumptions.*

In July 2015, the Long-Term Disability (LTD) program was removed from the Pension Plan and put into a separate fully-insured benefit plan. On January 1, 2016 the interest crediting rate on member contributions was changed from 5.0% to the 10-year Treasury Rate in effect on November 1st of the preceding plan year. The combined impact of these two changes was a \$3.6 million decrease in the actuarial accrued liability and a 0.6% increase to the Plan's funded ratio.

On January 1, 2020, actuarial valuation updates were made to the mortality table and the salary scale used in the actuarial assumptions was increased. The net impact of these changes was a 1.0% decrease to the funding status and a \$7.6 million increase in the actuarial unfunded liability.

Effective in 2021, Corrections guards were extended the same plan benefit provisions as Sheriff deputies and the guard's member contribution rate was increased by an additional 2% of pay. This benefit change had no impact on the plan's funding status or actuarial accrued liability.

No recent or ongoing negotiations with any employee labor groups are expected to impact the funding of the pension plan.

The Douglas County Pension Committee, Board of Commissioners, and administrative staff believe the aforementioned combination of actions will significantly improve the financial condition of the Douglas County Employee Defined Benefit Pension Plan and ensure the financial viability and payment of benefits to participants going forward.

May 24, 2022

PERSONAL & CONFIDENTIAL

Mr. Joe Lorenz
Budget & Finance Director
Douglas County Employees' Retirement Plan
1819 Farnam Street
Omaha, NE 68183

RE: 2022 Actuarial Valuation Report

Dear Joe:

Enclosed are twenty copies of the January 1, 2022 Actuarial Valuation Report for the Douglas County Employees' Retirement Plan. The valuation was based on plan provisions and assumptions consistent with those used in the January 1, 2021 valuation except for:

- The mortality improvement scale was changed from the PubG-2010 table set forward 2-years for males and 1-year for females and projected with 75% of the MP-2020 improvement scale to the PubG-2010 table set forward 2-years for males and 1-year for females and projected with 75% of the MP-2021 improvement scale.

If you have any questions about the information provided in the report, please give me a call.

Sincerely,



Glen C. Gahan, FSA
Principal

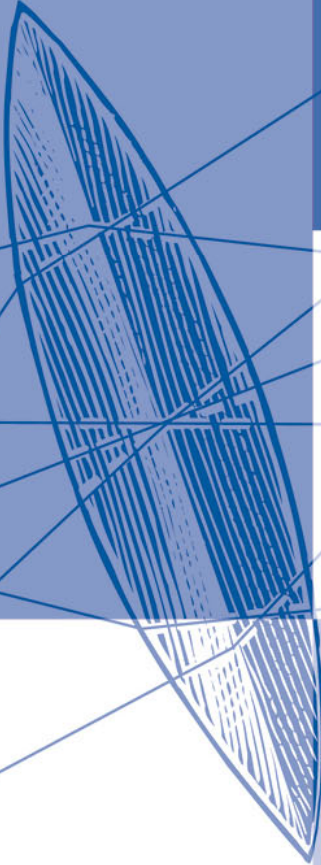
GCG/bk

Enclosures

DOUGLAS COUNTY EMPLOYEES' RETIREMENT PLAN

Actuarial Valuation Report

January 1, 2022



SilverStone
GROUP



 **HUB**

May 24, 2022

ACTUARIAL CERTIFICATION

Employees' Retirement Committee
Douglas County Employees' Retirement Plan
1819 Farnam Street
Omaha, NE 68183

Committee Members:

An actuarial valuation was performed for the Douglas County Employees' Retirement Plan as of January 1, 2022. The valuation was prepared to determine the value of accrued benefits and annual costs. The results of the valuation are contained in the accompanying report.

The valuation is based on eligible employees and summary of assets submitted by Douglas County and data concerning retired employees submitted by United of Omaha. Summaries of the data and the calculations contained in the valuation were performed by our firm from this data.

To the best of my knowledge, the information supplied in this report is complete and accurate and, in my opinion, the assumptions are reasonably related to the experience of the plan and to reasonable expectations and represent my best estimate of anticipated experience under the Plan. However, future measures may differ significantly from the current measurement. Due to the limited scope of our assignment, this report does not include an analysis of the potential range of such future measures. The undersigned meets the qualification standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

Sincerely,



Glen C. Gahan, FSA
Principal
Member of American Academy of Actuaries
Enrolled Actuary No. 20-04875

GCG/bk

Enclosure

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Definition of Terms

This section of the report provides a brief description of terms used throughout this report.

Annual Contributions: Anticipated Member Contributions is equal to 8.50% of the covered payroll (certain Sheriff and FOP #8 members contribute less after 32 years of service. These same FOP #8 members contribute an additional 2.00% of covered payroll.) County Contributions are equal to the Anticipated Member Contributions, excluding the additional 2.00% FOP #8 contributions.

Actuarially Determined Contribution: Consists of the annual normal cost plus an amount equal to the 25-year amortization as a level percent of pay of the unfunded actuarial accrued liability, on a closed, layered basis.

Market Value of Plan Assets: Plan assets are amounts that have accumulated and will be used to meet future benefit obligations. In this exhibit, trust fund transactions reported by the trustee are traced from the prior valuation date to the current valuation date.

Actuarial Value of Plan Assets: Plan assets calculated with expected interest and adjusted by one half of the excess of the Market Value over the preliminary Actuarial Value.

Actuarial Accrued Liability: The actuarial accrued liability is equal to the sum of individual accrued liabilities for all participants. Each participant's accrued liability equals the actuarial present value of all future benefits less the present value of all future normal costs.

Unfunded Actuarial Accrued Liability: The unfunded actuarial accrued liability on the valuation date is equal to the excess of the Plan's actuarial accrued liability over the Plan's actuarial value of assets.

Annual Normal Cost: The annual normal cost is the portion of total Plan costs assigned to the current plan year by the actuarial cost method.

Financial Highlights

This section displays a summary of the results of the actuarial valuations performed for the 2020, 2021 and 2022 plan years. Additional supporting detail and history is available in other sections of the report.

	Plan Year Beginning January 1		
	2020	2021	2022
Annual Contributions			
Anticipated Member Contributions	\$12,529,964	\$12,776,054	\$13,162,125
Anticipated County Contributions	12,328,055	12,527,931	12,871,890
Actual Total Contributions	\$25,361,845	\$26,015,427	N/A
Actuarially Determined Contribution	\$26,386,713	\$26,013,895	\$26,284,152
Value of Plan Assets			
Market Value	363,054,352	404,822,679	444,998,783
(Rate of Return)	19.7%	13.6%	12.5%
Actuarial Value	350,081,173	386,861,916	425,401,812
(Rate of Return)	11.6%	12.7%	12.6%
Actuarial Accrued Liability	523,726,196	546,028,944	575,756,430
(Funded Ratio) ¹	66.8%	70.9%	73.9%
Annual Covered Payroll	145,035,946	147,387,421	151,433,997
(Under Normal Retirement Age)			
Annual Normal Cost	15,943,752	16,042,399	16,427,735
(As a percent of covered payroll)	11.0%	10.9%	10.8%
Number of Participants			
Active	2,224	2,188	2,294
Retirees and Beneficiaries			
39G 12795 (after 2/28/2003)	969	1,042	1,109
GDA 6148 (prior to 3/1/2003)	373	331	306
Vested Terminated	113	124	140
Terminated Non-Vested	155	268	277
Disabled Participants	24	23	22
Total	3,858	3,976	4,148

¹Funded Ratio - Expressed as the ratio of Actuarial Value of Assets to Actuarial Accrued Liability. Funded ratio is 77.3% based on the Market Value of Assets at January 1, 2022.

Comments on the Valuation

Covered Employees

Ages of Active Participants - The average age of active participants included in the valuation decreased from 44.7 for the prior year to 44.0 for the current year.

Covered Payroll and Participants - Total covered payroll increased from \$150,083,372 to 154,652,025, a 3.0% increase. The number of active participants increased from 2,188 in 2021 to 2,294 in 2022.

Average Annual Compensation - The average covered compensation of active participants decreased at a rate of -1.7% per year compared to an assumed annual salary increase assumption of 6.5% between ages 18-29, 6.0% between ages 30-39, 5.5% between ages 40-44, 5.0% between 45-54, and 4.5% for ages 55 and greater. The average covered compensation of all active participants was \$68,594 for 2021 and \$67,416 for 2022.

Investment Return

The plan's investment return was higher than the assumed rate. The approximate annual investment return was 12.6% on the actuarial value of assets for the 2021 plan year, compared to a 7.5% assumption.

Actuarial Assumptions and Methods

The mortality improvement scale has been updated from the PubG-2010 table set forward 2-years for males and 1-year for females and projected with 75% of the MP-2020 improvement scale to the PubG-2010 table set forward 2-years for males and 1-year for females and projected with 75% of the MP-2021 improvement scale.

All other actuarial methods and assumptions are consistent with those used in the 2021 valuation except for a change in the interest crediting rate on employee contributions from 0.84% to 1.43%. This rate is indexed to the 10-year Treasury rate for the November preceding the plan year. The actuarial methods and assumptions are described on pages 22-24 of the Report.

Plan Provisions

All plan provisions are consistent with those used in the 2021 valuation.

Market Value of Plan Assets

Summary of Changes in Value of Plan Assets

Market Value of Plan Assets on January 1, 2021		\$404,822,679
Plus Increases		
Actual Employee Contributions	13,133,928	
Actual County Contributions	12,881,499	
Investment Experience	49,883,786	
		75,899,213
Less Decreases		
Pensions Paid to Retirees	31,446,236	
Refunds to Terminated EEs	3,116,946	
Disability Premiums/Administration	0	
Administrative Expenses	1,159,927	
		35,723,109
Market Value of Plan Assets on January 1, 2022		\$444,998,783

Approximate Rate of Return 12.5%

Plan Investments	% of Total	Market Value
US Bank		
Operating Account - Cash and Cash Equivalents	0.2%	\$763,983
Atlanta Capital	9.4%	42,014,691
State Street - Fixed Income Portfolio	4.4%	19,720,478
JP Morgan	10.9%	48,495,288
Winslow - Capital Management	3.4%	15,287,258
Sanderson International	6.3%	28,255,093
Harding Loevner	7.2%	32,253,863
Aristotle	3.1%	13,937,118
Wells Cap Emerging	5.4%	24,058,401
Macquarie	9.4%	41,826,009
Total		266,612,182
United of Omaha Insurance Company		
General Asset Account GDA 6148	15.0%	66,124,575
Small Company Fund GDA 6148	4.0%	17,860,668
Institutional Index 500 GDA 6148	20.2%	89,701,922
General Asset Account 39G-12795	1.1%	4,699,436
Total		178,386,601
Grand Total	100.0%	\$444,998,783

Actuarial Value of Plan Assets

Actuarial Value of Plan Assets on January 1, 2021		\$386,861,916
Plus Increases		
Member Contributions	13,133,928	
County Contributions	12,881,499	
Expected Interest	28,650,606	
		54,666,033
Less Decreases		
Pensions Paid to Retirees	31,446,236	
Refunds to Terminated EEs	3,116,946	
Disability Premiums/Administration	0	
Administrative Expenses	1,159,927	
		35,723,109
Adjusted Value on January 1, 2022		405,804,840
Market Value on January 1, 2022		444,998,783
One-Half Excess, Market Value Less Adjusted Value		19,596,972
Actuarial Value of Plan Assets on January 1, 2022		\$425,401,812
Approximate Rate of Return		12.6%
Actuarial Value as a % of Market Value		95.6%

Valuation Results

	Plan Year Beginning January 1		
	2020	2021	2022
Actuarial Accrued Liability			
1. Active	\$235,727,894	\$237,203,020	\$244,802,743
2. Vested Terminated Participants	6,693,827	7,032,554	10,713,226
3. Terminated Non-Vested*	1,208,361	1,508,681	958,533
4. Disabled Participants	2,702,126	3,088,618	2,821,019
5. Retirees			
39G 12795 (after 2/28/2003)	242,973,182	266,248,973	287,958,154
GDA 6148 (prior to 3/1/2003)	34,420,806	30,947,098	28,502,755
6. Total (1) + (2) + (3) + (4) + (5)	523,726,196	546,028,944	575,756,430
Unfunded Actuarial Accrued Liability			
1. Actuarial Accrued Liability	523,726,196	546,028,944	575,756,430
2. Actuarial Value of Plan Assets	350,081,173	386,861,916	425,401,812
3. Unfunded Accrued Liability (1) - (2)	173,645,023	159,167,028	150,354,618
4. Ratio of Assets to Accrued Benefits (2) / (1)	66.8%	70.9%	73.9%
Annual Normal Cost			
• Retirement, Death, Termination and Disability	14,854,589	14,827,931	15,092,739
• Immediate Disability Benefit	0	0	0
• Annual Administrative Expense	1,089,163	1,214,468	1,334,996
Total	<u>15,943,752</u>	<u>16,042,399</u>	<u>16,427,735</u>

* Amount equal to expected refund of member contributions.

Actuarially Determined Contribution

The Members contribute 8.5% of covered payroll annually to the Plan, with Sheriff members hired after July 1, 2011 contributing less after 32 years of service and FOP #8 members hired after June 30, 2014 contributing 10.5% of covered payroll for first 32 years of service and less after 32 years. In accordance with applicable State and County statutes, the County contributes an annual amount not greater than the Member contributions.

An actuarially determined contribution is the annual calculated contribution amount as determined by application of the plan's actuarial methods and assumptions. This contribution provides a measure of the amount of contributions needed to fund the benefits earned in the current year plus the 25-year amortization of the unfunded accrued liability, based on a closed, layered level percent of pay. It is an illustrative amount useful as a benchmark comparison to the actual contributions into the plan and is also reported in the annual Governmental Accounting Standards Board (GASB) disclosures. The plan is not currently being funded on this basis, but is funded by the fixed contribution rates described above.

	Plan Year Beginning January 1		
	2020	2021	2022
Annual Normal Cost	\$15,943,752	\$16,042,399	\$16,427,735
Amortization of the Unfunded Accrued Liability	9,489,224	9,031,235	8,906,387
Interest	953,737	940,261	950,030
Actuarially Determined Contribution	26,386,713	26,013,895	26,284,152

Actuarial Methodology

Actuarial Cost Method	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit
Amortization Method	Level Percent of Pay	Level Percent of Pay	Level Percent of Pay
Amortization Period	25 Years, Close Period	25 Years, Close Period	25 Years, Close Period
Actuarial Assumptions	Same, as described in report	Same, as described in report	Same, as described in report
Actual Contributions	\$25,361,845	\$26,015,427	N/A

Amortization of Unfunded Accrued Liability

The annual contribution rate to the Employees' Retirement Plan increased from 5.5% of reported earnings to 6.5% in 2006, 7.5% in 2007 and 8.5% in 2008 and thereafter for both Members and the County. Contributions for Members of the Sheriffs department hired after July 1, 2011 will decrease after 32 years of service. FOP #8 members hired after June 30, 2014 contribute the same as the Sheriffs plus an additional 2% of pay.

As valued as of January 1, 2022, the Accrued Liability exceeds the Actuarial Value of Plan Assets by \$150,354,618. The amount of expected annual contributions exceeds the Annual Normal Cost by \$9,606,280. Favorable plan experience following the valuation date will reduce the UAL. Unfavorable plan experience will increase the UAL.

	Plan Year Beginning January 1		
	2020	2021	2022
Plan Contributions			
Anticipated Member Contributions	\$12,529,964	\$12,776,054	\$13,162,125
Anticipated County Contributions	12,328,055	12,527,931	12,871,890
Contribution Available to Reduce UAL			
Total County and Member Contributions	24,858,019	25,303,985	26,034,015
Annual Normal Cost	15,943,752	16,042,399	16,427,735
Amount Available to Reduce UAL	8,914,267	9,261,586	9,606,280
Unfunded Accrued Liability	173,645,023	159,167,028	150,354,618
Years Required to Amortize the UAL			
• as a level percent of pay	24.3	20.7	18.5
• as a level dollar amount	Unable to Amortize	Unable to Amortize	Unable to Amortize
• interest-only on UAL	13,023,377	11,937,527	11,276,596

Accrued Liability Payments

One of the components included to determine the actuarially determined contribution is the Accrued Liability Payment. The Accrued Liability Payment is an annual amount that will amortize:

- The unfunded accrued liability established as of January 1, 2017.
- An increase or decrease in the unfunded accrued liability due to plan amendment.
- An increase or decrease in the unfunded accrued liability due to a change in actuarial assumptions.
- An increase or decrease in the unfunded accrued liability resulting from actuarial gains or losses due to plan experience more or less favorable than expected.

This section of the report documents the Amortization Bases established for the Plan and displays other values associated with minimum funding.

<u>Amortization Base</u>	<u>Date Established</u>	<u>Source of Base</u>
140,285,787	January 1, 2017	Initial Unfunded
5,714,314	January 1, 2018	Actuarial Loss
16,456,582	January 1, 2019	Actuarial Loss
2,033,084	January 1, 2020	Assumption Change, Actuarial Gain, Amendment
(19,340,431)	January 1, 2021	Assumption Change, Actuarial Gain
(12,207,935)	January 1, 2022	Assumption Change, Actuarial Gain

Accrued Liability Payments

(continued)

Minimum Funding

The Unamortized Balance is based on the methodology for the actuarially determined contribution and does not reflect actual past funding of the Amortization Bases. For each amortization base, the initial amortization period and the remaining term of the amortization period determined on the valuation date are displayed.

Charge Bases

Amortization Base	Initial Term-Years	Remaining Term on Valuation Date	Minimum Payment
140,285,787	25	20	9,110,519
5,714,314	25	21	352,671
16,456,582	25	22	965,217
2,033,084	25	23	113,325
		Total	\$10,541,732

Credit Bases

Amortization Base	Initial Term-Years	Remaining Term on Valuation Date	Minimum Payment
19,340,431	25	24	1,022,810
12,207,935	25	25	612,535
		Total	\$ 1,635,345

Total \$8,906,387

Risk Disclosures

The Actuarial Standards Board provides guidance to actuaries when performing certain actuarial services in the form of standards of practice. The Board has issued a standard of practice on risk disclosure that applies to actuaries when performing a funding valuation of a defined benefit pension plan. This standard of practice addresses assessment and disclosure of the risk that actual future measurements may differ significantly from expected future measurements of pension liabilities, funded status, and actuarially determined contributions.

Risk is defined as the potential of actual future measurements to deviate from expected future measurements. This deviation results when actual future experience is different from actuarially assumed experience. Sample sources of risk include: investment returns, asset/liability mismatch, interest rates, longevity and other demographic risks, and contribution risk. The following are certain significant measures of risk as they pertain to the plan.

	<u>January 1, 2021</u>	<u>January 1, 2022</u>
Retired Participant Liability	297,196,071	316,460,909
Total Plan Liability	546,028,944	575,756,430
Ratio	54.4%	55.0%

More risk related to investment returns is associated with plans whose retiree liability is a significant and growing proportion of the plan's total liability, since it is more difficult to restore a plan financially after losses occur due to a shorter duration of liability where significant retired liability exists.

	<u>January 1, 2021</u>	<u>January 1, 2022</u>
Contributions in prior year	25,361,845	26,015,427
Benefit Payments in prior year	(31,553,332)	(34,563,182)
Net Cash Flow	(6,191,487)	(8,547,755)

More risk related to investment volatility is associated with plans whose benefit payments are significant compared to the plan contributions. If, for example, a plan has negative cash flow and experiences investment returns below an assumed rate then there are fewer assets that can be reinvested to earn potentially higher returns that may follow.

	<u>January 1, 2021</u>	<u>January 1, 2022</u>
Duration of Plan Liability	12.1 years	12.2 years

Duration is a present value weighted average of the timing of future benefit payments. Plans with a higher duration have more risk related to future interest rates. Additionally, more risk related to asset/liability mismatch is associated with plans whose liability duration differs significantly from the duration of plan investments.

Risk Disclosures

(continued)

	<u>January 1, 2021</u>	<u>January 1, 2022</u>
Market Value of Assets	404,822,679	444,998,783
Total Covered Payroll	150,083,372	154,652,025
Asset Volatility Ratio	2.7	2.9

More risk related to investment return and future costs are associated with plans whose asset volatility ratio is high and growing; which is a characteristic of more mature plans.

	<u>January 1, 2021</u>	<u>January 1, 2022</u>
Market Value of Assets	404,822,679	444,998,783
Actuarial Accrued Liability	546,028,944	575,756,430
Ratio	74.1%	77.3%

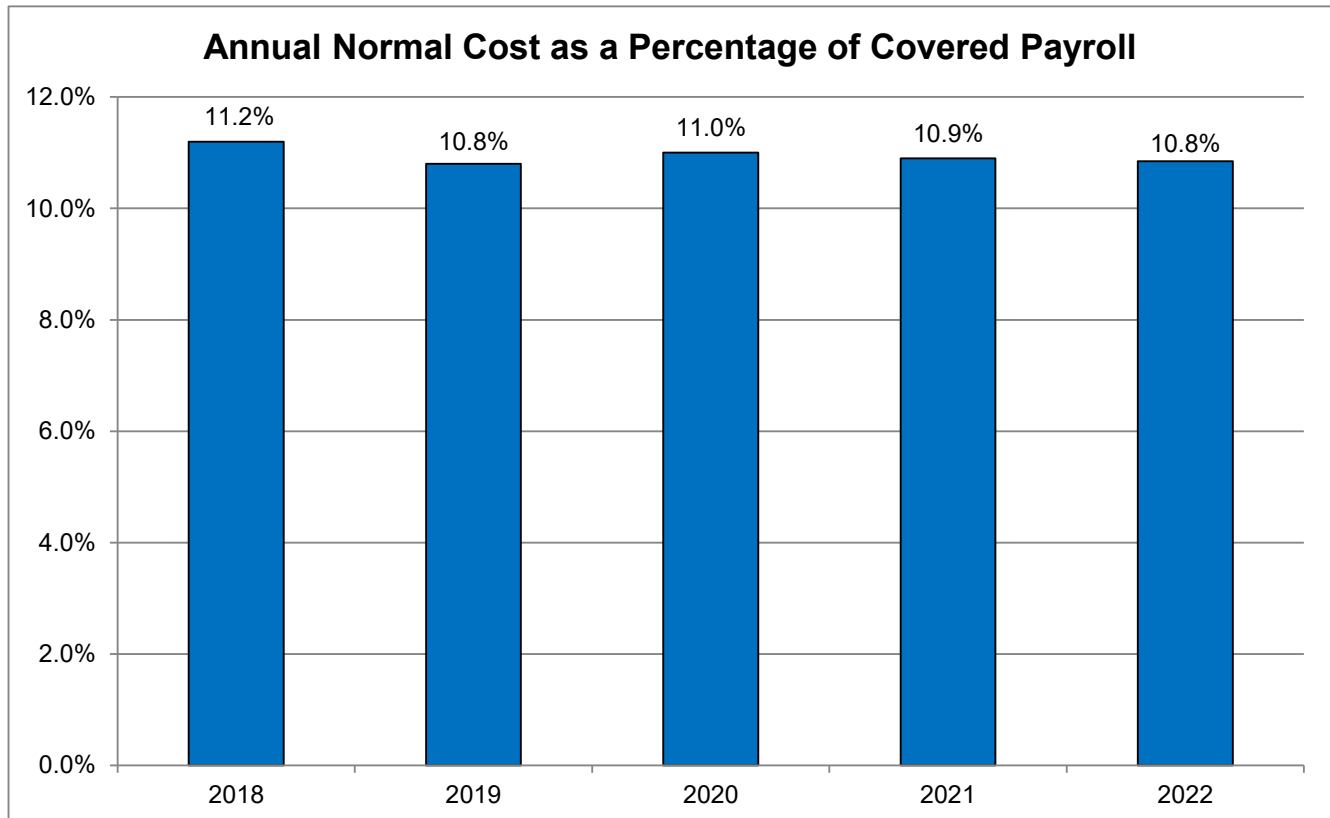
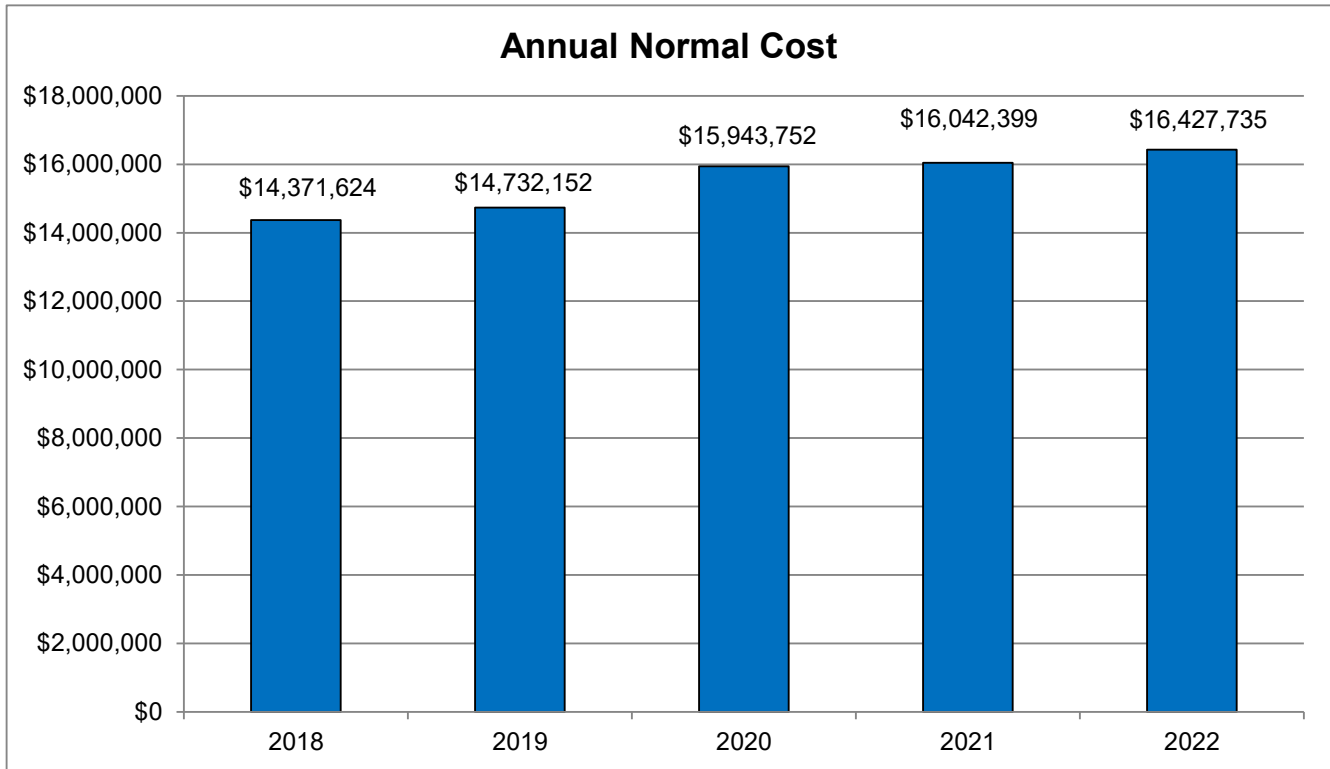
More risk is associated with plans that have lower funded ratios.

	<u>January 1, 2021</u>	<u>January 1, 2022</u>
Actuarial Accrued Liability	546,028,944	575,756,430
Total Covered Payroll	150,083,372	154,652,025
Liability Volatility Ratio	3.6	3.7

More risk related to experience losses and future costs are associated with plans whose liability volatility ratio is high and growing; which is a characteristic of more mature plans.

The assumptions used to determine the risk measures above are identical to the assumptions used for recommended funding purposes on the respective valuation dates.

Summary of Historical Valuation Results



Summary of Historical Valuation Results

(continued)

Year	Annual Return on Market Value of Assets	Annual Return on Actuarial Value of Assets
2021	12.5%	12.6%
2020	13.6%	12.7%
2019	19.7%	11.6%
2018	-2.8%	4.1%
2017	16.8%	11.4%
2016	6.8%	6.2%
2015	2.3%	5.6%
2014	5.2%	9.0%
2013	18.9%	13.2%
2012	10.3%	7.6%
2011	0.5%	5.0%
2010	11.0%	9.7%
2009	16.0%	3.8%
2008	-18.7%	-6.4%
2007	4.9%	7.2%
2006	12.1%	10.0%
2005	7.1%	7.8%
2004	10.0%	8.7%
2003	15.7%	7.3%
2002	-4.6%	0.0%
2001	1.3%	2.4%
2000	2.3%	6.2%
1999	7.3%	N/A
1998	7.7%	N/A
1997	13.3%	N/A
1996	10.6%	N/A
1995	17.2%	N/A
1994	2.4%	N/A
1993	10.4%	N/A
1992	7.9%	N/A
1991	15.5%	N/A
1990	6.7%	N/A
1989	15.5%	N/A
1988	11.5%	N/A
1987	4.4%	N/A

Average

7.3% (22 yrs)

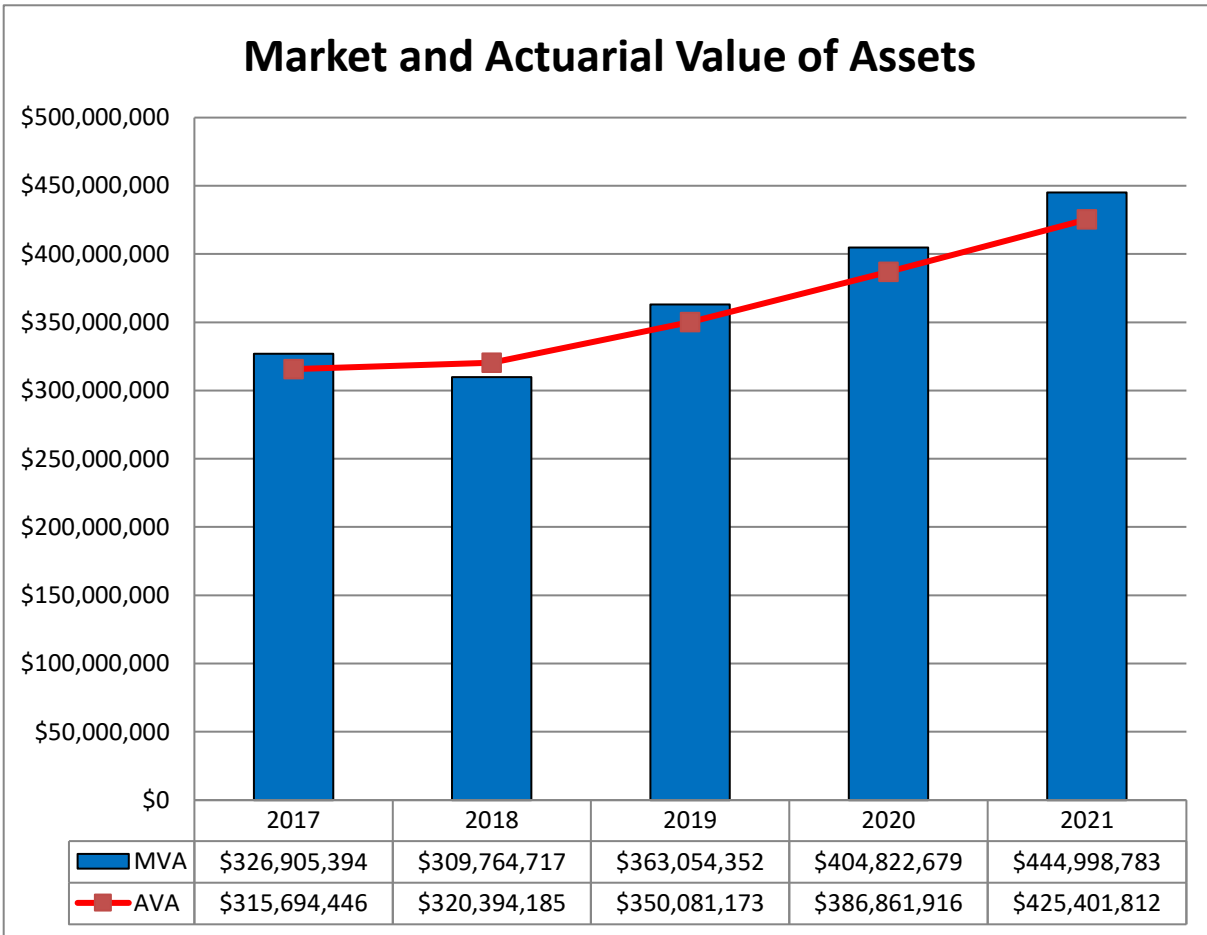
7.1% (22 yrs)

8.3% (35 yrs)

The Plan's Asset Method was changed to Actuarial Value in 2000. The annual return on the Actuarial Value of Assets was not calculated prior to this change.

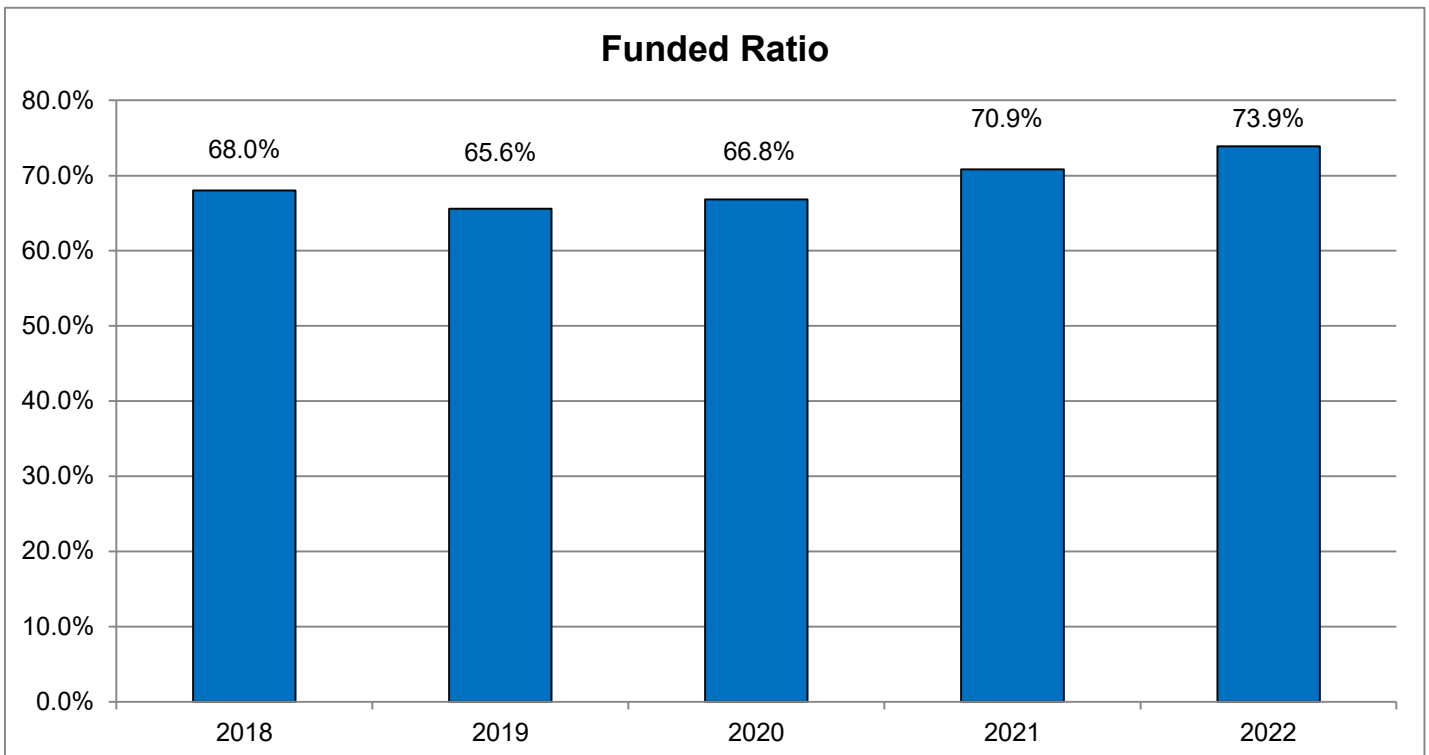
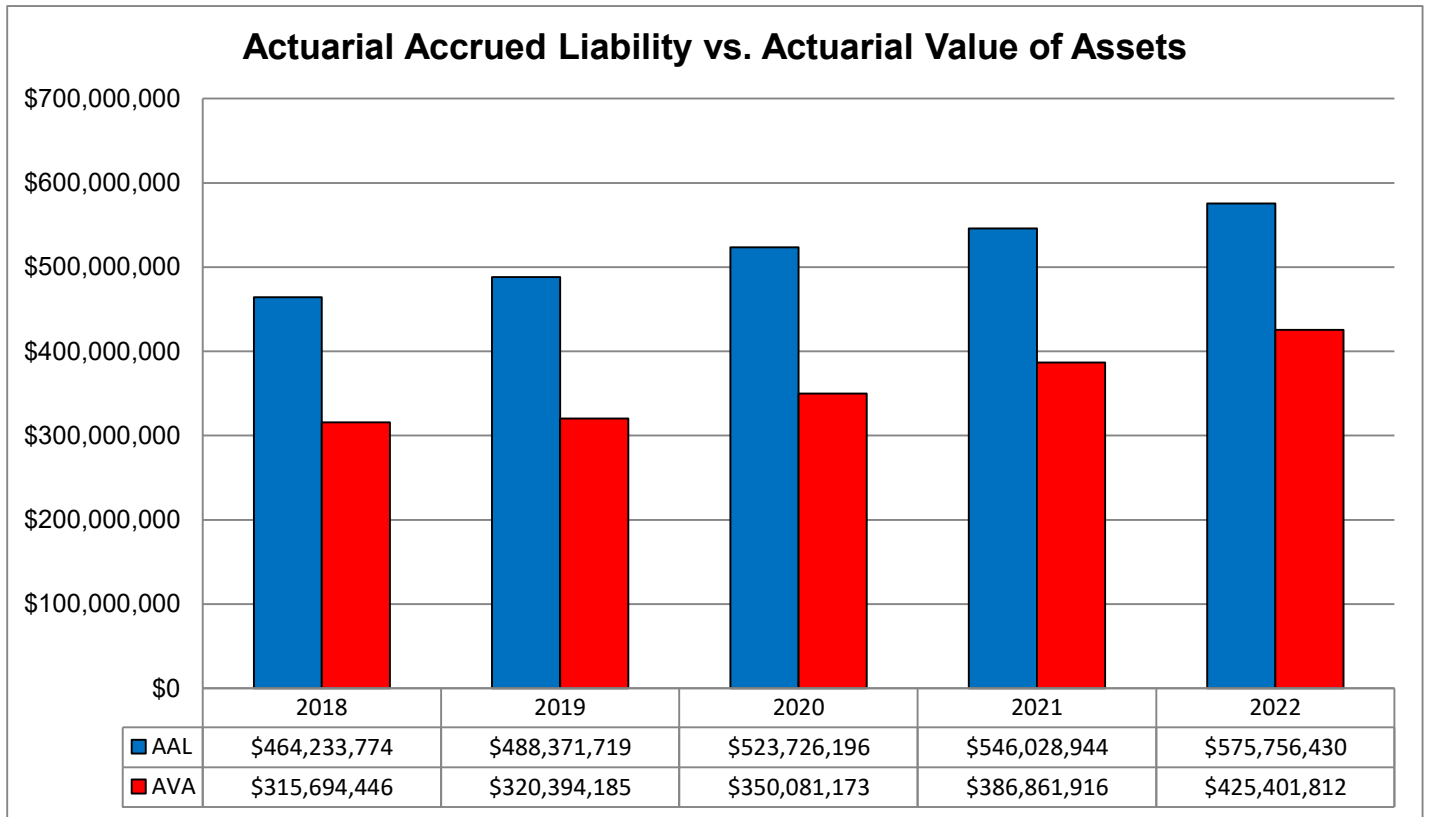
Summary of Historical Valuation Results

(continued)



Summary of Historical Valuation Results

(continued)



Historical Market and Actuarial Value of Assets

Year	Market Value of Assets	Actuarial Value of Assets	AVA as % of MVA
2022	444,998,783	425,401,812	95.6%
2021	404,822,679	386,861,916	95.6%
2020	363,054,352	350,081,173	96.4%
2019	309,764,717	320,394,185	103.4%
2018	326,905,394	315,694,446	96.6%
2017	283,902,001	287,477,661	101.3%
2016	269,935,429	274,877,630	101.8%
2015	267,549,482	263,789,654	98.6%
2014	258,340,593	245,830,308	95.2%
2013	219,605,063	219,494,329	99.9%
2012	200,860,360	205,795,168	102.5%
2011	199,988,291	196,119,468	98.1%
2010	179,166,378	177,797,061	99.2%
2009	151,275,593	167,993,744	111.1%
2008	184,386,700	177,833,982	96.4%
2007	175,115,759	165,309,144	94.4%
2006	157,653,656	151,686,147	96.2%
2005	148,916,100	142,402,678	95.6%
2004	137,080,947	132,768,961	96.9%
2003	119,929,319	125,237,848	104.4%
2002	126,751,547	126,336,366	99.7%
2001	125,752,053	123,971,024	98.6%
2000	123,913,647	117,625,992	94.9%

History of Plan Funding

Year	Actuarial Value Of Assets (\$1,000s)	Actuarial Accrued Liability		Funded Ratio	
		Before Changes (\$1,000s)	After Changes (\$1,000s)	Before Changes	After Changes
2022	\$425,402	\$574,980	\$575,756	74.0%	73.9%
2021	386,862	547,858	546,029	70.6%	70.9%
2020	350,081	516,180	523,727	67.8%	66.8%
2019	320,394	488,372	488,372	65.6%	65.6%
2018	315,694	464,170	464,234	68.0%	68.0%
2017	287,478	428,146	427,763	67.1%	67.2%
2016	274,878	412,283	408,662	66.7%	67.3%
2015	263,790	394,847	394,847	66.8%	66.8%
2014	245,830	380,727	380,727	64.6%	64.6%
2013	219,494	362,117	362,117	60.6%	60.6%
2012	205,795	343,542	343,178	59.9%	60.0%
2011	196,119	321,700	321,700	61.0%	61.0%
2010	177,797	307,407	307,407	57.8%	57.8%
2009	167,994	290,127	290,127	57.9%	57.9%
2008	177,834	269,970	270,351	65.9%	65.8%
2007	165,309	253,386	248,986	65.2%	66.4%
2006	151,686	239,229	239,602	63.4%	63.3%
2005	142,403	221,642	221,642	64.2%	64.2%
2004	132,769	204,952	204,952	64.8%	64.8%
2003	125,238	188,697	188,697	66.4%	66.4%
2002	126,336	167,690	172,615	75.3%	73.2%
2000	117,626	124,906	127,011	94.2%	92.6%
1998	97,626	107,071	108,391	91.2%	90.1%
1996	81,626	78,202	83,472	104.4%	97.8%
1994	69,860	71,242	72,869	98.1%	95.9%
1992	60,912	59,747	66,161	101.9%	92.1%
1990	48,387	47,474	48,717	101.9%	99.3%
1988	37,662	36,212	37,390	104.0%	100.7%
1986	30,161	27,830	30,455	108.4%	99.0%
1984	21,752	20,912	22,203	104.0%	98.0%
1982	16,115	16,687	17,828	96.6%	90.4%
1980	11,468	15,229	15,597	75.3%	73.5%

History of Plan Changes

- 2020** FOP #8 members hired after June 30, 2014 benefit under the same plan provisions as Sheriff Deputies hired after June 30, 2011. The employee contribution rate is the same as the Sheriffs plus an additional 2% of pay.
- 2016** Long Term Disability provision for active members was eliminated from the Plan as of 7/1/2015. LTD is provided by insurance outside of the pension plan. The interest crediting rate on employee contributions was changed from 5% to the 10-Year Treasury rate for November prior to the valuation date as of 1/1/2016.
- 2012** Certain bargaining employees hired after June 30, 2011 and all non-bargaining employees hired after December 31, 2011. It is anticipated that all bargaining units will be under these same benefit provisions after their next contract is negotiated.
- 1.5% of pay per year of service (45% maximum)
 - No Rule of 75
 - 8.5% contribution rate
 - Early Retirement at age 50 and 10 years of service or age 60 and 5 years of service
 - Early Retirement reduction of 5% per year
- Sheriff Deputies hired after June 30, 2011
- Benefit formula changed to the following:
 - 1.0% of pay for 1 to 10 years of service
 - 2.0% of pay for 11 to 20 years of service
 - 2.5% of pay for 21 to 32 years of service
 - Contribution rate changed to the following:
 - 8.5% for 1-32 years of service
 - 7.5% at 33 years of service
 - 6.5% at 34 years of service
 - 5.5% at 35+ years of service
 - Early Retirement at age 53
 - Early Retirement reduction of 4.8% per year
 - No Early Retirement reduction if 30 or more years of service
- 2008** Member and County contribution rate increased from 7.5% to 8.5%
- 2007** Member and County contribution rate increased from 6.5% to 7.5%
- 2006** Member and County contribution rate increased from 5.5% to 6.5%
- 2003** Beginning March 2003 all new retirees have their pension benefit paid from plan assets but not covered under an insurance contract.

History of Plan Changes

(continued)

- 2002** Increase retiree pension by 3%, but not less than \$5 a month
- 2000** Increase retiree pension by 4%, but not less than \$5 a month
- 1998** Increase retiree pension by 3%, but not less than \$5 a month
- 1997**
- Rule of 75 for other than law enforcement
Unreduced benefit upon Rule of 75
2.0% benefit formula after January 1, 1962
5.5% member contributions
- 1996**
- Rule of 75 for law enforcement
Unreduced benefit upon Rule of 75
2.0% benefit formula after January 1, 1962
5.5% member contributions
 - Participation begins on first day of employment
 - Increase retiree pension by 4% but not less than \$10 a month
- 1994**
- Benefit formula change to the following:
1% of pay for service before January 1, 1962
1.5% of pay for service after January 1, 1962
 - Decrease in interest rate on employee contributions to 5% effective July 1, 1994
 - Increase retiree pension by 3%
- 1992**
- Early Retirement Incentive Program (112 members elected benefit)
 - Early Termination of Employment Incentive Program (188 members elected benefit)
 - Increase retiree pension by 3%
- 1990**
- Benefit formula change to the following:
1% of pay for service before January 1, 1962
1.4625% of pay for service after January 1, 1962
 - Increase retiree pension by 4%
 - Vesting changed from 25% after 5 graded to 100% after 15 to 25% after 5 increased 15% a year up to 10
 - Maximum Disability Benefit increased from \$36,000 to \$57,600

History of Plan Changes

(continued)

- 1988**
 - Benefit formula change to the following:
 - 1% of pay for service before January 1, 1962
 - 1.425% of pay for service after January 1, 1962
 - Increase retiree pension by 4%, but no less than \$5 a month
 - Changed eligibility requirements to include participants hired after age 60

- 1986**
 - Benefit formula change to the following:
 - 1% of pay for service before January 1, 1962
 - 1.2% of pay for service from January 1, 1962 to January 1, 1972
 - 1.4% of pay for service after January 1, 1972
 - Increase retiree pension by 6% but not less than \$5 a month

- 1984**
 - Increased benefit formula from 1.1% of pay to 1.2% for service after January 1, 1974
 - Increase retiree pension by 6%, but not less than \$5 a month

- 1982**
 - Added Special Early Retirement
 - Benefit formula change from 1% of pay to 1.1% of pay for service after January 1, 1972
 - Increase retiree pension by 6%, but not less than \$10 a month
 - Changes in disability retirement provisions
 - Changes in actuarial assumptions
 - Special provisions for county employees change to state employees

- 1980**
 - Special Early Retirement
 - Change in service definition – unlimited sick leave
 - \$10/month increase in pension to retirees
 - Added Late Retirement Benefit

Actuarial Cost Method

Annual costs were calculated using the Projected Unit Credit Actuarial Cost Method. Projected Unit Credit is one of the Accrued Benefit Actuarial Cost Methods. Using Projected Unit Credit, annual costs equal the sum of the normal cost and an amount to amortize the unfunded accrued liability. The normal cost is defined as the actuarial value of retirement and ancillary benefits that are allocated to the current year.

The unfunded accrued liability is equal to the accrued liability reduced by the actuarial value of plan assets. The accrued liability is defined as the actuarial value of retirement and ancillary benefits that have been allocated to years of service prior to the current year.

The method allocates an equal amount of a participant's projected retirement benefit to each year of service. The benefit at normal retirement is projected assuming salaries increase at the assumed rates. The projected retirement benefit is then divided by the participant's years of service to determine the portion of the retirement benefit allocated to each year. Service includes years following the later of the date of hire and July 1, 1952 (January 1, 1955 for former Board of Health participants) and prior to the assumed retirement age.

As experience develops under the Retirement Plan, actuarial gains and losses will result. Actuarial gains and losses indicate the extent to which actual experience is deviating from that expected on the basis of the actuarial assumptions. Actuarial gains result from experience more favorable than assumed and reduce the unfunded accrued liability. Actuarial losses result from experience less favorable than assumed and increase the unfunded accrued liability. All actuarial gains and losses are included in the determination of the unfunded accrued liability as of the valuation date.

The unfunded actuarial accrued liability is amortized over 25 years on a fixed percentage of pay, closed layered basis. This amortization method was adopted effective January 1, 2017.

Asset Valuation Method

The Actuarial Value of Plan Assets held in the pension trusts was calculated as the sum of the following:

- Adjusted Value of Plan Assets
- One-half of the excess of Market Value over the Adjusted Value of Plan Assets

The Adjusted Value of Plan Assets equals:

- Actuarial Value of Plan Assets on the prior valuation date, plus contributions and expected interest, less
- Pensions paid, refunds and other disbursements with expected interest

Actuarial Assumptions

Investment Return 7.5% compounded annually.

Salary Scale Salaries were assumed to increase at an annual rate compounded annually following the valuation date varying by age, as illustrated below.

Age	Percentage Increase
18-29	6.50%
30-39	6.00%
40-44	5.50%
45-54	5.00%
55+	4.50%

Mortality Rates PubG-2010 set forward 2-years for males and 1-year for females and projected with 75% of MP-2021 improvement scale.

Disability Rates None.

Withdrawal Rates Based on rates as illustrated below:

Age	Rate
22	28.3%
27	12.7%
32	10.0%
37	8.2%
42	5.9%
47	4.0%
52	2.3%
57	1.9%

Accrued Sick Leave 7 days per year.

Actuarial Assumptions

(continued)

Retirement Rates	Age	Rule of 75	Other
	50	30%	5%
	51-54	5%	2%
	55-61	10%	5%
	62-64	20%	10%
	65-69	30%	30%
	70	100%	100%

Retirement rate is 30% the first year a Member is eligible for Rule of 75.

Age	Sheriffs hired after June 30, 2011	and	FOP #8 members hired after June 30, 2014
53-54			5%
55			25%
56-57			15%
58			20%
59-61			25%
62			30%
63			35%
64			40%
65			100%

Retirement rate is 100% at 30 years of service.

Interest Rate on Employee Contributions

1.43% per annum, based on the 10-year treasury rate as of November 30th preceding the valuation date.

Administrative Expenses

Annual administrative expenses have been estimated as 3/10 of 1% of plan assets.

Summary of Plan Provisions

Effective Date	January 1, 1963
Plan Year	January 1 through December 31.
Participation	First day of continuous employment.
Definitions	
Member	Any employee who participates in the Plan as an active participant or a non-active participant entitled to a disability pension, a deferred vested retirement benefit or a current retirement benefit.
Benefit Service	Years of service following the later of July 1, 1952 and the date of hire and prior to the normal retirement date. Years of service prior to January 1, 1955 are not considered for members who were participants of the Omaha-Douglas County Board of Health Retirement Plan.
Final Average Compensation	Average monthly compensation paid during the 60 consecutive months of the last 120 months of service that produces the largest average monthly compensation. The average monthly compensation is limited for members who were participants of the Omaha-Douglas County Board of Health Retirement Plan prior to 1975.
Normal Retirement Date	First day of calendar month coinciding with or next following the 65th birthday (age 55 for sheriff deputies hired after June 30, 2011 and FOP #8 members hired after June 30, 2014).
Rule of 75 Retirement	<p>First day of calendar month coincident with or next following the attainment of age 50, and completion of a sufficient number of years of service so that when such years are added to the members attained age, the total equals or exceeds 75. Such service must be exclusive of accumulated sick leave.</p> <p>There is no Rule of 75 Retirement for bargaining employees hired after June 30, 2011 (or later date based on applicable bargaining unit contract) and all non-bargaining employees hired after December 31, 2011.</p>

Summary of Plan Provisions

(continued)

Early Retirement

Following attainment of age 55 and 20 years of service, or age 60 and 5 years of service. Age 53 for sheriff deputies hired after June 30, 2011 and FOP #8 members hired after June 30, 2014. Age 50 and 10 years of service or age 60 and 5 years of service for bargaining employees hired after June 30, 2011 (or later date based on applicable bargaining unit contract) and all non-bargaining employees hired after December 31, 2011.

Benefits

Normal Retirement

For participants who were actively employed on October 4, 1997 and retire thereafter, a monthly income equal to the sum of (1) and (2), not to exceed 60% of the participant's final Average Compensation:

- (1) 1% of Final Average Compensation, multiplied by years of benefit service prior to January 1, 1962, plus
- (2) 2.0% of Final Average Compensation multiplied by years of benefit service following January 1, 1962.

For bargaining employees hired after June 30, 2011 (or later date based on applicable bargaining unit contract) and all non-bargaining employees hired after December 31, 2011, a monthly income equal to 1.5% for each year of service not to exceed 45% of the participant's final Average Compensation.

For sheriff deputies hired after June 30, 2011 and FOP #8 members hired after June 30, 2014, a monthly income equal to the sum of (1), (2) and (3), not to exceed 60% of the participant's final Average Compensation:

- (1) 1.0% of Final Average Compensation multiplied by 1-10 years of benefit service.
- (2) 2.0% of Final Average Compensation multiplied by 11-20 years of benefit service.
- (3) 2.5% of Final Average Compensation multiplied by 21-32 years of benefit service.

Summary of Plan Provisions

(continued)

Early Retirement

Monthly income computed in the same manner as normal retirement, based on benefit service and final average compensation at the early retirement date, and reduced by 1/4 of 1% for each full calendar month that the initial retirement payment precedes the normal retirement date.

Reduced by .4167% for each full calendar month that the initial retirement payment precedes the normal retirement date for bargaining employees hired after June 30, 2011 (or later date based on applicable bargaining unit contract) and all non-bargaining employees hired after December 31, 2011.

Reduced by .4% for each full calendar month that the initial retirement payment precedes the normal retirement date for sheriff deputies hired after June 30, 2011 and FOP #8 members hired after June 30, 2014.

Rule of 75 Retirement

If the eligibility requirements for Rule of 75 Retirement are met, the early retirement benefit will not be reduced for the period that retirement precedes the normal retirement date.

Late Retirement

A member who attains the age of 65 after December 31, 1987, shall be entitled to the Normal Retirement Benefit based on Years of Service and Final Average Compensation determined as of the late Retirement Date.

Death

A benefit of 60% of earned pension is payable until death of the spouse if an employee has completed 8 years of service at the date of death. The earned pension is based on length of service and final average compensation to the date of death. The participant and spouse must be married for at least one year prior to date of death.

If the employee is not survived by dependents or does not qualify for the spouse benefit, the employee's contributions, plus accumulated interest is paid to the beneficiary upon death.

Summary of Plan Provisions

(continued)

Termination Benefit

Deferred monthly income equal to the earned benefit based on service and compensation to the date of termination and multiplied by a vesting factor:

<u>Completed Years of Service on Date of Termination</u>	<u>Vesting Factor</u>
Less than 5	0.00
5	0.25
6	0.40
7	0.55
8	0.70
9	0.85
10 Years and Over	1.00

A member may elect to commence their benefit as of an early retirement, including a Rule of 75 retirement, once eligibility is attained.

If a member's employment is terminated due to a change in employment status as provided by the Nebraska Legislature to that of a state employee, such member's Vested Factor will be 1.00. The termination benefits to which he is entitled shall be based on the average monthly compensation of the member during Douglas County employment and/or state employment which immediately follows Douglas County employment.

Upon termination prior to qualifying for a vested pension or in lieu of the vested pension, the employee may withdraw his contributions increased by interest. Effective July 1, 1994, the interest rate credited is 5% compounded annually. This interest rate credit was changed to the 10-year treasury rate as of November 30th, preceding the plan year, as of January 1, 2016.

Form of Annuity

Normal Form

Joint life annuity, 60% continuing to spouse or dependent children.

Five years certain and life, if no eligible dependents.

Summary of Plan Provisions

(continued)

Contribution

Participant

Members contributed 5.5% of total earnings prior to January 1, 2006. The annual contribution rate increased to 6.5% as of January 1, 2006, 7.5% as of January 1, 2007 and 8.5% as of January 1, 2008 and thereafter.

Sheriff deputies hired after June 30, 2011 and FOP #8 members hired after June 30, 2014 contribute according the following schedule:

Years of Service	Sheriff Percentage	FOP #8 Percentage
Less than 33	8.50%	10.50%
33	7.50%	9.50%
34	6.50%	8.50%
35 or more	5.50%	7.50%

Effective July 1, 1985, the Employee contribution is “picked up” and contributed to the Plan by Douglas County.

County

The County pays the balance of the cost of the plan. By law, the County cannot contribute more than the participants for pension benefits earned after the effective date of the plan. The County pays for all benefits earned for service before the plan was effective.

Participant Census Statistics

	Plan Year Beginning January 1		
	2020	2021	2022
Active Participants			
Number	2,224	2,188	2,294
Average Attained Age	44.8	44.7	44.0
Average Past Service	10.3	10.4	9.8
Total Covered Payroll	\$148,185,887	\$150,083,372	\$154,652,025
Average Annual Compensation	66,630	68,594	67,416
Actives under old formula	1,181	1,076	968
Percent of Total Actives	53.1%	49.2%	42.2%
Actives under reduced formula	1,043	1,112	1,326
Percent of Total Actives	46.9%	50.8%	57.8%
Non-Active Participants			
Number	1,634	1,788	1,854
Average Attained Age	66.2	64.1	64.1
Total Annual Benefits	31,508,854	33,879,959	35,756,007
Average Annual Benefit	19,283	18,949	19,286
Retirees under Mutual Contract	373	331	306
Total Retirees	1,342	1,373	1,415
Percent of Total Retirees	27.8%	24.1%	21.6%

Participant Census Statistics

(continued)

January 1, 2022

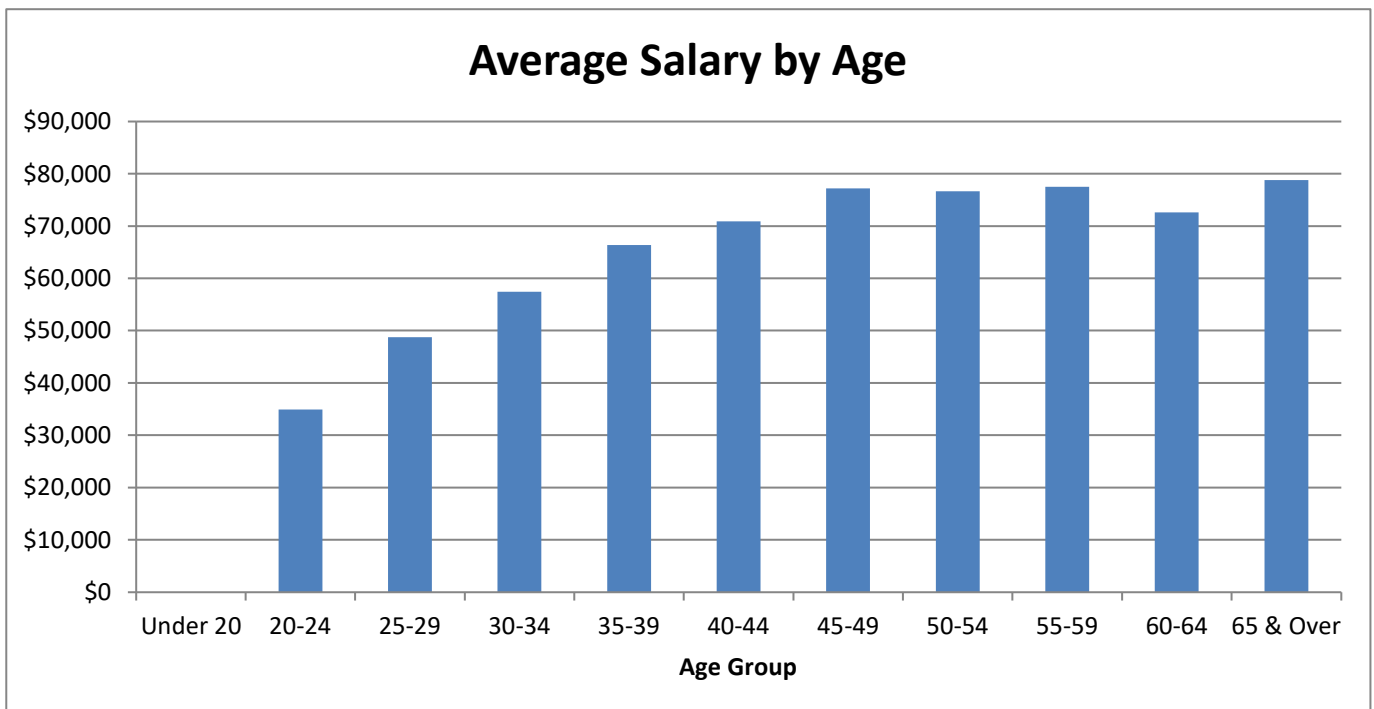
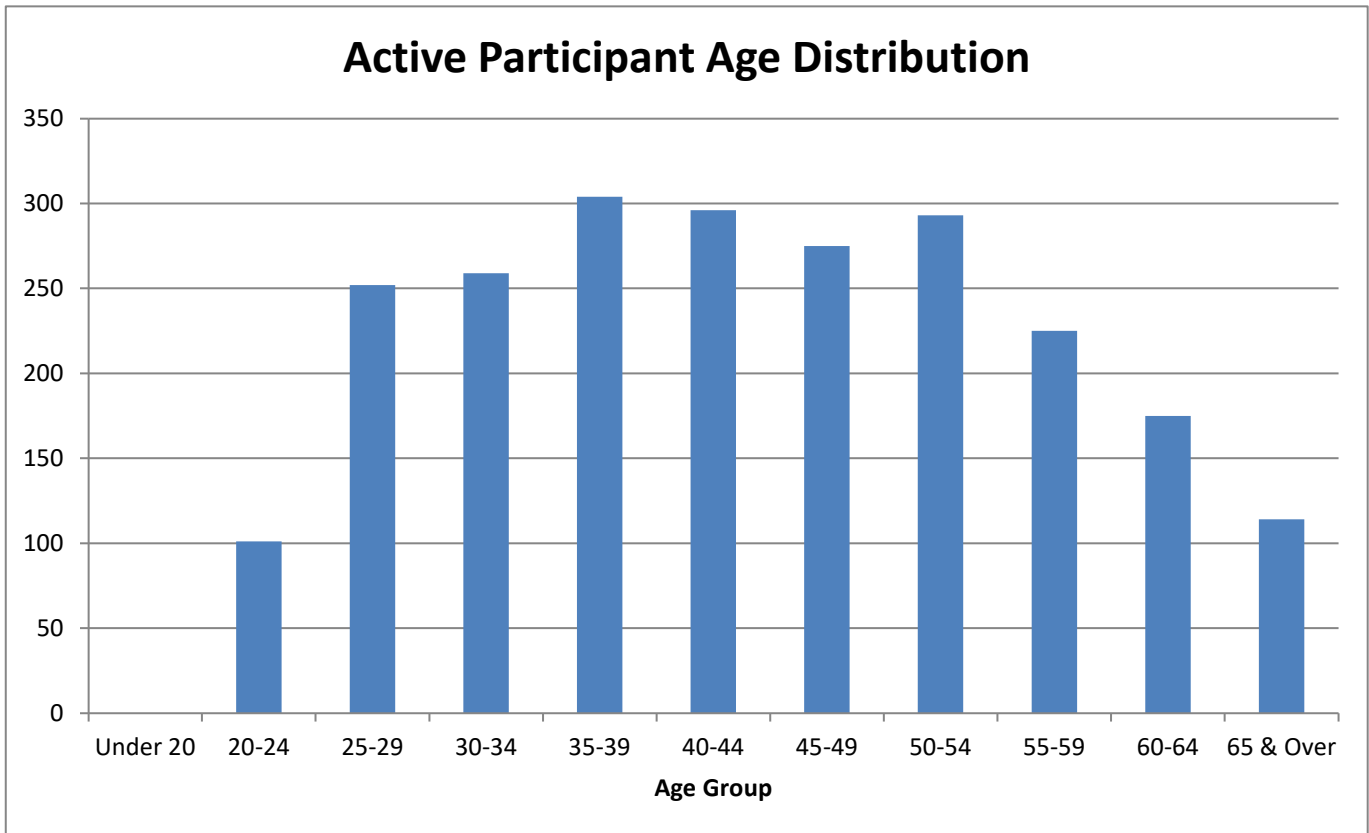
Active Participants Included in Valuation

Age at Valuation Date	Years of Service									Average Salary	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	Total		
Under 20	0	0	0	0	0	0	0	0	0	0	0
20-24	101	0	0	0	0	0	0	0	0	101	34,915
25-29	231	21	0	0	0	0	0	0	0	252	48,759
30-34	168	77	14	0	0	0	0	0	0	259	57,454
35-39	139	82	59	23	1	0	0	0	0	304	66,366
40-44	97	62	58	61	18	0	0	0	0	296	70,883
45-49	75	39	39	54	60	8	0	0	0	275	77,197
50-54	61	35	41	49	65	32	10	0	0	293	76,639
55-59	41	37	37	44	29	21	14	2	0	225	77,470
60-64	36	33	33	30	15	12	6	10	0	175	72,614
65 & Over	17	17	20	18	19	9	4	10	0	114	78,757
Total	966	403	301	279	207	82	34	22	0	2,294	*
Average Salary	49,454	70,240	80,618	82,418	87,576	93,559	94,862	103,929	0		67,416

Average Salary - based on Total Covered Payroll for 2022.

* 1,326 actives (57.8% of all active participants) are under the reduced plan formula.

Participant Census Statistics (continued)



Participant Census Statistics

(continued)

January 1, 2022

Non-Active Participants Included in Valuation

	Number	Total Annual Benefit	Average Annual Benefit
Retired & Beneficiary			
39G 12795 (after 2/28/2003)	1,109	\$28,227,069	\$25,453
GDA 6148 (prior to 3/1/2003)	306	4,215,383	13,776
Vested Terminated	140	1,764,849	12,606
Terminated Non-Vested	277	958,533	3,460 *
Disabled Participants	22	590,173	26,826
Total	1,854	35,756,007	19,286

* Amount equal to expected refund of member contributions.

Retired & Beneficiary Participants in Pay Status

Age	Number	Total Annual Benefit	Average Annual Benefit
Under 50	10	\$99,193	\$9,919
50-54	49	2,003,770	40,893
55-59	104	3,862,629	37,141
60-64	204	6,104,840	29,926
65-69	293	7,260,750	24,781
70-74	293	6,460,147	22,048
75-79	208	3,598,144	17,299
Over 79	254	3,052,979	12,020
Total	1,415	32,442,452	22,928

Disabled Participants in Pay Status**

Age	Number	Total Annual Benefit	Average Annual Benefit
Under 45	0	\$0	\$0
45-49	0	0	0
50-54	0	0	0
55-59	0	0	0
Over 59	0	0	0
Total	0	0	0

**Disability payments are paid from the Plan for the first 5 years. Payments after five years are paid under the disability insurance contract for eligible disabled participants prior to July 1, 2015.

Participant Census Statistics

(continued)

	Active	Non-Active			Beneficiary	Total
		Deferred	Disabled	Retired		
Number on January 1, 2021	2,188	392	23	1,190	183	3,976
Terminated						
Non-Vested	0	0	0	0	0	0
Vested - Lump Sum	-99	-105	0	0	0	-204
Vested - Deferred	-33	+33	0	0	0	0
Disabled	-2	0	+2	0	0	0
Deceased						
Vested - Lump Sum	0	0	0	0	0	0
Vested - Beneficiary	-4	0	0	-16	+20	0
No Additional Benefit	0	0	-1	-21	-20	-42
Retired						
Monthly Benefit	-76	-1	-2	+79	0	0
Lump Sum	0	0	0	0	0	0
Certain Period Expired	0	0	0	0	-1	-1
Return to Active	+5	-5	0	0	0	0
New Entrants or Prior Omissions						
During Plan Year	+315	+103	0	+3	-2	+419
Number on January 1, 2022	2,294	417	22	1,235	180	4,148

<u>Non-Active Participants</u>	<u>Number</u>	<u>Annual Benefit</u>
Deferred Participants		
Vested Participants	140	\$1,764,849
Non-vested Participants	277	958,533 *
Disabled Participants	22	590,173
Retired & Beneficiary Participants	1,415	32,442,452

* Amount equal to expected refund of member contributions.



Risk & Insurance | Employee Benefits | Retirement & Private Wealth

Welcome

**Douglas County
Employees' Retirement Plan
Actuarial Review
as of January 1, 2022**

May 26, 2022

Actuarial Valuation Overview

- An actuarial valuation is performed annually to report on the financial health of the Retirement Plan, including:
 - Funded Percentage
 - Summary of Plan Liabilities and Assets
 - Value of Earned Benefits
 - Actuarially Determined Contribution
 - Summary of County and Employee Contributions

Plan Provisions

- Monthly Annuity – the plan provides monthly benefits payable to the members and beneficiaries
- Amount of Benefit – determined by the member's pay, service and the plan's benefit formula. Pay is averaged over five years.
- Benefit Formula – depends on the member's date of hire and classification:
 - All prior to June 30, 2011
 - 2% of Average Pay times Years of Service
 - Maximum of 60% of Average Pay
 - Eligible for Rule of 75 Retirement
 - Generally, those hired after December 31, 2011
 - 1.5% of Average Pay times Years of Service
 - Maximum of 45% of Average Pay
 - Not eligible for Rule of 75
 - Sheriff deputies hired after June 30, 2011 and FOP #8 members hired after June 30, 2014 have a service-graded benefit formula, with a maximum benefit of 60% of Average Pay
 - No Rule of 75
 - Unreduced benefit after 30 years of service
 - Unreduced benefit at age 55

Plan Provisions (cont'd)

- Full retirement benefits (unreduced) are payable:

	Hired Prior to 2012	Hired After 2011	Sheriff Deputies Hired After 2011	FOP #8 Hired After 2014
Normal Retirement Date	65	65	55	55
Rule of 75	50 with Age + Svc > 75	N/A	N/A	N/A

- Early Retirement – a reduced pension payable after:

Hired Prior to 2012	<ul style="list-style-type: none"> ▪ Age 55 with 20 years of service ▪ Age 60 with five years of service
Hired After 2012	<ul style="list-style-type: none"> ▪ Age 50 with 10 years of service ▪ Age 60 with five years of service
Sheriff Deputies Hired After 2011	<ul style="list-style-type: none"> ▪ Age 53
FOP #8 Members Hired After 2014	<ul style="list-style-type: none"> ▪ Age 53

- Other Benefits – may be payable upon death

Plan Provisions (cont'd)

- Vesting Schedule – a deferred pension is earned based on the vesting schedule

Years of Service	Vesting Percentage
Less than 5	0%
5	25%
6	40%
7	55%
8	70%
9	85%
10 +	100%

Historical Plan Changes

- FOP #8 – The same benefit provisions in effect for sheriffs hired after June 30, 2011, were extended to FOP #8 members hired after June 30, 2014, and the member contributions were increased by 2%.
- Disability Benefits – The disability provision for active members was removed from the Plan as of July 1, 2015. Disabilities occurring after this date are covered under an insurance contract separate from the pension plan.
- Interest on Member Contributions – Effective January 1, 2016, the interest crediting rate on Member Contributions was changed from 5.0% to the 10-year Treasury rate for the November 30th preceding the Plan Year.

◦ 2022	1.43%	2019	3.01%	2016	2.21%
◦ 2021	0.84%	2018	2.42%		
◦ 2020	1.78%	2017	2.37%		

Plan Members

Number of Members	2021	2022
Actives		
• Prior Benefit Formula With Rule 75	1,076	968
• Newer, Reduced Benefit Formula ¹	1,112	1,326
• Total	2,188	2,294
Retirees and Beneficiaries		
• Contract 39G – 12795 (after 2/28/2003)	1,042	1,109
• Contract GDA – 6148 (prior to 3/1/2003)	331	306
• Total	1,373	1,415
Vested Terminated	124	140
Terminated Non-Vested	268	277
Disabled ²	23	22
Total	3,976	4,148
Retirees and Beneficiaries as a Percent of Total	34.5%	34.1%

¹ Includes Sheriffs and FOP #8 members.

² Disability benefits provided by an insurance contract held outside of the pension plan effective July 1, 2015.

Actuarial Assumptions

- Investment Return 7.5% per year
- Salary Increases

Age	Annual Increase
18 – 29	6.5%
30 – 39	6.0%
40 – 44	5.5%
45 – 54	5.0%
55 +	4.5%

- Mortality Table PubG-2010 set forward two years for males and one year for females and projected with 75% of MP-2021 improvement

- Withdrawal Rates (Sample)

Age	Annual Increase
22	28.3%
32	10.0%
42	5.9%
52	2.3%

- Member Contributions 8.5% of Pay (FOP #8 members hired after 6/30/2014 contribute 10.5% of Pay)
- County Contributions 8.5% of Pay

Actuarial Assumptions (cont'd)

Retirement Rates*

Age	Rule of 75	Other
50	30%	5%
51 – 54	5%	2%
55 – 61	10%	5%
62 – 64	20%	10%
65 – 69	30%	30%
70+	100%	100%

*30% assumed to retire upon eligibility for Rule of 75.

Actuarial Assumptions (cont'd)

Retirement Rates* – Sheriffs hired after June 30, 2011 and FOP #8 members hired after June 30, 2014

Age	Rate
53 – 54	5%
55	25%
56 – 57	15%
58	20%
59 – 61	25%
62	30%
63	35%
64	40%
65+	100%

*100% assumed to retire at 30 years of service

Actuarial Measurements (thousands)

	2021	2022
Actuarial Accrued Liability	\$546,029	\$575,756
Actuarial Value of Assets	\$386,862	\$425,402
Funded Percentage	70.9%	73.9%
Unfunded Liability	\$159,167	\$150,355

Market Value of Assets at 1/1/2022 was \$444,999; resulting in a Funded Percentage of 77.3%

Actuarial Determined Contribution

	2021	2022
Expected Member Contributions	\$12,776	\$13,162
Expected County Contributions	\$12,528	\$12,872
Total	\$25,304*	\$26,034

Actuarial Determined Contribution		
▪ Normal Cost (Value Of Benefits Earned In The Year)	\$16,042	\$16,428
▪ 25-Year Amortization of Unfunded Liability	\$9,031	\$8,906
▪ ½ year interest	\$940	\$950
Total	\$26,014	\$26,284

*Actual total for 2021 was \$26,015,427

Plan Asset History as of January 1

Year	Market Value of Assets	Rate of Return Prior Year
2022	\$444,998,783	12.5%
2021	\$404,822,679	13.6%
2020	\$363,054,352	19.7%
2019	\$309,764,717	-2.8%
2018	\$326,905,394	16.8%
2017	\$283,902,001	6.8%
2016	\$269,520,264	2.3%
2015	\$267,549,482	5.2%
2014	\$258,340,593	18.9%
2013	\$219,605,063	10.3%
2012	\$200,860,360	0.5%
2011	\$199,988,291	11.0%
2010	\$179,166,378	16.0%
2009	\$151,275,593	-18.7%
2008	\$184,386,700	4.9%

Note: 15-year geometric average return of 7.3%

Historical Funded Percentage

Year	Actuarial Value of Assets (\$1,000s)	Actuarial Accrued Liability (\$1,000s)	Funded Ratio
2022	\$425,402	\$575,756	73.9%
2021	\$386,862	\$546,029	70.9%
2020	\$350,081	\$523,726	66.8%
2019	\$320,394	\$488,372	65.6%
2018	\$315,694	\$464,234	68.0%
2017	\$287,478	\$427,763	67.2%
2016	\$274,878	\$408,662	67.3%
2015	\$263,790	\$394,847	66.8%
2014	\$245,830	\$380,727	64.6%
2013	\$219,494	\$362,117	60.6%
2012	\$205,795	\$343,178	60.0%
2011	\$196,119	\$321,700	61.0%
2010	\$177,797	\$307,407	57.8%
2009	\$167,994	\$290,127	57.9%
2008	\$177,834	\$270,351	65.8%

Looking Forward

- Funding Policy
- Reporting of Risk Measures
- Forecasts of Funding Percentage
- Effect of Actuarial Standard of Practice No. 4

Funding Policy

- The County's funding policy is to contribute amounts to the plan necessary to fund benefits earned under the plan, along with members' contributions, based on the Contribution Rates below.
- Nebraska State statute limits the County's contribution to no more than the amounts contributed by the members.
- Member Contributions: 8.5% of Pay
 - For all members, regardless of date of hire or classification
 - Plus additional 2% of pay for FOP #8 members hired after 2014
 - Except for sheriff deputies hired after 2011 and FOP #8 members hired after 2014, reduced at 33 years of service
- County Contributions:
 - Same Amount as Members, excluding additional 2% of pay for FOP #8 members hired after 2014

Funding Policy

- Actuarially Determined Contribution:
 - The annual calculated contribution amount as determined by application of the plan's actuarial methods and assumptions. This contribution provides a measure of the amount of contributions needed to fund the benefits earned in the current year plus the 25-year amortization of the unfunded accrued liability, based on a closed, layered level percent of pay. The plan is not currently being funded on this basis, but is funded by the fixed contribution rates described previously.

Risk Measures

- The Actuarial Standards of Practice require the reporting of certain risk disclosures.
- Risk is defined as the potential of actual future measurements deviating from expected future measurements resulting from actual future experience deviating from actuarially assumed experience.
- Sample sources of risk include:
 - Investment Return
 - Asset/Liability Mismatch
 - Interest Rate Risk
 - Longevity and Other Demographic Risks
 - Contribution Risk

Risk Measures (cont'd)

	January 1, 2021	January 1, 2022
Market Value of Assets	\$404,822,679	\$444,998,783
Total Covered Payroll	\$150,083,372	\$154,652,025
Ratio	2.7	2.9
More risk is associated with plans whose size (assets and liabilities) are significantly larger than annual payroll.		
Market Value of Assets	\$404,822,679	\$444,998,783
Actuarial Accrued Liability	\$546,028,944	\$575,756,430
Ratio	74.1%	77.3%
More risk is associated with plans that have lower funded ratios.		
Retired Participant Liability	\$297,196,071	\$316,460,909
Total Actuarial Accrued Liability	\$546,028,944	\$575,756,430
Ratio	54.4%	55.0%
More risk is associated with plans whose retiree liability is a significant and growing proportion of the plan's total liability.		
Benefit Payments	\$31,553,332	\$34,563,182
Total Contributions	\$25,361,845	\$26,015,427
Ratio	124.4%	132.9%
More risk is associated with plans whose benefit payments are significantly larger than contributions.		

Forecast of Funded Percentage

Forecast Period	Year	Estimated Funded Percentage		
		6.5% Investment Return	7.5% Investment Return	8.5 % Investment Return
Current – Actual	2022	73.9%	73.9%	73.9%
5 Years	2027	78.6%	81.8%	85.1%
10 Years	2032	80.1%	88.1%	96.8%
15 Years	2037	82.9%	97.0%	113.2%
20 Years	2042	87.8%	109.6%	135.7%

Assumptions

- Investment Return 7.5%, 6.5% or 8.5% per year
- Discount Rate 7.5% for all scenarios
- Salary Scale Graded 4.5% – 6.5%
- Mortality Table PubG-2010 set forward two years for males and one year for females and projected with 75% of MP-2021 improvement scale
- Actuarial Cost Method Projected Unit Credit
- Member Growth Rate 0%
- Plan Provisions Same as Current
- Other Assumptions and Data Consistent with the January 1, 2022 Valuation

Forecasts are intended for illustrative purposes as an indication of future trends and risks. Actual future funded percentages will differ from these forecasts as actual plan experience differs from the assumptions.

Forecast of Funded Percentage

Forecast Period	Year	Estimated Funded Percentage		
		6.5% Investment Return	7.5% Investment Return	8.5 % Investment Return
Current – Actual	2022	73.9%	73.9%	73.9%
5 Years	2027	69.5%	71.7%	73.9%
10 Years	2032	69.3%	75.5%	82.1%
15 Years	2037	70.2%	81.5%	94.3%
20 Years	2042	73.1%	90.7%	111.6%

Assumptions

- Investment Return **-5.0% for 2022** and 7.5%, 6.5% or 8.5% per year thereafter
- Discount Rate 7.5% for all scenarios
- Salary Scale Graded 4.5% – 6.5%
- Mortality Table PubG-2010 set forward two years for males and one year for females and projected with 75% of MP-2021 improvement scale
- Actuarial Cost Method Projected Unit Credit
- Member Growth Rate 0%
- Plan Provisions Same as Current
- Other Assumptions and Data Consistent with the January 1, 2022 Valuation

Forecasts are intended for illustrative purposes as an indication of future trends and risks. Actual future funded percentages will differ from these forecasts as actual plan experience differs from the assumptions.

ASOP No.4

- This updated Actuarial Standard of Practice will become effective for measurement dates on or after February 15, 2023.
- This ASOP will add the disclosure of a new liability calculation called a “Low-Default-Risk Obligation Measure”. This liability represents the present value of earned benefits based on discount rates derived from low-default-risk fixed income securities.
 - For example, currently this liability could be based on a discount rate of about 4.0% rather than the plan’s assumed rate of investment return of 7.5%.

ASOP No.4 (cont'd)

- This updated ASOP also requires that a plan's amortization method is expected to produce amortization payments that fully amortize the unfunded liability bases within a reasonable time period or reduce the outstanding balance by a reasonable amount each year.
 - Determination of a reasonable time period or a reasonable amount is based on several considerations; including the length of time until amortization payments exceed nominal interest on the outstanding balance.

Thank you.

May 7, 2021

PERSONAL & CONFIDENTIAL

Mr. Joe Lorenz
Douglas County Employees' Retirement Plan
1819 Farnam Street
Omaha, NE 68183

RE: 2021 Experience Analysis

Dear Joe:

Enclosed are fifteen copies of the 2021 Experience Analysis for the Douglas County Employees' Retirement Plan. Based on a comparison of actual to expected experience we recommend updating the mortality improvement scale to MP-2020.

Impact of COVID-19 on Study

The results presented represent the plan's experience from all sources. Experience specific to COVID-19 was not identified and no change in assumptions is recommended due to the pandemic. However, we do recommend plan experience continue to be monitored and we note a subsequent experience study is scheduled for 2023.

Please contact me with any questions.

Sincerely,



Glen C. Gahan, FSA
Principal

GCG/bk

Enclosures

**Douglas County
Employees' Retirement Plan**

2021 Experience Analysis

May 2021

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Overview

A Plan Experience Analysis was performed to compare actual plan experience to the expected experience based on the Plan's actuarial assumptions.

The assumptions analyzed were:

- Rates of Termination
- Rates of Retirement
 - Rule of 75
 - Other than Rule of 75
- Rates of Salary Increases
- Rates of Mortality
- Rates of Investment Return

Actuarial Assumptions Recommendation

Based on a review of actual and expected experience over the past five years, the following revisions to the actuarial assumptions are recommended.

Rates of Termination

No changes recommended

Rates of Retirement

Rule of 75

No changes recommended

Other than Rule of 75

No changes recommended

Rates of Salary Increases

No changes recommended

Rates of Mortality

We recommend updating the mortality improvement scale from 75% of the MP-2019 to 75% of MP-2020.

Rates of Investment Return

No changes recommended, based on direction of the County and investment advisor.

Impact of COVID-19 on Study

The results presented represent the plan's experience from all sources. Experience specific to COVID-19 was not identified and no change in assumptions is recommended due to the pandemic. However, we do recommend plan experience continue to be monitored and we note a subsequent experience study is scheduled for 2023.

Comparison of Actual and Expected Rates

Terminations

Age Group	2020			2019			2018			2017			2016		
	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio
20-24	17	14	120%	13	11	113%	21	17	123%	12	14	88%	16	14	112%
25-29	37	23	160%	24	20	122%	50	24	207%	29	22	133%	25	23	109%
30-34	24	24	101%	33	24	138%	32	24	134%	38	26	145%	26	25	104%
35-39	31	24	128%	18	24	76%	33	24	137%	17	22	77%	23	22	107%
40-44	21	16	133%	19	16	120%	23	15	154%	18	16	115%	17	16	105%
45-49	11	12	95%	13	12	112%	19	12	155%	17	13	135%	13	12	105%
50-54	8	7	110%	8	7	120%	12	7	178%	14	7	209%	6	7	88%
55-59	8	5	174%	3	5	64%	9	4	203%	7	5	153%	5	4	114%
60-62	4	3	134%	3	3	97%	4	3	131%	1	3	36%	2	3	76%
Total	161	127	126%	134	120	111%	203	131	155%	153	126	122%	133	126	105%

5-Year Summary

Age	Actual	Exp	Ratio
20-24	79	71	112%
25-29	165	112	148%
30-34	153	123	125%
35-39	122	115	106%
40-44	98	78	125%
45-49	73	60	121%
50-54	48	34	140%
55-59	32	23	141%
60-62	14	15	96%
Total	784	630	124%

Comparison of Actual and Expected Rates

(continued)

Rule of 75 Retirements

Age	5-Year Summary			2020			2019			2018			2017			2016		
	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio
50	14	12.30	114%	2	2.70	74%	0	2.40	0%	5	2.70	185%	3	2.70	111%	4	1.80	222%
51	9	6.55	137%	4	2.20	182%	1	1.15	87%	1	0.90	111%	2	0.75	267%	1	1.55	65%
52	3	7.65	39%	1	2.15	47%	0	1.30	0%	0	1.05	0%	2	2.30	87%	0	0.85	0%
53	7	12.15	58%	3	3.55	85%	2	4.25	47%	2	1.80	111%	0	1.25	0%	0	1.30	0%
54	12	8.60	140%	3	2.10	143%	3	1.90	158%	2	1.40	143%	2	1.40	143%	2	1.80	111%
55	19	13.30	143%	1	1.90	53%	7	3.60	194%	4	3.10	129%	6	3.30	182%	1	1.40	71%
56	16	11.10	144%	3	2.20	136%	1	1.30	77%	5	1.90	263%	5	3.00	167%	2	2.70	74%
57	11	8.30	133%	0	1.50	0%	3	2.30	130%	4	1.50	267%	2	2.00	100%	2	1.00	200%
58	8	12.80	63%	5	2.60	192%	1	2.90	34%	0	1.80	0%	0	1.00	0%	2	4.50	44%
59	15	15.30	98%	4	3.10	129%	4	3.40	118%	3	2.00	150%	2	3.40	59%	2	3.40	59%
60	21	14.60	144%	4	2.30	174%	3	2.70	111%	5	3.60	139%	4	3.10	129%	5	2.90	172%
61	11	12.60	87%	4	2.90	138%	2	2.20	91%	2	3.00	67%	1	2.00	50%	2	2.50	80%
62	13	21.60	60%	3	3.70	81%	2	6.60	30%	5	3.80	132%	2	4.80	42%	1	2.70	37%
63	28	25.10	112%	7	7.00	100%	7	6.60	106%	8	5.50	145%	5	3.30	152%	1	2.70	37%
64	23	20.70	111%	8	5.70	140%	5	5.40	93%	3	2.60	115%	1	3.00	33%	6	4.00	150%
65	0	0.00		0	0.00		0	0.00		0	0.00		0	0.00		0	0.00	
66	0	0.00		0	0.00		0	0.00		0	0.00		0	0.00		0	0.00	
67	0	0.00		0	0.00		0	0.00		0	0.00		0	0.00		0	0.00	
68	0	0.00		0	0.00		0	0.00		0	0.00		0	0.00		0	0.00	
69	0	0.00		0	0.00		0	0.00		0	0.00		0	0.00		0	0.00	
Total	210	202.65	104%	52	45.60	114%	41	48	85%	49	36.65	134%	37	37.3	99%	31	35.10	88%

Comparison of Actual and Expected Rates

(continued)

Early and Normal Retirements

Age	5-Year Summary			2020			2019			2018			2017			2016		
	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio
<=60	4	5.00	80%	1	1.05	95%	1	1.25	80%	1	0.65	154%	1	0.95	105%	0	1.10	0%
61	3	3.70	81%	0	0.75	0%	0	0.40	0%	0	0.75	0%	3	1.10	273%	0	0.70	0%
62	3	5.80	52%	1	0.60	167%	0	1.20	0%	1	1.90	53%	0	1.10	0%	1	1.00	100%
63	6	4.55	132%	3	0.90	333%	0	1.15	0%	2	0.60	333%	1	0.80	125%	0	1.10	0%
64	5	4.00	125%	1	1.00	100%	1	0.80	125%	2	0.60	333%	1	0.90	111%	0	0.70	0%
65	22	29.70	74%	4	8.40	48%	3	6.60	45%	7	6.30	111%	5	6.30	79%	3	2.10	143%
66	15	19.20	78%	5	5.70	88%	2	4.20	48%	4	4.80	83%	0	1.20	0%	4	3.30	121%
67	13	16.80	77%	4	3.90	103%	2	4.80	42%	2	1.20	167%	1	2.40	42%	4	4.50	89%
68	7	15.30	46%	3	4.20	71%	1	3.60	28%	2	2.40	83%	1	3.30	30%	0	1.80	0%
69	5	12.00	42%	1	3.60	28%	0	1.20	0%	2	3.30	61%	0	1.50	0%	2	2.40	83%
Subtotal	83	116.05	72%	23	30.10	76%	10	25.20	40%	23	22.50	102%	13	19.55	66%	14	18.70	75%
70+	32	165.00	19%	9	39.00	23%	6	39.00	15%	5	28.00	18%	7	30.00	23%	5	29.00	17%
Total	115	281.05	41%	32	69.10	46%	16	64.2	25%	28	50.50	55%	20	49.55	40%	19	47.70	40%

Comparison of Actual and Expected Rates

(continued)

Salary Increases

Age Group	2020			2019			2018			2017			2016		
	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio
20-24	2.19%	6.50%	34%	3.45%	6.50%	53%	11.28%	6.50%	174%	7.07%	6.50%	109%	8.25%	6.50%	127%
25-29	5.53%	6.50%	85%	8.38%	6.50%	129%	9.78%	6.50%	150%	10.17%	6.50%	156%	4.33%	6.50%	67%
30-34	4.65%	6.00%	78%	8.60%	6.00%	143%	8.77%	6.00%	146%	5.48%	6.00%	91%	4.47%	6.00%	75%
35-39	4.87%	6.00%	81%	5.83%	6.00%	97%	7.96%	6.00%	133%	6.01%	6.00%	100%	2.20%	6.00%	37%
40-44	5.61%	5.50%	102%	6.34%	5.50%	115%	6.77%	5.50%	123%	5.49%	5.50%	100%	1.90%	5.50%	35%
45-49	3.86%	5.00%	77%	5.31%	5.00%	106%	5.42%	5.00%	108%	4.19%	5.00%	84%	1.33%	5.00%	27%
50-54	2.98%	5.00%	60%	3.87%	5.00%	77%	5.61%	5.00%	112%	4.44%	5.00%	89%	1.50%	5.00%	30%
55-59	3.84%	4.50%	85%	5.49%	4.50%	122%	4.38%	4.50%	97%	3.09%	4.50%	69%	1.03%	4.50%	23%
60-65	2.65%	4.50%	59%	5.84%	4.50%	130%	5.08%	4.50%	113%	5.53%	4.50%	123%	0.71%	4.50%	16%
65+	2.53%	4.50%	56%	3.81%	4.50%	85%	4.34%	4.50%	96%	4.44%	4.50%	99%	0.29%	4.50%	6%
Totals	4.05%	5.26%	77%	5.75%	5.23%	110%	6.46%	5.29%	122%	5.16%	5.29%	98%	2.03%	5.34%	38%

5-Year Summary

Age	Actual	Exp	Ratio
20-24	6.45%	6.50%	99%
25-29	7.64%	6.50%	118%
30-34	6.39%	6.00%	107%
35-39	5.37%	6.00%	90%
40-44	5.22%	5.50%	95%
45-49	4.02%	5.00%	80%
50-54	3.68%	5.00%	74%
55-59	3.57%	4.50%	79%
60-65	3.96%	4.50%	88%
65+	3.08%	4.50%	68%
Total	4.94%	5.40%	91%

Comparison of Actual and Expected Rates

(continued)

Male PubG-2010 (+2) projected with 75% of MP-2020 from 2010 to applicable year

Mortality for Retired and Terminated Vested Participants

Age Group	2020			2019			2018			2017			2016		
	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio
<60	0	0.46	0%	1	0.48	206%	0	0.50	0%	0	0.53	0%	0	0.52	0%
60-64	2	0.78	257%	0	0.66	0%	0	0.69	0%	0	0.73	0%	1	0.83	121%
65-69	4	1.71	234%	1	1.80	56%	0	1.84	0%	0	1.79	0%	1	1.60	63%
70-74	3	2.90	104%	3	2.63	114%	1	2.00	50%	1	1.72	58%	1	1.64	61%
75-79	1	3.05	33%	4	3.00	134%	3	2.49	120%	3	2.38	126%	2	2.08	96%
80-84	5	2.83	176%	4	2.95	136%	1	2.45	41%	6	2.97	202%	3	2.93	102%
85-89	7	4.06	172%	1	4.33	23%	2	3.15	64%	2	3.18	63%	6	3.45	174%
90-94	6	3.45	174%	5	3.28	152%	1	2.60	38%	2	1.99	101%	2	2.03	99%
>=95	0	0.91	0%	3	1.50	199%	0	1.09	0%	1	0.84	120%	3	1.32	227%
Total	28	20.15	139%	22	20.64	107%	8	16.82	48%	15	16.11	93%	19	16.39	116%

5-Year Summary

Age	Actual	Exp	Ratio
<60	1	2.49	40%
60-64	3	3.68	81%
65-69	6	8.73	69%
70-74	9	10.90	83%
75-79	13	13.00	100%
80-84	19	14.13	134%
85-89	18	18.17	99%
90-94	16	13.35	120%
>=95	7	5.66	124%
Total	92	90.12	102%

Comparison of Actual and Expected Rates

(continued)

Female PubG-2010 (+1) projected with 75% of MP-2020 from 2010 to applicable year

Mortality for Retired and Terminated Vested Participants

Age Group	2020			2019			2018			2017			2016		
	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio
<60	0	0.34	0%	1	0.37	272%	1	0.38	265%	0	0.34	0%	0	0.34	0%
60-64	0	0.45	0%	0	0.48	0%	0	0.50	0%	1	0.51	198%	4	0.56	715%
65-69	4	1.30	308%	1	1.27	79%	1	1.31	77%	1	1.35	74%	2	1.29	155%
70-74	3	2.26	133%	3	2.01	150%	5	2.04	246%	1	1.96	51%	1	1.78	56%
75-79	1	3.09	32%	4	3.18	126%	4	2.32	173%	5	2.13	234%	3	2.19	137%
80-84	5	3.59	139%	4	3.62	111%	4	3.51	114%	1	3.76	27%	2	3.57	56%
85-89	5	5.89	85%	3	6.34	47%	3	6.07	49%	6	6.02	100%	6	6.05	99%
90-94	11	7.03	156%	6	6.98	86%	5	5.49	91%	7	5.23	134%	5	6.20	81%
>=95	7	5.61	125%	6	5.51	109%	5	4.28	117%	4	4.07	98%	2	2.60	77%
Total	36	29.56	122%	28	29.75	94%	28	25.88	108%	26	25.37	103%	25	24.57	102%

5-Year Summary

Age	Actual	Exp	Ratio
<60	2	1.76	114%
60-64	5	2.49	200%
65-69	9	6.52	138%
70-74	13	10.03	130%
75-79	17	12.92	132%
80-84	16	18.05	89%
85-89	23	30.36	76%
90-94	34	30.94	110%
>=95	24	22.06	109%
Total	143	135.13	106%

Historical Rates of Investment Return

Year	Annual Return on Market Value of Assets	Annual Return on Actuarial Value of Assets
1984	8.9%	N/A
1985	20.6%	N/A
1986	15.5%	N/A
1987	4.4%	N/A
1988	11.5%	N/A
1989	15.5%	N/A
1990	6.7%	N/A
1991	15.5%	N/A
1992	7.9%	N/A
1993	10.4%	N/A
1994	2.4%	N/A
1995	17.2%	N/A
1996	10.6%	N/A
1997	13.3%	N/A
1998	7.7%	N/A
1999	7.3%	N/A
2000	2.3%	6.2%
2001	1.3%	2.4%
2002	-4.6%	0.0%
2003	15.7%	7.3%
2004	10.0%	8.7%
2005	7.1%	7.8%
2006	12.1%	10.0%
2007	4.9%	7.2%
2008	-18.7%	-6.4%
2009	16.0%	3.8%
2010	11.0%	9.7%
2011	0.5%	5.0%
2012	10.3%	7.6%
2013	18.9%	13.2%
2014	5.2%	9.1%
2015	2.3%	5.6%
2016	6.8%	6.2%
2017	16.8%	11.4%
2018	-2.8%	4.1%
2019	19.7%	11.6%
2020	13.6%	12.7%
Average	8.8% (37 yrs)	
	7.1% (21 yrs)	6.8% (21 yrs)
	9.1% (10 yrs)	8.7% (10 yrs)
	10.8% (5 yrs)	9.2% (5 yrs)

Historical Market and Actuarial Value of Assets

Year	Market Value of Assets	Actuarial Value of Assets	AVA as % of MVA
2000	123,913,647	117,625,992	94.9%
2001	125,752,053	123,971,024	98.6%
2002	126,751,547	126,336,366	99.7%
2003	119,929,319	125,237,848	104.4%
2004	137,080,947	132,768,961	96.9%
2005	148,916,100	142,402,678	95.6%
2006	157,653,656	151,686,147	96.2%
2007	175,115,759	165,309,144	94.4%
2008	184,386,700	177,833,982	96.4%
2009	151,275,593	167,993,744	111.1%
2010	179,166,378	177,797,061	99.2%
2011	199,988,291	196,119,468	98.1%
2012	200,860,360	205,795,168	102.5%
2013	219,605,063	219,494,329	99.9%
2014	258,340,593	245,830,308	95.2%
2015	267,549,482	263,789,654	98.6%
2016	269,935,429	274,877,630	101.8%
2017	283,902,001	287,477,661	101.3%
2018	326,905,394	315,694,446	96.6%
2019	309,764,717	320,394,185	103.4%
2020	363,054,352	350,081,173	96.4%
2021	404,822,679	386,861,916	95.6%

Recommended Actuarial Assumptions

Investment Return 7.5% compounded annually.

Salary Scale Salaries were assumed to increase at an annual rate compounded annually following the valuation date varying by age, as illustrated below.

Age	Percentage Increase
18-29	6.50%
30-39	6.00%
40-44	5.50%
45-54	5.00%
55+	4.50%

Mortality Rates PubG-2010 set forward 2-years for males and 1-year for females and projected with 75% of the MP-2020 improvement scale.*

Disability Rates None.

Withdrawal Rates Based on rates as illustrated below:

Age	Percentage
22	28.3%
27	12.7%
32	10.0%
37	8.2%
42	5.9%
47	4.0%
52	2.3%
57	1.9%

Accrued Sick Leave 7 days per year.

* Recommend update of the mortality improvement scale from MP-2019 to MP-2020.

Recommended Actuarial Assumptions

(continued)

Retirement Rate	Age	Rule of 75	Other
	50	30%	5%
	51-54	5%	2%
	55-61	10%	5%
	62-64	20%	10%
	65-69	30%	30%
	70	100%	100%

Retirement rate is 30% the first year a Member is eligible for Rule of 75.

Sheriffs Hired after June 30, 2011

Age	Retirement Rate
53-54	5%
55	25%
56-57	15%
58	20%
59-61	25%
62	30%
63	35%
64	40%
65	100%

Retirement rate is 100% for sheriffs hired after June 30, 2011 at 30 years of service.

Interest Rate on Employee Contributions

0.84% per annum, based on November 30, 2020 10-year treasury rate.

Administrative Expenses

Annual administrative expenses have been estimated as 3/10 of 1% of plan assets.

Appendix B
METRO AREA TRANSIT HOURLY



Regional Metropolitan Transit Authority of Omaha

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Omaha, NE 68102

402.341.0800

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October 15, 2022

Dear Senator Kolterman,

Please find included the required reporting form responses and most recent actuarial report for the hourly defined pension plan for the Regional Metropolitan Transit Authority of Omaha. Thank you for your time.

Sincerely,

A handwritten signature in black ink, appearing to read 'William G. Clingman', with a stylized flourish at the end.

William G. Clingman
Finance Director
Metro Transit

**LB 759 REPORTING FORM (HOURLY PLAN)
RMTA of Omaha Hourly Employees' Pension Plan**

1. Plan Information for Years 2017 through Current Plan Year 2022

	2017	2018	2019	2020	2021	2022
1a Funding Status*	71%	77%	67.3%	66.7%	68.5%	71.5%
1b Assumed Rate of Return***	6.75%	6.75%	6.75%	6.5%	6.25%	6.25%
1c Actual Investment Return	5.80%	13.35%	-4.84%	20.06%	14.24%	12.21%
1d Member Contribution Rate	6.00%	7.00%	7.00%	7.25%	7.50%	7.75%
Employer Contribution Rate**	6.50%	7.50%	7.50%	7.75%	7.75%	7.75%
1e Normal Cost Percentage	7.39%	7.21%	7.36%	8.58%	8.81%	8.73%
1f Actuarially Determined Contribution (ADC)						
Percentage	N/A	N/A	N/A	N/A	N/A	N/A
Dollar Amount	\$ 958,333	\$ 835,474	\$ 891,105	\$ 1,165,834	\$ 1,161,981	\$ 1,095,523
1g Actuarially Required Contribution (ARC)						
Dollar Amount Contributed	\$ 904,824	\$ 855,109	\$ 836,227	\$ 1,286,538	\$ 939,928	TBD
Percentage of ARC Contributed	94.20%	102.35%	93.84%	110.35%	80.89%	TBD

* Funding Status for 2018 and prior is based on Market Value of Assets compared to Present Value of Accrued Benefits. Starting in 2019, Funding Status is based on Actuarial Value of Assets compared to Actuarial Accrued Liability in order to coincide with the basis for calculating the Actuarially Determined Contribution.

** Employer contribution rate increased to 7.5% effective 9/1/2017 and employer made a onetime lump-sum contribution to the Plan equal to 1% of the total of the active Plan participants' compensation for the period beginning on July 1, 2016 and ending on August 31, 2017, making the effective employer contribution rate 7.5% from July 1, 2016.-2020. The contribution rate then increased to 7.75% to present. Additionally, the employer made a one-time lump sum contribution to Plan in 2020 of \$350,000.

*** Market value basis

2. Circumstances That Led to Underfunding the Plan

In prior periods, investment returns did not meet the return assumptions. In addition, due to lower capital market expectations, the interest rates used to value liabilities have been decreased several times in the last decade (see below).

2009 reduced from 8.00% to 7.50%
2015 reduced from 7.50% to 7.00%
2016 reduced from 7.00% to 6.75%
2020 reduced from 6.75% to 6.50%***
2021 reduced from 6.50% to 6.25%
2022 remained at 6.25%

3. Changes in Actuarial Methods/Assumptions Since Previous Actuarial Valuation Report

We updated the mortality projection scale from MP-2019 Ultimate to MP-2021 Ultimate. The impact of this change was a decrease in the Unfunded Accrued Liability of about 501,000 and a decrease in the Actuarially Determined Contribution of about \$47,000.

4. In what year is the plan's funding ratio expected to reach 100%?

If the Metro pays the ADC each year, the investments earn exactly the assumed interest rate each year, and there are no changes in the plan provisions or in the actuarial methods and assumptions we project that the plan's funding ratio will reach 100% in 2041.

5. What is the method used to amortize the unfunded actuarial liability?

Unfunded actuarial liability is amortized for 30 years starting in 2012, graded down for each successive year. The Individual Entry Age Normal Cost is the actuarial cost method used to value the liabilities. The amortization period will decrease each year until it reaches 10 years, after which it remains at 10 years.

6. Description of Corrective Actions Implemented to Improve the Funding Status of the Plan:

The Hourly Pension Committee members have amended the plan document to increase the employer and employee contribution rates. The employer contribution rate increased from 6.5 % to 7.75%. The employee contribution rate increased from 6% to 7.5%. For those employees hired on or after January 1, 2018, the Pension Committee also (i) changed the normal retirement date from age 65 to the age when the employee reaches full retirement for purposes of receiving Social Security benefits, and (ii) eliminated the early retirement option. The benefit factor percentage used in the calculation of the monthly benefit for those employees hired on or after January 1, 2018, was also changed by the Pension Committee to a tiered structure based on years of service in lieu of the current method of using the same benefit factor percentage regardless of years of service. In addition, a one-time lump sum contribution was made to the Plan in an amount equal to 1% of the total of the active Plan participants' compensation for the period beginning on July 1, 2016 and ending on August 31, 2017, making the effective employer contribution rate 7.5% since July 1, 2016. The Pension Committee believes all these changes will address the funding issue. The Pension Committee is comprised of bargaining unit employees, management representatives and a Metro Transit Board member. The actuarial assumptions are reviewed annually to give committee members data regarding plan performance. The Committee meets a minimum of once per year to review plan performance, assumptions, asset allocations and potential plan changes. The interest rate (the assumed actuarial rate of return) used on the actuarial report remained the same in 2019 as 2018.

In addition, to reflect the increasing average age of the Plan participants, the asset allocation has been modified to meet the actuarial assumed rate of return. To increase net investment returns, the entire portfolio has been indexed, reducing Plan investment management fees from 71 basis points to 9 basis points. A change in the net asset allocation guidelines as outlined in the revised Investment Policy Statement spreads the change gradually over a 5-year period beginning in 2021 reducing the bond investment while increasing the equities allocation.

Additionally, a one-time lump sum contribution was made to the Plan in November of 2020 to increase the actual contribution as a percentage of payroll effectively to 11.1%. This one-time lump sum contribution was intended to mitigate the impact of reduced contributions due to COVID-19 pandemic and represents the estimated difference in the actual employer contribution compared to the anticipated contribution attributed to the reduction in working hours due to COVID.

7. Recent or Ongoing Negotiations

The collective bargaining agreement between Metro and the Transport Workers Union was ratified as of January 1, 2020. Pension funding is one of the major components of these negotiations. Past and future negotiations include reopeners in each year in order to address required matters that might arise prior to expiration of the bargaining agreement. As previously mentioned, the primary changes to the Plan resulting from 2017 renegotiations of the collective bargaining agreement were increases in the employer and employee contribution rates, and, for those employees hired on or after January 1, 2018, the (i) changing the normal retirement date from age 65 to the age when the employee reaches full retirement age for purposes of receiving Social Security benefits, and (ii) eliminated the early retirement option. The primary changes to the Plan resulting from 2020 negotiations were increases in the employer and employee contribution rates. Negotiations are ongoing for the next bargaining agreement slated to be approved by January 1, 2023. Potential increases to the employee and employer contribution rates are being considered in the negotiations.

8. Most Recent Actuarial Experience

There has not been an experience study done in recent years. Due to the very small size of the participant population, it has been felt that preparation of a formal experience study would not add credible insight in our demographic assumptions. Rather, from time to time we have prepared short analysis of prior termination and retirement rates, as well as anecdotal analysis of compensation increase assumptions and mortality table assumptions and have modified actuarial assumptions as was felt appropriate.

9. Current Assumed Rate of Return

The current assumed rate of return is 6.25%.

10. Most Recent Actuarial Valuation Report

Attached please find the most recent valuation dated January 1, 2022. The valuations are completed every year with the next one due January 1, 2023.



METRO AREA TRANSIT HOURLY EMPLOYEES' PENSION PLAN

**Actuarial Valuation as of January 1, 2022
To Determine Funding for Fiscal Year 2022**

Prepared by

Rebecca A. Sielman, FSA
Consulting Actuary

Kai Petersen, FSA
Consulting Actuary

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Certification

We have performed an actuarial valuation of the Plan as of January 1, 2022 to determine funding for fiscal year 2022. 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.

This report may not be used for purposes other than those listed above without Milliman's prior written consent. If this report is distributed to other parties, it must be copied in its entirety, including this certification section.

Milliman's work is prepared solely for the internal business use of Metro Area Transit ("Metro"). 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) Metro may provide a copy of Milliman's work, in its entirety, to Metro'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 Metro; and (b) Metro 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 Metro. 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

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 assumption, 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 valuation results were developed using models intended for valuations that use standard actuarial techniques. In addition to the models described previously, Milliman has developed certain models to develop the expected long term rate of return on assets used in this analysis. 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 (ASOP). The models, including all input, calculations, and output may not be appropriate for any other purpose.

Although it is possible that the COVID-19 pandemic could have a material impact on the projected mortality, liabilities, and contribution requirements, we have chosen not to make an adjustment in the projections at this time, given the substantial current uncertainty regarding the impact of COVID-19 on mortality and plan costs, including whether the pandemic will increase or decrease mortality during the term of our projections. We will be monitoring this development closely and may adjust future projections to reflect the impact of COVID-19, if and when it becomes appropriate.

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



Kai Petersen, FSA
Consulting Actuary

Section I - Executive Summary Changes Since the Prior Valuation

Plan Changes

None.

Changes in Actuarial Methods and Assumptions

We updated the mortality projection scale from MP-2019 Ultimate to MP-2021 Ultimate. The impact of this change was a decrease in the Unfunded Accrued Liability of about 501,000 and a decrease in the Actuarially Determined Contribution of about \$47,000.

Other Significant Changes

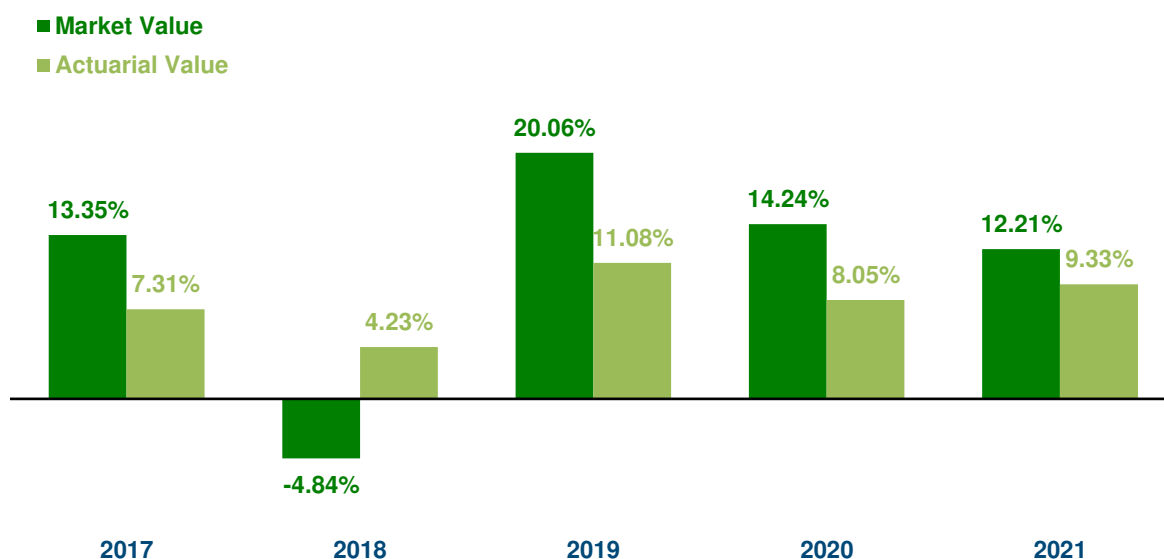
None.

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 non-asymptotically over five years.

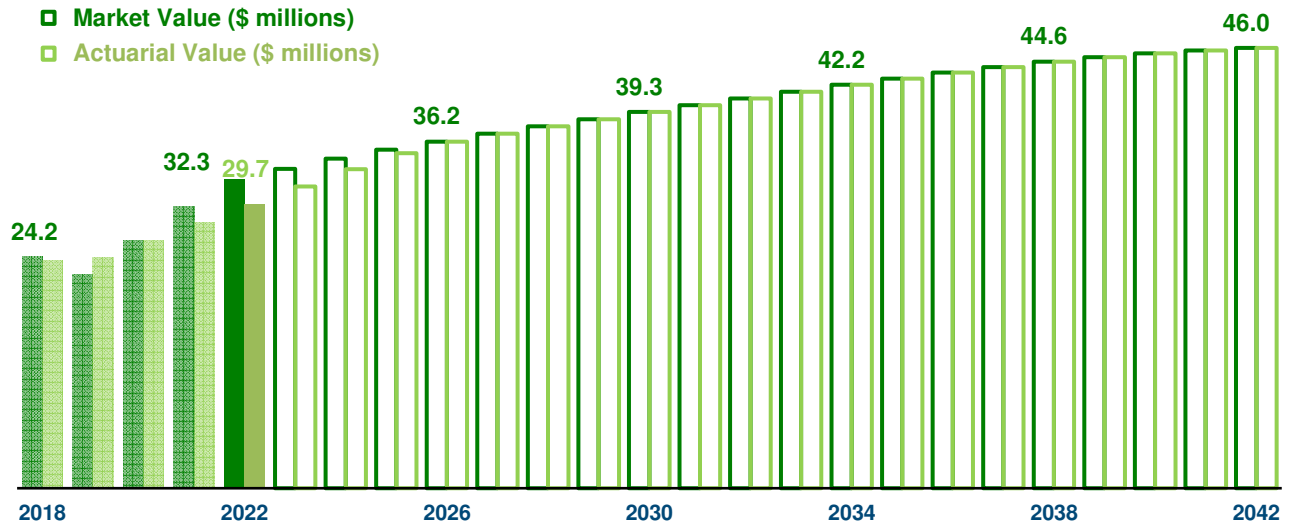
	Market	Actuarial
Value as of January 1, 2021	\$29,423,912	\$27,823,549
Metro and Member Contributions	1,848,209	1,848,209
Investment Income	3,550,835	2,564,326
Transfers	(13,018)	(13,018)
Benefit Payments and Administrative Expenses	(2,519,375)	(2,519,375)
Value as of January 1, 2022	32,290,563	29,703,691

For fiscal year 2021, the plan's assets earned 12.21% on a Market Value basis and 9.33% on an Actuarial Value basis. The actuarial assumption for this period was 6.25%; the result is an asset gain of about \$1.7 million on a Market Value basis and a gain of about \$0.8 million on an Actuarial Value basis. Historical rates of return are shown in the graph below.

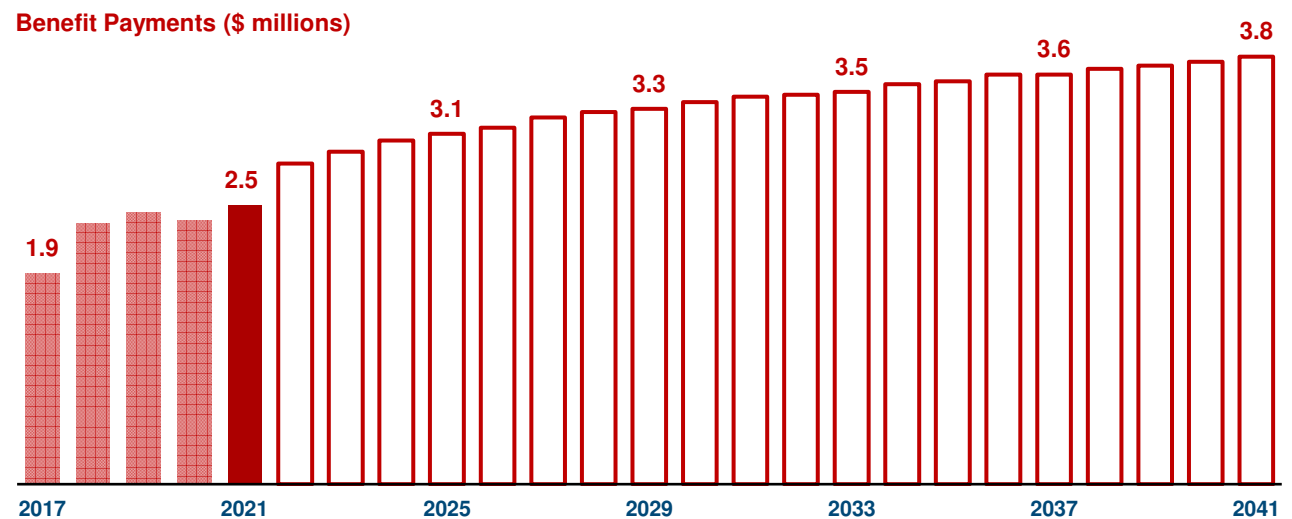


Section I - Executive Summary Assets (continued)

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 20 years. For purposes of this projection, we have assumed that Metro always contributes the Actuarially Determined Contribution and the investments always earn the assumed interest rate each year.

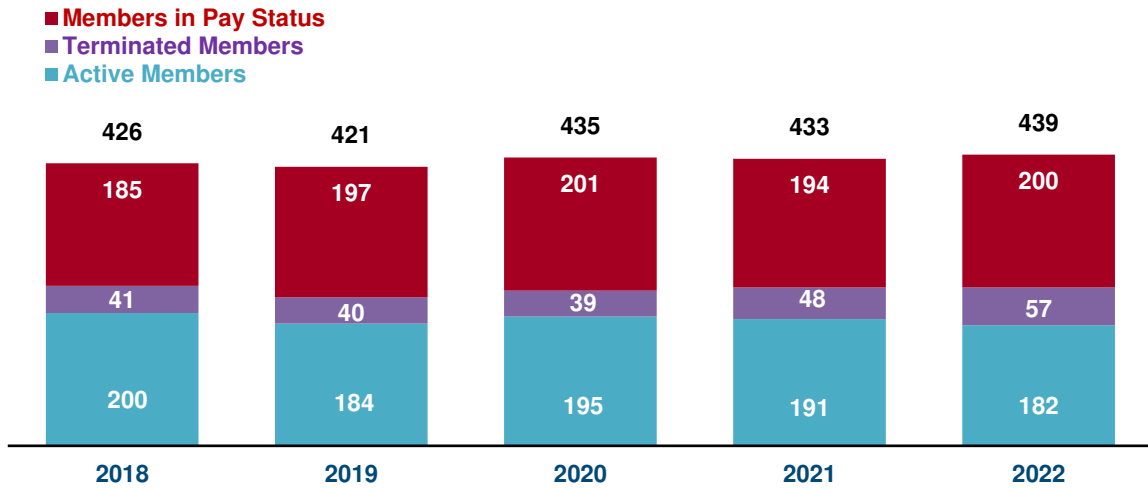


In 2021, the plan paid out \$2,460,329 in benefits to members. Over the next 20 years, the plan is projected to pay out a total of \$67.7 million in benefits to members.



Section I - Executive Summary Membership

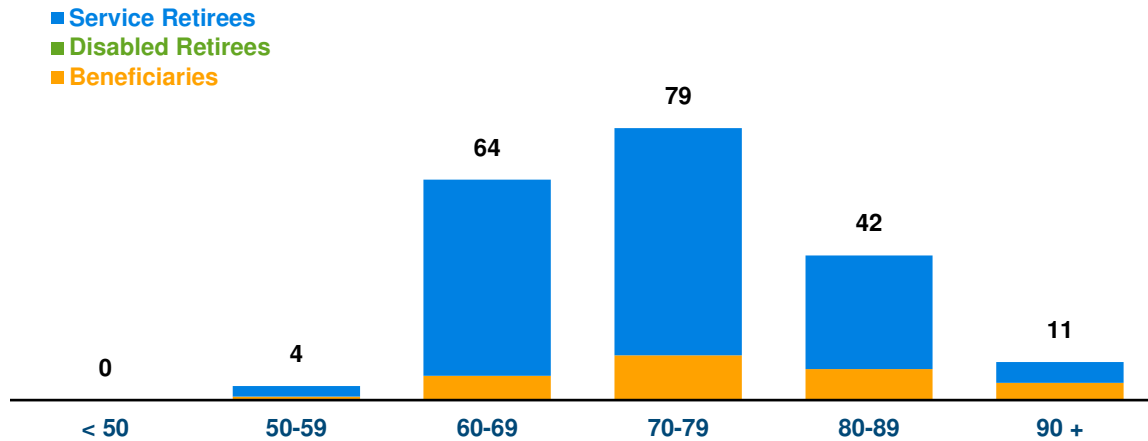
There are three basic categories of plan members included in the valuation: (1) members who are receiving monthly pension benefits, (2) former employees who have a vested right to benefits but have not yet started collecting, and (3) active employees who have met the eligibility requirements for membership.



Members in Pay Status on January 1, 2022

Service Retirees	165	Average Age	74.9
Disabled Retirees	0	Total Annual Benefit	\$2,224,446
Beneficiaries	<u>35</u>	Average Annual Benefit	11,122
Total	200		

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



Section I - Executive Summary Membership (continued)

Terminated Vested Members on January 1, 2022

Count	56
Average Age	56.8
Total Annual Benefit	\$226,011
Average Annual Benefit	4,036

Deferred Beneficiaries on January 1, 2022

Count	1
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Active Members on January 1, 2022

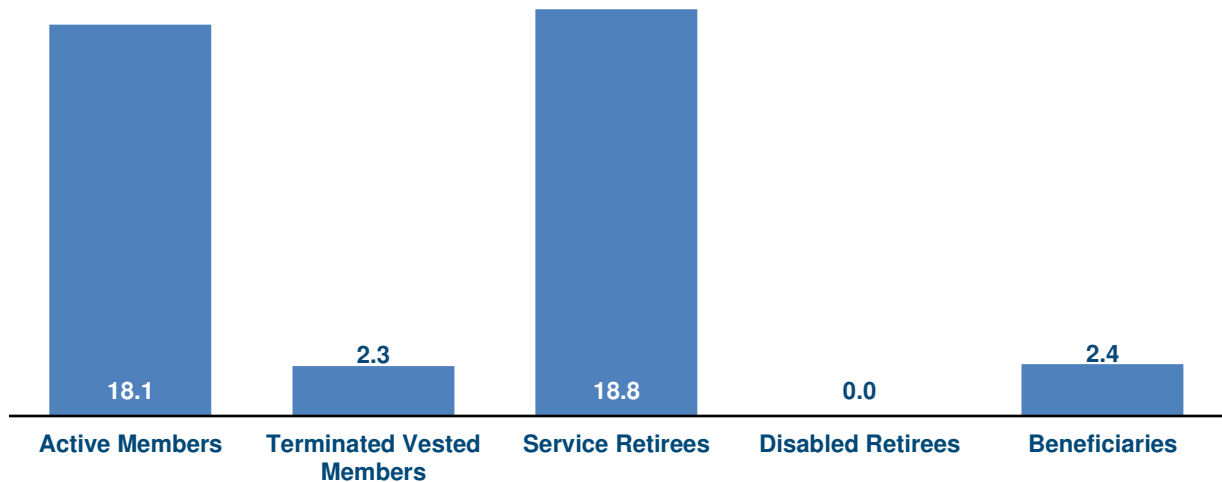
Count	182
Average Age	55.0
Average Service	11.0
Payroll	\$12,203,356
Average Payroll	67,051

The table below illustrates the age and years of service of the active membership:

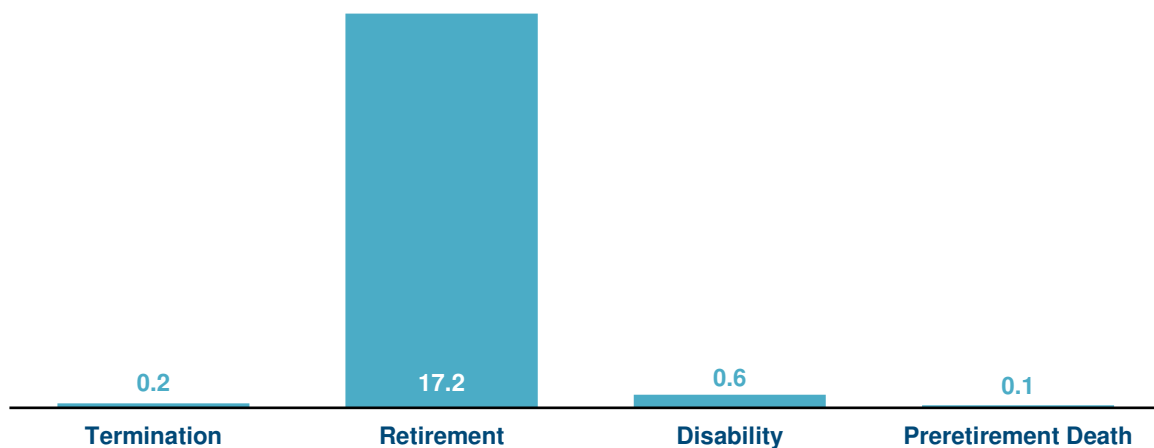
Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
< 25								0
25-29	1	1						2
30-34		1	1					2
35-39	4	2	2	1				9
40-44	4	5	2	1				12
45-49	8	9	2	2	1			22
50-54	17	10	6	4	3			40
55-59	17	4	5	5	6			37
60-64	4	11	6	2	7	2	1	33
65+		4	3	8	5	1	4	25
Total	55	47	27	23	22	3	5	182

Section I - Executive Summary Accrued Liability

The Accrued Liability as of January 1, 2022 equals \$41,555,251, which consists of the following pieces (in \$ millions):



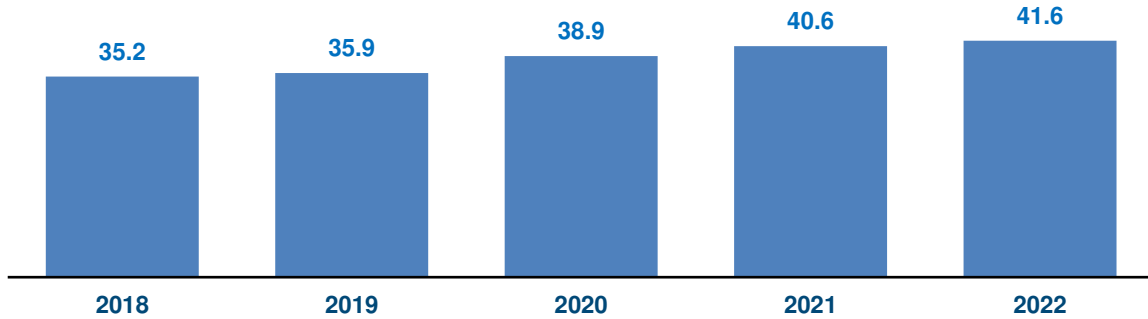
The Accrued Liability for active members can be broken down further by the different types of benefits provided by the plan:



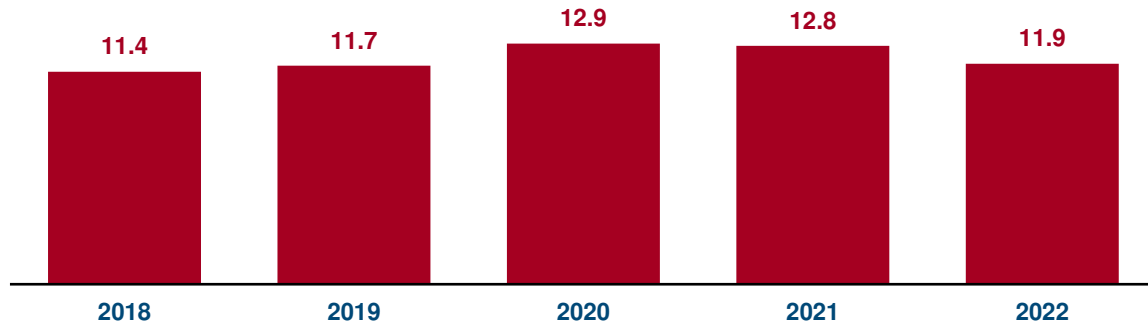
Section I - Executive Summary Funded Status

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.

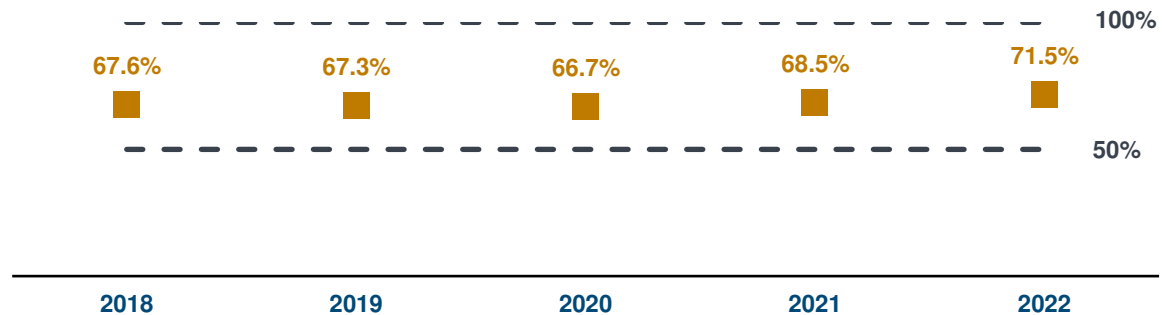
Accrued Liability (\$ millions)



Unfunded Accrued Liability (\$ millions)

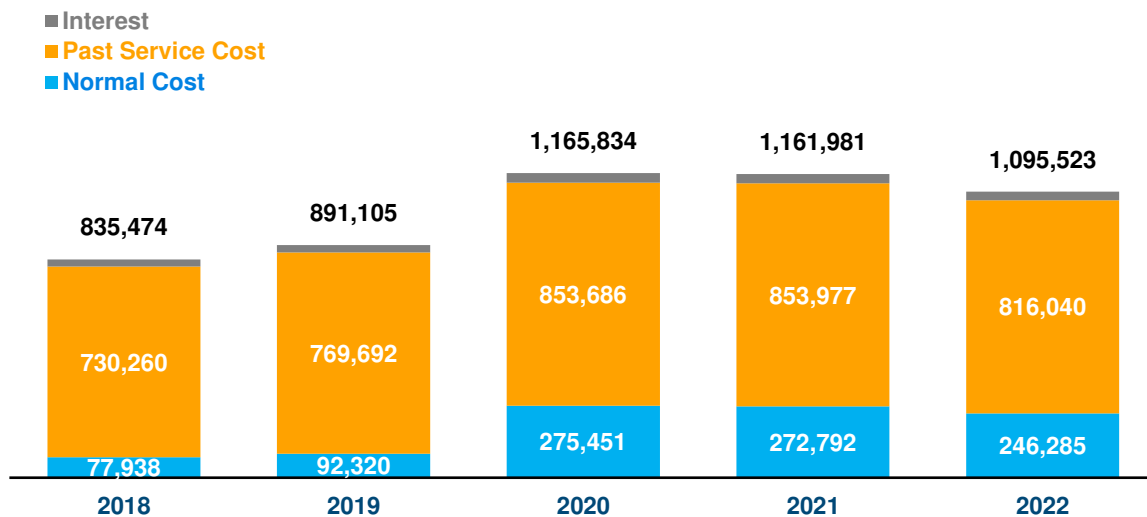


Funded Ratio



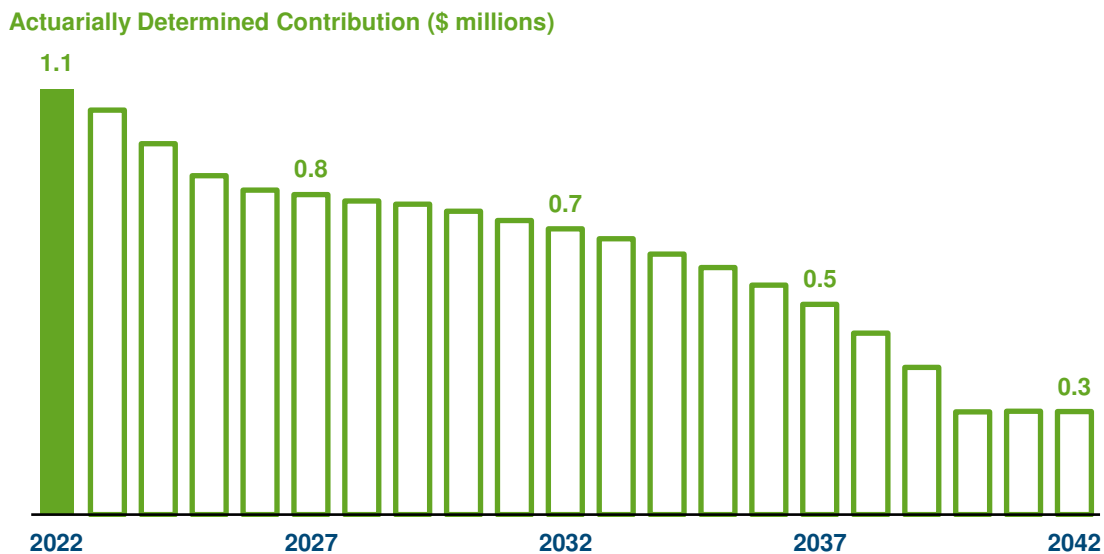
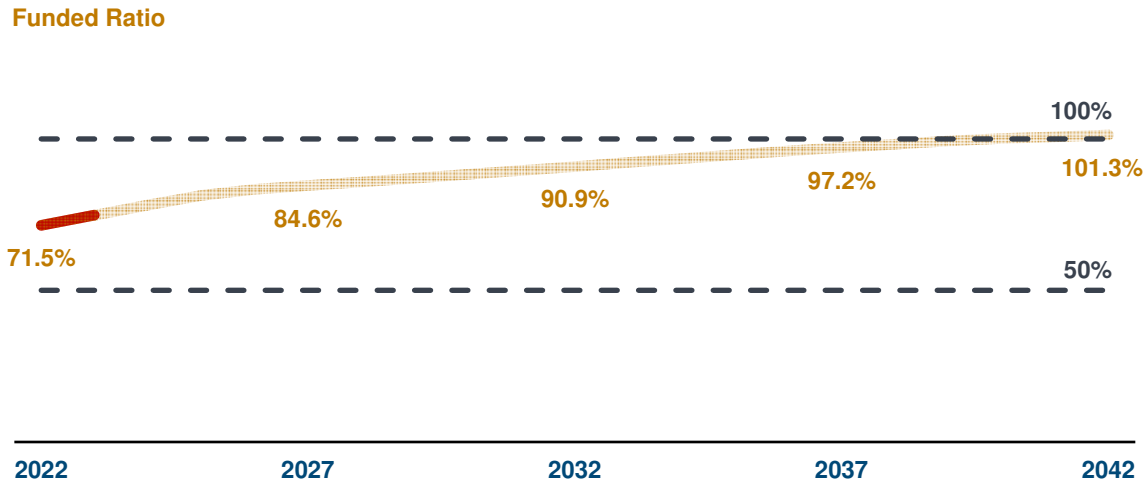
Section I - Executive Summary Actuarially Determined Contribution

The Actuarially Determined Contribution consists of three pieces: a Normal Cost payment to fund the benefits earned each year, a Past Service Cost to gradually reduce any unfunded or surplus liability, and Interest. The Actuarially Determined Contribution for fiscal year 2022 is \$1,095,523. This is shown below, along with the comparable figures for the prior four years.



Section I - Executive Summary Long-Range Forecast

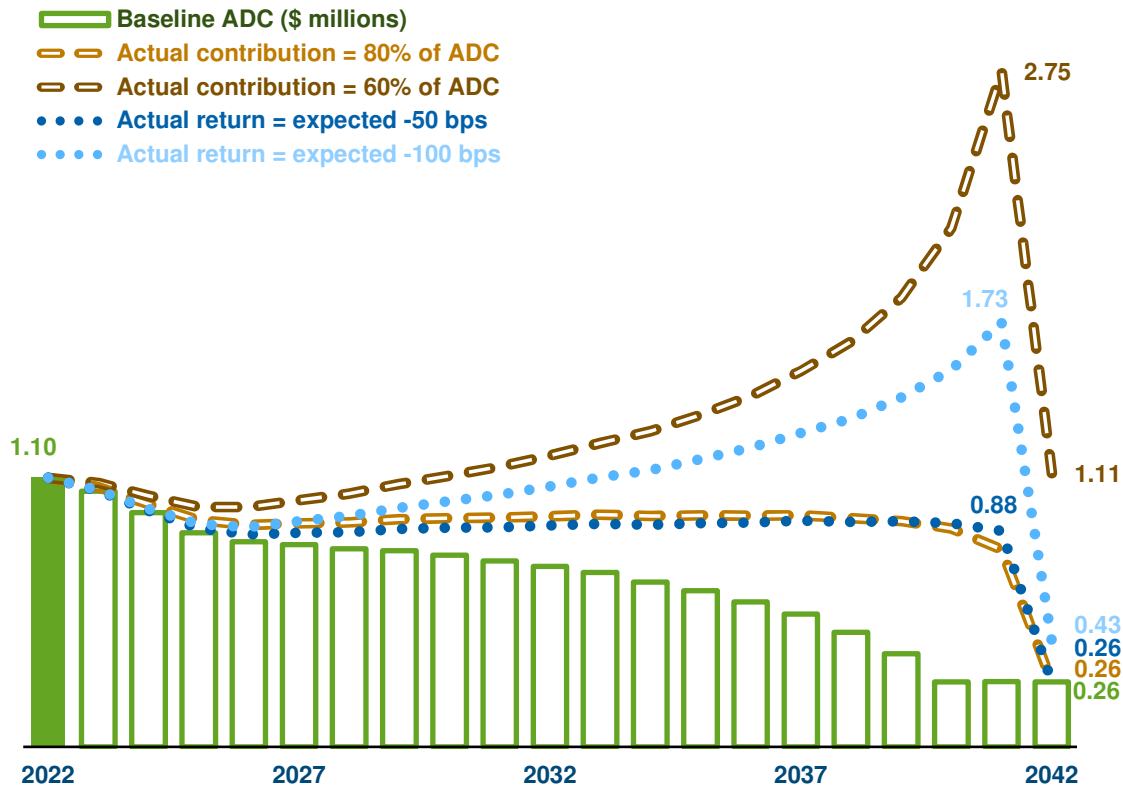
If Metro pays the Actuarially Determined Contribution each year, the investments earn exactly the assumed interest rate each year, and there are no changes in the plan provisions or in the actuarial methods and assumptions, then we project the following changes in the plan's funded status and the long-range contribution levels:



To the extent that there are future investment or liability gains or losses, changes in the actuarial assumptions or methods, or plan changes, the actual valuation results will differ from these forecasts. Please see Section III C for more details of the long range forecast.

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

Pension benefits are paid for through a combination of contributions from Metro and from employees, and from investment income. If Metro pays less than the Actuarially Determined Contribution each year, or if the investments persistently earn less than the assumed interest rate, then the plan's funded status would suffer, and to compensate, Metro's contribution levels would be pushed higher. The risks of underfunding 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 Metro's future contribution levels. Stochastic projections could be prepared that would enable Metro 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, 2021	January 1, 2022
Active Members	191	182
Terminated Members	48	57
Members in Pay Status	<u>194</u>	<u>200</u>
Total Count	433	439
Payroll	\$12,376,694	\$12,203,356
Assets and Liabilities as of	January 1, 2021	January 1, 2022
Market Value of Assets	\$29,423,912	\$32,290,563
Actuarial Value of Assets	27,823,549	29,703,691
Accrued Liability for Active Members	18,510,780	18,114,017
Accrued Liability for Terminated Members	2,001,619	2,261,348
Accrued Liability for Members in Pay Status	<u>20,129,913</u>	<u>21,179,886</u>
Total Accrued Liability	40,642,312	41,555,251
Unfunded Accrued Liability	12,818,763	11,851,560
Funded Ratio	68.5%	71.5%
Actuarially Determined Contribution for Fiscal Year	2021	2022
Normal Cost	\$272,792	\$246,285
Past Service Cost	853,977	816,040
Interest	<u>35,212</u>	<u>33,198</u>
Actuarially Determined Contribution	1,161,981	1,095,523

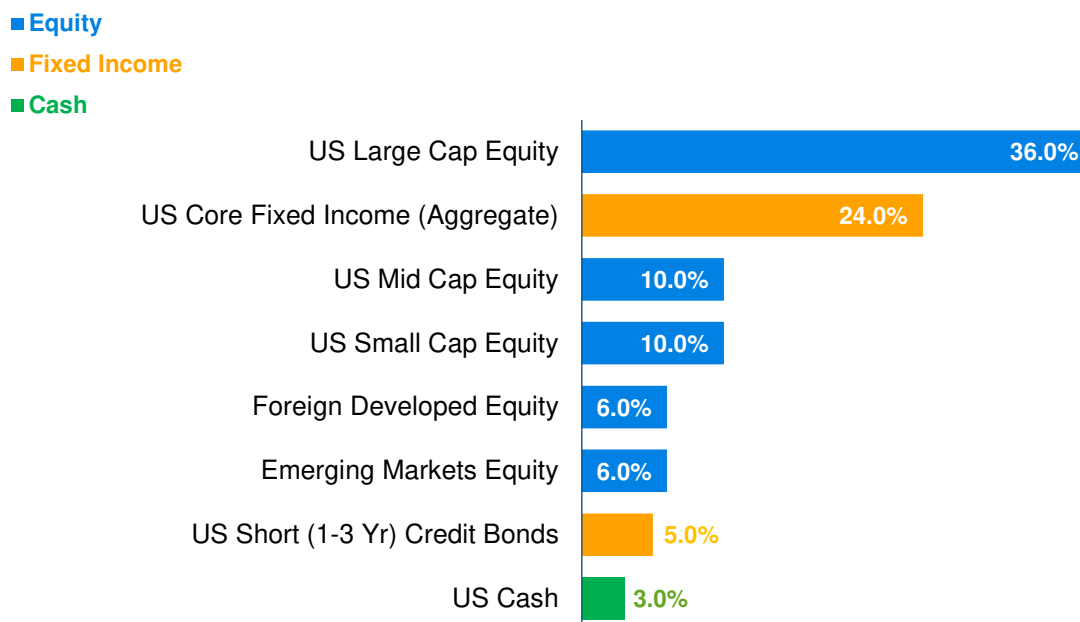
Section II - Plan Assets

A. Summary of Fund Transactions

Market Value as of January 1, 2021	\$29,423,912
Metro Contributions	939,928
Member Contributions	908,281
Net Investment Income	3,550,835
Benefit Payments	(2,460,329)
Transfers	(13,018)
Administrative Expenses	(59,046)
 Market Value as of December 31, 2021	 32,290,563
Expected Return on Market Value of Assets	1,817,585
Market Value (Gain)/Loss	(1,733,250)
Approximate Rate of Return *	12.21%

* 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, 2021



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 in equal installments ('non-asymptotically') over a five year period. The Actuarial Value of Assets as of January 1, 2021 is determined below.

1.	Expected Market Value of Assets:		
	a. Market Value of Assets as of January 1, 2021		\$29,423,912
	b. Metro and Member Contributions		1,848,209
	c. Transfers		(13,018)
	d. Benefit Payments and Administrative Expenses		(2,519,375)
	e. Expected Earnings Based on 6.25% Interest		<u>1,817,585</u>
	f. Expected Market Value of Assets as of January 1, 2022		30,557,313
2.	Actual Market Value of Assets as of January 1, 2022		32,290,563
3.	Market Value (Gain)/Loss: (1f) - (2)		(1,733,250)
4.	Delayed Recognition of Market (Gains)/Losses		
		Percent Not	Amount Not
	Plan Year End	(Gain)/Loss	Recognized
	12/31/2021	(\$1,733,250)	80%
	12/31/2020	(2,000,454)	60%
	12/31/2019	N/A	40%
	12/31/2018	N/A	20%
			(2,586,872)
5.	Actuarial Value of Assets as of January 1, 2022: (2) + (4)		29,703,691
6.	Return on Actuarial Value of Assets		2,564,326
7.	Approximate Rate of Return on Actuarial Value of Assets		9.33%
8.	Actuarial Value (Gain)/Loss		(846,530)

Section III - Development of Contribution

A. Past Service Cost

In determining the Past Service Cost, the Unfunded Accrued Liability is amortized as a level percent over 30 years from January 1, 2012.

	January 1, 2021	January 1, 2022
1. Accrued Liability		
Active Members	\$18,510,780	\$18,114,017
Terminated Members	2,001,619	2,261,348
Service Retirees	17,694,789	18,772,454
Disabled Retirees	0	0
Beneficiaries	<u>2,435,124</u>	<u>2,407,432</u>
Total Accrued Liability	40,642,312	41,555,251
2. Actuarial Value of Assets (see Section IIB)	27,823,549	29,703,691
3. Unfunded Accrued Liability: (1) - (2)	12,818,763	11,851,560
4. Funded Ratio: (2) / (1)	68.5%	71.5%
5. Amortization Period	21	20
6. Amortization Growth Rate	2.50%	2.50%
7. Past Service Cost: (3) amortized over (5)	853,977	816,040

Section III - Development of Contribution B. Actuarially Determined Contribution

	2021	2022
1. Total Normal Cost	\$1,090,360	\$1,065,811
2. Expected Member Contributions	873,165	877,129
3. Expected Administrative Expenses	35,000	35,000
4. Expected Investment Expenses	20,597	22,603
5. Net Normal Cost: (1) - (2) + (3) +(4)	272,792	246,285
6. Past Service Cost (see Section IIIA)	853,977	816,040
7. Interest on (5) + (6) Reflecting Payment on Average Halfway Through the Year	35,212	33,198
8. Actuarially Determined Contribution: (5) + (6) + (7)	1,161,981	1,095,523

Section III - Development of Contribution C. Long Range Forecast

This forecast is based on the results of the January 1, 2022 actuarial valuation and assumes that Metro will pay the Actuarially Determined Contribution each year, 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. For purposes of this forecast the amortization period declines to 1 year to illustrate the progress of the plan towards becoming fully funded; in actual practice the amortization period will not be less than 10 years in order to shield Metro from contribution volatility. Actual results at each point in time will yield different values, reflecting the actual experience of the plan membership and assets.

Valuation Date	Values as of the Valuation Date				Fiscal Year	Cash Flows Projected to the Following Fiscal Year			
	Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Ratio		Metro Contributions	Member Contributions	Benefit Payments	Net Cash Flows
01/01/2022	\$41,555,251	\$29,703,691	\$11,851,560	71.5%	2022	\$1,095,523	\$877,129	(\$2,829,340)	(\$856,688)
01/01/2023	42,171,000	31,549,000	10,622,000	74.8%	2023	1,040,000	924,000	(2,933,000)	(969,000)
01/01/2024	42,684,000	33,348,000	9,336,000	78.1%	2024	953,000	943,000	(3,034,000)	(1,138,000)
01/01/2025	43,097,000	35,038,000	8,059,000	81.3%	2025	871,000	939,000	(3,094,000)	(1,284,000)
01/01/2026	43,458,000	36,237,000	7,221,000	83.4%	2026	834,000	943,000	(3,145,000)	(1,368,000)
01/01/2027	43,809,000	37,057,000	6,752,000	84.6%	2027	823,000	945,000	(3,237,000)	(1,469,000)
01/01/2028	44,077,000	37,822,000	6,255,000	85.8%	2028	806,000	945,000	(3,284,000)	(1,533,000)
01/01/2029	44,300,000	38,570,000	5,730,000	87.1%	2029	798,000	952,000	(3,313,000)	(1,563,000)
01/01/2030	44,521,000	39,333,000	5,188,000	88.3%	2030	780,000	942,000	(3,373,000)	(1,651,000)
01/01/2031	44,690,000	40,054,000	4,636,000	89.6%	2031	756,000	939,000	(3,421,000)	(1,726,000)
01/01/2032	44,826,000	40,742,000	4,084,000	90.9%	2032	735,000	960,000	(3,437,000)	(1,742,000)
01/01/2033	44,971,000	41,456,000	3,515,000	92.2%	2033	709,000	973,000	(3,463,000)	(1,781,000)
01/01/2034	45,114,000	42,176,000	2,938,000	93.5%	2034	670,000	958,000	(3,532,000)	(1,904,000)
01/01/2035	45,189,000	42,814,000	2,375,000	94.7%	2035	635,000	972,000	(3,557,000)	(1,950,000)
01/01/2036	45,260,000	43,443,000	1,817,000	96.0%	2036	589,000	978,000	(3,614,000)	(2,047,000)
01/01/2037	45,303,000	44,012,000	1,291,000	97.2%	2037	540,000	1,009,000	(3,617,000)	(2,068,000)
01/01/2038	45,370,000	44,596,000	774,000	98.3%	2038	467,000	994,000	(3,666,000)	(2,205,000)
01/01/2039	45,403,000	45,074,000	329,000	99.3%	2039	378,000	1,013,000	(3,695,000)	(2,304,000)
01/01/2040	45,436,000	45,481,000	(45,000)	100.1%	2040	264,000	1,020,000	(3,728,000)	(2,444,000)
01/01/2041	45,459,000	45,768,000	(309,000)	100.7%	2041	265,000	1,024,000	(3,775,000)	(2,486,000)

Section III - Development of Contribution

D. History of Funded Status

Valuation Date	Actuarial Value of Assets	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
January 1, 2014	\$19,886,881	\$31,038,929	\$11,152,048	64.1%
January 1, 2015	20,939,210	31,851,815	10,912,605	65.7%
January 1, 2016	21,663,121	32,548,681	10,885,560	66.6%
January 1, 2017	22,443,739	33,896,866	11,453,127	66.2%
January 1, 2018	23,825,275	35,249,385	11,424,110	67.6%
January 1, 2019	24,167,487	35,906,116	11,738,629	67.3%
January 1, 2020	25,950,904	38,889,416	12,938,512	66.7%
January 1, 2021	27,823,549	40,642,312	12,818,763	68.5%
January 1, 2022	29,703,691	41,555,251	11,851,560	71.5%

Section III - Development of Contribution

E. History of Metro Contributions

Fiscal Year	Actuarially Determined Contribution	Actual Metro Contribution	Payroll	Actual Contribution as a Percent of Payroll
2014	\$833,212	\$702,245	\$11,362,603	6.2%
2015	847,243	748,129	11,514,912	6.5%
2016	901,256	705,467	11,390,621	6.2%
2017	958,333	904,824	11,497,480	7.9%
2018	835,474	855,109	12,169,930	7.0%
2019	891,105	836,227	11,485,056	7.3%
2020	1,165,834	1,286,538	11,605,482	11.1%
2021	1,161,981	939,928	12,376,694	7.6%
2022	1,095,523	TBD	12,203,356	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.

	Active Members	Terminated Vested Members	Deferred Beneficiaries	Service Retirees	Disabled Retirees	Beneficiaries	Total
January 1, 2021	191	47	1	161	0	33	433
Terminated							
- no benefits due	-	-	-	-	-	-	0
- paid refund	(4)	(2)	-	-	-	-	(6)
- vested benefits due	(3)	3	-	-	-	-	0
- due contributions	(5)	5	-	-	-	-	0
Retired	(7)	(2)	-	9	-	-	0
Died							
- with beneficiary	-	-	-	-	-	-	0
- no beneficiary	-	-	-	(5)	-	-	(5)
Benefits expired	-	-	-	-	-	-	0
New member	11	2	-	-	-	2	15
Rehired/ Eligible	-	-	-	-	-	-	0
Transfer to Salaried Plan	(1)	-	-	-	-	-	(1)
Correction	-	3	-	-	-	-	3
January 1, 2022	182	56	1	165	0	35	439

Section IV - Membership Data
B. Statistics of Active Membership

	As of January 1, 2021	As of January 1, 2022
Number of Active Members	191	182
Average Age	54.0	55.0
Average Service	10.7	11.0
Total Payroll	\$12,376,694	\$12,203,356
Average Payroll	64,799	67,051

Section IV - Membership Data

C. Statistics of Inactive Membership

	As of January 1, 2021	As of January 1, 2022
Terminated Vested Members		
Number	48	57
Total Annual Benefit	\$213,715	\$226,011
Average Annual Benefit	4,452	3,965
Average Age	58.6	56.8
Deferred Beneficiaries		
Number	1	1
Service Retirees		
Number	161	165
Total Annual Benefit	\$1,836,442	\$1,963,149
Average Annual Benefit	11,406	11,898
Average Age	74.1	74.4
Disabled Retirees		
Number	0	0
Total Annual Benefit	\$0	\$0
Average Annual Benefit	0	0
Average Age	0.0	0.0
Beneficiaries		
Number	33	35
Total Annual Benefit	\$256,932	\$272,505
Average Annual Benefit	7,786	7,786
Average Age	75.7	77.3

Section IV - Membership Data
D. Distribution of Inactive Members as of January 1, 2022

	Age	Number	Annual Benefits
Terminated Vested Members	< 50	10	\$2,857
	50 - 59	20	63,427
	60 - 69	27	159,727
	70 - 79	0	0
	80 - 89	0	0
	90 +	<u>0</u>	<u>0</u>
	Total	57	226,011
Service Retirees	< 50	0	\$0
	50 - 59	3	62,858
	60 - 69	57	850,310
	70 - 79	66	693,103
	80 - 89	33	304,179
	90 +	<u>6</u>	<u>52,699</u>
	Total	165	1,963,149
Disabled Retirees	< 50	0	\$0
	50 - 59	0	0
	60 - 69	0	0
	70 - 79	0	0
	80 - 89	0	0
	90 +	<u>0</u>	<u>0</u>
	Total	0	0
Beneficiaries	< 50	0	\$0
	50 - 59	1	2,399
	60 - 69	7	48,513
	70 - 79	13	132,456
	80 - 89	9	69,995
	90 +	<u>5</u>	<u>19,142</u>
	Total	35	272,505

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 C for more information on the basis for the projected results shown on the following pages.

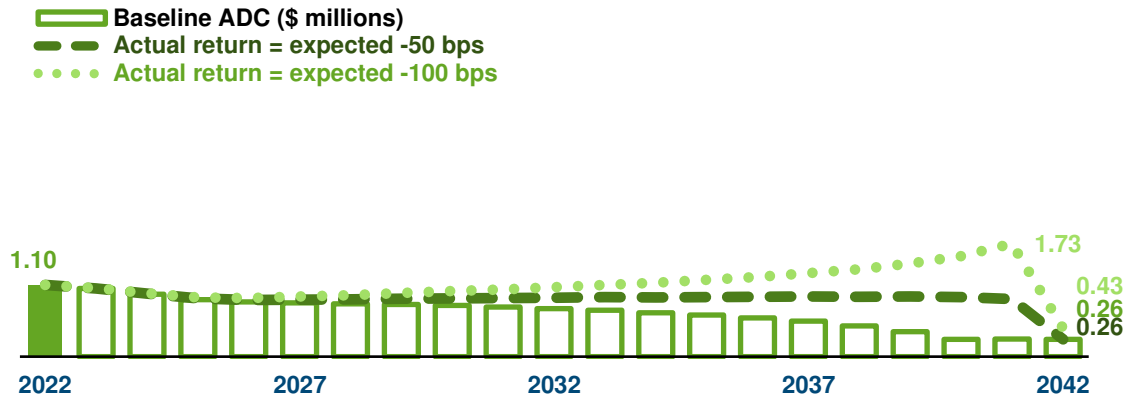
Section V - Analysis of Risk

B. Risk Identification and Assessment

Investment Risk

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

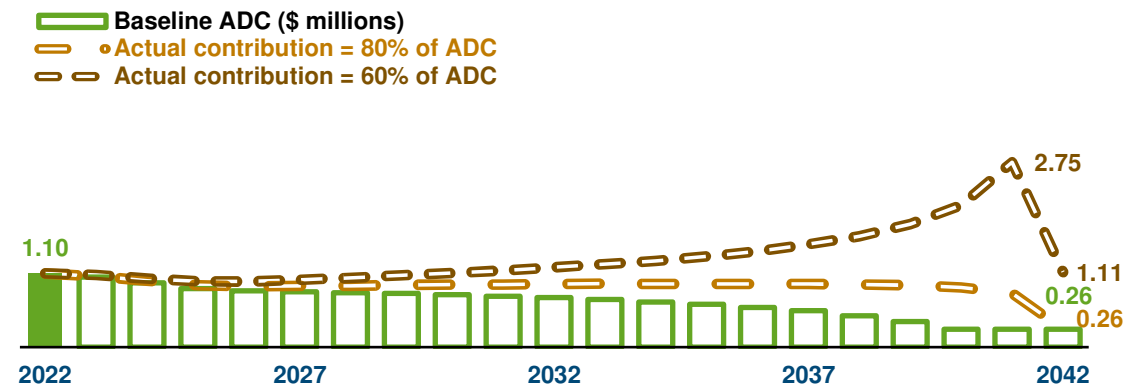
Identification: To the extent that actual investment returns differ from the assumed investment return, the plan's future assets, Actuarially Determined Contributions, and funded status may differ significantly from those presented in this valuation. The consequences of persistent underperformance on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



Contribution Risk

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

Identification: Over the past 8 years, actual contributions have been 91.9% of the Actuarially Determined Contribution in total. The consequences of persistent underfunding on future Actuarially Determined Contribution 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.

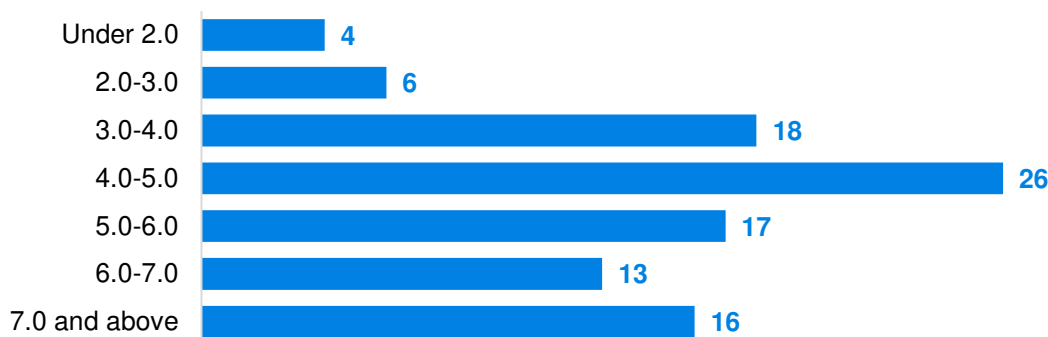
Identification: In 2021, the plan had negative cash flow, with Metro and member contributions to the plan of \$1,848,209 compared to \$2,519,375 of benefit payments and administrative expenses paid out of the plan. We suggest that you consult with your investment advisors with respect to the liquidity 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, 2022, the plan's Asset Volatility Ratio (the ratio of the market value of plan assets to payroll) is 2.6. According to Milliman's 2021 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 does not contain a mechanism to regularly increase benefits after retirement, so members bear all of the 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.

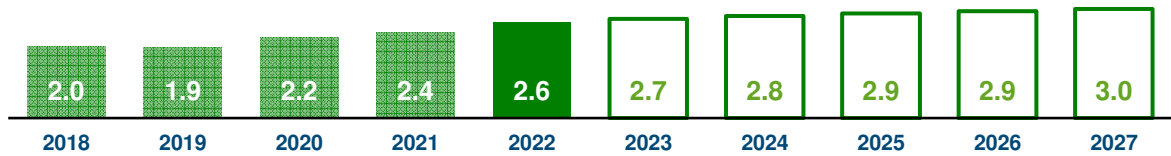
Identification: The pension liabilities reported herein have been calculated by assuming that members will follow patterns of demographic experience as described in Appendix B. If actual demographic experience or future demographic assumptions are different from what is assumed to occur in this valuation, 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.

Section V - Analysis of Risk

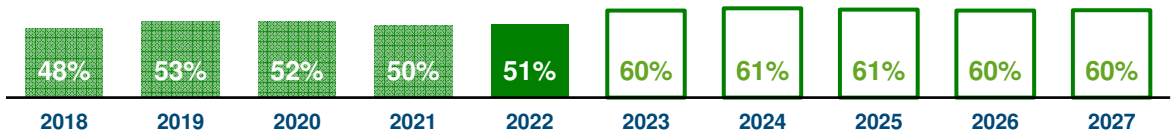
C. Maturity Measures

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.

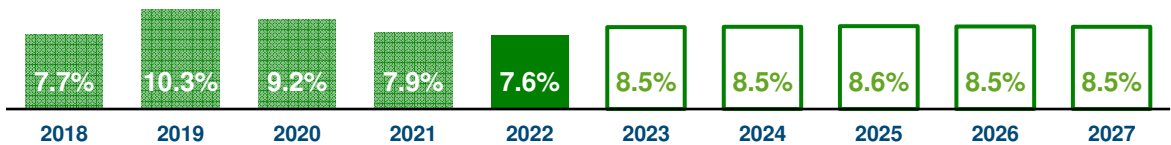
Asset Volatility Ratio: Market Value of Assets compared to Payroll



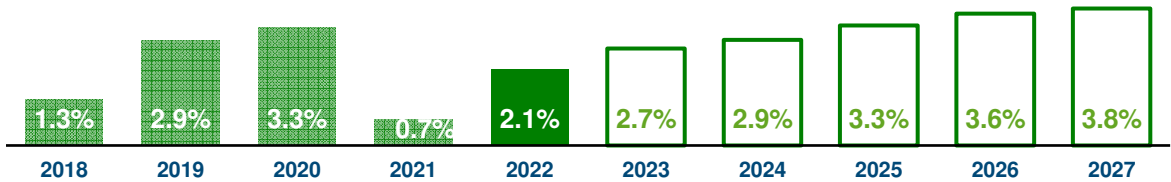
Accrued Liability for members in pay status compared to total Accrued Liability



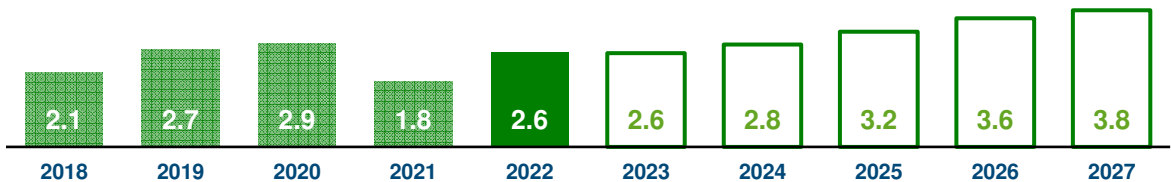
Benefit Payments compared to Market Value of Assets



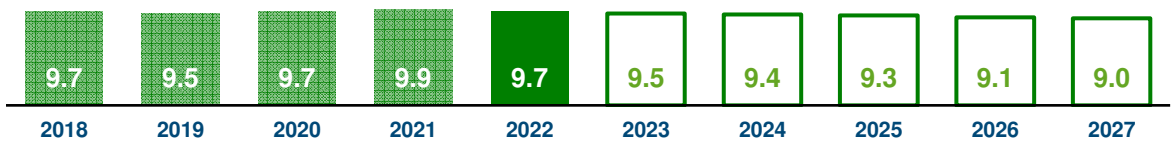
Net Cash Flows compared to Market Value of Assets



Benefit Payments compared to Metro 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 Contribution consists of three pieces: Normal Cost plus a Past Service Cost payment to gradually eliminate the Unfunded Accrued Liability plus Interest.

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. This Unfunded Accrued Liability is amortized as a level percent over 30 years from January 1, 2012. The amortization period will decrease each year until it reaches 10 years, after which it remains at 10 years.

The Actuarial Value of Assets is determined by recognizing market gains and losses non-asymptotically over a five year period.

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 employee groups 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

Each of the assumptions used in this valuation was set based on industry standard published tables and data, the particular characteristics of the plan, relevant information from the plan sponsor or other sources about future expectations, and our professional judgment regarding future plan experience. We believe the assumptions are reasonable for the contingencies they are measuring, and are not anticipated to produce significant cumulative actuarial gains or losses over the measurement period.

Interest Rate	6.25%
Inflation	2.50%
Amortization Growth Rate	2.50%
Expenses	\$35,000 for administrative expenses, plus 0.07% of Market Value of Assets for investment expenses.
Salary Scale	4.00%
Turnover	Based on a table of annual withdrawal rates below:

Age	Year 1 & 2	Years 3+
20	15.0%	12.0%
25	15.0%	12.0%
30	12.0%	11.0%
35	10.0%	10.0%
40	8.0%	8.0%
45	8.0%	6.0%
50	8.0%	4.0%
55	8.0%	3.0%

Disability	Based on Table 5, Period 2 of the Society of Actuaries 1942 Disability Study.
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Retirement	Age	<30 Years	>30 Years
	58	5%	20%
	59	5%	20%
	60	5%	20%
	61	5%	20%
	62	25%	25%
	63-64	25%	25%
	65-66	50%	50%
	67	100%	100%

Appendix B - Actuarial Assumptions

Mortality

PubG-2010 Mortality Table with generational mortality improvement per the MP-2021 Ultimate Scale (Prior: MP-2019 Ultimate Scale). This assumption includes a margin for mortality improvements after the valuation date.

Marital Status

80% of active participants are assumed to be married. Female spouses are assumed to be 3 years younger than male spouses.

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.

Original Effective Date	July 1, 1979	
Plan Year	January 1, through December 31.	
Eligibility	First of the month following completion of 120 days of service.	
Compensation	Regular compensation plus overtime but excluding reimbursed expenses, bonuses, commissions, deferred compensation and other extra or unusual compensation.	
Final Average Compensation	Average of the Compensation paid during the five highest consecutive paid years out of the last ten years of employment.	
Year of Service	Twelve consecutive month period beginning with the person's employment date during which the member works 1,000 hours.	
Vesting	Years of Service	Vesting %
	0-4	0%
	5	50%
	6	60%
	7	70%
	8	80%
	9	90%
	10+	100%
Normal Retirement Eligibility	For members hired prior to January 1, 2018, age 65. For members hired after January 1, 2018, social security normal retirement age.	
Normal Retirement Benefit	For members hired prior to January 1, 2018, 1.40% of Final Average Compensation multiplied by Years of Service. For members hired after January 1, 2018, 1.20% of Final Average Compensation for years 1 through 10, 1.30% of Final Average Compensation for years 11 through 20, and 1.40% thereafter.	
Early Retirement Eligibility	Age 58 with 20 years of service, or any age with 30 years of service.	
Early Retirement Benefit	Accrued benefit based on service and compensation to date with a 0.50% reduction for each month by which early retirement precedes normal retirement. No reduction applies if a member has 30 or more years of service.	

Appendix C - Summary of Plan Provisions

Preretirement Death Benefit

Surviving spouses of members with at least 10 years of service are eligible to receive a benefit equal to the accrued benefit the member would have received if they terminated employment, deferred their benefit to their earliest retirement date, and elected the 100% joint and survivor annuity option.

Surviving spouses of members with less than 10 years of service are entitled to a refund of the member's employee contributions with interest.

Employee Contributions

Active members contribute 7.75% of payroll.

Normal Form of Payment

Modified Cash Refund Annuity.

Optional Forms of Payment

10 year certain and life, 100%/66.7%/50% joint and survivor annuity. The 100% joint and survivor annuity is automatic for married members unless another option is elected.

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 Contribution (“ADC”) - 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.

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.

Appendix C
City of Omaha Civilian Employees



City of Omaha
Jean Stothert, Mayor

Finance Department

Omaha/Douglas Civic Center
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Stephen B. Curtiss
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October 12, 2022

Senator Mark Kolterman, Chairperson
Nebraska Retirement Systems Committee
PO BOX 94604
State Capitol
Lincoln, NE 68509-4604

Dear Senator Kolterman:

NEB. REV. STAT. § 13-2402(3) requires a governing entity that offers a defined benefit retirement plan to file a report if the funded ratio is less than eighty percent. The City of Omaha is submitting this report regarding the City of Omaha Employees Retirement System (COERS) because the funded ratio is less than eighty percent.

The City through its negotiations with the bargaining groups has made efforts to address the funding shortfall in COERS. Some of those efforts are addressed below. The attached table compares the actuarial data for plan years 2017 through current plan year 2022. The actuarial report for January 1, 2022 has been prepared and should be considered and approved by the Retirement System during their meeting on October 19, 2022. Once the report has been approved, I will provide it to you. In order to minimize confusion, I have included the numbers from that report in this response.

COERS has been underfunded for a number of years and the circumstances leading to it being underfunded are varied. When the system was fully funded in the late 1990s, benefits were increased and even though the actuarial cost was calculated, the benefits appear to have exceeded those costs. There also have been some years where the investment loss was historically large. Other factors include reduction in the number of civilian employees over the past 20 years, lack of wage increases in some instances, and the delay in replacing retired personnel.

As a result of an Experience Study for 2016-2020 which was accepted in August 17, 2022, a number of changes to the actuarial assumptions were adopted by the Board. A copy of the Experience Study is included with this report. The following changes were made to the economic assumptions which changes are shown in the January 1, 2022 actuarial valuation:

	<u>Current</u>	<u>Recommended</u>
Cash Balance Interest Crediting Rate	6.00%	5.25%

There were also some changes to the Demographic assumption, the most significant of which was a change to the mortality assumption moving from the RP-2014 Mortality Table, adjusted to 2006 to the Pub-2010 General Mortality Tables with MP-2021 projection scale. There was also a slight decrease in termination rates for females and a modification of the retirement rates for age/service combinations and retirement rates to age 71.

In an effort to improve the condition of the system, the City entered into new labor agreements with all its civilian bargaining groups at the end of 2014/beginning of 2015. These bargaining agreements addressed payroll years 2013 through 2017 and included increased contributions by the City for wages paid from

2013 until the contracts became effective. The City now does an actuarial projection in each of its annual valuation report. When the pension changes were originally approved, they contemplated fully funded status by 2048. The projection in the Actuarial Report effective January 1, 2022 contemplates fully funded status on January 1, 2040.

The summary of some of the changes made for the 2013 to 2017 agreements addressing civilian employees are:

- Contributions by the City increased 7% over the four years of the agreements from 11.775% to 18.775%.
- Existing employees will receive 1.9% per year for future years of service instead of 2.25%.
- The City went from the Rule of 80 to the Rule of 85 and raised the minimum retirement age with some grandfathering of these provisions. The retirement age went from 60 to 65 over the course of the agreements.
- The smoothing of the salary on which a person's pension was calculated from a highest one year in your last five years to the average of your last five years of employment.
- Dramatically decreased the disability benefit for the existing employees.
- Implementing a Cash Balance Plan for employees hired on or after 03/01/2015. A cash balance plan is a type of defined benefit plan which allows for the employer and employee to share some of the risk of poor investment returns. The pay credit for the plan starts at 13% and goes up 1% for each 8 years of service. The interest credit is guaranteed at 4% with an additional amount being three quarters of the amount earned by the Plan over 7% on a 5 year rolling average, with the interest credit being capped at 7%. One has to have 10 years of service to vest.

The City has agreements with all its civilian bargaining groups until the end of the 2025 payroll year. There were no additional pension changes/reform in the agreements that have been negotiated and approved in the last year. There was one change to the system and it did result in both the City and the employees increasing their contributions by 0.055% respectively. This was to account for changing the period of time for vesting in the Cash Balance Plan for 10 years to 5 years.

As of January 1, 2022, the system had a market value of \$304 million in assets and a funded ratio of 53.7%. It had a funded ratio of 53.3% in 2021 and 52.4% in 2020. The actuarial contribution to the system had improved for a number of years, but as a result of the changes in assumptions in 2018 and 2022, there is a shortfall in the actuarial required contribution of 2.359%. This is still far better than shortfalls in excess of 15% that occurred in 2013 and 2014. Additional savings should be seen in the future years as members covered by the provisions of the Cash Balance Plan continue to grow. The projection show the system will reach fully funded status in 18 years (2040), which is a significant improvement from 2020 (2048). The assumed rate of return for the system is 7.5%, a 1/2% decrease from years prior to 2018.

The unfunded actuarial liability (UAL) is funded on a "layered" basis, with the initial base being funded as a level-percent of payroll over a 25-year closed period that began January 1, 2016. The base attributable to the increase in the UAL due to the changed assumptions in the 2022 valuation is amortized over a closed 20-year period. In addition, a new base is created in each valuation period which is equal to the unexpected change in the UAL from actual versus expected experience, as measured in that valuation period.

As requested, we enclose the most recent Actuarial Experience Study which was approved on August 17, 2022. You will receive the Actuarial Valuation Report effective January 1, 2022 by October 21, 2022.

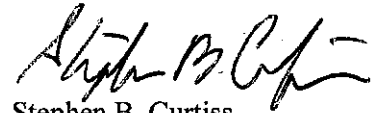
Senator Mark Kolterman

October 12, 2022

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If you or the Committee should have any questions regarding this report please let me know.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephen B. Curtiss". The signature is fluid and cursive, with a prominent initial "S" and a long, sweeping underline.

Stephen B. Curtiss
Acting City Comptroller

Enclosures

c: Bernard J. in den Bosch, Deputy City Attorney

CITY OF OMAHA EMPLOYEE RETIREES SYSTEM (COERS) EXHIBIT 1

ITEM	2017		2018		2019		2020		2021		2022	
Net Assets (actuarial value)	1/1/17	\$ 246,234,597	1/1/18	\$ 251,320,837	1/1/19	\$ 249,518,547	1/1/20	\$ 253,722,439	1/1/21	\$ 260,980,355	1/1/22	\$ 274,543,515
Unfunded Actuarial Accrued Liability	1/1/17	\$ 197,537,024	1/1/18	\$ 223,286,679	1/1/19	\$ 232,506,762	1/1/20	\$ 230,182,264	1/1/21	\$ 229,116,410	1/1/22	\$ 236,464,731
1a Funding Status	1/1/17	55.5%	1/1/18	53.0%	1/1/19	51.76%	1/1/20	52.43%	1/1/21	53.30%	1/1/22	53.70%
1b Assumed Rate of Return	1/1/17	8.0%	1/1/18	7.5%	1/1/19	7.5%	1/1/20	7.5%	1/1/21	7.5%	1/1/22	7.5%
1c Actual Investment Return	FYE 12/31/17	13.10%	FYE 12/31/18	-0.32%	FYE 12/31/19	14.72%	FYE 12/31/20	12.67%	FYE 12/31/21	17.98%	FYE 12/31/22	Pending
Normal Cost (\$)	1/1/17	\$ 6,229,103	1/1/18	\$ 6,578,160	1/1/19	\$ 6,749,691	1/1/20	\$ 7,014,480	1/1/21	\$ 8,175,376	1/1/22	\$ 8,162,934
1e Normal Cost (%)	1/1/17	9.721%	1/1/18	9.923%	1/1/19	9.818%	1/1/20	9.747%	1/1/21	10.335%	1/1/22	10.23%
1f Actuarial Rate of Contribution (ARC)	1/1/17	27.740%	1/1/18	31.056%	1/1/19	31.662%	1/1/20	30.954%	1/1/21	30.269%	1/1/22	31.32%
1d Member Contribution Rate	1/1/17	10.075%	1/1/18	10.075%	1/1/19	10.075%	1/1/20	10.075%	1/1/21	10.075%	1/1/22	10.13%
1d Employer Contribution Rate	1/1/17	18.775%	1/1/18	18.775%	1/1/19	18.775%	1/1/20	18.775%	1/1/21	18.775%	1/1/22	18.83%
Contribution Margin (Shortfall)	1/1/17	1.110%	1/1/18	-2.206%	1/1/19	-2.812%	1/1/20	-2.104%	1/1/21	-1.419%	1/1/22	-2.36%
1f Actuarial Required Contribution	FYE 12/31/17	\$ 12,383,422	FYE 12/31/18	\$ 14,990,504	FYE 12/31/19	\$ 17,313,632	FYE 12/31/20	\$ 17,297,752	FYE 12/31/21	\$ 17,400,605	FYE 12/31/22	Pending
1g Employer Actual Dollars Contributed	FYE 12/31/17	\$ 13,227,230	FYE 12/31/18	\$ 13,645,009	FYE 12/31/19	\$ 15,028,329	FYE 12/31/20	\$ 15,120,763	FYE 12/31/21	\$ 15,354,180	FYE 12/31/22	Pending
1g % of ARC by Employer Contribution	FYE 12/31/17	106.81%	FYE 12/31/18	91.02%	FYE 12/31/19	86.80%	FYE 12/31/20	86.88%	FYE 12/31/21	88.24%	FYE 12/31/22	Pending



CITY OF OMAHA EMPLOYEES' RETIREMENT SYSTEM

**Actuarial Valuation as of January 1, 2022
To Determine Funding for Fiscal Year 2022**

Prepared by

Rebecca A. Sielman, FSA
Consulting Actuary

Yelena Pelletier, ASA
Consulting Actuary

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Certification

We have performed an actuarial valuation of the Plan as of January 1, 2022 to determine funding for fiscal year 2022. 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.

This report may not be used for purposes other than those listed above without Milliman's prior written consent. If this report is distributed to other parties, it must be copied in its entirety, including this certification section.

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 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.

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.

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

The plan was amended to change the vesting requirement for cash balance plan participants from 10 to 5 years, and to increase both employer and employee contribution rates from 18.775% to 18.83% and 10.075% to 10.13% respectively. This change caused the Unfunded Accrued Liability to increase by about \$0.1 million and the Actuarially Determined Total Contribution to increase by about \$9,000.

Changes in Actuarial Methods and Assumptions

This valuation reflects the assumption changes recommended in connection with the recent experience study. These changes include a change in the mortality assumption from the RP-2014 table with the NPERS improvement scale to the PubG-2010 table with the MP-2021 improvement scale, a change in the cash balance interest crediting rate from 6.0% to 5.25%, and modifications in the assumed rates of termination and retirement. These changes in combination caused the Unfunded Accrued Liability to increase by about \$15.5 million and the Actuarially Determined Total Contribution to increase by about \$1.2 million.

In addition, we have assumed a one-time salary increase adjustment of 2.0% for the 2023 year. This change caused the Unfunded Accrued Liability to increase by about \$1.4 million and the Actuarially Determined Total Contribution to increase by about \$0.1 million.

Other Significant Changes

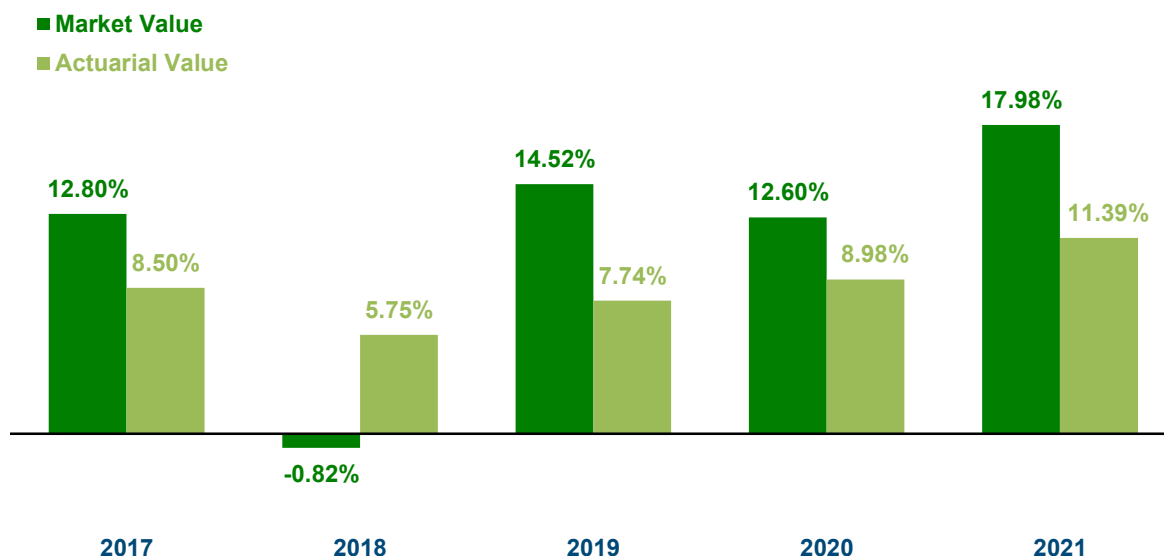
Although it is possible that the COVID-19 pandemic could have a material impact on the projected mortality, liabilities, and contribution requirements, we have chosen not to make an adjustment in the projections at this time, given the substantial current uncertainty regarding the impact of COVID-19 on mortality and plan costs, including whether the pandemic will increase or decrease mortality during the term of our projections. We will be monitoring this development closely and may adjust future projections to reflect the impact of COVID-19, if and when it becomes appropriate.

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, 2021	\$271,868,537	\$260,980,355
City and Member Contributions	23,698,325	23,698,325
Investment Income	47,500,685	28,855,053
Benefit Payments	<u>(38,990,218)</u>	<u>(38,990,218)</u>
Value as of January 1, 2022	304,077,329	274,543,515

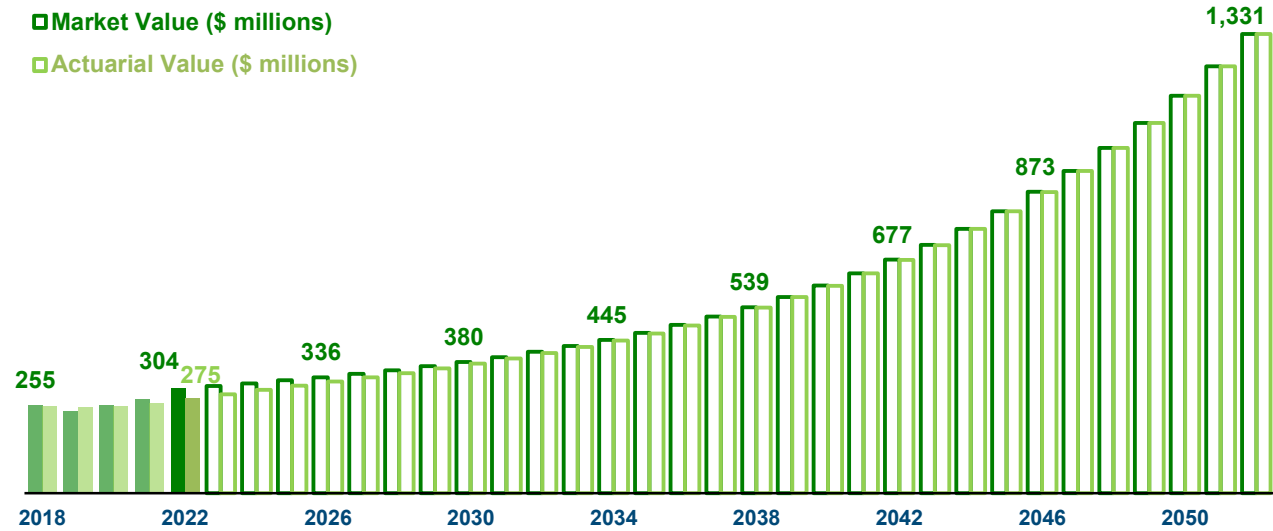
For fiscal year 2021, the plan's assets earned 17.98% on a Market Value basis and 11.39% on an Actuarial Value basis. The actuarial assumption for this period was 7.50%; the result is an asset gain of about \$27.7 million on a Market Value basis and a gain of about \$9.8 million on an Actuarial Value basis. Historical rates of return are shown in the graph below.



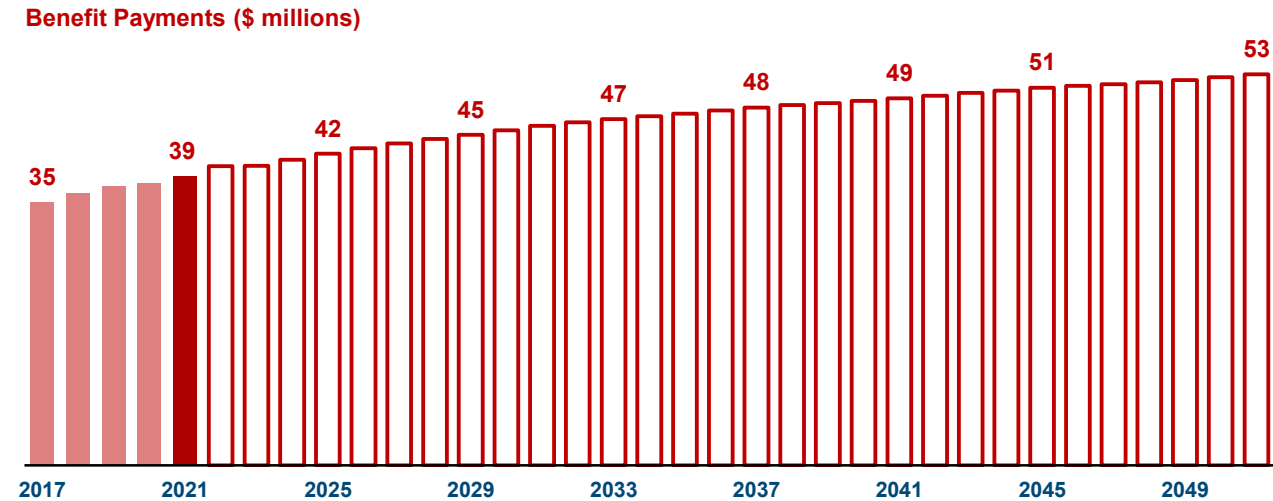
Please note that the Actuarial Value currently is less than the Market Value by \$29.5 million. This figure represents investment gains that will be gradually recognized in future years. This process will exert downward pressure on the Actuarially Determined Total Contribution, unless there are offsetting 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 2022 City Ordinance Rate and the investments always earn the assumed interest rate each year.



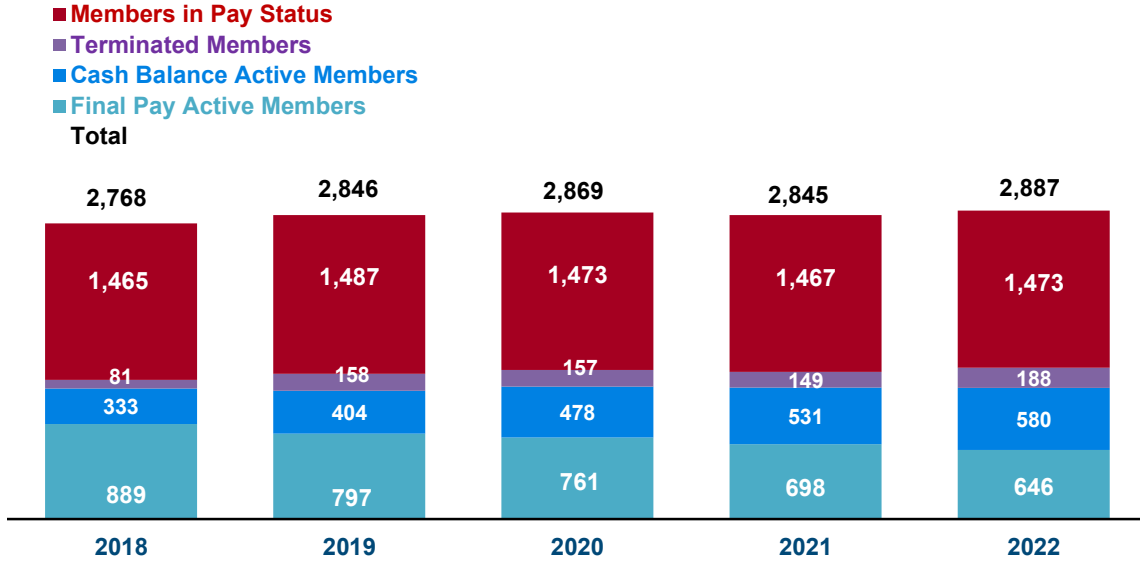
In 2021, the plan paid out \$39.0 million in benefits to members. Over the next 30 years, the plan is projected to pay out a total of \$1,421 million in benefits to members.



This work product was prepared solely for the City and the System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

Section I - Executive Summary Membership

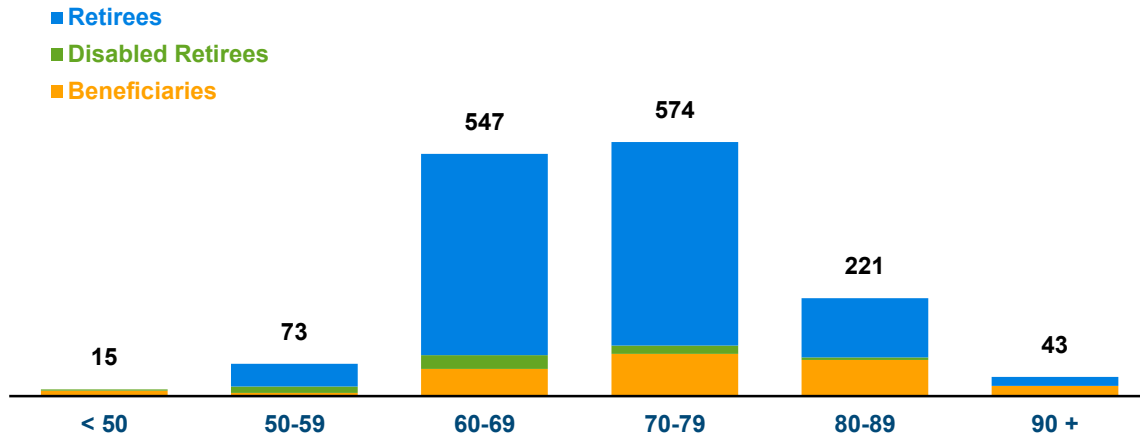
There are four basic categories of plan members included in the valuation: (1) members who are receiving monthly pension benefits, (2) former employees who have a right to benefits but have not yet started collecting, (3) Cash Balance active employees who have met the eligibility requirements for membership,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



Members in Pay Status on January 1, 2022

Retirees	1,121	Average Age	71.9
Disabled Retirees	73	Total Annual Benefit	\$40,531,069
Beneficiaries	<u>279</u>	Average Annual Benefit	27,516
Total	1,473		

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



Section I - Executive Summary Membership (continued)

Terminated Vested Members on January 1, 2022

Count	104
Average Age	48.5
Total Annual Benefit	\$1,540,327
Average Annual Benefit	14,811

Nonvested Members Due Refunds on January 1, 2022

Count	84
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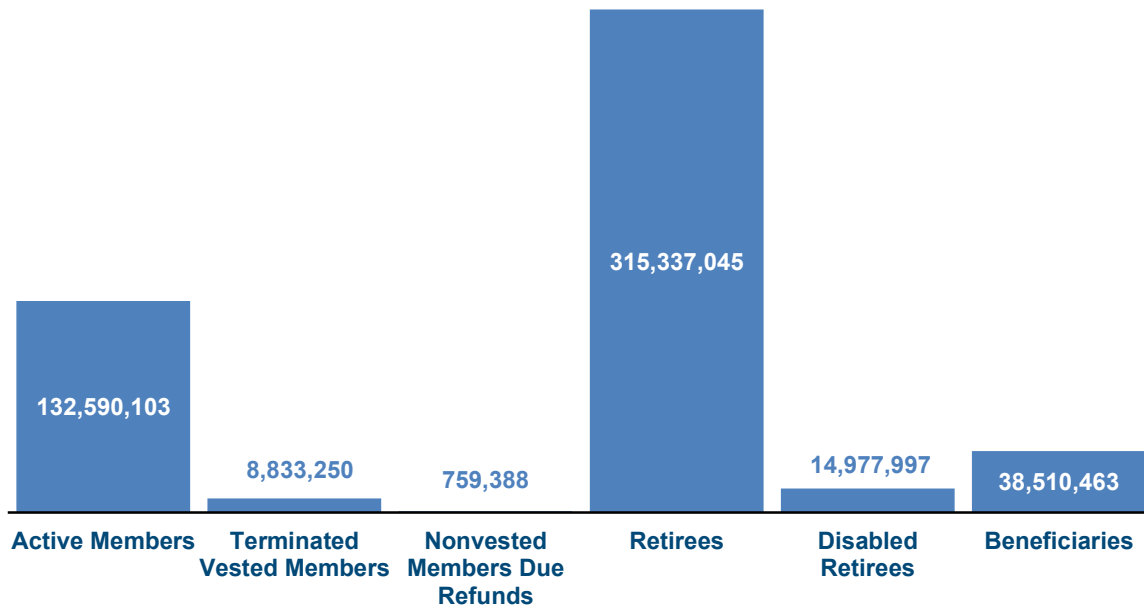
Active Members on January 1, 2022

	Final Pay	Cash Balance	Total
Count	646	580	1,226
Average Age	50.4	40.7	45.8
Average Service	14.9	3.1	9.3
Covered Payroll (\$ millions)	\$49.4	\$37.4	\$86.8
Average Payroll	76,535	64,475	70,830

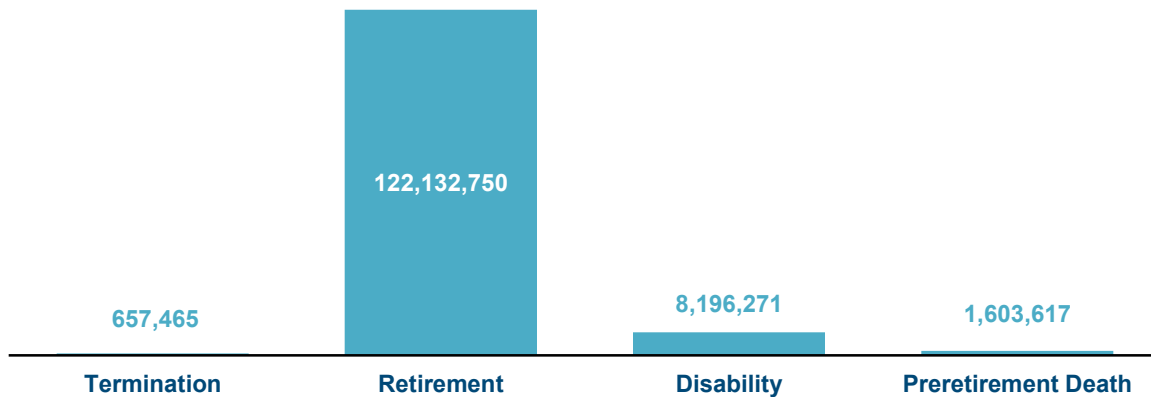
Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
< 25	26							26
25-29	71	12						83
30-34	90	47	12					149
35-39	82	57	28	7				174
40-44	68	49	39	19	4			179
45-49	31	31	33	19	10	5		129
50-54	31	35	34	30	24	14	1	169
55-59	35	30	28	22	29	10	8	162
60-64	16	25	23	22	3	3	2	94
65+	8	10	13	8	11	6	5	61
Total	458	296	210	127	81	38	16	1,226

Section I - Executive Summary Accrued Liability

The total Accrued Liability as of January 1, 2022 equals \$511,008,246, which consists of the following pieces:



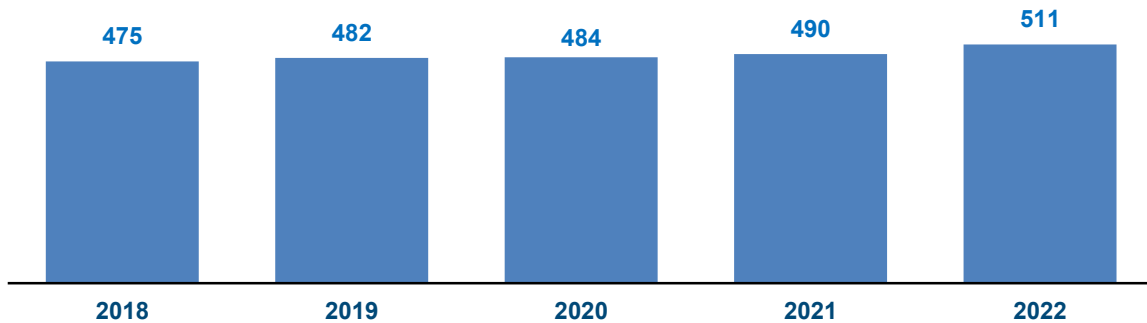
The Accrued Liability for active members can be broken down further by the different types of benefits provided by the plan:



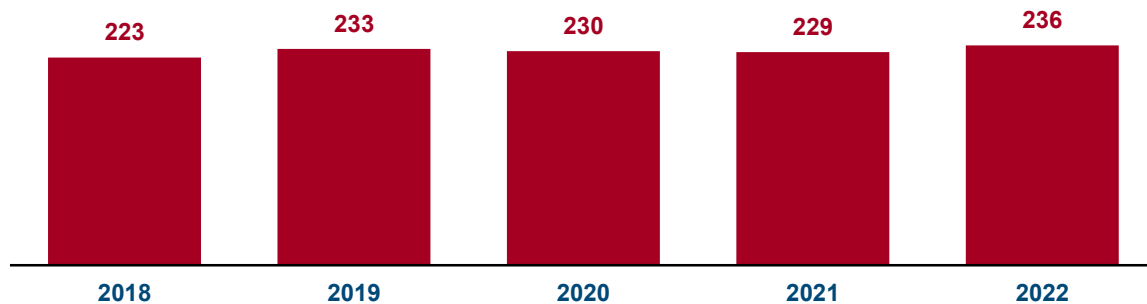
Section I - Executive Summary Funded Status

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.

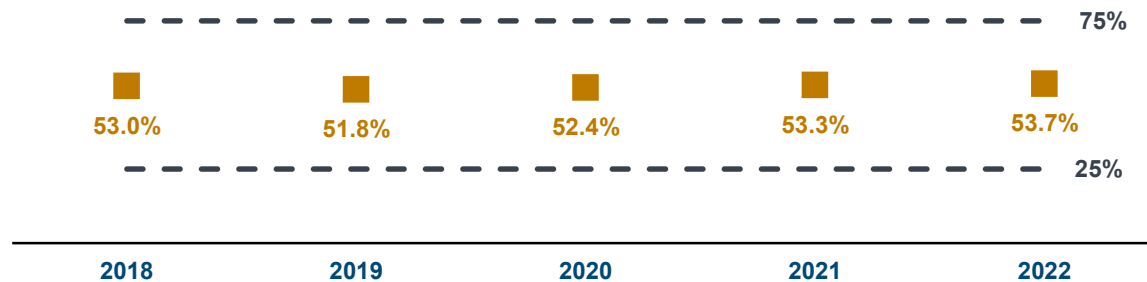
Accrued Liability (\$ millions)



Unfunded Accrued Liability (\$ millions)



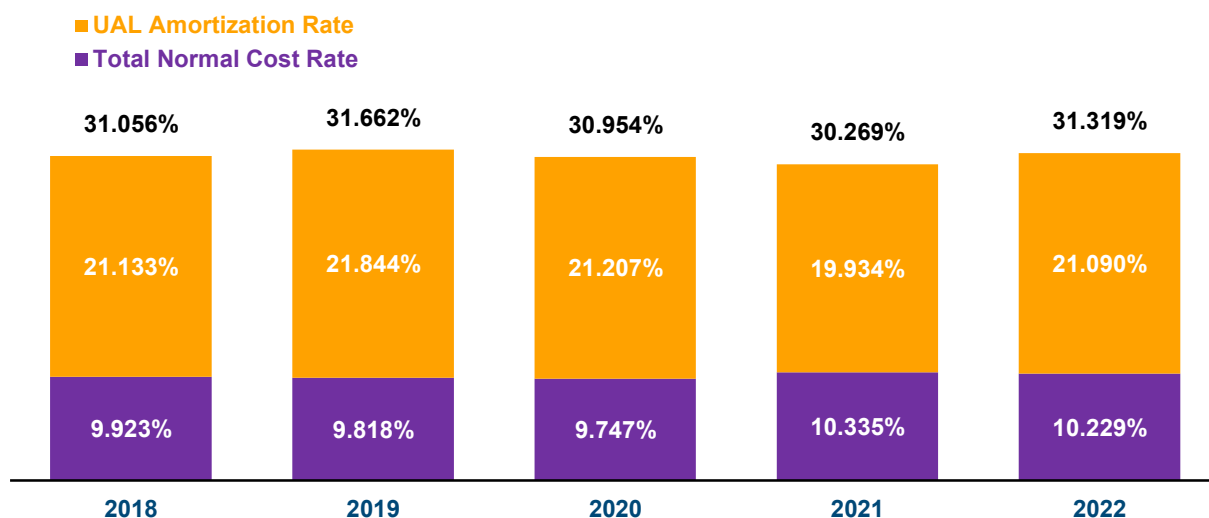
Funded Ratio



Section I - Executive Summary

Actuarially Determined Total Contribution

In order to determine if the Ordinance contribution rates are sufficient to bring the plan to a fully funded status within a reasonable period of time, we compare those rates to the 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.



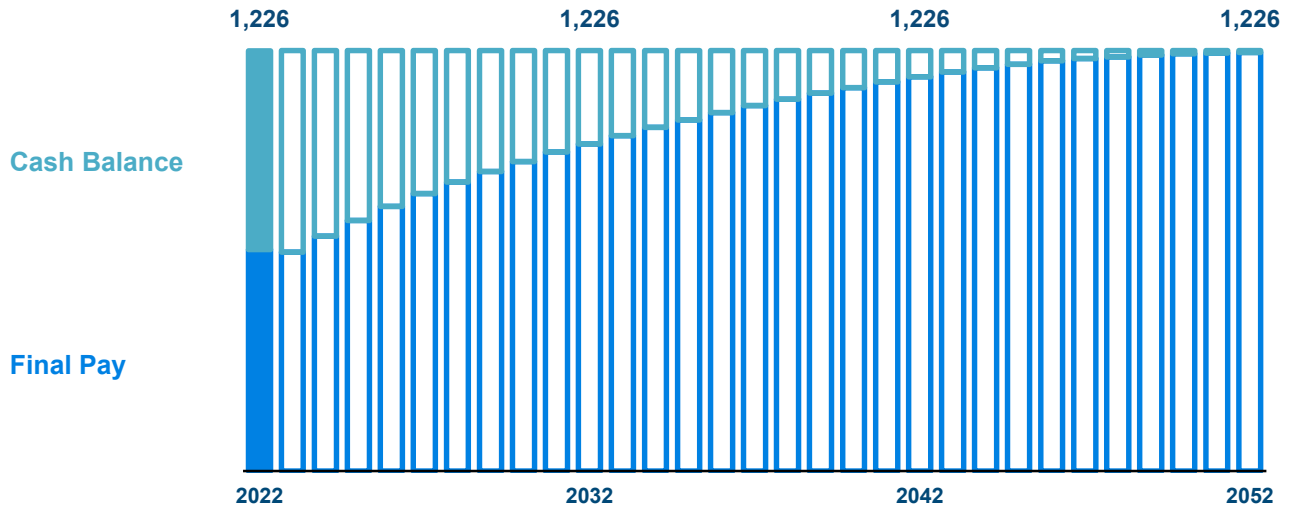
Per Ordinance Section 22-26, both active plan members and the City contribute a specified percentage of each active member's pensionable earnings, which is designed to fund the Normal Cost plus the UAL amortization payments. In any given year, the sum of these fixed contributions may be more or less than the Actuarially Determined Total Contribution:

	2021	2022
City Ordinance Employee Contribution Rate	10.075%	10.130%
City Ordinance Employer Contribution Rate	<u>18.775%</u>	<u>18.830%</u>
(A) Total Ordinance Contribution Rate	28.850%	28.960%
Total Normal Cost Rate	10.335%	10.229%
UAL Amortization Rate	<u>19.934%</u>	<u>21.090%</u>
(B) Actuarially Determined Total Contribution Rate	30.269%	31.319%
Contribution Rate (Shortfall)/Margin = (A) - (B)	-1.419%	-2.359%

Section I - Executive Summary Long-Range Forecast

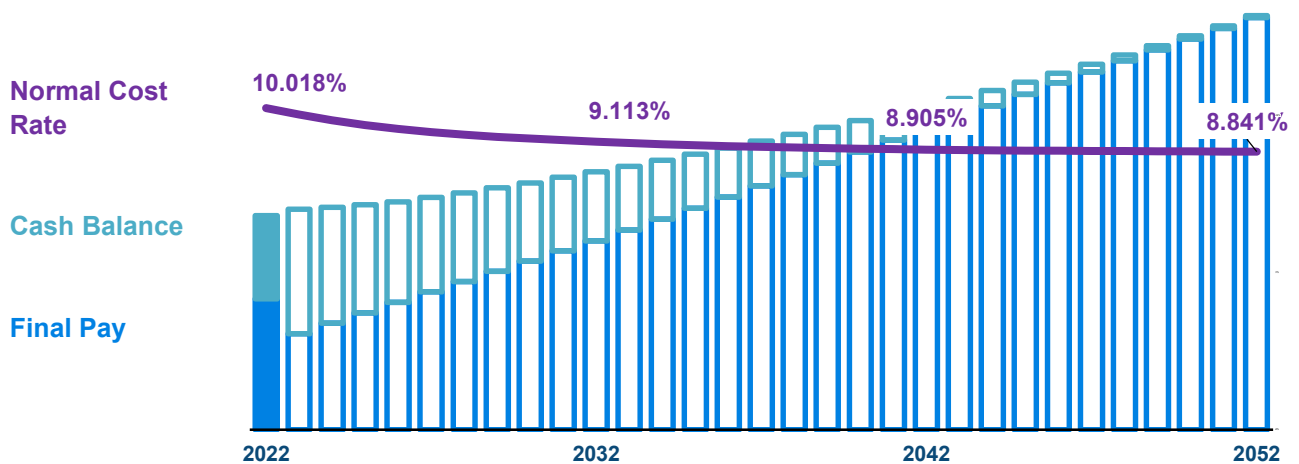
For purposes of our long-range forecast, we assume that the overall number of active members remains constant. However, over time the composition of the active membership will change, as terminating and retiring Final Pay members are replaced with employees who are covered by the lower cost Cash Balance.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

Projected Active Member Count



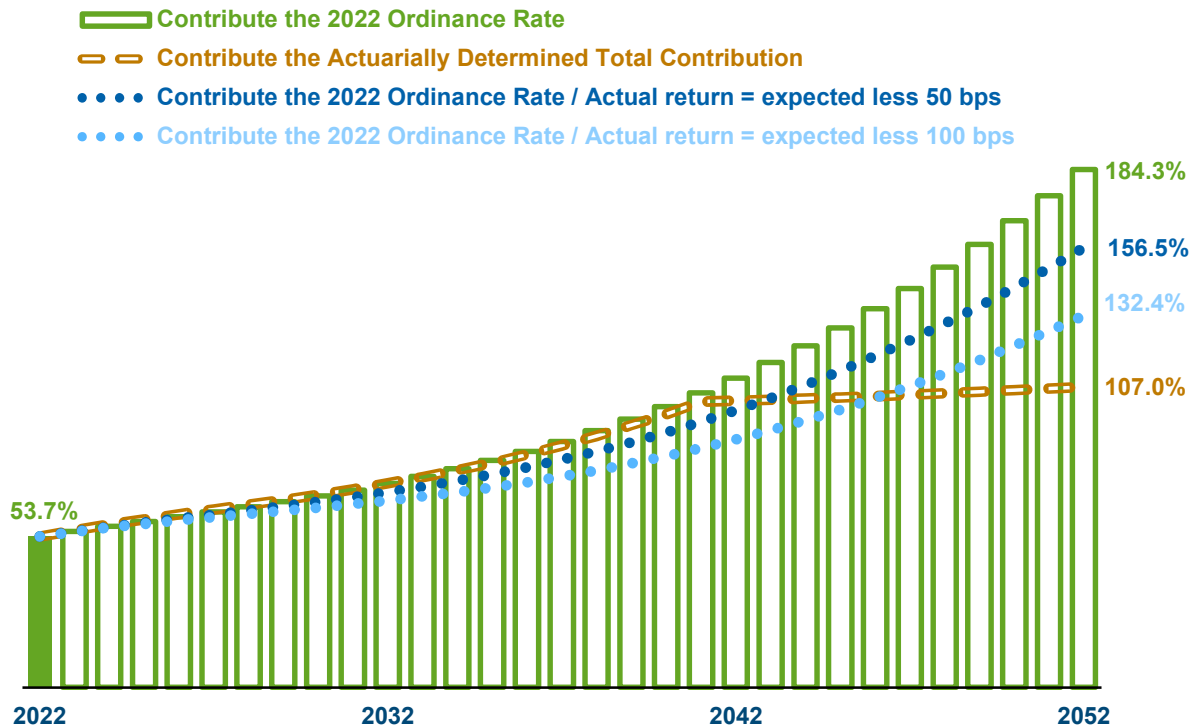
The Normal Cost Rate component of the Actuarially Determined Total Contribution will reflect this shift, as Final Pay active members with higher Normal Costs are gradually replaced by Cash Balance active members with lower Normal Costs. Note that each individual active member's Normal Cost (in dollars) 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 plan receives less than the Actuarially Determined Total Contribution (ADTC) 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 ADTC 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, 2021	January 1, 2022
Active Members	1,229	1,226
Terminated Members	149	188
Members in Pay Status	<u>1,467</u>	<u>1,473</u>
Total Count	2,845	2,887

Assets and Liabilities as of	January 1, 2021	January 1, 2022
Market Value of Assets	\$271,868,537	\$304,077,329
Actuarial Value of Assets	260,980,355	274,543,515
Accrued Liability for Active Members	124,849,713	132,590,103
Accrued Liability for Terminated Members	8,027,461	9,592,638
Accrued Liability for Members in Pay Status	<u>357,219,591</u>	<u>368,825,505</u>
Total Accrued Liability	490,096,765	511,008,246
Unfunded Accrued Liability	229,116,410	236,464,731
Funded Ratio	53.3%	53.7%

Contribution Rate Sufficiency for Fiscal Year	2021	2022
Ordinance Employee Contribution Rate	10.075%	10.130%
Ordinance Employer Contribution Rate	18.775%	18.830%
Total Ordinance Contribution Rate	28.850%	28.960%
Total Normal Cost Rate	10.335%	10.229%
UAL Amortization Rate	<u>19.934%</u>	<u>21.090%</u>
Actuarially Determined Total Contribution Rate	30.269%	31.319%
Contribution Rate (Shortfall)/Margin	-1.419%	-2.359%

Actuarially Determined Contribution for Fiscal Year	2021	2022
Actuarially Determined Total Contribution	\$25,370,017	\$26,476,883
Expected Employee Contributions	<u>(7,969,412)</u>	<u>(8,083,785)</u>
Actuarially Determined Employer Contribution	17,400,605	18,393,098

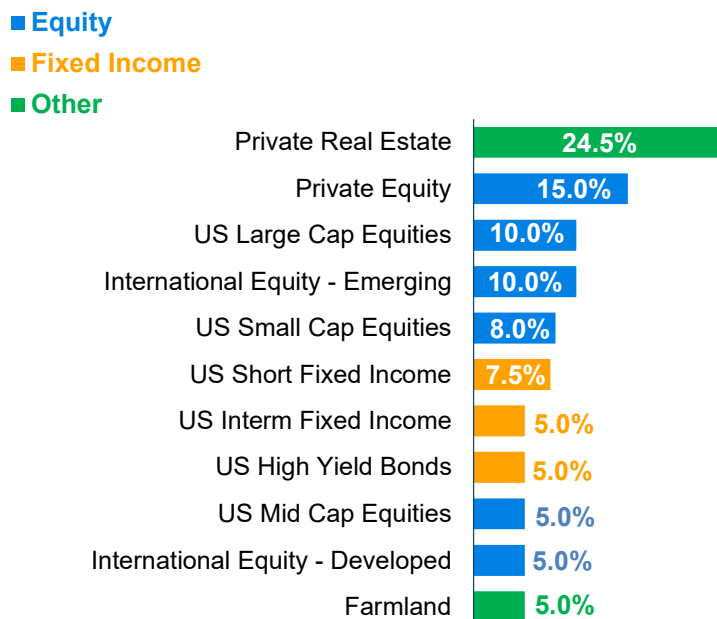
Section II - Plan Assets

A. Summary of Fund Transactions

Market Value as of January 1, 2021	\$271,868,537
City Contributions	15,354,180
Member Contributions	8,344,145
Net Investment Income	47,500,685
Benefit Payments	(38,990,218)
Market Value as of December 31, 2021	304,077,329
Expected Return on Market Value of Assets	19,813,968
Market Value (Gain)/Loss	(27,686,717)
Approximate Rate of Return *	17.98%

* 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, 2021



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, 2022 is determined below.

1.	Expected Actuarial Value of Assets:	
	a. Actuarial Value of Assets as of January 1, 2021	\$260,980,355
	b. City and Member Contributions	23,698,325
	c. Benefit Payments	(38,990,218)
	d. Expected Earnings Based on 7.50% Interest	<u>19,010,448</u>
	e. Expected Actuarial Value of Assets as of January 1, 2022	264,698,910
2.	Market Value of Assets as of January 1, 2022	304,077,329
3.	Unrecognized Gains/(Losses): (2) - (1e)	39,378,419
4.	Amount Recognized as of January 1, 2022: 25% of (3)	9,844,605
5.	Preliminary Actuarial Value of Assets as of January 1, 2022: (1e) + (4)	274,543,515
6.	Preliminary Actuarial Value of Assets as a % of Market Value: (5) / (2)	90.3%
7.	Actuarial Value of Assets as of January 1, 2022: (5), within +/- 20% of (2)	274,543,515
8.	Actual Earnings on Actuarial Value of Assets: (7) - [(1a) + (1b) + (1c)]	28,855,053
9.	Approximate Rate of Return on Actuarial Value of Assets	11.39%
10.	Actuarial Value (Gain)/Loss: (1d) - (8)	(9,844,605)

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, 2021	January 1, 2022
Liabilities: Present Value of Future Benefits		
Active Members	\$192,500,457	\$200,721,313
Terminated Vested Members	7,615,790	8,833,250
Nonvested Members Due Refunds	411,671	759,388
Retirees	306,010,894	315,337,045
Disabled Retirees	15,437,894	14,977,997
Beneficiaries	<u>35,770,803</u>	<u>38,510,463</u>
Total Liabilities	557,747,509	579,139,456
Assets		
Actuarial Value of Current Assets (see Section II B)	\$260,980,355	\$274,543,515
Present value of future employer normal costs	(3,255,932)	(4,224,762)
Present value of future employee contributions	\$70,906,676	72,355,972
Present value of future UAL amortization payments	<u>229,116,410</u>	<u>236,464,731</u>
Total Assets	557,747,509	579,139,456

Per Ordinance Section 22-26, both active plan members and the City contribute a specified percentage of each active member's pensionable earnings, which is designed to fund the Normal Cost plus the UAL amortization payments. In any given year, the sum of these fixed contributions may be more or less than the Actuarially Determined Total Contribution. If the present value of future contributions per these specified rates is lower than the present value of future UAL amortization payments plus the present value of future normal costs shown above, then the Plan may experience a shortfall of Assets relative to Liabilities. Based on the January 1, 2022 valuation, the sum of the Ordinance Contribution Rates is lower than the Actuarially Determined Total Contribution Rate by 2.359%, 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, 2021	January 1, 2022
1. Present Value of Future Benefits (see Section III A)	\$557,747,509	\$579,139,456
2. Present Value of Future Normal Costs	67,650,744	68,131,210
3. Accrued Liability		
Active Members	124,849,713	132,590,103
Terminated Vested Members	7,615,790	8,833,250
Nonvested Members Due Refunds	411,671	759,388
Retirees	306,010,894	315,337,045
Disabled Retirees	15,437,894	14,977,997
Beneficiaries	<u>35,770,803</u>	<u>38,510,463</u>
Total = (1) - (2)	490,096,765	511,008,246
4. Actuarial Value of Assets (see Section II B)	260,980,355	274,543,515
5. Unfunded Accrued Liability: (3) - (4)	229,116,410	236,464,731
6. Funded Ratio: (4) / (3)	53.3%	53.7%

Section III - Development of Contribution

C. UAL Amortization Payments

The Unfunded Accrued Liability that is developed in Section III B is amortized 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, the resulting change in the Unfunded Accrued Liability 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, 2022	Years Remaining January 1, 2022	(b) Annual Amortization Payment
January 1, 2016	\$198,965,804	19	\$15,524,698
January 1, 2017	1,070,036	15	98,090
January 1, 2018	27,902,310	21	2,043,502
January 1, 2018	(4,124,850)	16	(361,303)
January 1, 2019	8,264,299	17	694,294
January 1, 2020	(2,659,482)	18	(215,005)
January 1, 2021	<u>(945,760)</u>	19	<u>(73,795)</u>
Total	228,472,357		17,710,481
2. Unfunded Accrued Liability as of January 1, 2022 (see Section III B)			236,464,731
3. New Amortization Base Established January 1, 2022: (2) - (1a Total)			7,992,374
4. Amortization Period for New Amortization Base			20
5. Amortization Growth Rate			3.00%
6. Amortization Payment for January 1, 2022: (3) amortized over (4)			603,468
7. Total UAL Amortization Payments: (1b Total) + (6)			18,313,949
8. Expected Payroll for Active Members			86,837,521
9. UAL Amortization Payment Rate: (7) ÷ (8)			21.090%

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.

	2021	2022
1. Total Normal Cost by Type of Benefit - Final Pay Actives		
Retirement	\$3,688,173	\$3,481,131
Termination	965,111	935,752
Preretirement Death	118,319	75,644
Disability	<u>523,689</u>	<u>502,916</u>
Total	5,295,292	4,995,443
2. Total Normal Cost by Type of Benefit - Cash Balance Actives		
Retirement	\$1,702,725	\$2,000,076
Termination	848,892	785,314
Preretirement Death	76,395	55,039
Disability	<u>252,072</u>	<u>327,062</u>
Total	2,880,084	3,167,491
3. Total Normal Cost by Type of Benefit - All Actives		
Retirement	\$5,390,898	\$5,481,207
Termination	1,814,003	1,721,066
Preretirement Death	194,714	130,683
Disability	<u>775,761</u>	<u>829,978</u>
Total	8,175,376	8,162,934
4. Expected Payroll for Active Members		
Final Pay	\$48,399,839	\$45,442,374
Cash Balance	<u>30,701,027</u>	<u>34,358,076</u>
Total	79,100,866	79,800,450
5. Total Normal Cost Rate: Total Normal Cost ÷ Expected Payroll		
Final Pay	10.941%	10.993%
Cash Balance	9.381%	9.219%
Total	10.335%	10.229%

Section III - Development of Contribution

E. Employee Contributions

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

	2021	2022
1. Employee Contribution Rate		
Final Pay	10.075%	10.130%
Cash Balance	10.075%	10.130%
2. Expected Payroll for Active Members		
Final Pay	\$48,399,839	\$45,442,374
Cash Balance	<u>30,701,027</u>	<u>34,358,076</u>
Total	79,100,866	79,800,450
3. Expected Employee Contributions in Current Year: (1) x (2)		
Final Pay	\$4,876,284	\$4,603,312
Cash Balance	<u>3,093,128</u>	<u>3,480,473</u>
Total	7,969,412	8,083,785

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.

	2021	2022
1. City Contribution Rate Per Ordinance		
Final Pay	18.775%	18.830%
Cash Balance	18.775%	18.830%
2. Covered Payroll for Active Members		
Final Pay	\$52,803,285	\$49,441,928
Cash Balance	<u>33,453,732</u>	<u>37,395,593</u>
Total	86,257,017	86,837,521
3. Expected City Contribution Dollars: (1) x (2)		
Final Pay	\$9,913,817	\$9,309,915
Cash Balance	<u>6,280,938</u>	<u>7,041,590</u>
Total	16,194,755	16,351,505

Section III - Development of Contribution

G. Actuarially Determined Contribution

	2021	2022
In Dollars		
1. Actuarially Determined Total Contribution		
a. Total Normal Cost (see Section III D)	\$8,175,376	\$8,162,934
b. UAL Amortization Payment (see Section III C)	17,194,641	18,313,949
c. Total	25,370,017	26,476,883
2. Expected Employee Contributions (see Section III E)	7,969,412	8,083,785
3. Expected City Contributions per Ordinance (see Section III F)	16,194,755	16,351,505
4. Total Expected Contributions: (2) + (3)	24,164,167	24,435,290
5. Contribution (Shortfall) / Margin: (4) - (3)	(1,205,850)	(2,041,593)

As a Percentage of Expected Payroll

1. Actuarially Determined Total Contribution Rate		
a. Total Normal Cost Rate (see Section III D)	10.335%	10.229%
b. UAL Amortization Rate (see Section III C)	19.934%	21.090%
c. Total	30.269%	31.319%
2. Employee Contribution Rate per Ordinance (see Section III E)	10.075%	10.130%
3. City Contribution Rate per Ordinance (see Section III F)	18.775%	18.830%
4. Total Contribution Rate: (2) + (3)	28.850%	28.960%
5. Contribution Rate (Shortfall) / Margin: (4) - (3)	-1.419%	-2.359%

Section III - Development of Contribution H. Long Range Forecast

This forecast is based on the results of the January 1, 2022 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
1/1/2022	\$511.0	\$274.5	\$236.5	53.7%	2022	\$17.1	\$8.5	(\$40.4)	(\$14.8)
1/1/2023	516.1	286.6	229.5	55.5%	2023	17.6	8.7	(41.2)	(14.8)
1/1/2024	521.8	299.2	222.7	57.3%	2024	18.1	9.0	(42.0)	(14.9)
1/1/2025	527.3	311.4	215.9	59.1%	2025	18.6	9.2	(42.7)	(15.0)
1/1/2026	532.3	323.4	208.9	60.8%	2026	19.1	9.5	(43.4)	(14.8)
1/1/2027	537.1	335.5	201.6	62.5%	2027	19.6	9.8	(44.0)	(14.6)
1/1/2028	541.8	348.0	193.8	64.2%	2028	20.2	10.0	(44.5)	(14.3)
1/1/2029	546.4	361.1	185.3	66.1%	2029	20.7	10.3	(45.2)	(14.1)
1/1/2030	551.0	375.1	175.8	68.1%	2030	21.3	10.6	(45.8)	(13.9)
1/1/2031	555.4	390.0	165.4	70.2%	2031	21.9	10.9	(46.2)	(13.5)
1/1/2032	559.8	406.0	153.8	72.5%	2032	22.4	11.2	(46.7)	(13.1)
1/1/2033	564.2	423.4	140.9	75.0%	2033	23.0	11.5	(47.1)	(12.6)
1/1/2034	568.8	442.3	126.5	77.8%	2034	23.6	11.8	(47.4)	(12.0)
1/1/2035	573.5	463.1	110.5	80.7%	2035	24.3	12.1	(47.8)	(11.5)
1/1/2036	578.5	485.8	92.7	84.0%	2036	24.9	12.4	(48.2)	(10.9)
1/1/2037	583.7	510.8	72.9	87.5%	2037	25.5	12.7	(48.6)	(10.3)
1/1/2038	589.1	538.0	51.1	91.3%	2038	26.2	13.1	(48.8)	(9.6)
1/1/2039	594.9	567.9	26.9	95.5%	2039	26.9	13.4	(49.1)	(8.9)
1/1/2040	601.1	600.8	0.3	100.0%	2040	27.5	13.7	(49.5)	(8.2)
1/1/2041	607.7	636.8	(29.1)	104.8%	2041	28.2	14.1	(49.8)	(7.6)

Section III - Development of Contribution H. Long Range Forecast

This forecast is based on the results of the January 1, 2022 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
1/1/2042	\$614.8	\$676.2	(\$61.4)	110.0%	2042	\$28.9	\$14.4	(\$50.2)	(\$6.9)
1/1/2043	622.3	719.1	(96.8)	115.6%	2043	29.6	14.8	(50.5)	(6.1)
1/1/2044	630.3	766.0	(135.7)	121.5%	2044	30.4	15.1	(50.9)	(5.4)
1/1/2045	638.9	817.2	(178.3)	127.9%	2045	31.2	15.5	(51.2)	(4.5)
1/1/2046	648.1	873.0	(224.8)	134.7%	2046	32.0	15.9	(51.4)	(3.4)
1/1/2047	658.1	933.9	(275.8)	141.9%	2047	32.8	16.4	(51.6)	(2.5)
1/1/2048	669.0	1,000.4	(331.4)	149.5%	2048	33.6	16.8	(51.9)	(1.5)
1/1/2049	680.8	1,072.9	(392.0)	157.6%	2049	34.5	17.2	(52.3)	(0.6)
1/1/2050	693.6	1,151.8	(458.2)	166.1%	2050	35.4	17.7	(52.7)	0.3
1/1/2051	707.3	1,237.5	(530.2)	175.0%	2051	36.3	18.1	(53.2)	1.2
1/1/2052	722.1	1,330.7	(608.6)	184.3%	2052	37.2	18.6	(53.9)	1.9

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, 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%
January 1, 2022	274,543,515	511,008,246	236,464,731	53.73%

Section III - Development of Contribution

J. History of City Contributions

Fiscal Year	Actuarially Determined Employer Contribution	Actual City Contribution	Payroll	Actual Contribution as a Percent of Payroll
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	19.1%
2021	17,400,605	15,354,180	86,257,017	17.8%
2022	18,393,098	TBD	86,837,521	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, 2021	698	531	100	49	1,118	78	271	2,845
Terminated, return of contribution due	-	(55)	-	55	-	-	-	0
Terminated, paid refund	(6)	(63)	(2)	(21)	-	-	(1)	(93)
Terminated, vested benefits due	(14)	-	14	-	-	-	-	0
Normal retirement	(32)	-	(3)	-	35	-	-	0
Disability retirement	-	-	-	-	-	-	-	0
Died with beneficiary	(2)	-	(1)	-	(13)	(3)	19	0
Died with no beneficiary	(3)	-	-	-	(21)	(2)	(15)	(41)
Benefits expired	-	-	-	-	-	-	(1)	(1)
New member	-	165	-	-	-	-	-	165
Rehired	5	2	(5)	-	-	-	-	2
Expired Payment	-	-	-	-	-	-	-	0
Correction	-	-	1	1	2	-	6	10
Count on January 1, 2022	646	580	104	84	1,121	73	279	2,887

Section IV - Membership Data

B. Statistics of Active Membership

		As of January 1, 2021	As of January 1, 2022
Count	Final Pay	698	646
	Cash Balance	<u>531</u>	<u>580</u>
	Total	1,229	1,226
Average Age	Final Pay	49.9	50.4
	Cash Balance	40.1	40.7
	Total	45.7	45.8
Average Service	Final Pay	13.9	14.9
	Cash Balance	2.8	3.1
	Total	9.1	9.3
Covered Payroll	Final Pay	\$48,399,839	\$45,442,374
	Cash Balance	<u>30,701,027</u>	<u>34,358,076</u>
	Total	79,100,866	79,800,450
Average Covered Payroll	Final Pay	\$69,341	\$70,344
	Cash Balance	57,817	59,238
	Total	64,362	65,090

Section IV - Membership Data

C. Distribution of Active Members as of January 1, 2022

Final Pay

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
< 25								0
25-29		7						7
30-34		24	12					36
35-39		38	28	7				73
40-44		31	39	19	4			93
45-49		19	33	19	10	5		86
50-54		17	34	30	24	14	1	120
55-59		18	28	21	29	10	8	114
60-64		15	23	22	3	3	2	68
65+		6	13	8	11	6	5	49
Total	0	175	210	126	81	38	16	646

Cash Balance

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
< 25	26							26
25-29	71	5						76
30-34	90	23						113
35-39	82	19						101
40-44	68	18						86
45-49	31	12						43
50-54	31	18						49
55-59	35	12		1				48
60-64	16	10						26
65+	8	4						12
Total	458	121	0	1	0	0	0	580

Section IV - Membership Data

F. Statistics of Inactive Membership

	As of January 1, 2021	As of January 1, 2022
Terminated Vested Members		
Number	100	104
Total Annual Benefit	\$1,813,036	\$2,299,715
Average Annual Benefit	18,130	22,113
Average Age	48.3	48.5
Nonvested Members Due Refunds		
Number	49	84
Retirees		
Number	1,118	1,121
Total Annual Benefit	\$31,126,021	\$31,308,182
Average Annual Benefit	27,841	27,929
Average Age	71.0	71.5
Disabled Retirees		
Number	78	73
Total Annual Benefit	\$2,299,863	\$2,159,689
Average Annual Benefit	29,485	29,585
Average Age	66.6	66.8
Beneficiaries		
Number	271	279
Total Annual Benefit	\$4,501,575	\$4,763,483
Average Annual Benefit	16,611	17,073
Average Age	74.4	74.7

Section IV - Membership Data
G. Distribution of Inactive Members as of January 1, 2022

	Age	Number	Annual Benefits
Terminated Vested Members	< 50	52	\$55,730
	50 - 59	51	72,136
	60 - 69	1	495
	70 - 79	0	0
	80 - 89	0	0
	90 +	<u>0</u>	<u>0</u>
	Total	104	128,361
Retirees	< 50	0	\$0
	50 - 59	52	165,683
	60 - 69	455	1,151,145
	70 - 79	460	1,029,721
	80 - 89	134	233,141
	90 +	<u>20</u>	<u>29,326</u>
	Total	1,121	2,609,015
Disabled Retirees	< 50	3	\$5,486
	50 - 59	14	26,385
	60 - 69	31	55,452
	70 - 79	19	24,250
	80 - 89	6	7,210
	90 +	<u>0</u>	<u>0</u>
	Total	73	118,783
Beneficiaries	< 50	12	\$3,674
	50 - 59	7	9,468
	60 - 69	61	79,417
	70 - 79	95	142,095
	80 - 89	81	130,568
	90 +	<u>23</u>	<u>31,735</u>
	Total	279	396,957

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.

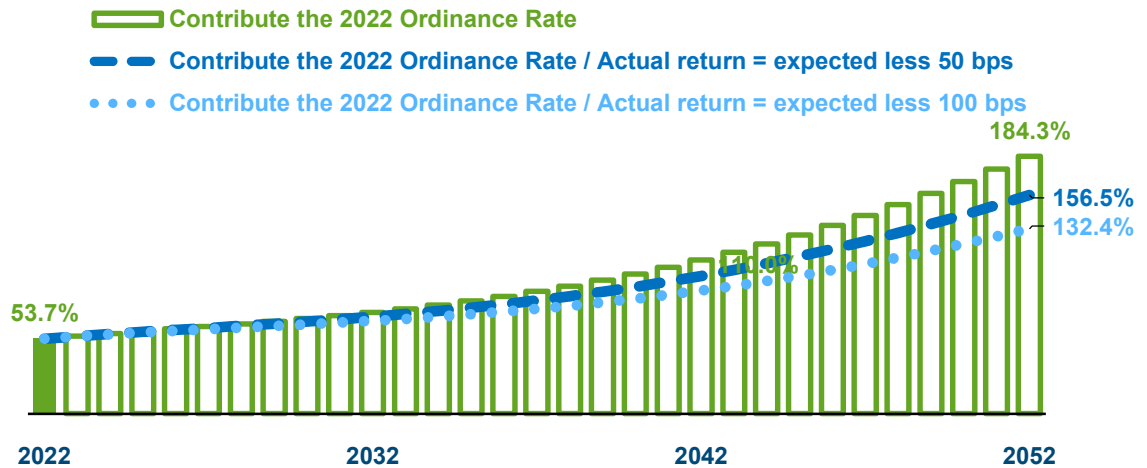
Section V - Analysis of Risk

B. Risk Identification and Assessment

Investment Risk

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

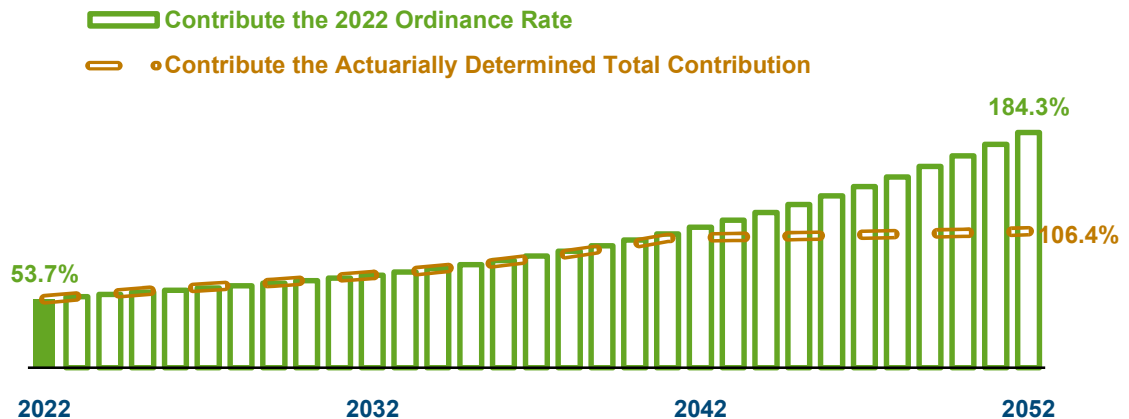
Identification: To the extent that actual investment returns differ from the assumed investment return, the plan's future assets, Actuarially Determined Contributions, and funded status may differ significantly from those presented in this valuation. The consequences of persistent underperformance on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



Contribution Risk

Definition: This is the potential that actual future contributions will be insufficient to fully fund the plan over a reasonable period of time.

Identification: Over the past 10 years, actual City contributions (in dollars) have been 79.6% of the Actuarially Determined Employer Contribution in total. The consequences of contributing an amount different than the Actuarially Determined Contribution 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.

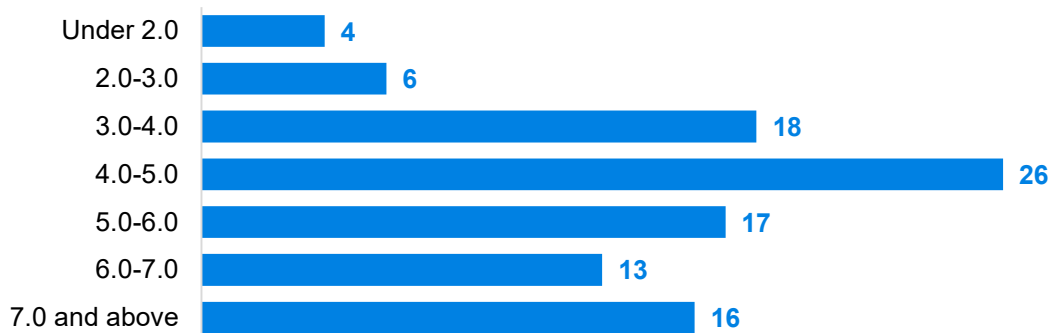
Identification: In 2021, the plan had negative cash flow, with city and member contributions to the plan of \$23,698,325 compared to \$38,990,218 of benefit payments paid out of the plan. We suggest that you consult with your investment advisors with respect to the liquidity characteristics of the plan's 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, 2022, the plan's Asset Volatility Ratio (the ratio of the market value of plan assets to Covered Payroll) is 3.5. According to Milliman's 2021 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.

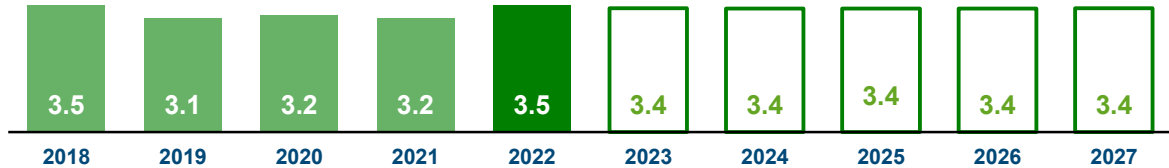
Identification: This plan allows for some overtime pay for some members to be included in pensionable earnings. If members retire with higher pensionable earnings than are anticipated by the actuarial assumptions, this will put upward pressure on subsequent Actuarially Determined Contributions.

Section V - Analysis of Risk

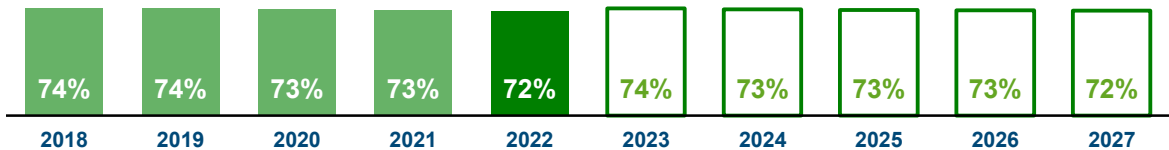
C. Maturity Measures

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.

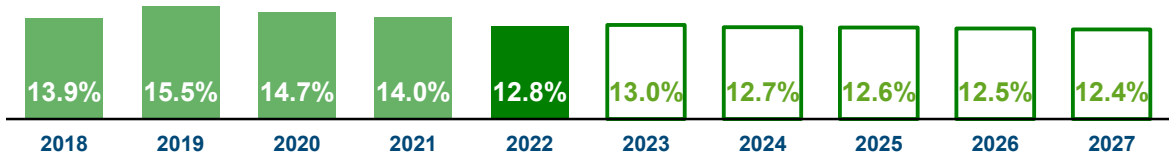
Asset Volatility Ratio: Market Value of Assets compared to Payroll



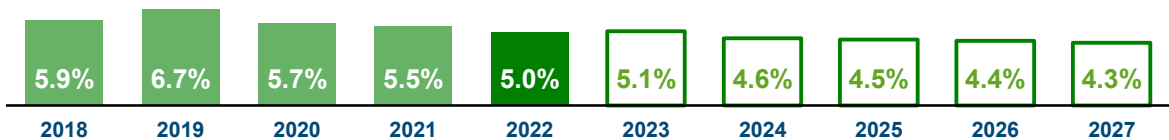
Accrued Liability for members in pay status compared to total Accrued Liability



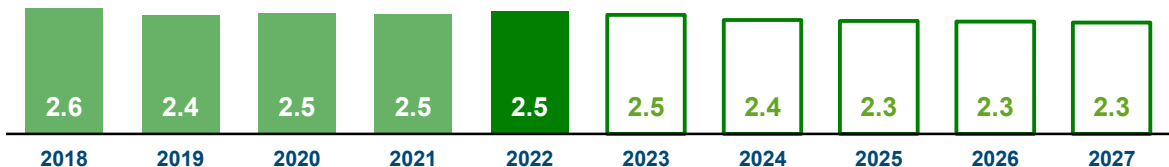
Benefit Payments compared to Market Value of Assets



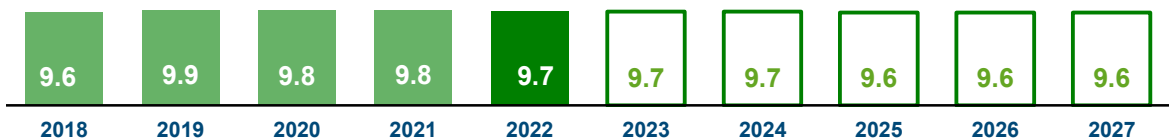
Net Cash Flows compared to Market Value of Assets



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, the resulting change in the Unfunded Accrued Liability 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

Each of the assumptions used in this valuation was set based on a formal study of the plan's experience for the period ending December 31, 2019 which reflected industry standard published tables and data, the particular characteristics of the plan, relevant information from the plan sponsor or other sources about future expectations, and our professional judgment regarding future plan experience. We believe the assumptions are reasonable for the contingencies they are measuring, and are not anticipated to produce significant cumulative actuarial gains or losses over the measurement period. Several assumptions were changed with this valuation. See pages 42-44 of this report for the assumptions that were used for the prior valuation.

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%

An additional one-time 2% salary increase is assumed for 2023.

Interest Credited to Cash Balance Accounts 5.25%

Decrement Timing Middle of year.

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

Appendix B - Actuarial Assumptions

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

Children 0 children are assumed per member.

Mortality PubG-2010 Mortality Table with generational projection per the MP-2021 scale, with employee rates before benefit commencement and healthy, disabled and contingent annuitant rates after benefit commencement. This assumption includes a margin for mortality improvement beyond the valuation date.

Termination	Service	Male	Female
	0	11.00%	12.00%
	1	10.00%	12.00%
	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	40%	20%
56-58	35%	20%
59-60	25%	20%
61	25%	20%
62	25%	25%
63	25%	20%
64	25%	30%
65-69	50%	30%
70-71	75%	75%
72	100%	100%

Members who are eligible for Early, but not Unreduced Retirement, are assumed to retire at the rate of 5.0% 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	40%	20%
56-58	35%	20%
59-60	25%	20%
61	25%	20%
62	25%	25%
63	25%	20%
64	25%	30%
65-69	50%	30%
70-71	75%	75%
72	100%	100%

Members who are eligible for Early, but not Unreduced Retirement, are assumed to retire at the rate of 5.0% 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	40%	20%
56-58	35%	20%
59-60	25%	20%
61	25%	20%
62	25%	25%
63	25%	20%
64	25%	30%
65	50%	30%
66-69	50%	30%
70-71	75%	75%
72	100%	100%

Members who are eligible for Early, but not Unreduced Retirement, are assumed to retire at the rate of 5.0% 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%
70-71	75%
72	100%

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

Appendix B - Actuarial Assumptions

Changes in Assumptions From Prior Year

The following assumptions were used in the prior year actuarial valuation:

Interest Credited to Cash Balance Accounts 6.00%

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%

Appendix B - Actuarial Assumptions

Changes in Assumptions From Prior Year (continued)

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

Changes in Assumptions From Prior Year (continued)

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 who are 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)	<p>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.</p> <p>All others: Compensation during the last 130 pay periods divided by 5.</p> <p>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).</p>
Member Contributions	10.13% of Compensation.
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, 2022 the City contributes 18.83% 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	<p>For members who were within 5 years of normal retirement as of March 1, 2015, the earlier of:</p> <ul style="list-style-type: none">(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 Benefit

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 Benefit (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 are eligible after 5 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 5 years of service or suffered a service-connected death and had completed 6 months of service. If the member had completed fewer than 5 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%
	<i>*until age 18</i>

If the member was eligible for retirement on their date of death and there is no eligible surviving 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 5 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 5 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

5 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 retirement 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 5 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 5 years of service but prior to service retirement eligibility may elect a deferred retirement.

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.

Actuarially Determined Total Contribution (“ADTC”) - This is the total periodic contributions to a defined benefit plan prior to offsetting for the expected portion paid by employees, 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.

City of Omaha Employees Retirement System 2022 Experience Study

Rebecca A. Sielman, FSA
Principal and Consulting Actuary

Yelena Pelletier, ASA
Consulting Actuary

AUGUST 17, 2022

Topics

1

Overview of an Experience Study

2

Economic assumptions

3

Demographic assumptions

4

Funding method

5

Impact of proposed changes on valuation results

Experience Study

▪ Objectives

- Bring actuarial assumptions in line with recent experience
- Reflect emerging long-term trends

▪ Scope

- Economic assumptions: inflation, interest rate, cash balance interest crediting rate, pay increases
- Demographic assumptions: mortality, turnover, retirement, disability
- Funding method: cost method, amortization method, asset smoothing method

▪ Sources of data

- Census data from 2016-2020 valuations
- Social Security Administration annual trustees report
- Milliman's Capital Market Assumptions

Topics

1 Overview of an Experience Study

2 Economic assumptions

3 Demographic assumptions

4 Funding method

5 Impact of proposed changes on valuation results

Economic Assumptions - Inflation

Current assumption: 2.50%

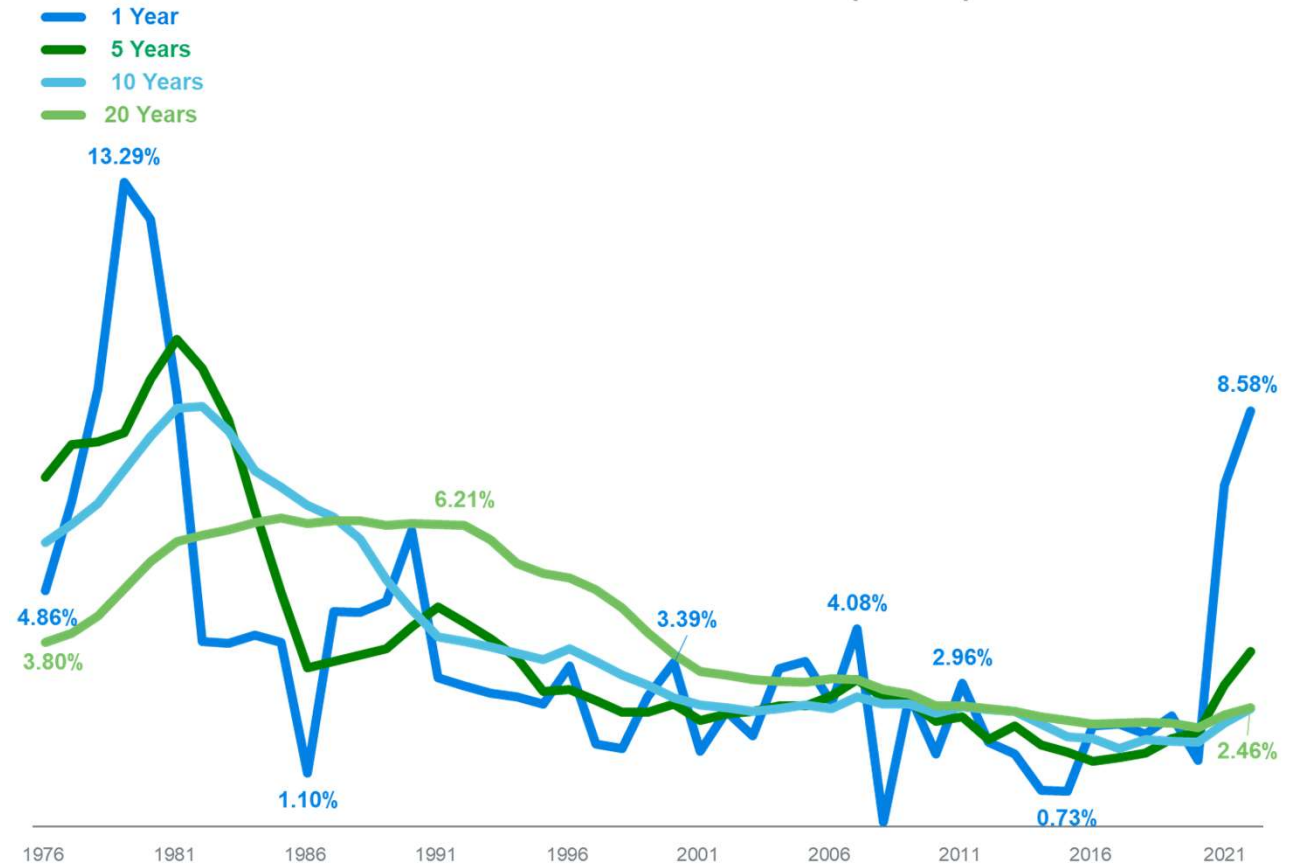
Analysis

The graph at right shows historical CPI-U through 2021; there is a clear pattern of declining inflation over the past 40+ years, with a jump in the last year.

The Social Security Administration studies long-term inflation trends and projections on an annual basis. In the 2022 Trustees report, the projected annual inflation for 2024 and thereafter under the intermediate cost assumptions was 2.40%.

Proposed assumption: no change

Consumer Price Index - All Urban Consumers (CPI-U)



Economic Assumptions – Interest Rate

Current assumption: 7.50%

Analysis

Using Milliman’s December 31, 2021 capital market assumptions and the current 2.50% inflation rate, the expected long-term return for the target asset allocation (without margin for manager alpha) is 7.41%.

Proposed assumption: no change

Expected compound annual nominal returns based on System’s target asset allocation, Milliman’s December 31, 2021 Capital Market Assumptions and 2.50% inflation



Economic Assumptions – Cash Balance Interest Crediting Rate

Current assumption: 6.00%

Analysis

On the last day of each plan year, each cash balance account receives 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. Based on the 30-year expected return at the 50th percentile (the “median” return), the interest crediting rate would be 4.3%.

Proposed assumption: lower assumption to 5.25%

Relationship of Investment Return to Interest Crediting Rate



Economic Assumptions – Pay Increases

Current assumption: graded based on service from 9.0% to 3.1%

Analysis

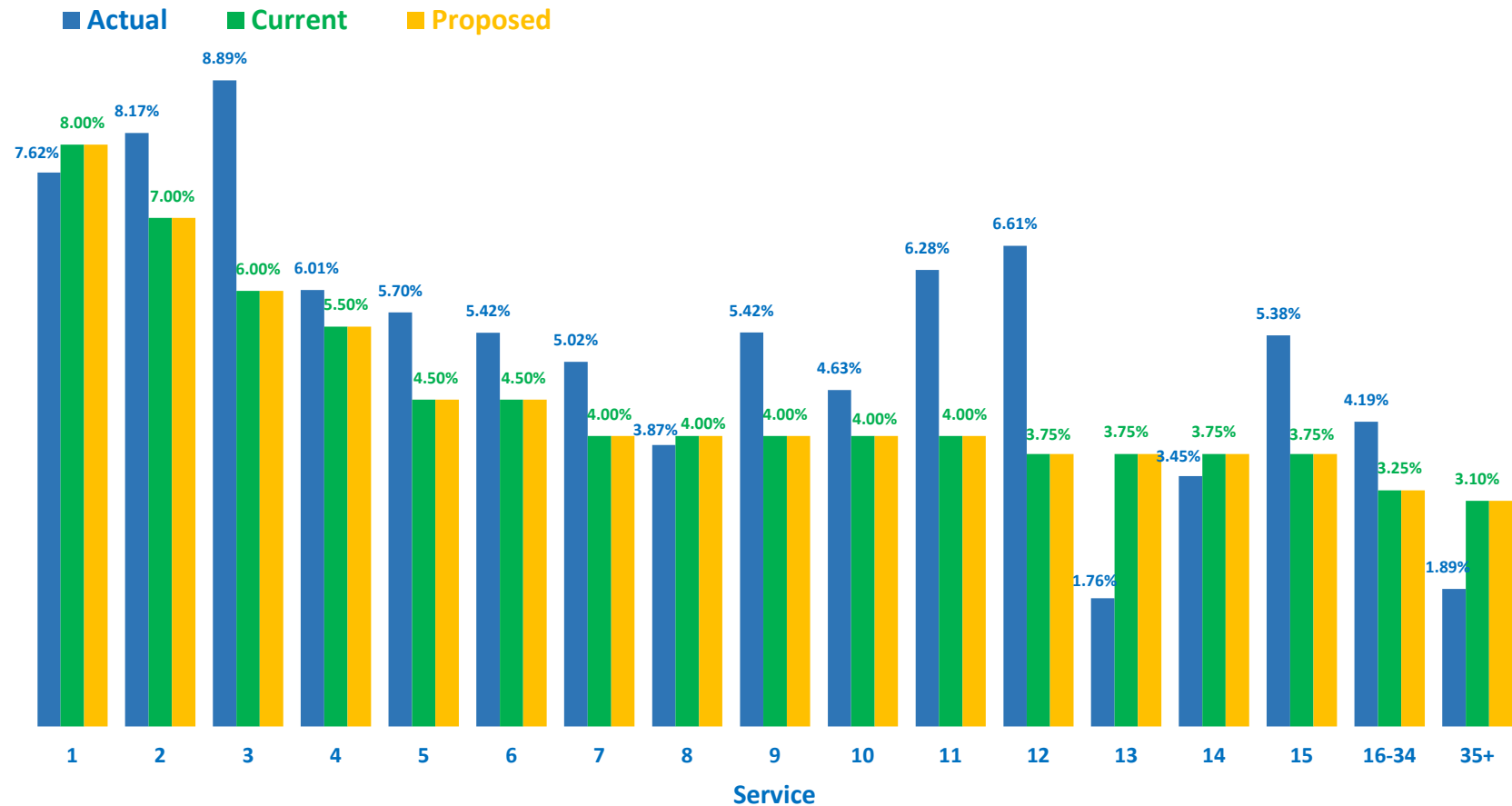
The graph at right shows that actual pay increases have been close to what was anticipated by the current assumptions at most levels of service.

For all service levels* combined, the expected salaries were 99.1% of the actual salaries during the period we studied.

Proposed assumption: no change

*Note: we excluded members with less than one year of service from our analysis because partial earnings in the first year cause distorted results.

Annual pay increases by length of service



Topics

1 Overview of an Experience Study

2 Economic assumptions

3 Demographic assumptions

4 Funding method

5 Impact of proposed changes on valuation results

Demographic Assumptions – Mortality

Current assumption (adopted in 2018):

- RP-2014 Mortality Table, adjusted to 2006
- Generational projection of future improvements in longevity using the Ultimate Scale used by the Nebraska Public Employees Retirement System
- Employee rates before retirement; healthy or disabled annuitant rates after retirement

Analysis

The System does not have enough members for its mortality experience to be considered “credible”. As a result, we look to large-scale studies of mortality to set this assumption. The Pub-2010 mortality tables were published in early 2019 and are the first mortality tables constructed solely using mortality data from public pension plans. The General version of this mortality table has been used in the System’s financial reporting (GASB) calculations since 2019.

The MP-2021 Scale is the basis for projecting future improvements in longevity for many public and private plans.

Proposed assumption: Update to Pub-2010 General mortality tables with MP-2021 projection scale



Demographic Assumptions – Turnover

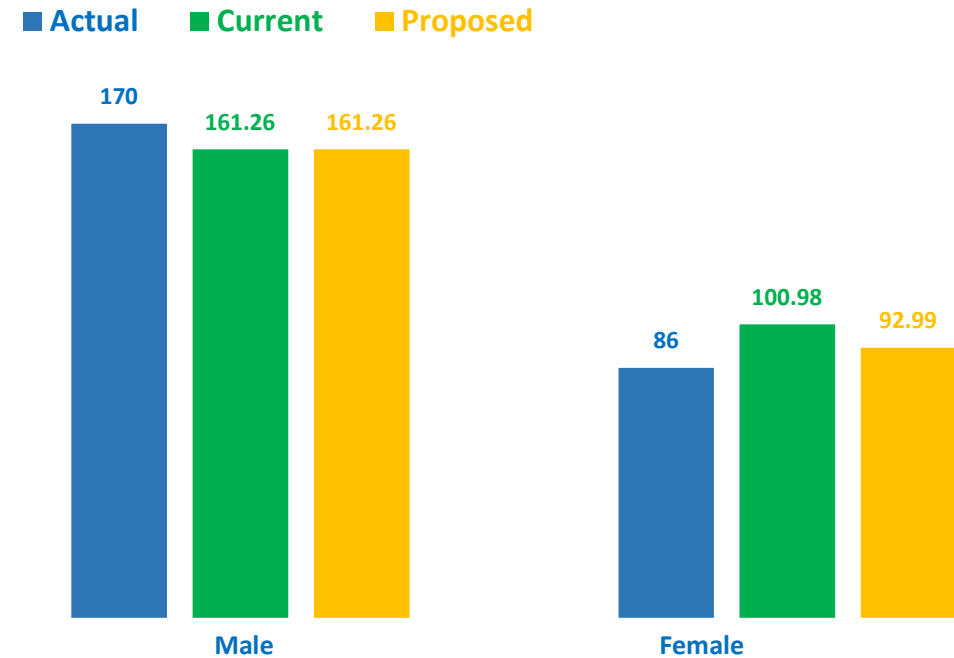
Current assumption: decreasing rates based on years of service, same rates for males and females

Analysis

Turnover patterns varied by gender. For males, there were slightly more terminations (170) than expected (161.3). For females, there were fewer terminations (86) than expected (101).

Proposed assumption: slight decrease in termination rates for females; no change for males

Number of terminations by gender



Demographic Assumptions – Retirement

Current assumption: varies by Tier, age and retirement eligibility period with all assumed to retire by age 70

Analysis

We analyzed only members that are in the "within 5 years of normal retirement as of March 1, 2015" group. There is very little or no retirement experience in the other groups yet. Overall there were fewer retirements (199) than expected (242.7). Retirements were lower than expected at most ages, and some members continued to work past age 70.

We looked at retirement patterns in three different periods: the years in which a member is eligible to retire early with a reduced benefit, the year in which a member is first eligible for an unreduced benefit (where there is typically a spike in retirements), and the years after a member is first eligible for an unreduced benefit.

Proposed assumption: modify the rates for certain age/service combinations in the three periods and extend rates to age 72

Demographic Assumptions – Retirement (continued)

Years when member is eligible for early retirement with a reduced benefit

There were more retirements (13) than expected (5.67) during this period.

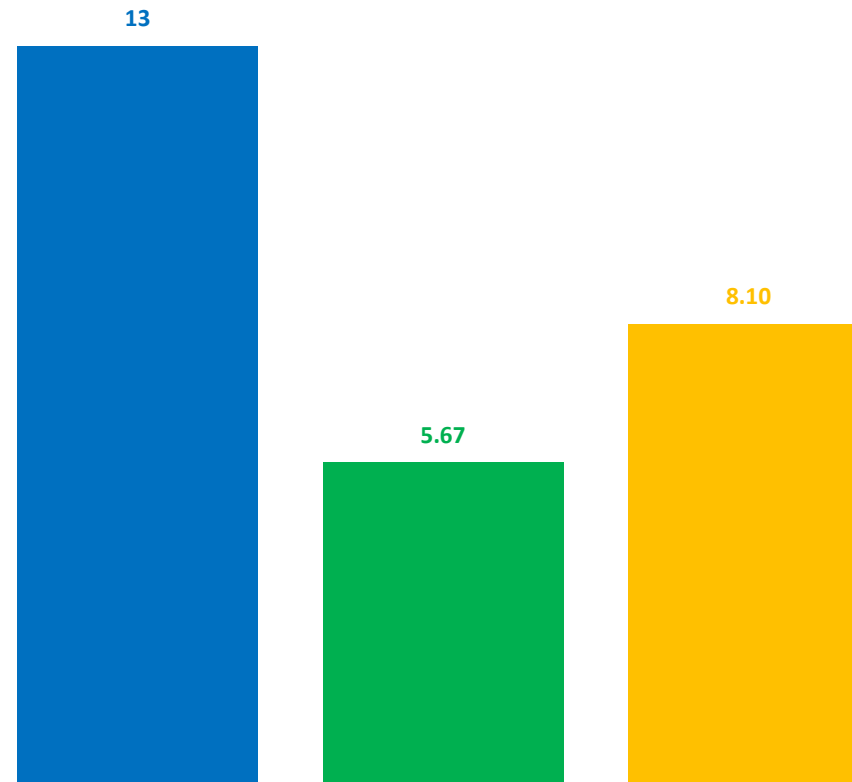
Current: 3.5%

Proposed: 5.0%

Note: this assumption only applies to members hired before 3/1/2015

Number of retirements

■ Actual ■ Current ■ Proposed



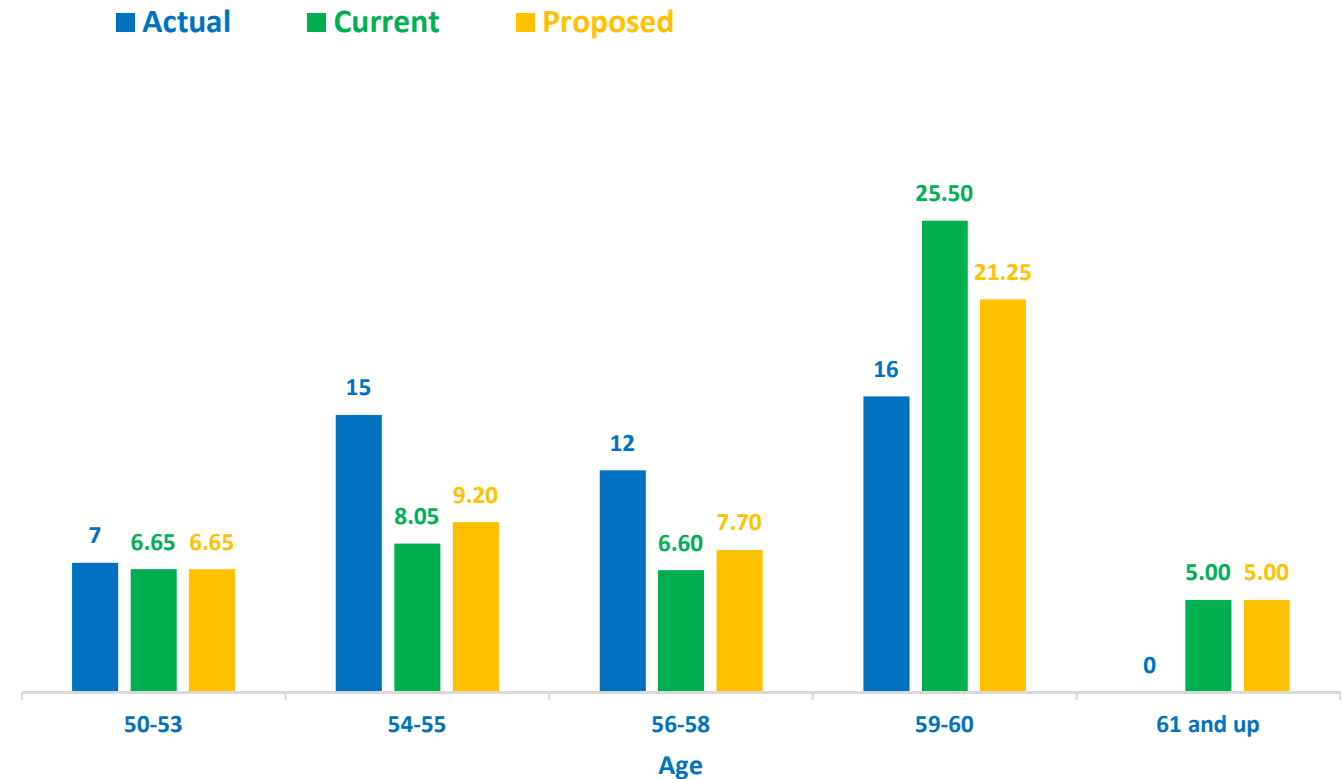
Demographic Assumptions – Retirement (continued)

Year in which a member is first eligible for unreduced benefits

There were more retirements (27) than expected (14.65) for members aged 54-58. There were fewer retirements (16) than expected (25.5) for members aged 59-60.

Age	Current	Proposed
50-53	35%	35%
54-55	35%	40%
56-58	30%	35%
59-60	30%	25%
61-64	25%	25%
65-69	50%	50%
70-71	100%	75%
72	100%	100%

Number of retirements



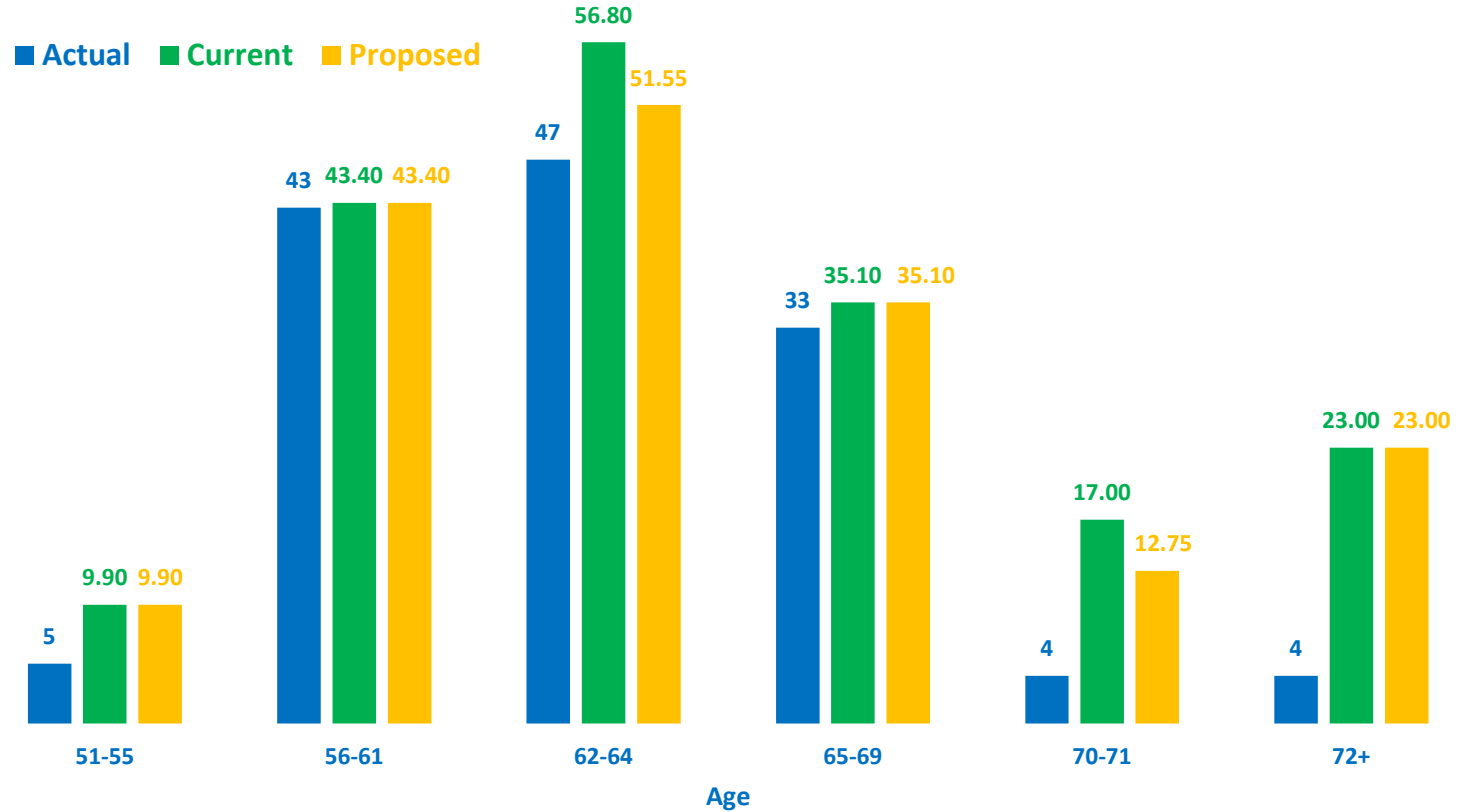
Note: The current and proposed rates above are for members who were within 5 years of unreduced retirement eligibility as of 3/1/2015. We propose the same adjustments to the assumptions for the other groups of members hired before 3/1/2015. There is no separate assumption for the year in which a member is first eligible for unreduced benefits for members hired after 3/1/2015 and we propose no change to that assumption.

Demographic Assumptions – Retirement (continued)

Years after a member is first eligible for unreduced benefits

There were fewer retirements (47) than expected (56.8) for members aged 62-64. There were fewer retirements (8) than expected (40) for members aged 70+.

Number of retirements



Age	Current	Proposed
51-53	25%	25%
54-55	20%	20%
56-61	20%	20%
62	30%	25%
63	25%	20%
64	25%	30%
65-69	30%	30%
70-71	100%	75%
72	100%	100%

Note: The current and proposed rates above are for members who were within 5 years of unreduced retirement eligibility as of 3/1/2015. We propose the same adjustments to the assumptions for the other groups of members hired before 3/1/2015. For those hired or on or after 3/1/2015, we propose extending the rates past age 70 in the same manner as shown above.



This work product was prepared solely for the City and the System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

Demographic Assumptions – Disability

Current assumption: various rates starting at 0.11% at age 20 and increasing by to 1.48% at age 60

Analysis

The data is thin for this group. There was only 1 disability during the study period.

Proposed assumption: no change

Topics

1 Overview of an Experience Study

2 Economic assumptions

3 Demographic assumptions

4 **Funding method**

5 Impact of proposed changes on valuation results

Funding Method – Cost Method

Current method: Entry Age Normal

Analysis

Entry Age Normal is the method prescribed by GASB 67/68 for financial reporting purposes, Entry Age Normal provides a stable progression of costs over a member's working lifetime.

Proposed method: no change

Funding Method – Amortization Method

Current method: level percent with layered 20 year bases

Analysis

Level percent amortization means that the annual amortization payment is expected to increase at a predictable rate (3.0%).

Layered bases means that a new amortization base is established each year for the actuarial gains or losses that emerged since the last valuation.

The amortization period is 20 years; this period is reasonable given the demographic profile of the plan's active membership.

Proposed method: no change

Funding Method – Asset Smoothing Method

Current method: four year asymptotic smoothing with a +/- 20% corridor

Analysis

Five years is the predominant period for asset smoothing and provides a nice balance between dampening market fluctuations while not straying too far from market value. Four years provides somewhat less smoothing. Consideration should be given to lengthening the smoothing period to five years.

“Asymptotic” smoothing means that each year the actuarial value moves 25% of the way towards the market value. A market gain or loss in any given year is therefore recognized 25% in the first year, 18.75% in the second year, 14.06% in the third year, and so on in increasingly small amounts each year. This approach provides good smoothing but can be difficult for stakeholders to understand. Consideration should be given to moving to “non-asymptotic” smoothing.

A 20% corridor means that the actuarial value of assets can never stray more than 20% away from the market value of assets. This is the predominant corridor for plans that use one.

Proposed method: No change

Topics

1 Overview of an Experience Study

2 Economic assumptions

3 Demographic assumptions

4 Funding method

5 **Impact of proposed changes on valuation results**

Impact of Proposed Changes Based on January 1, 2021 Valuation

	Baseline	Proposed Changes
Accrued Liability	\$490,096,765	\$505,435,339
Actuarial Value of Assets	260,980,355	260,980,355
Unfunded Accrued Liability	229,116,410	244,454,984
Funded Ratio	53.25%	51.63%
Total Normal Cost Rate	10.335%	10.360%
UAL Amortization Rate	<u>19.934%</u>	<u>21.277%</u>
Actuarially Determined Total Contribution Rate	30.269%	31.637%
Employee Contribution Rate	<u>10.075%</u>	<u>10.075%</u>
Actuarially Determined Employer Contribution Rate	20.194%	21.562%
City Ordinance Contribution Rate	18.775%	18.775%
Contribution Rate (Shortfall)/Margin	-1.419%	-2.787%

Caveats

In preparing this study, we relied without audit on information furnished by the City as of each valuation date from January 1, 2016 through January 1, 2020. This information includes, but is not limited to, plan provisions, employee data, and financial information. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes. Since the study results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete or missing. If any data or other information is inaccurate or incomplete, 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.

The calculations reported herein have been made on a basis consistent with our understanding of the plan provisions of The City of Omaha Employees' Retirement System. Furthermore, the calculations were determined in conformance with generally recognized and accepted actuarial principles and practices, which are consistent with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board and the applicable Guides to Professional Conduct, amplifying Opinions, and supporting Recommendations of the American Academy of Actuaries.

The study results were developed using models that use standard actuarial techniques. 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 (ASOP). The models, including all input, calculations, and output may not be appropriate for any other purpose.

Milliman's work is prepared solely for the internal business use of the City of Omaha. 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 Board may provide a copy of Milliman's work, in its entirety, to the Board'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 Board; and (b) the Board 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. If this report is distributed to other parties, we request that it be copied in its entirety and distributed along with a copy of the January 1, 2021 actuarial valuation report in its entirety as well, because that document provides background information that is important in understanding the basis for the results contained herein.

Caveats

The cost calculations reported herein have been made on a basis consistent with our understanding of the actuarial methods and assumptions adopted by the City. Additional determinations may be needed for other purposes, 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 assumption, method and technique used is reasonable taking into account the experience of the Plan and reasonable expectations or would, in the aggregate, result in a total contribution equivalent to that which would be determined if each such assumption, method, or technique were reasonable. Differences between our projections and actual amounts depend on the extent to which future experience conforms to the assumptions made for this analysis. Actual experience will not conform exactly to the assumptions made for this analysis. Actual amounts will differ from projected amounts to the extent that actual experience deviates from expected experience.

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, Principal and Consulting Actuary

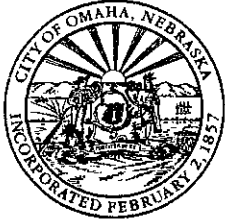
Yelena Pelletier, ASA, Consulting Actuary

Questions?



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Appendix D
City of Omaha Police & Fire



City of Omaha
Jean Stothert, Mayor

October 12, 2022

Senator Mark Kolterman, Chairperson
Nebraska Retirement Systems Committee
PO BOX 94604
State Capitol
Lincoln, NE 68509-4604

Dear Senator Kolterman:

NEB. REV. STAT. § 13-2402(3) requires a governing entity that offers a defined benefit retirement plan to file a report if the funded ratio is less than eighty percent. The City of Omaha is submitting this report regarding the City of Omaha Police & Fire Retirement System (COPFRS) because the funded ratio is less than eighty percent.

The City through its negotiations with the public safety bargaining groups has made efforts to address the funding shortfall in COPFRS. Some of those efforts are addressed below. The attached table compares the actuarial data for plan years 2017 through current plan year 2022. The actuarial report for January 1, 2022 has been prepared and should be considered and approved by the Retirement System during their meeting on October 20, 2022. Once the report has been approved, I will provide it to you. In order to minimize confusion, I have included the numbers from that report in this response.

In 2015, the Actuarial Committee of COPFRS elected to change the valuation methodology for the members who were participating or were expected to participate in the Deferred Retirement Option Plan (DROP). Under the methodology, the Entry Age Normal Cost calculation spreads the cost of benefits over the member's entire career. As part of the change in methodology, certain actuarial assumptions related to the DROP were developed. These include the percentage of eligible members assumed to elect to participate in the DROP, the DROP period, and the interest rate assumed to be credited to the DROP account.

As a result of an Experience Study for 2016-2020 which was accepted in August 18, 2022, a number of changes to the actuarial assumptions were adopted by the Board. A copy of the Experience Study is included with this report. The following changes were made to the economic assumptions which changes were made in the January 1, 2022 actuarial valuation:

Pay increases (Fire) – years 4 to 16 - decreased by 0.25% to 0.50% per year

There were also some changes to the Demographic assumption, the most significant of which was a change to the mortality assumption moving from the RP-2014 Mortality Table, adjusted to 2006 to the Pub-2010 General Mortality Tables with MP-2021 projection scale. In addition for police, there was a slight decrease in termination rates for males and a slight increase in termination rates for females. In addition for fire, there is an increase in termination rates for those with 4-19 years of service. For police and fire retirement, the rates were extended to 27 years of service instead of 25 for Tier II. Since there were fewer disabilities than expected, the current rates were adjusted by 75% for ages under 50 and by 135% for ages 50-59. In addition, change was made to the Career Overtime Average (COTA) to assume COTA will increase pay at retirement by 12% for police and 4.5% for fire. Lastly, the assumption of the

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Finance Director
Acting City Comptroller

Allen Herink
Finance Administrator

number of people who enter DROP was changed from 75% for police to 80% and from 75% for fire to 90%.

There are numerous circumstances that led to the current underfunding. When the system was fully funded in the late 1990s, benefits were increased and even though the actuarial cost was calculated, the benefits appear to have exceeded those costs. There also have been some years where the investment loss was historically large. During the economic downturn of the early 2000s, there were some additional benefits (compensatory time paid at end of career) negotiated as part of wage and other compensation deferrals. It was anticipated that people would take advantage of the additional time off, but many did not, resulting in an increase in the compensation amount upon which the pension was calculated. Another factor had been that wages were not increased at the rate in the actuarial assumptions.

Significant efforts were made to address the funding status of COPFRS starting in 2008. In 2008, then Mayor Mike Fahey established the Bates Commission to examine the issue. The Bates Commission, made up of business leaders, union leaders, and City leaders, made a number of recommendations in their final report. The report was the impetus for collaborative efforts between the City and its unions to address the funding issue in labor negotiations. In an effort to improve the funding status, the City increased contributions and modified pension benefits through labor agreements with the police union in October, 2010 and with the fire union in December, 2012. The changes in contributions and benefits included:

- Changing minimum retirement age from 45 to 50
- Requiring 30 years of service instead of 25 years to get the maximum benefit
- Implementing a Career Overtime Average (COTA) so that employees could not artificially enhance their pension by working a lot of overtime or selling comp time in their last year of employment
- Smoothing the salary on which a pension calculation was based from highest 1 year to highest 3 years
- Pensions for new hires was based only on base salary
- For all groups excluding the police union, capping pension for new hires at 65% and requiring 30 years of service
- Increased City contributions to the system by 13% to 14%

The employees who are part of the COPFRS are from four (4) bargaining groups. The Omaha Police Officer's Association has a Collective Bargaining Agreement for 2021 through 2025. As part of that Collective Bargaining Agreement, the City and the employees agreed to contribute an additional 0.75% of wages into the system from 2021 to 2025. The Agreement also made another prospective change providing that COPFRS is no longer responsible for medical payments for those who receive service connected disability pensions and where those bills are not covered under workers' compensation. Police Management is in the process of negotiating a collective bargaining agreement for 2022 which likely will not include any additional pension contributions.

The City has a Collective Bargaining Agreement with the Professional Firefighters' Association for a term of 2019 through 2023. That Agreement did not include any additional pension contributions or any changes to the pension system. The City has a Collective Bargaining Agreement with the Fire Management group that expires at the end of 2022. That Agreement did not include any additional pension contributions or any changes to the pension system.

Senator Mark Kolterman

October 12, 2022

Page 3

The Trustees of the System and the City believe some of the changes described above are starting to see a positive effect. As of January 1, 2022, the system had market assets of approximately \$1.045 billion and a funded ratio of 57.5%. The system had a funded ratio of 54.3% in 2020 and a funded ratio of 55.1% in 2021. The actuarial contribution rate needed for the system on 01/01/2020 was 52.819% and the total amount being contributed was 51.199%. This contribution shortfall was a reduction from 2021 even though the plan made some assumption changes. The unfunded actuarial liability is amortized, as a level percentage of payroll, over a closed 30-year period that began on January 1, 2014.

The most recent projection included in the Actuarial Report effective January 1, 2022 shows the system fully funded in 2042, a decrease from the 2020 projection (2046).

As requested, we enclose the most recent Actuarial Experience Study which was approved by COPFRS on August 18, 2022. You will receive the Actuarial Valuation Report effective January 1, 2022 by October 21, 2022.

If you or the Committee should have any questions regarding this report please let me know.

Sincerely,



Stephen B. Curtiss
Finance Director

Enclosures

c: Bernard J. in den Bosch, Deputy City Attorney

CITY OF OMAHA POLICE AND FIRE RETIREMENT SYSTEM (COPFRS)

EXHIBIT 1

ITEM	2017		2018		2019		2020		2021		2022	
Net Assets (actuarial value)	1/1/17	\$ 656,171,797	1/1/18	\$ 706,595,615	1/1/19	\$ 737,383,005	1/1/20	\$ 787,558,791	1/1/21	\$ 849,308,716	1/1/22	\$ 936,545,978
Unfunded Actuarial Accrued Liability	1/1/17	\$ 611,737,378	1/1/18	\$ 648,833,922	1/1/19	\$ 669,449,659	1/1/20	\$ 663,894,041	1/1/21	\$ 693,166,515	1/1/22	\$ 691,081,221
1a Funding Status	1/1/17	51.8%	1/1/18	52.1%	1/1/19	52.41%	1/1/20	54.26%	1/1/21	55.10%	1/1/22	57.50%
1b Assumed Rate of Return	1/1/17	8.00%	1/1/18	7.75%	1/1/19	7.75%	1/1/20	7.75%	1/1/21	7.75%	1/1/22	7.75%
1c Actual Investment Return	FYE 12/31/17	15.00%	FYE 12/31/18	-2.33%	FYE 12/31/19	17.24%	FYE 12/31/20	9.28%	FYE 12/31/21	22.15%	FYE 12/31/22	Pending
Normal Cost (\$)	1/1/17	\$ 27,892,194	1/1/18	\$ 28,859,311	1/1/19	\$ 29,894,631	1/1/20	\$ 30,643,540	1/1/21	\$ 29,426,766	1/1/22	\$ 28,814,814
1e Normal Cost (%)	1/1/17	21.991%	1/1/18	22.211%	1/1/19	22.034%	1/1/20	21.915%	1/1/21	21.291%	1/1/22	20.23%
1f Actuarial Rate of Contribution (ARC)	1/1/17	50.212%	1/1/18	53.199%	1/1/19	53.447%	1/1/20	52.955%	1/1/21	53.874%	1/1/22	52.82%
1d Member Contribution Rate	1/1/17	15.35%-17.23%	1/1/18	16.10%-17.23%	1/1/19	16.10%-17.23%	1/1/20	16.10%-17.23%	1/1/21	16.10%-17.15%	1/1/22	16.10%-17.15%
1d Employer Contribution Rate	1/1/17	32.97%-33.67%	1/1/18	32.97%-34.42%	1/1/19	32.97%-34.42%	1/1/20	32.97%-34.42%	1/1/21	32.97%-34.42%	1/1/22	32.97%-34.42%
Contribution Margin (Shortfall)	1/1/17	0.297%	1/1/18	-1.912%	1/1/19	-2.190%	1/1/20	-1.719%	1/1/21	-2.649%	1/1/22	-1.62%
1f Actuarial Required Contribution	FYE 12/31/17	\$ 45,939,660	FYE 12/31/18	\$ 50,677,368	FYE 12/31/19	\$ 51,822,865	FYE 12/31/20	\$ 55,078,027	FYE 12/31/21	\$ 55,590,405	FYE 12/31/22	Pending
1g Employer Actual Dollars Contributed	FYE 12/31/17	\$ 46,608,741	FYE 12/31/18	\$ 48,796,603	FYE 12/31/19	\$ 49,779,284	FYE 12/31/20	\$ 51,858,647	FYE 12/31/21	\$ 52,983,676	FYE 12/31/22	Pending
1g % of ARC by Employer Contribution	FYE 12/31/17	101.46%	FYE 12/31/18	96.29%	FYE 12/31/19	96.06%	FYE 12/31/20	94.15%	FYE 12/31/21	95.31%	FYE 12/31/22	Pending



**THE CITY OF OMAHA
POLICE & FIRE RETIREMENT SYSTEM**

**Actuarial Valuation as of January 1, 2022
To Determine Funding for Fiscal Year 2022**

Prepared by

Rebecca A. Sielman, FSA
Consulting Actuary

Yelena Pelletier, ASA
Consulting Actuary

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Certification

We have performed an actuarial valuation of the Plan as of January 1, 2022 to determine funding for fiscal year 2022. 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.

This report may not be used for purposes other than those listed above without Milliman's prior written consent. If this report is distributed to other parties, it must be copied in its entirety, including this certification section.

Milliman's work is prepared solely for the internal business use of the City of Omaha ("City") and the City of Omaha Police and Fire 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 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.

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.

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



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Consulting Actuary

Section I - Executive Summary Changes Since the Prior Valuation

Plan Changes

None.

Changes in Actuarial Methods and Assumptions

This valuation reflects the assumption changes recommended in connection with the recent experience study. These changes include a change in the mortality assumption from the RP-2000 tables with generational projection per Scale AA, to the PubS-2010 table with the MP-2021 improvement scale, a change in the COTA (Career Overtime Average) adjustment and DROP election assumptions, and modifications to the assumed rates of termination, disability, retirement and salary increases. Please refer to Appendix B for a full description of the assumption changes.

These changes in combination caused the Unfunded Accrued Liability to increase by about \$47.9 million and the Actuarially Determined Total Contribution to increase by about \$2.6 million.

Other Significant Changes

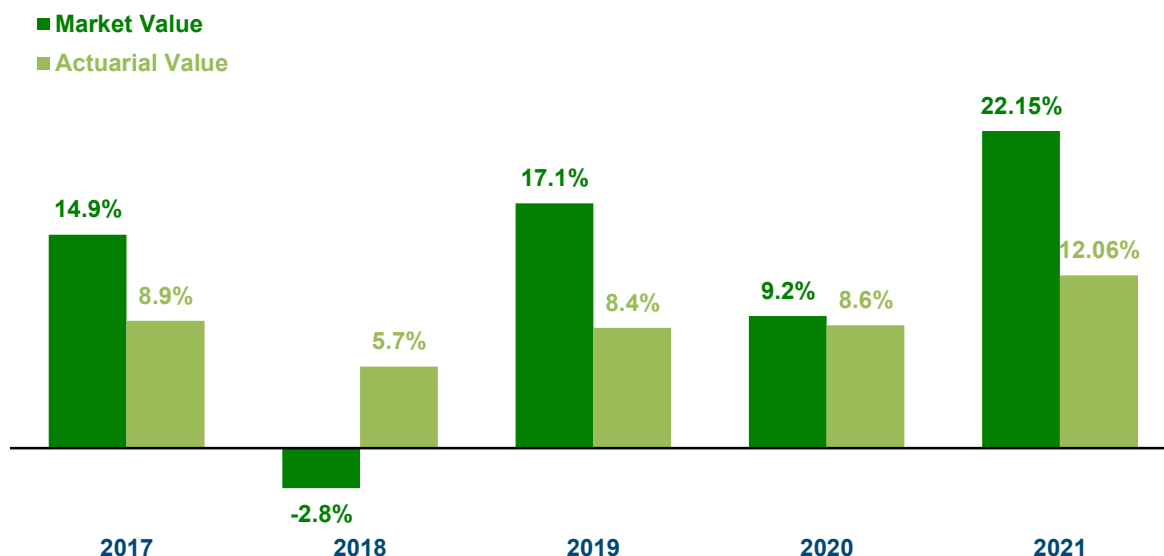
Although it is possible that the COVID-19 pandemic could have a material impact on the projected mortality, liabilities, and contribution requirements, we have chosen not to make an adjustment in the projections at this time, given the substantial current uncertainty regarding the impact of COVID-19 on mortality and plan costs, including whether the pandemic will increase or decrease mortality during the term of our projections. We will be monitoring this development closely and may adjust future projections to reflect the impact of COVID-19, if and when it becomes appropriate.

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, 2021	\$868,912,882	\$849,308,716
City and Member Contributions	77,710,135	77,710,135
Investment Income	190,903,762	101,583,882
Benefit Payments	<u>(92,056,755)</u>	<u>(92,056,755)</u>
Value as of January 1, 2022	1,045,470,024	936,545,978

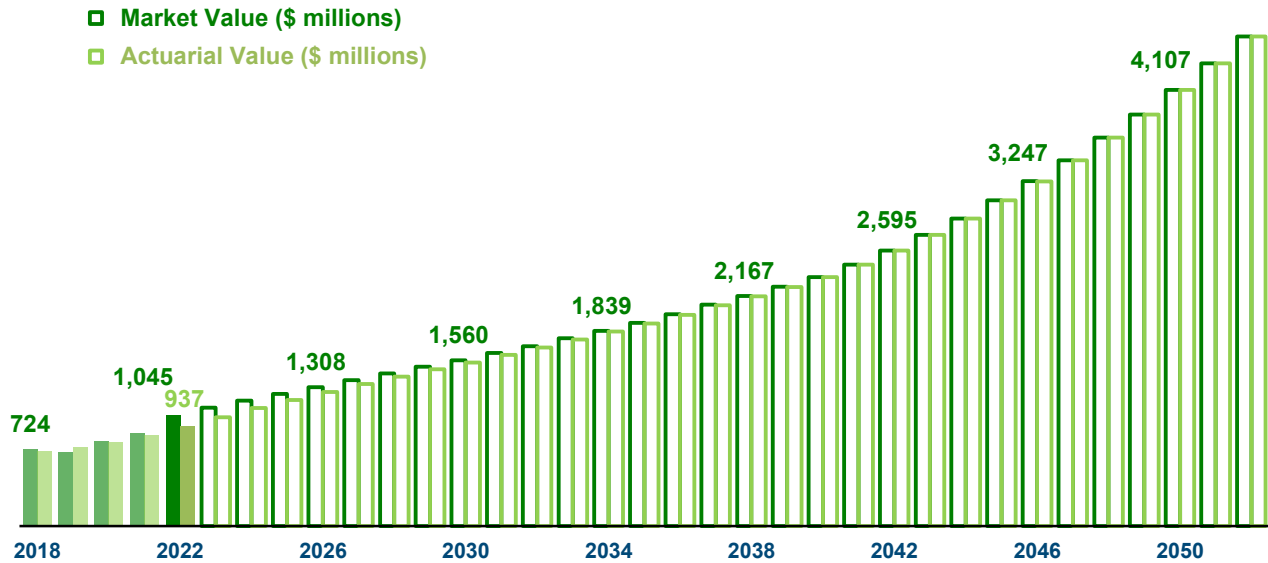
For fiscal year 2021, the plan's assets earned 22.15% on a Market Value basis and 12.06% on an Actuarial Value basis. The actuarial assumption for this period was 7.75%; the result is an asset gain of about \$124.1 million on a Market Value basis and a gain of about \$36.3 million on an Actuarial Value 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 \$108.9 million. This figure represents investment gains that will be gradually recognized in future years. This process will exert downward pressure on the Actuarially Determined Total Contribution, unless there are offsetting market losses.

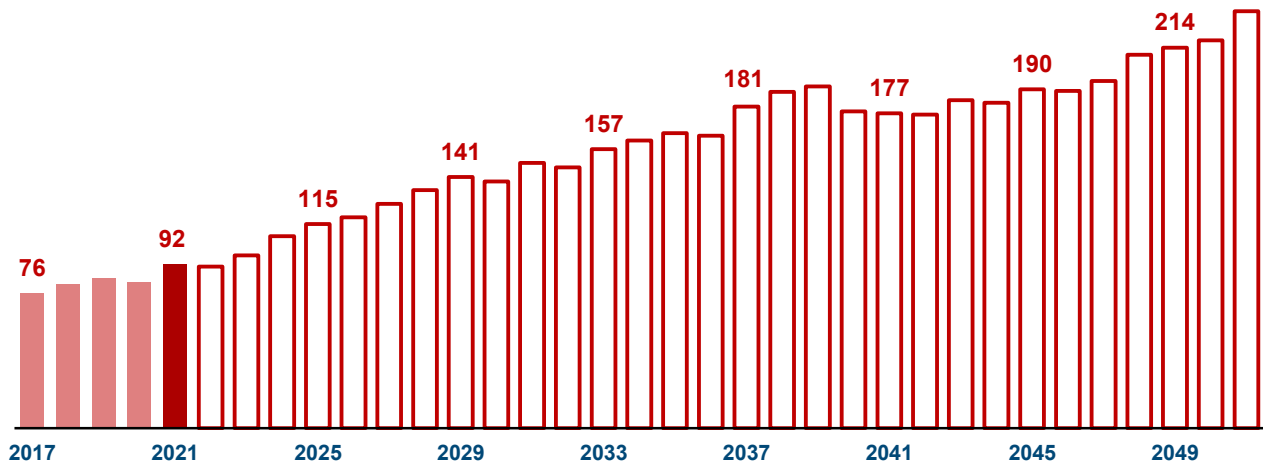
Section I - Executive Summary Assets (continued)

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 2022 City Ordinance Rate and the investments always earn the assumed interest rate each year.



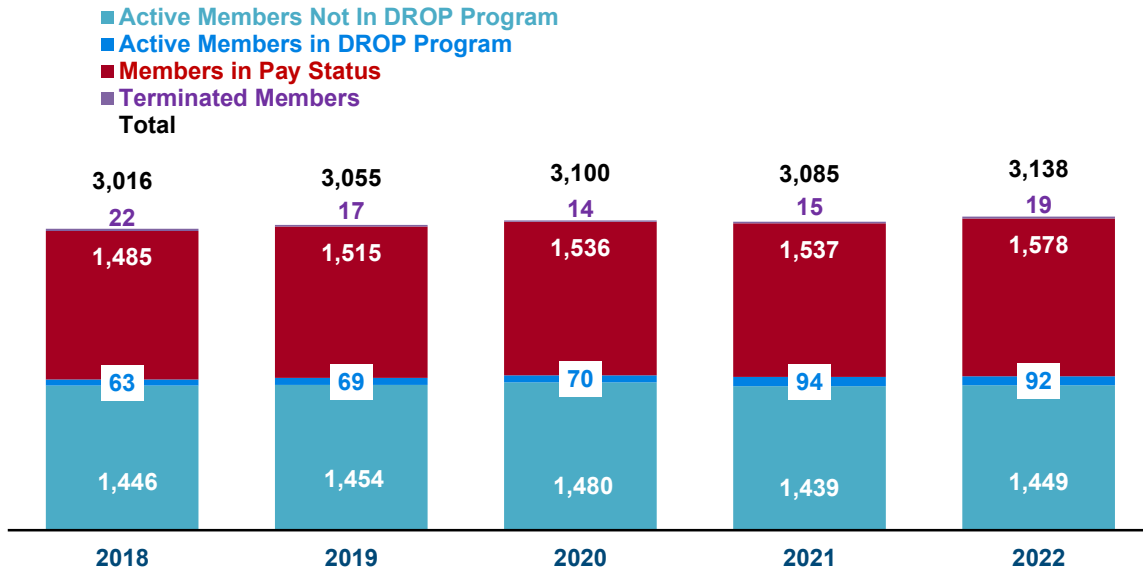
In 2021, the plan paid out \$92.1 million in benefits to members. Over the next 30 years, the plan is projected to pay out a total of \$4,920 million in benefits to members.

Benefit Payments (\$ millions)



Section I - Executive Summary Membership

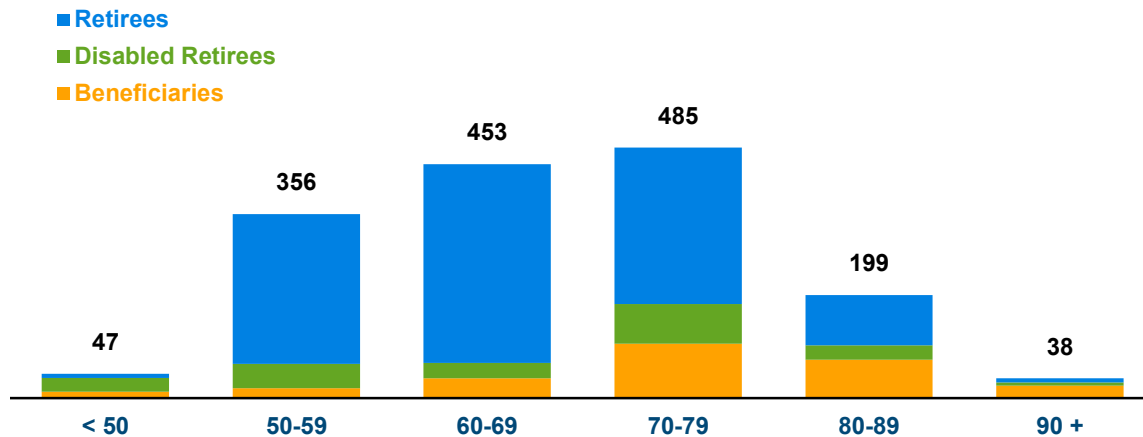
There are four basic categories of plan members included in the valuation: (1) former employees who have a right to benefits but have not yet started collecting, (2) members who are receiving monthly pension benefits, (3) members who have elected to participate in the DROP but have not yet retired, and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



Members in Pay Status on January 1, 2022

Retirees	1,091	Average Age	68.2
Disabled Retirees	215	Total Annual Benefit	\$85,985,289
Beneficiaries	<u>272</u>	Average Annual Benefit	54,490
Total	1,578		

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



Section I - Executive Summary Membership (continued)

Terminated Vested Members on January 1, 2022

Count	9
Average Age	47.3
Total Annual Benefit	\$460,732
Average Annual Benefit	24,888

Nonvested Members Due Refunds on January 1, 2022

Count	10
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Active Members Not In DROP Program on January 1, 2022

	Police		Fire		Total
	Tier I & II	Tier III	Tier I & II	Tier III	
Count	419	393	439	198	1,449
Average Age	45.9	34.7	46.9	33.4	41.5
Average Service	17.9	5.1	17.9	4.2	12.6
Covered Payroll (\$ millions)	\$46.9	\$33.6	\$47.6	\$16.1	\$144.3
Average Payroll	112,007	85,604	108,356	81,473	99,567

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
< 25	28							28
25-29	107	19						126
30-34	110	98	12					220
35-39	53	69	118	18				258
40-44	23	34	95	97	26			275
45-49	9	14	57	95	103	1		279
50-54	6	5	20	53	100	5		189
55-59			3	21	31			55
60-64			3	3	13			19
65+								0
Total	336	239	308	287	273	6	0	1,449

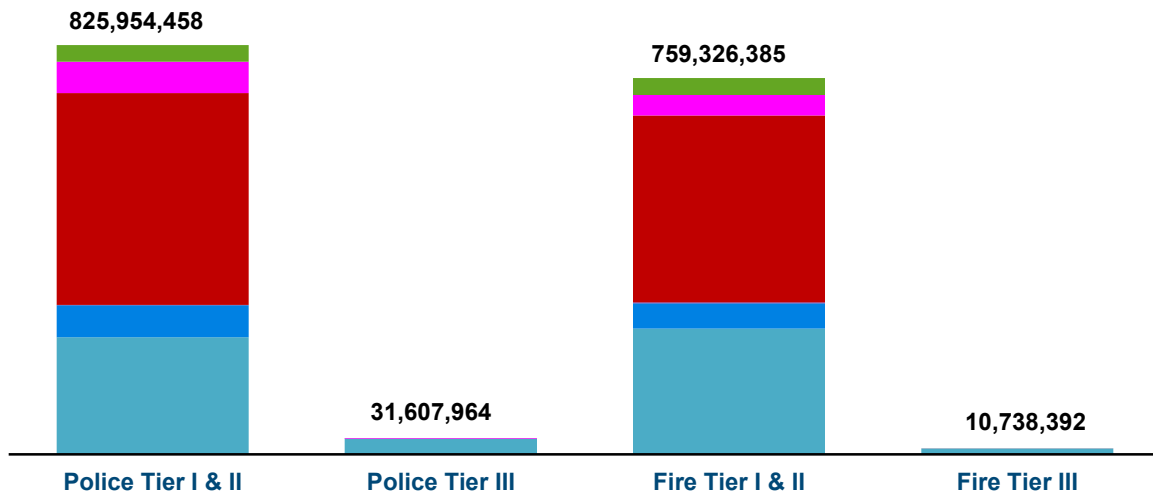
Active Members in DROP Program on January 1, 2022

Count	92
Average Age	53.9
Average Service	27.4
Covered Payroll (\$ millions)	\$9.952
Average Payroll	108,171
Total DROP Account Balance (\$ millions)	\$16.523
Average Account Balance	179,599

Section I - Executive Summary Accrued Liability

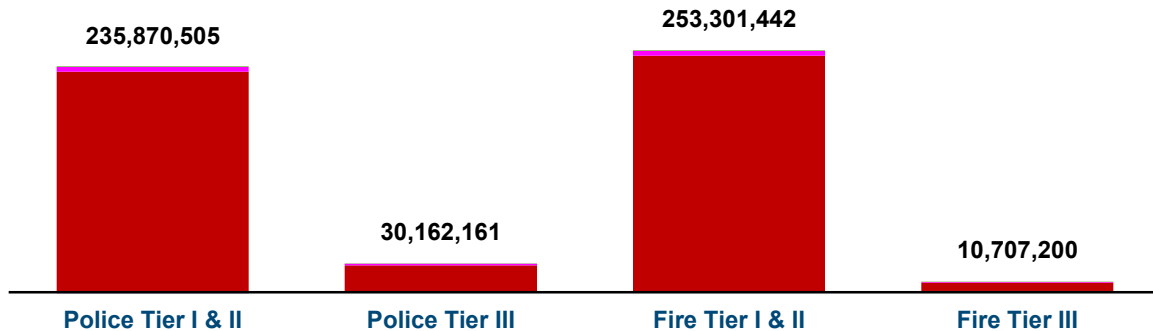
The total Accrued Liability as of January 1, 2022 equals \$1,627,627,199, which consists of the following pieces:

- **Beneficiaries = \$67.1 million**
- **Disabled Retirees = \$106.2 million**
- **Retirees = \$805.9 million**
- **Nonvested Members Due Refunds = \$0.2 million**
- **Terminated Members = \$2.2 million**
- **Active Members in DROP Program = \$115.9 million**
- **Active Members Not In DROP Program = \$530.0 million**



The Accrued Liability for active members who are not in the DROP program can be broken down further by the different types of benefits provided by the plan:

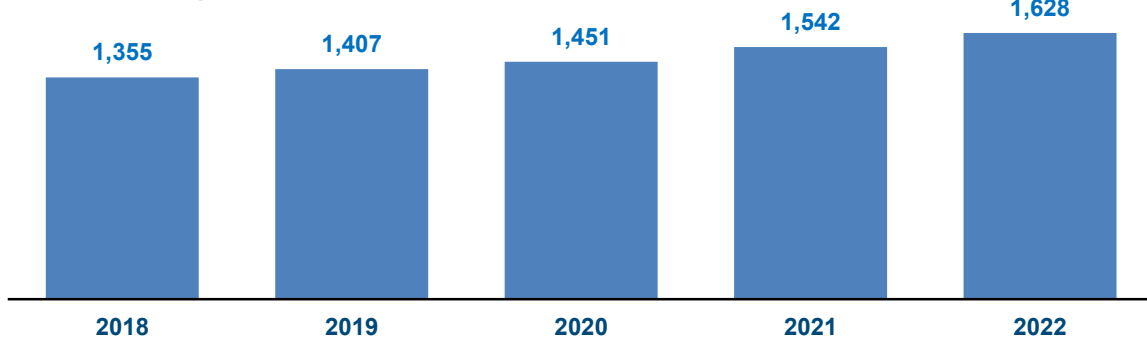
- **Preretirement Death = \$1.4 million**
- **Disability = \$12.8 million**
- **Retirement = \$515.4 million**
- **Termination = \$0.5 million**



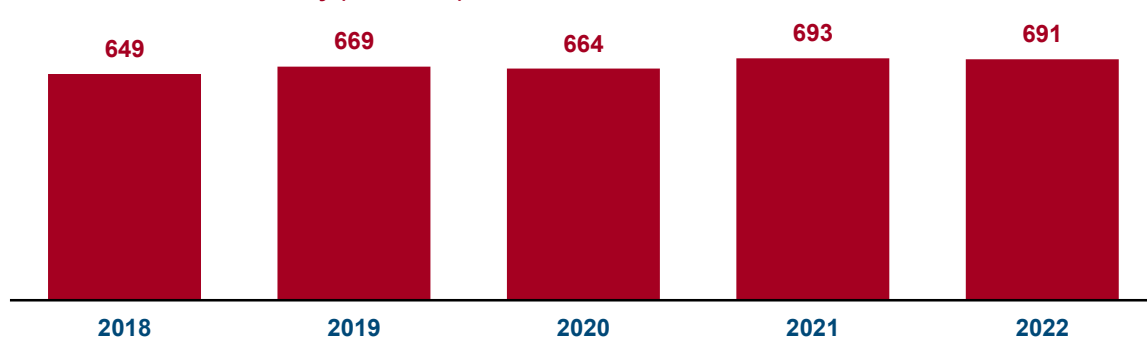
Section I - Executive Summary Funded Status

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.

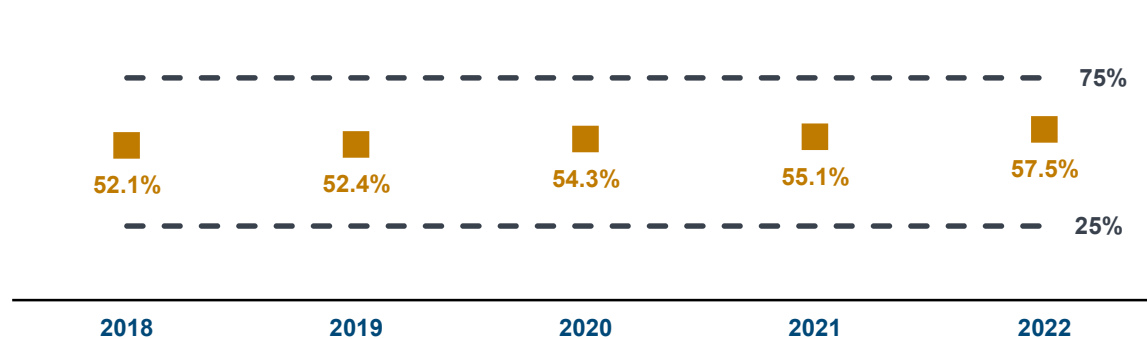
Accrued Liability (\$ millions)



Unfunded Accrued Liability (\$ millions)



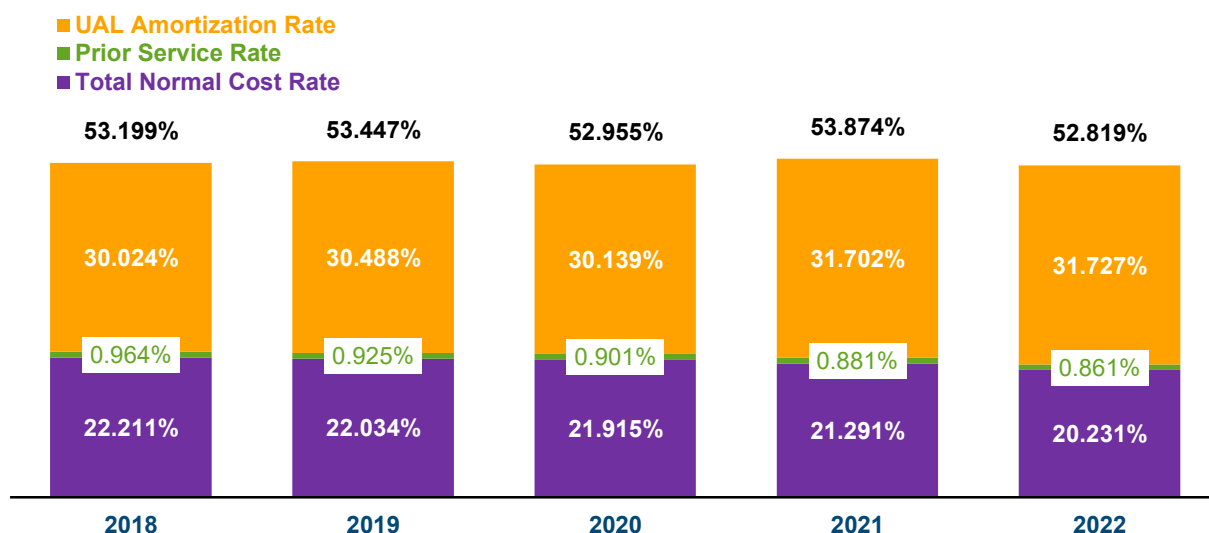
Funded Ratio



Section I - Executive Summary

Actuarially Determined Total Contribution

In order to determine if the Ordinance contribution rates are sufficient to bring the plan to a fully funded status within a reasonable period of time, we compare those rates to the Actuarially Determined Total Contribution. The Actuarially Determined Total Contribution consists of three pieces: a Normal Cost payment to fund the benefits earned each year, a special fixed series of small "prior service" City payments through 2028, 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.



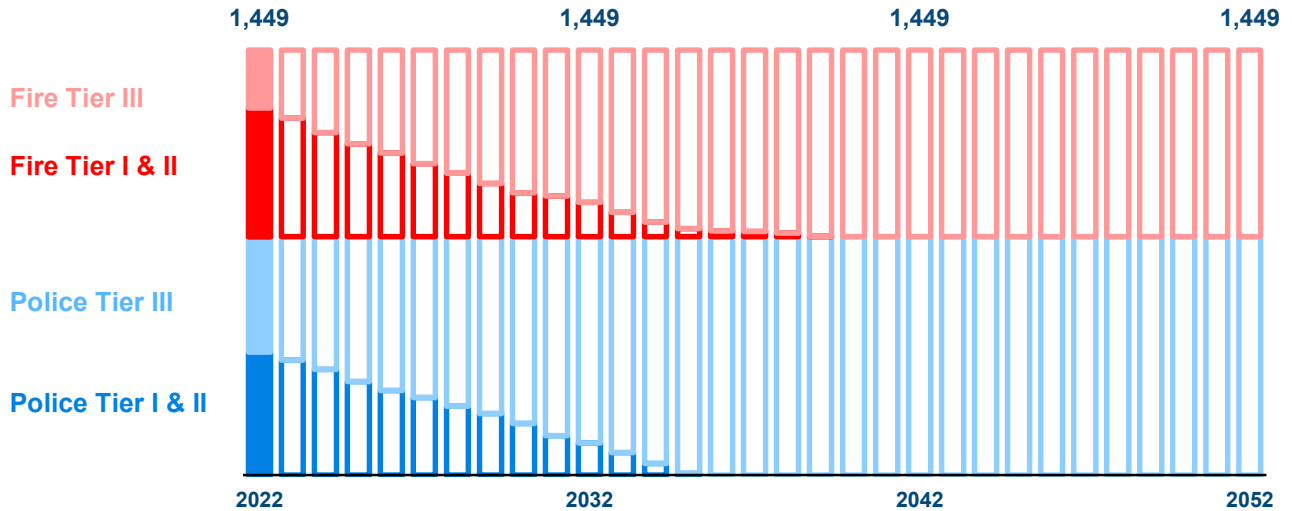
Per Ordinance Section 22-26, both active plan members and the City contributes a specified percentage of each active member's pensionable earnings, which is designed to fund the Normal Cost plus the UAL amortization payments. In any given year, the sum of these fixed contributions may be more or less than the Actuarially Determined Total Contribution:

	2021	2022
City Ordinance Employee Contribution Rate (Blended)	16.576%	16.559%
City Ordinance Employer Contribution Rate (Blended)	33.768%	33.779%
Prior Service Rate	<u>0.881%</u>	<u>0.861%</u>
(A) Total Ordinance Contribution Rate	51.225%	51.199%
Total Normal Cost Rate	21.291%	20.231%
Prior Service Rate	0.881%	0.861%
UAL Amortization Rate	<u>31.702%</u>	<u>31.727%</u>
(B) Actuarially Determined Total Contribution Rate	53.874%	52.819%
Contribution Rate (Shortfall)/Margin = (A) - (B)	-2.649%	-1.620%

Section I - Executive Summary Long-Range Forecast

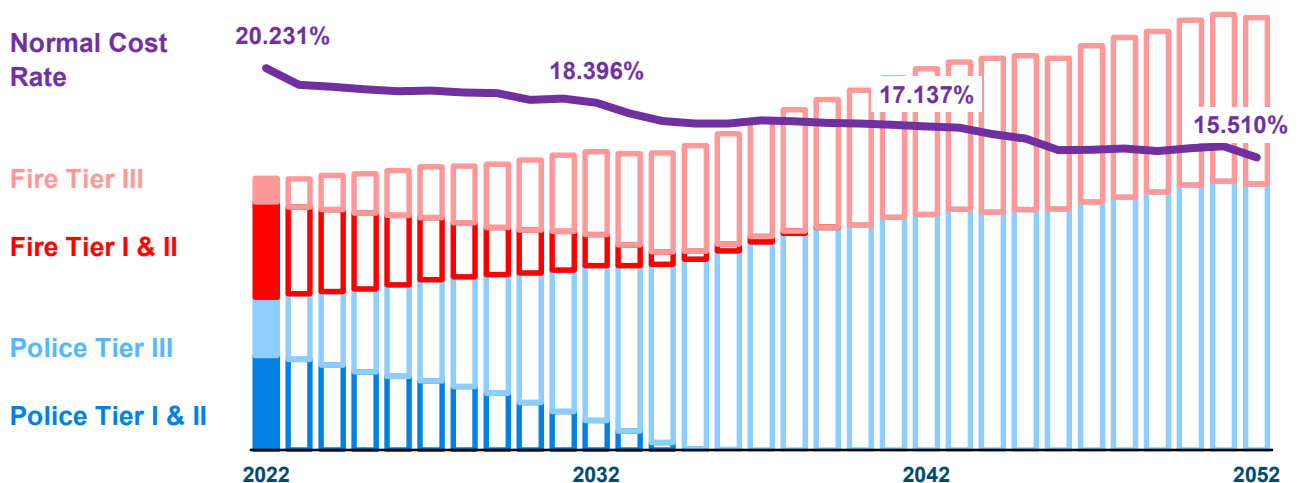
For purposes of our long-range forecast, we assume that the overall number of active members remains constant. However, over time the composition of the active membership will change, as terminating and retiring Tier I and Tier II members are replaced with employees who are covered by the lower cost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

Projected Active Member Count



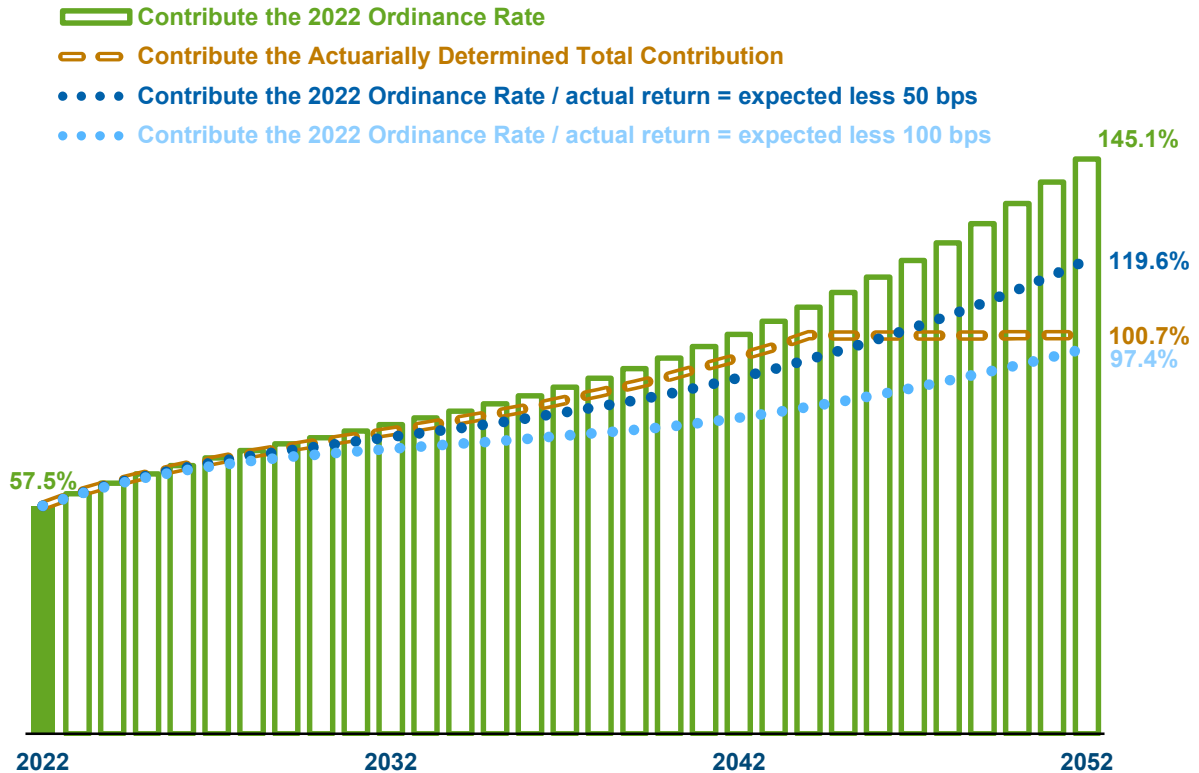
The Normal Cost Rate component of the Actuarially Determined Total Contribution will reflect this shift, as Tier I & II active members with higher Normal Costs are gradually replaced by Tier III active members with lower Normal Costs. Note that each individual active member's Normal Cost (in dollars) 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 plan receives less than the Actuarially Determined Total Contribution (ADTC) 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 ADTC 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, 2021	January 1, 2022
Active Members Not In DROP Program	1,439	1,449
Active Members in DROP Program	94	92
Terminated Members	15	19
Members in Pay Status	<u>1,537</u>	<u>1,578</u>
Total Count	3,085	3,138

Assets and Liabilities as of	January 1, 2021	January 1, 2022
Market Value of Assets	\$868,912,882	\$1,045,470,024
Actuarial Value of Assets	849,308,716	936,545,978
Accrued Liability for Active Members Not In DROP Program	540,959,331	530,041,308
Accrued Liability for Active Members in DROP Program	109,575,871	115,937,757
Accrued Liability for Terminated Members	2,079,256	2,416,655
Accrued Liability for Members in Pay Status	<u>889,860,773</u>	<u>979,231,479</u>
Total Accrued Liability	1,542,475,231	1,627,627,199
Unfunded Accrued Liability	693,166,515	691,081,221
Funded Ratio	55.1%	57.5%

Contribution Rate Sufficiency for Fiscal Year	2021	2022
Ordinance Employee Contribution Rate	16.576%	16.559%
Ordinance Employer Contribution Rate	33.768%	33.779%
Prior Service Rate	<u>0.881%</u>	<u>0.861%</u>
Total Ordinance Contribution Rate	51.225%	51.199%
Total Normal Cost Rate	21.291%	20.231%
Prior Service Rate	0.881%	0.861%
UAL Amortization Rate	<u>31.702%</u>	<u>31.727%</u>
Actuarially Determined Total Contribution Rate	53.874%	52.819%
Contribution Rate (Shortfall)/Margin	-2.649%	-1.620%

Actuarially Determined Contribution for Fiscal Year	2021	2022
Actuarially Determined Total Contribution	\$78,500,765	\$79,073,069
Expected Employee Contributions	<u>(22,910,360)</u>	<u>(23,584,764)</u>
Actuarially Determined Employer Contribution	55,590,405	55,488,305

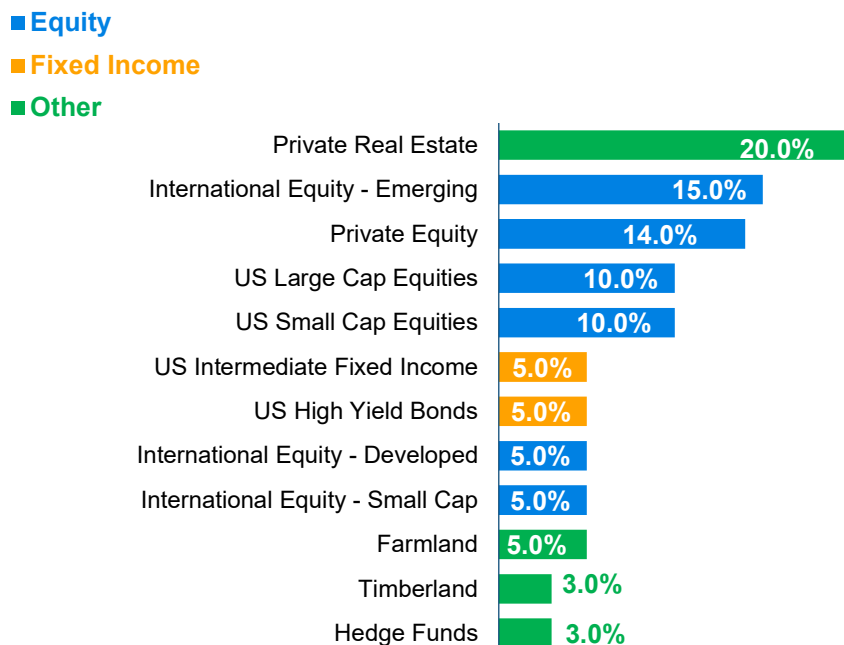
Section II - Plan Assets

A. Summary of Fund Transactions

Market Value as of January 1, 2021	\$868,912,882
City Contributions	52,983,676
Member Contributions	24,726,459
Net Investment Income	190,903,762
Benefit Payments	(92,056,755)
Market Value as of December 31, 2021	1,045,470,024
Expected Return on Market Value of Assets	66,794,770
Market Value (Gain)/Loss	(124,108,992)
Approximate Rate of Return *	22.15%

* 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, 2021



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, 2022 is determined below.

1.	Expected Actuarial Value of Assets:	
	a. Actuarial Value of Assets as of January 1, 2021	\$849,308,716
	b. City and Member Contributions	77,710,135
	c. Benefit Payments	(92,056,755)
	d. Expected Earnings Based on 7.75% Interest	<u>65,275,867</u>
	e. Expected Actuarial Value of Assets as of January 1, 2022	900,237,963
2.	Market Value of Assets as of January 1, 2022	1,045,470,024
3.	Unrecognized Gains/(Losses): (2) - (1e)	145,232,061
4.	Amount Recognized as of January 1, 2022: 25% of (3)	36,308,015
5.	Preliminary Actuarial Value of Assets as of January 1, 2022: (1e) + (4)	936,545,978
6.	Preliminary Actuarial Value of Assets as a % of Market Value: (5) / (2)	89.6%
7.	Actuarial Value of Assets as of January 1, 2022: (5), within +/- 20% of (2)	936,545,978
8.	Actual Earnings on Actuarial Value of Assets: (7) - [(1a) + (1b) + (1c)]	101,583,882
9.	Approximate Rate of Return on Actuarial Value of Assets	12.06%
10.	Actuarial Value (Gain)/Loss: (1d) - (8)	(36,308,015)

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, 2021	January 1, 2022
Liabilities: Present Value of Future Benefits		
Active Members Not In DROP Program	\$777,417,105	\$772,360,598
Active Members in DROP Program	109,575,871	115,937,757
Terminated Vested Members	1,957,108	2,179,918
Nonvested Members Due Refunds	122,148	236,737
Retirees	731,247,014	805,854,622
Disabled Retirees	97,348,375	106,238,568
Beneficiaries	<u>61,265,384</u>	<u>67,138,289</u>
Total Liabilities	1,778,933,005	1,869,946,489

Assets

Actuarial Value of Current Assets (see Section II B)	\$849,308,716	\$936,545,978
Present value of future employer normal costs	48,139,853	45,458,800
Present value of future employee contributions	188,317,921	196,860,490
Present value of future prior service payments	7,995,044	7,236,576
Present value of future UAL amortization payments	<u>685,171,471</u>	<u>683,844,645</u>
Total Assets	1,778,933,005	1,869,946,489

Per Ordinance Section 22-26, both active plan members and the City contribute a specified percentage of each active member's pensionable earnings, which is designed to fund the Normal Cost plus the UAL amortization payments. In any given year, the sum of these fixed contributions may be more or less than the Actuarially Determined Total Contribution. If the present value of future contributions per these specified rates is lower than the present value of future UAL amortization payments plus the present value of future normal costs shown above, then the Plan may experience a shortfall of Assets relative to Liabilities. Based on the January 1, 2022 valuation, the sum of the Ordinance Contribution Rates is lower than the Actuarially Determined Total Contribution Rate by 1.620%, 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. And as a final step, the present value of future Prior Service payments is subtracted to arrive at the amount that must be funded through future UAL amortization payments.

	January 1, 2021	January 1, 2022
1. Present Value of Future Benefits (see Section III A)	\$1,778,933,005	\$1,869,946,489
2. Present Value of Future Normal Costs	236,457,774	242,319,290
3. Accrued Liability		
Active Members Not In DROP Program	540,959,331	530,041,308
Active Members in DROP Program	109,575,871	115,937,757
Terminated Vested Members	1,957,108	2,179,918
Nonvested Members Due Refunds	122,148	236,737
Retirees	731,247,014	805,854,622
Disabled Retirees	97,348,375	106,238,568
Beneficiaries	<u>61,265,384</u>	<u>67,138,289</u>
Total = (1) - (2)	1,542,475,231	1,627,627,199
4. Actuarial Value of Assets (see Section II B)	849,308,716	936,545,978
5. Unfunded Accrued Liability: (3) - (4)	693,166,515	691,081,221
6. Funded Ratio: (4) / (3)	55.1%	57.5%
7. Prior Service Payments	1,327,600	1,327,600
8. Remaining Years of Prior Service Payments	8	7
9. Present Value of Prior Service Payments	7,995,044	7,236,576
10. Adjusted Unfunded Accrued Liability to be funded with UAL Amortization Payments: (5) - (9)	685,171,471	683,844,645

Section III - Development of Contribution

C. UAL Amortization Payments

The Unfunded Accrued Liability developed in Section III B (UAL) is amortized as follows. An initial base with the UAL as of January 1, 2018 is amortized over a closed period of 26 years. 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, the resulting change in the Unfunded Accrued Liability 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, 2022	Years Remaining January 1, 2022	(b) Annual Amortization Payment
January 1, 2018	\$659,577,164	22	\$46,967,382
January 1, 2019	14,449,454	17	1,214,467
January 1, 2020	(10,574,599)	18	(855,256)
January 1, 2021	<u>25,258,191</u>	19	<u>1,971,564</u>
Total	688,710,210		49,298,157
2. Unfunded Accrued Liability as of January 1, 2022 (see Section III B)			683,844,645
3. New Amortization Base Established January 1, 2022: (2) - (1a Total)			(4,865,565)
4. Amortization Period for New Amortization Base			20
5. Amortization Growth Rate			3.25%
6. Amortization Payment for January 1, 2022: (3) amortized over (4)			(367,502)
7. Total UAL Amortization Payments: (1b Total) + (6)			48,930,655
8. Covered Payroll for Active and DROP Members			154,224,674
9. UAL Amortization Payment Rate: (7) ÷ (8)			31.727%
10. Prior Service Payments (see Section III B)			1,327,600
11. Prior Service Payment Rate: (10) ÷ (8)			0.861%

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.

	2021	2022
1. Total Normal Cost by Type of Benefit		
Retirement	\$25,078,453	\$24,513,542
Termination	898,178	810,203
Preretirement Death	565,189	488,897
Disability	<u>2,884,946</u>	<u>3,002,172</u>
Total	29,426,766	28,814,814
2. Total Normal Cost by Group and Tier		
Police Tier I & II	\$10,608,896	\$10,007,581
Police Tier III	5,254,516	6,166,332
Fire Tier I & II	11,320,304	10,129,706
Fire Tier III	<u>2,243,050</u>	<u>2,511,195</u>
Total	29,426,766	28,814,814
3. Expected Payroll for Active and DROP Members		
Police Tier I & II	\$47,648,611	\$48,142,650
Police Tier III	27,914,162	31,993,465
Fire Tier I & II	48,899,400	46,872,561
Fire Tier III	<u>13,752,225</u>	<u>15,418,103</u>
Total	138,214,398	142,426,779
4. Total Normal Cost Rate: (2) ÷ (3)		
Police Tier I & II	22.265%	20.787%
Police Tier III	18.824%	19.274%
Fire Tier I & II	23.150%	21.611%
Fire Tier III	16.310%	16.287%
Total	21.291%	20.231%

Section III - Development of Contribution

E. Employee Contributions

A portion of the Normal Cost is funded through employee contributions from active members, including members in the DROP Program.

	2021	2022
1. Employee Contribution Rate		
Police Tier I & II	16.100%	16.100%
Police Tier III	16.100%	16.100%
Fire Tier I & II	17.150%	17.150%
Fire Tier III	17.150%	17.150%
2. Expected Payroll for Active and DROP Members		
Police Tier I & II	\$47,648,611	\$48,142,650
Police Tier III	27,914,162	31,993,465
Fire Tier I & II	48,899,400	46,872,561
Fire Tier III	<u>13,752,225</u>	<u>15,418,103</u>
Total	138,214,398	142,426,779
3. Expected Employee Contributions in Current Year: (1) x (2)		
Police Tier I & II	\$7,671,426	\$7,750,967
Police Tier III	4,494,180	5,150,948
Fire Tier I & II	8,386,247	8,038,644
Fire Tier III	<u>2,358,507</u>	<u>2,644,205</u>
Total	22,910,360	23,584,764
4. Blended Employee Contribution Rate: (3 Total) ÷ (2 Total)	16.576%	16.559%

Section III - Development of Contribution

F. City Contributions Per Ordinance

Per Ordinance Section 22-73(b), the City contributes a specified percentage of each active member's pensionable earnings (including members in the DROP Program), which is designed to fund the employer portion of the Normal Cost plus the UAL amortization payments.

	2021	2022
1. City Contribution Rate Per Ordinance		
Police Tier I & II	34.420%	34.420%
Police Tier III	34.420%	34.420%
Fire Tier I & II	32.965%	32.965%
Fire Tier III	32.965%	32.965%
2. Covered Payroll for Active and DROP Members		
Police Tier I & II	\$53,864,683	\$52,602,502
Police Tier III	29,279,130	33,642,308
Fire Tier I & II	53,098,873	51,848,196
Fire Tier III	<u>14,366,336</u>	<u>16,131,668</u>
Total	150,609,022	154,224,674
3. Expected City Contribution Dollars: (1) x (2)		
Police Tier I & II	\$18,540,224	\$18,105,781
Police Tier III	10,077,877	11,579,682
Fire Tier I & II	17,504,043	17,091,758
Fire Tier III	<u>4,735,863</u>	<u>5,317,804</u>
Total	50,858,007	52,095,025
4. City Contribution Rate Per Ordinance: (3 Total) ÷ (2 Total)	33.768%	33.779%

Section III - Development of Contribution

G. Actuarially Determined Contribution

	2021	2022
In Dollars		
1. Actuarially Determined Total Contribution		
a. Total Normal Cost (see Section III D)	\$29,426,766	\$28,814,814
b. Prior Service Payment (see Section III C)	1,327,600	1,327,600
c. UAL Amortization Payment (see Section III C)	47,746,399	48,930,655
d. Total	78,500,765	79,073,069
2. Expected Employee Contributions (see Section III E)	22,910,360	23,584,764
3. Expected City Contributions per Ordinance (see Section III F)	50,858,007	52,095,025
4. Total Expected Contributions: (1b) + (2) + (3)	75,095,967	77,007,389
5. Contribution (Shortfall) / Margin: (4) - (1d)	(3,404,798)	(2,065,680)

As a Percentage of Payroll

1. Actuarially Determined Total Contribution Rate		
a. Total Normal Cost Rate (see Section III D)	21.291%	20.231%
b. Prior Service Payment Rate (see Section III C)	0.881%	0.861%
c. UAL Amortization Rate (see Section III C)	31.702%	31.727%
d. Total	53.874%	52.819%
2. Employee Contribution Rate per Ordinance (see Section III E)	16.576%	16.559%
3. City Contribution Rate per Ordinance (see Section III F)	33.768%	33.779%
4. Total Contribution Rate: (1b) + (2) + (3)	51.225%	51.199%
5. Contribution Rate (Shortfall) / Margin: (4) - (1d)	-2.649%	-1.620%

Section III - Development of Contribution H. Long Range Forecast

This forecast is based on the results of the January 1, 2022 actuarial valuation and assumes that the City will pay the City Ordinance Rate plus the Prior Service Payments, 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
1/1/2022	\$1,627.6	\$936.5	\$691.1	57.5%	2022	\$53.4	\$23.6	(\$90.6)	(\$13.6)
1/1/2023	1,691.5	1,024.3	667.2	60.6%	2023	55.0	24.6	(97.0)	(17.4)
1/1/2024	1,753.9	1,109.3	644.5	63.3%	2024	56.4	25.0	(107.7)	(26.3)
1/1/2025	1,810.6	1,187.1	623.4	65.6%	2025	57.3	25.4	(114.5)	(31.9)
1/1/2026	1,864.5	1,261.5	602.9	67.7%	2026	58.1	25.8	(118.3)	(34.4)
1/1/2027	1,918.8	1,336.1	582.8	69.6%	2027	59.1	26.1	(125.8)	(40.7)
1/1/2028	1,970.1	1,407.5	562.6	71.4%	2028	60.1	26.3	(133.7)	(47.3)
1/1/2029	2,017.1	1,475.6	541.5	73.2%	2029	59.8	26.5	(140.9)	(54.7)
1/1/2030	2,060.5	1,539.8	520.7	74.7%	2030	60.6	27.4	(138.5)	(50.5)
1/1/2031	2,110.6	1,612.0	498.6	76.4%	2031	62.1	27.8	(149.0)	(59.1)
1/1/2032	2,153.4	1,679.9	473.5	78.0%	2032	63.3	28.5	(146.5)	(54.7)
1/1/2033	2,203.8	1,756.7	447.1	79.7%	2033	64.8	29.2	(156.7)	(62.7)
1/1/2034	2,247.4	1,830.6	416.9	81.5%	2034	66.5	29.9	(161.5)	(65.1)
1/1/2035	2,289.3	1,907.1	382.3	83.3%	2035	68.2	30.9	(165.6)	(66.5)
1/1/2036	2,330.0	1,987.7	342.3	85.3%	2036	70.4	32.1	(164.1)	(61.7)
1/1/2037	2,376.5	2,079.1	297.4	87.5%	2037	72.8	33.1	(180.6)	(74.7)
1/1/2038	2,410.5	2,163.9	246.6	89.8%	2038	74.7	34.3	(188.9)	(79.9)
1/1/2039	2,439.9	2,249.5	190.4	92.2%	2039	77.3	35.5	(191.9)	(79.1)
1/1/2040	2,469.4	2,342.5	127.0	94.9%	2040	80.1	36.5	(177.8)	(61.2)
1/1/2041	2,517.7	2,461.1	56.6	97.8%	2041	82.7	37.9	(176.9)	(56.3)

Section III - Development of Contribution

H. Long Range Forecast (continued)

This forecast is based on the results of the January 1, 2022 actuarial valuation and assumes that the City will pay the City Ordinance Rate plus the Prior Service Payments, 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
1/1/2042	\$2,572.0	\$2,593.8	(\$21.7)	100.8%	2042	\$85.4	\$39.0	(\$176.0)	(\$51.6)
1/1/2043	2,632.6	2,741.6	(108.9)	104.1%	2043	88.1	39.9	(184.1)	(56.2)
1/1/2044	2,690.2	2,896.0	(205.8)	107.7%	2044	90.2	41.1	(182.8)	(51.5)
1/1/2045	2,754.1	3,067.2	(313.1)	111.4%	2045	92.3	41.9	(190.3)	(56.1)
1/1/2046	2,815.5	3,246.8	(431.3)	115.3%	2046	94.6	43.3	(189.4)	(51.5)
1/1/2047	2,882.7	3,445.1	(562.5)	119.5%	2047	97.3	44.6	(195.0)	(53.0)
1/1/2048	2,950.4	3,657.2	(706.8)	124.0%	2048	100.3	45.3	(209.7)	(64.1)
1/1/2049	3,008.5	3,874.1	(865.6)	128.8%	2049	102.5	46.4	(213.7)	(64.9)
1/1/2050	3,067.8	4,107.1	(1,039.2)	133.9%	2050	104.8	47.2	(217.8)	(65.8)
1/1/2051	3,128.7	4,357.1	(1,228.4)	139.3%	2051	107.1	47.5	(234.3)	(79.7)

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, 2012	\$467,375,458	\$1,077,607,299	\$610,231,841	43.4%
January 1, 2013	495,847,234	1,108,874,778	613,027,544	44.7%
January 1, 2014	548,360,223	1,170,967,753	622,607,530	46.8%
January 1, 2015	590,191,585	1,189,002,221	598,810,636	49.6%
January 1, 2016	621,403,975	1,223,966,110	602,562,135	50.8%
January 1, 2017	656,171,797	1,267,909,175	611,737,378	51.8%
January 1, 2018	706,595,615	1,355,429,537	648,833,922	52.1%
January 1, 2019	737,383,005	1,406,832,664	669,449,659	52.4%
January 1, 2020	787,558,791	1,451,452,832	663,894,041	54.3%
January 1, 2021	849,308,716	1,542,475,231	693,166,515	55.1%
January 1, 2022	936,545,978	1,627,627,199	691,081,221	57.5%

Section III - Development of Contribution

J. History of City Contributions

Fiscal Year	Actuarially Determined Employer Contribution	Actual City Contribution	Covered Payroll	Actual Contribution as a Percent of Covered Payroll
2012	\$54,310,693	\$35,302,037	\$110,027,537	32.1%
2013	52,895,180	43,838,750	116,056,740	37.8%
2014	43,524,890	41,851,986	124,051,668	33.7%
2015	41,910,737	42,138,403	126,843,763	33.2%
2016	42,468,180	43,235,242	129,633,658	33.4%
2017	45,939,660	46,608,741	133,044,481	35.0%
2018	50,677,368	48,796,603	137,647,929	35.5%
2019	51,822,865	49,779,284	143,575,171	34.7%
2020	55,078,027	51,858,647	147,301,421	35.2%
2021	55,590,405	52,983,676	150,609,022	35.2%
2022	55,488,305	TBD	154,224,674	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.

	Active Members Not In DROP Program	Active Members in DROP Program	Terminated Vested Members	Nonvested Members Due Refunds	Retirees	Disabled Retirees	Beneficiaries	Total
Count on January 1, 2021	1,439	94	8	7	1,047	221	269	3,085
Terminated, return of contributions due	(3)	-	-	3	-	-	-	-
Terminated, paid refund	(4)	-	-	-	-	-	-	(4)
Terminated, vested benefits due	(2)	-	2	-	-	-	-	-
Entered DROP program	(26)	26	-	-	-	-	-	-
Normal retirement	(38)	(28)	-	-	66	-	-	-
Disability retirement	(6)	-	-	-	-	6	-	-
Died with beneficiary	-	-	-	-	(11)	(7)	18	-
Died with no beneficiary	-	-	-	-	(10)	(6)	(16)	(32)
Benefits expired	-	-	-	-	-	-	-	-
New member	87	-	-	-	-	-	-	87
Rehired	2	-	(1)	-	-	-	-	1
New Alternate Payee	-	-	-	-	-	-	-	-
Correction	-	-	-	-	(1)	1	1	1
Count on January 1, 2022	1,449	92	9	10	1,091	215	272	3,138

Section IV - Membership Data

B. Statistics of Active Membership Not in DROP Program

		As of January 1, 2021	As of January 1, 2022
Count	Police Tier I & II	464	419
	Police Tier III	340	393
	Fire Tier I & II	465	439
	Fire Tier III	<u>170</u>	<u>198</u>
	Total	1,439	1,449
Average Age	Police Tier I & II	45.6	45.9
	Police Tier III	34.6	34.7
	Fire Tier I & II	46.2	46.9
	Fire Tier III	32.9	33.4
	Total	41.7	41.5
Average Service	Police Tier I & II	17.4	17.9
	Police Tier III	4.9	5.1
	Fire Tier I & II	17.2	17.9
	Fire Tier III	3.9	4.2
	Total	12.8	12.6
Covered Payroll	Police Tier I & II	\$47,536,657	\$46,930,841
	Police Tier III	29,279,130	33,642,308
	Fire Tier I & II	49,398,890	47,568,085
	Fire Tier III	<u>14,366,336</u>	<u>16,131,668</u>
	Total	140,581,013	144,272,902
Average Covered Payroll	Police Tier I & II	\$91,411	\$102,975
	Police Tier III	82,100	81,408
	Fire Tier I & II	98,147	97,421
	Fire Tier III	80,895	77,869
	Total	90,146	92,012

Section IV - Membership Data

C. Distribution of Active Police Members as of January 1, 2022

Police Tier I & II

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
< 25								0
25-29								0
30-34			1					1
35-39		68	15					83
40-44		35	60	17				112
45-49		23	33	50	1			107
50-54		9	23	50	4			86
55-59		1	7	14				22
60-64			3	2	3			8
65+								0
Total	0	0	140	140	134	5	0	419

Police Tier III

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
< 25	17							17
25-29	62	12						74
30-34	65	66	6					137
35-39	33	39	14					86
40-44	16	18	14					48
45-49	6	8	8					22
50-54	5	2	1					8
55-59			1					1
60-64								0
65+								0
Total	204	145	44	0	0	0	0	393

Section IV - Membership Data

D. Distribution of Active Fire Members as of January 1, 2022

Fire Tier I & II

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
< 25								0
25-29		1						1
30-34		6	5					11
35-39		14	36	3				53
40-44		4	46	37	9			96
45-49		2	26	62	53			143
50-54		1	10	30	50	1		92
55-59			1	14	17			32
60-64				1	10			11
65+								0
Total	0	28	124	147	139	1	0	439

Fire Tier III

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
< 25	11							11
25-29	45	6						51
30-34	45	26						71
35-39	20	16						36
40-44	7	12						19
45-49	3	4						7
50-54	1	2						3
55-59								0
60-64								0
65+								0
Total	132	66	0	0	0	0	0	198

Section IV - Membership Data

E. Statistics of Active Membership in DROP Program

		As of January 1, 2021	As of January 1, 2022
Count	Police Tier I & II	61	54
	Police Tier III	0	0
	Fire Tier I & II	33	38
	Fire Tier III	<u>0</u>	<u>0</u>
	Total	94	92
Average Age	Police Tier I & II	53.7	53.7
	Police Tier III	0.0	0.0
	Fire Tier I & II	53.4	54.1
	Fire Tier III	0.0	0.0
	Total	53.6	53.9
Average Service	Police Tier I & II	27.8	27.6
	Police Tier III	0.0	0.0
	Fire Tier I & II	26.7	27.0
	Fire Tier III	0.0	0.0
	Total	27.4	27.4
Covered Payroll	Police Tier I & II	\$6,328,026	\$5,671,661
	Police Tier III	0	0
	Fire Tier I & II	3,699,983	4,280,111
	Fire Tier III	<u>0</u>	<u>0</u>
	Total	10,028,009	9,951,772
DROP Account Balances*	Police Tier I & II	\$10,578,388	\$9,537,974
	Police Tier III	0	0
	Fire Tier I & II	5,085,799	6,985,099
	Fire Tier III	<u>0</u>	<u>0</u>
	Total	15,664,187	16,523,073

*Balances are as of the valuation date and do not include interest for the prior calendar year that may have been credited after the valuation date.

Section IV - Membership Data

F. Statistics of Inactive Membership

	As of January 1, 2021	As of January 1, 2022
Terminated Vested Members		
Number	8	9
Total Annual Benefit	\$324,478	\$460,732
Average Annual Benefit	40,560	51,192
Average Age	47.2	47.3
Nonvested Members Due Refunds		
Number	7	10
Retirees		
Number	1,047	1,091
Total Annual Benefit	\$65,146,136	\$69,353,662
Average Annual Benefit	62,222	63,569
Average Age	66.9	66.8
Disabled Retirees		
Number	221	215
Total Annual Benefit	\$9,203,941	\$9,225,036
Average Annual Benefit	41,647	42,907
Average Age	67.6	67.2
Beneficiaries		
Number	269	272
Total Annual Benefit	\$7,113,769	\$7,406,591
Average Annual Benefit	26,445	27,230
Average Age	73.5	74.6

Section IV - Membership Data
G. Distribution of Inactive Members as of January 1, 2022

	Age	Number	Annual Benefits
Terminated Vested Members	< 50	7	\$189,342
	50 - 59	2	34,653
	60 - 69	0	0
	70 - 79	0	0
	80 - 89	0	0
	90 +	<u>0</u>	<u>0</u>
	Total	9	223,995
Retirees	< 50	8	\$485,639
	50 - 59	290	20,607,876
	60 - 69	385	27,553,787
	70 - 79	303	16,531,869
	80 - 89	97	3,933,697
	90 +	<u>8</u>	<u>240,794</u>
	Total	1,091	69,353,662
Disabled Retirees	< 50	27	\$1,150,134
	50 - 59	47	2,401,805
	60 - 69	30	1,358,867
	70 - 79	77	2,905,261
	80 - 89	28	880,250
	90 +	<u>6</u>	<u>89,432</u>
	Total	215	8,785,749
Beneficiaries	< 50	12	\$290,916
	50 - 59	19	681,738
	60 - 69	38	1,634,292
	70 - 79	105	2,919,792
	80 - 89	74	1,508,302
	90 +	<u>24</u>	<u>371,550</u>
	Total	272	7,406,591

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.

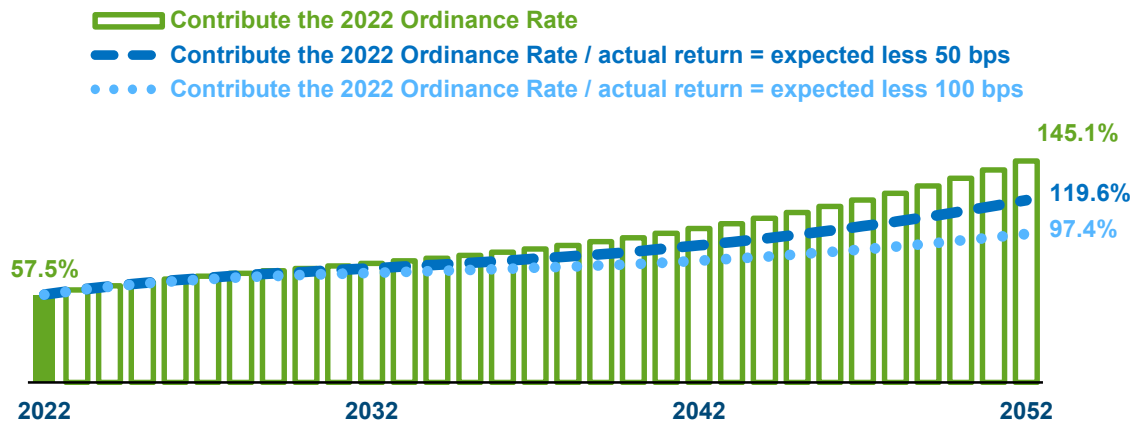
Section V - Analysis of Risk

B. Risk Identification and Assessment

Investment Risk

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

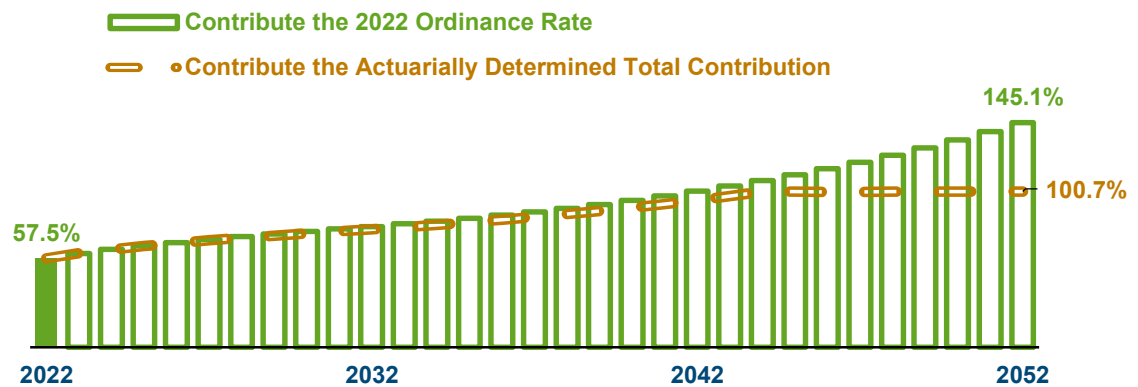
Identification: To the extent that actual investment returns differ from the assumed investment return, the plan's future assets, Actuarially Determined Contributions, and funded status may differ significantly from those presented in this valuation. The consequences of persistent underperformance on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



Contribution Risk

Definition: This is the potential that actual future contributions will be insufficient to fully fund the plan over a reasonable period of time.

Identification: Over the past 10 years, actual City contributions (in dollars) have been 92.3% of the Actuarially Determined Employer Contribution in total. The consequences of contributing an amount different than the Actuarially Determined Employer Contribution 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.

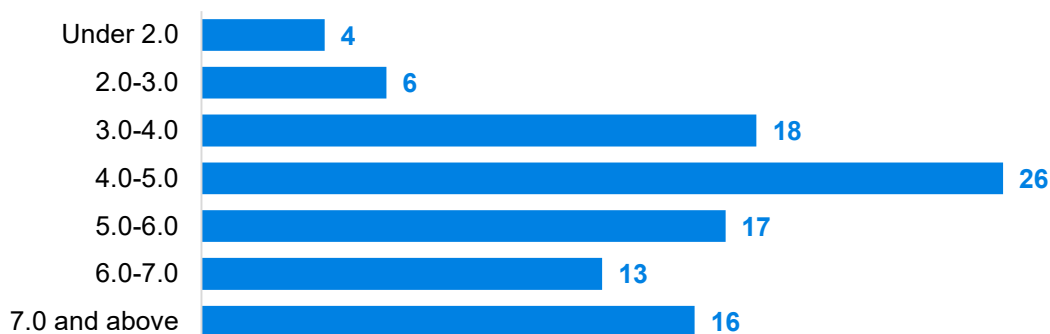
Identification: In 2021, the plan had negative cash flow, with city and member contributions to the plan of \$77,710,135 compared to \$92,056,755 of benefit payments paid out of the plan. We suggest that you consult with your investment advisors with respect to the liquidity characteristics of the plan's 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, 2022, the plan's Asset Volatility Ratio (the ratio of the market value of plan assets to Covered Payroll) is 6.8. According to Milliman's 2021 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. This plan also permits members to elect to participate in a DROP program. If usage of the DROP program is different than is anticipated by the actuarial assumptions, this may 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.

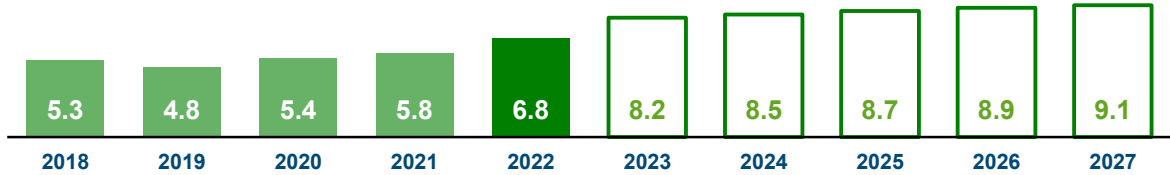
Identification: This plan allows for some overtime pay for some members to be included in pensionable earnings. If members retire with higher pensionable earnings than are anticipated by the actuarial assumptions, this will put upward pressure on subsequent Actuarially Determined Contributions.

Section V - Analysis of Risk

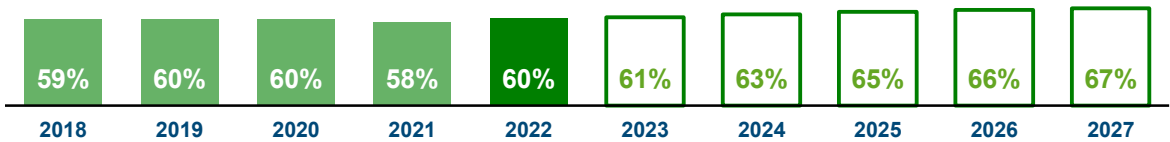
C. Maturity Measures

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.

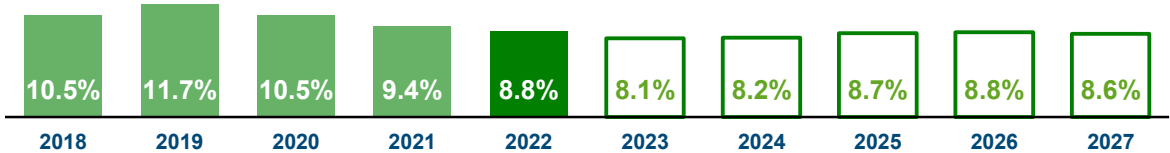
Asset Volatility Ratio: Market Value of Assets compared to Payroll



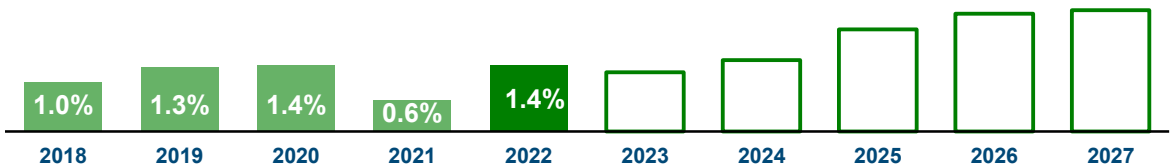
Accrued Liability for members in pay status compared to total Accrued Liability



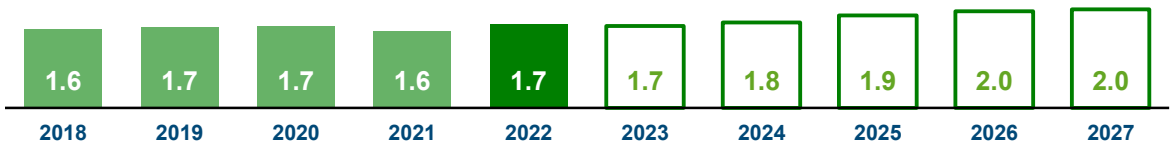
Benefit Payments compared to Market Value of Assets



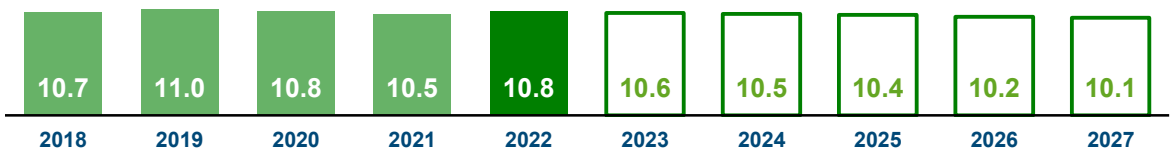
Net Cash Flows compared to Market Value of Assets



Benefit Payments compared to City Contributions



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



This work product was prepared solely for the City and the System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

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 Employer Contribution consists of three pieces: a Normal Cost, plus a special fixed series of "prior service" City payments through 2028, 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.

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 over a 26-year closed period that began January 1, 2018. 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, the resulting change in the Unfunded Accrued Liability 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. The forecasts assume the current blended member and City contribution rates remain fixed during the projection period.

Appendix B - Actuarial Assumptions

Each of the assumptions used in this valuation was set based on a formal study of the plan's experience for the period ending December 31, 2019 which reflected industry standard published tables and data, the particular characteristics of the plan, relevant information from the plan sponsor or other sources about future expectations, and our professional judgment regarding future plan experience. We believe the assumptions are reasonable for the contingencies they are measuring, and are not anticipated to produce significant cumulative actuarial gains or losses over the measurement period. Several assumptions were changed with this valuation. See pages 45-47 of this report for the assumptions that were used for the prior valuation.

Interest Rate 7.75%

Inflation 2.50%

Amortization Growth Rate 3.25%

Salary Increases Annual increases consisting of 2.50% inflation, 0.75% productivity, and merit/longevity that reflect length of service; combined impact of these factors are per the table below:

Service	Police	Fire
0	15.25%	8.25%
1	13.25%	8.25%
2	12.25%	8.25%
3	9.25%	8.25%
4	8.25%	7.75%
5	7.25%	7.50%
6	6.50%	7.00%
7	6.50%	6.75%
8	6.50%	6.00%
9	5.25%	5.00%
10	4.45%	4.00%
11	4.21%	4.00%
12	4.00%	4.00%
13	3.75%	4.00%
14	3.75%	4.00%
15	3.75%	4.00%
16	3.75%	4.00%
17	3.75%	3.25%
18	3.75%	3.25%
19	3.75%	3.25%
20	3.75%	3.25%
21	3.50%	3.25%
22	3.50%	3.25%
23	3.50%	3.25%
24 or more	3.25%	3.25%

Appendix B - Actuarial Assumptions

COTA Adjustment Earnings are loaded in order to approximate the expected impact of COTA at retirement. The load is 12% for Police members and 4.5% for Fire members.

Decrement Timing Middle of year.

Mortality PubS-2010 Mortality Table with generational projection per the MP-2021 scale, with employee rates before benefit commencement and healthy, disabled and contingent annuitant rates after benefit commencement. This assumption includes a margin for mortality improvement beyond the valuation date.

85% of active deaths are assumed to occur in the line of duty.

Spouse Age Difference Husbands are assumed to be three years older than wives.

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

Turnover Rates based on length of service per the following table:

Service	Fire	Police	Police
	Unisex	Males	Females
0-1	1.5%	3.0%	4.0%
2-3	1.5%	1.8%	2.2%
4-9	1.0%	1.5%	1.8%
10-15	0.6%	0.8%	0.8%
16-19	0.5%	0.3%	0.3%
20 or more	0.0%	0.0%	0.0%

Disability Rates based on age; sample rates are shown in the following table:

Age	Rate
20	0.12%
30	0.14%
40	0.25%
50	0.82%
60	0.92%

85% of disabilities are assumed to occur in the line of duty.

The liability for current and future disabled members is increased by 5% to reflect medical expenses for disabilities that are incurred in the line of duty.

Appendix B - Actuarial Assumptions

Retirement

Police Tier I

Age	Service						
	19	20	21	22	23	24	25+
45	0%	0%	0%	0%	0%	0%	0%
45	0%	3%	3%	10%	10%	10%	100%
46	0%	3%	3%	10%	10%	10%	100%
47	0%	3%	3%	10%	10%	10%	100%
48	0%	3%	3%	10%	10%	10%	100%
49	0%	3%	3%	10%	10%	10%	100%
50	0%	3%	3%	10%	10%	10%	100%
51	0%	3%	3%	10%	10%	10%	100%
52	0%	3%	3%	10%	10%	10%	100%
53	0%	3%	3%	10%	10%	10%	100%
54	0%	3%	3%	10%	10%	10%	100%
55	0%	3%	3%	10%	10%	10%	100%
56	0%	3%	3%	10%	10%	10%	100%
57	0%	3%	3%	10%	10%	10%	100%
58	0%	3%	3%	10%	10%	10%	100%
59	0%	3%	3%	10%	10%	10%	100%
60	0%	3%	3%	10%	10%	10%	100%
61	0%	3%	3%	10%	10%	10%	100%
62+	0%	100%	100%	100%	100%	100%	100%

Fire Tier I

Age	Service						
	19	20	21	22	23	24	25+
45	0%	0%	0%	0%	0%	0%	100%
46	0%	0%	0%	0%	0%	0%	100%
47	0%	0%	0%	0%	0%	0%	100%
48	0%	0%	0%	0%	0%	0%	100%
49	0%	0%	0%	0%	0%	0%	100%
50	0%	15%	15%	15%	15%	15%	100%
51	0%	15%	15%	15%	15%	15%	100%
52	0%	15%	15%	15%	15%	15%	100%
53	0%	15%	15%	15%	15%	15%	100%
54	0%	15%	15%	15%	15%	15%	100%
55	0%	15%	15%	15%	15%	15%	100%
56	0%	15%	15%	15%	15%	15%	100%
57	0%	15%	15%	15%	15%	15%	100%
58	0%	15%	15%	15%	15%	15%	100%
59	0%	15%	15%	15%	15%	15%	100%
60	0%	15%	15%	15%	15%	15%	100%
61	0%	15%	15%	15%	15%	15%	100%
62+	0%	100%	100%	100%	100%	100%	100%

Appendix B - Actuarial Assumptions

Retirement (continued)

Police Tier II

Age	Service						
	19	20	21	22-24	25	26	27+
45	0%	0%	0%	0%	0%	0%	0%
45	0%	3%	3%	10%	90%	90%	100%
46	0%	3%	3%	10%	90%	90%	100%
47	0%	3%	3%	10%	90%	90%	100%
48	0%	3%	3%	10%	90%	90%	100%
49	0%	3%	3%	10%	90%	90%	100%
50	0%	3%	3%	10%	90%	90%	100%
51	0%	3%	3%	10%	90%	90%	100%
52	0%	3%	3%	10%	90%	90%	100%
53	0%	3%	3%	10%	90%	90%	100%
54	0%	3%	3%	10%	90%	90%	100%
55	0%	3%	3%	10%	90%	90%	100%
56	0%	3%	3%	10%	90%	90%	100%
57	0%	3%	3%	10%	90%	90%	100%
58	0%	3%	3%	10%	90%	90%	100%
59	0%	3%	3%	10%	90%	90%	100%
60	0%	3%	3%	10%	90%	90%	100%
61	0%	3%	3%	10%	90%	90%	100%
62+	0%	100%	100%	100%	100%	100%	100%

Fire Tier II

Age	Service						
	19	20	21	22-24	25	26	27+
45	0%	0%	0%	0%	90%	90%	100%
46	0%	0%	0%	0%	90%	90%	100%
47	0%	0%	0%	0%	90%	90%	100%
48	0%	0%	0%	0%	90%	90%	100%
49	0%	0%	0%	0%	90%	90%	100%
50	0%	15%	15%	15%	90%	90%	100%
51	0%	15%	15%	15%	90%	90%	100%
52	0%	15%	15%	15%	90%	90%	100%
53	0%	15%	15%	15%	90%	90%	100%
54	0%	15%	15%	15%	90%	90%	100%
55	0%	15%	15%	15%	90%	90%	100%
56	0%	15%	15%	15%	90%	90%	100%
57	0%	15%	15%	15%	90%	90%	100%
58	0%	15%	15%	15%	90%	90%	100%
59	0%	15%	15%	15%	90%	90%	100%
60	0%	15%	15%	15%	90%	90%	100%
61	0%	15%	15%	15%	90%	90%	100%
62+	0%	100%	100%	100%	100%	100%	100%

Appendix B - Actuarial Assumptions

Retirement (continued)	Police Tier III and Fire Tier III
	100% are assumed to retire at the earlier of age 50 with 30 years of service or age 55 with 10 years of service.
DROP Participation	80% of retirement-eligible Police members and 90% of retirement-eligible Fire members are assumed to enter DROP.
DROP Period	5 years but not beyond age 60.
DROP Interest	4% per year
Interest on Member Contributions	4% per year

Appendix B - Actuarial Assumptions

Changes in Assumptions From Prior Year

The following assumptions were used in the prior year actuarial valuation:

Salary Increases

Annual increases consisting of 2.50% inflation, 0.75% productivity, and merit/longevity that reflect length of service; combined impact of these factors are per the table below:

Service	Police	Fire
0	15.25%	8.25%
1	13.25%	8.25%
2	12.25%	8.25%
3	9.25%	8.25%
4	8.25%	8.00%
5	7.25%	7.75%
6	6.50%	7.50%
7	6.50%	7.25%
8	6.50%	6.25%
9	5.25%	5.25%
10	4.45%	4.25%
11	4.21%	4.25%
12	4.00%	4.25%
13	3.75%	4.25%
14	3.75%	4.25%
15	3.75%	4.25%
16	3.75%	4.25%
17	3.75%	3.25%
18	3.75%	3.25%
19	3.75%	3.25%
20	3.75%	3.25%
21	3.50%	3.25%
22	3.50%	3.25%
23	3.50%	3.25%
24 or more	3.25%	3.25%

COTA Adjustment

Members are assumed to retire with their current COTA.

Mortality

RP-2000 Tables with generational projection per Scale AA. Employee Table and Healthy Annuitant Table are set forward one year. Disabled Annuitant Table is set forward five years. This assumption includes a margin for future improvements in longevity.

85% of active deaths are assumed to occur in the line of duty.

Appendix B - Actuarial Assumptions

Changes in Assumptions From Prior Year (continued)

Retirement	Police Tier I & II						
	Age	Service					
	19	20	21	22	23	24	25+
45	0%	0%	0%	0%	0%	0%	0%
45	0%	3%	3%	10%	10%	10%	100%
46	0%	3%	3%	10%	10%	10%	100%
47	0%	3%	3%	10%	10%	10%	100%
48	0%	3%	3%	10%	10%	10%	100%
49	0%	3%	3%	10%	10%	10%	100%
50	0%	3%	3%	10%	10%	10%	100%
51	0%	3%	3%	10%	10%	10%	100%
52	0%	3%	3%	10%	10%	10%	100%
53	0%	3%	3%	10%	10%	10%	100%
54	0%	3%	3%	10%	10%	10%	100%
55	0%	3%	3%	10%	10%	10%	100%
56	0%	3%	3%	10%	10%	10%	100%
57	0%	3%	3%	10%	10%	10%	100%
58	0%	3%	3%	10%	10%	10%	100%
59	0%	3%	3%	10%	10%	10%	100%
60	0%	3%	3%	10%	10%	10%	100%
61	0%	3%	3%	10%	10%	10%	100%
62+	0%	100%	100%	100%	100%	100%	100%

Fire Tier I & II	Service							
	Age	19	20	21	22	23	24	25+
45	0%	0%	0%	0%	0%	0%	0%	100%
46	0%	0%	0%	0%	0%	0%	0%	100%
47	0%	0%	0%	0%	0%	0%	0%	100%
48	0%	0%	0%	0%	0%	0%	0%	100%
49	0%	0%	0%	0%	0%	0%	0%	100%
50	0%	15%	15%	15%	15%	15%	15%	100%
51	0%	15%	15%	15%	15%	15%	15%	100%
52	0%	15%	15%	15%	15%	15%	15%	100%
53	0%	15%	15%	15%	15%	15%	15%	100%
54	0%	15%	15%	15%	15%	15%	15%	100%
55	0%	15%	15%	15%	15%	15%	15%	100%
56	0%	15%	15%	15%	15%	15%	15%	100%
57	0%	15%	15%	15%	15%	15%	15%	100%
58	0%	15%	15%	15%	15%	15%	15%	100%
59	0%	15%	15%	15%	15%	15%	15%	100%
60	0%	15%	15%	15%	15%	15%	15%	100%
61	0%	15%	15%	15%	15%	15%	15%	100%
62+	0%	100%	100%	100%	100%	100%	100%	100%

Appendix B - Actuarial Assumptions

Changes in Assumptions From Prior Year (continued)

Turnover

Rates based on length of service per the following table:

Service	Police	Fire
0-1	3.0%	1.5%
2-3	1.8%	1.5%
4-9	1.8%	0.5%
10-15	0.8%	0.5%
16-19	0.3%	0.3%
20 or more	0.0%	0.0%

Disability

Rates based on age; sample rates are shown in the following table:

Age	Rate
20	0.17%
30	0.19%
40	0.33%
50	0.61%
60	0.92%

85% of disabilities are assumed to occur in the line of duty.

The liability for current and future disabled members is increased by 5% to reflect medical expenses for disabilities that are incurred in the line of duty.

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.

Effective Date of the Plan	7/1/1961
Eligibility	All current, probationary, and regular uniformed personnel of the police and fire departments of the City are eligible at date of hire.
Tier I	<p>Police members hired prior to 1/1/2010 with 20+ years of service as of 9/19/2010</p> <p>Fire members hired prior to 1/1/2013 with 15+ years of service as of 1/1/2013</p>
Tier II	<p>Police members hired prior to 1/1/2010 with less than 20 years of service as of 9/19/2010</p> <p>Fire members hired prior to 1/1/2013 with less than 15 years of service as of 1/1/2013</p>
Tier III	<p>Police members hired on or after 1/1/2010</p> <p>Fire members hired on or after 1/1/2013</p>
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	<p>Police</p> <p>Highest 26 pay periods out last 130 pay periods of service for members hired prior to 1/1/2010 who were at least age 45 with at least 20 years of service as of 9/19/2010. Highest 78 pay periods out of last 130 pay periods divided by 3 for all others.</p> <p>Fire</p> <p>Highest 26 pay periods out last 130 pay periods of service for members hired prior to 1/1/2013 who were at least age 45 with at least 25 years of service (or age 50 with at least 20 years of service) as of 1/2/2013. Highest 78 pay periods out of last 130 pay periods divided by 3 for all others.</p> <p>An additional amount, the Career Overtime Average (COTA), is included in the Final Average Compensation for Tier I & II members. COTA is calculated by adding up all hours a member earns for overtime from their date of hire or 1/1/1991 (whichever is later) and dividing by the number of years the employee worked after 12/31/1990 and multiplying that balance by the member's average hourly rate.</p>

Appendix C - Summary of Plan Provisions

Service	Elapsed time from date of hire or appointment (in qualifying position) to last date of employment. Breaks greater than 2 pay periods will reduce service unless for authorized military leave.
Member Contributions	Police 16.10% of each member's pensionable earnings. Fire 17.15% of each member's pensionable earnings.
Interest on Member Contributions	The interest rate on member contributions is set annually by the Board with a minimum of 1% and a maximum of 5%. Interest is calculated annually and member's that terminate and receive a refund with a half year's worth of interest on current contributions.
Interest on DROP Accounts	The interest rate on member contributions is set annually by the Board between 0% and 7%. The rate chosen can be no more than 50% of the annual return on the trust's assets for the prior year (i.e. if the trust earns 8%, the max rate to credit interest would be 4%).
City Contributions	Police 34.420% of each member's pensionable earnings. Fire 33.965% of each member's pensionable earnings. In addition, the City shall make contributions of \$1,327,600 annually through the year 2028.
Service Retirement Eligibility	Police Tier I & II members are eligible to retire at the earlier of age 55 with 10 years of service or age 45 with 20 years of service. Tier III members are eligible to retire at the earlier of age 50 with 20 years of service or age 55 with 10 years of service. Fire Tier I & II members are eligible to retire at the earlier of age 55 with 10 years of service or age 45 with 25 years of service. Tier III members are eligible to retire at the earlier of age 50 with 20 years of service or age 55 with 10 years of service.

Appendix C - Summary of Plan Provisions

Service Retirement Benefit A percentage of Final Average Compensation based on years of service per the table below:

Years of Service	Tier I Police/ Fire	Tier II Police/ Fire	Tier III Police	Tier III Fire
10-14	20.0%	20.0%	20.0%	20.0%
15-19	30.0%	30.0%	30.0%	30.0%
20	55.0%	50.0%	50.0%	45.0%
21	59.0%	54.0%	53.0%	45.0%
22	63.0%	58.0%	56.0%	45.0%
23	67.0%	62.0%	59.0%	45.0%
24	71.0%	66.0%	62.0%	45.0%
25	75.0%	70.0%	65.0%	55.0%
26	75.0%	72.0%	67.0%	57.0%
27	75.0%	74.0%	69.0%	59.0%
28	75.0%	74.0%	71.0%	61.0%
29	75.0%	74.5%	73.0%	63.0%
30 or more	75.0%	75.0%	75.0%	65.0%

Members earn a pro-rata percentage towards the total multiplier for each additional six months of service as follows:

- Tier I Police/Fire - after 20 years up to 25 years.
- Tier II Police/Fire - after 20 years up to 27 years.
- Tier II Police - after 20 years up to 30 years.

Tier III members retiring with less than 30 years of service have a 7% benefit reduction applied for each year prior to age 55.

Deferred Retirement Option Program (DROP) Members may participate in the DROP for three to five years once they reach retirement eligibility with a minimum of 25 years of service. A member continues to make contributions during the DROP period. During the DROP period, a member account is credited with the benefits that would have been paid if the member had retired at the start of the DROP period, along with interest accrued at the end of each year. At the end of the DROP period, the member ends employment, receives the DROP account balance, and begins to receive monthly benefits that would have been paid if the member had retired at the start of the DROP period.

Disability Benefits (Service Related) Less than 20 years of service: 50% of Final Average Compensation.

20 or more years of service: service retirement benefit calculated as of the disability date without reduction for early commencement.

Appendix C - Summary of Plan Provisions

**Disability Benefits
(Non-Service Related)**

A percentage of Final Average Compensation based on years of service per the table below:

Years of Service	Benefit
0-9	10%
10-14	20%
15-19	30% or a service retirement benefit without
20 or more	45% reduction for early commencement, if greater

**Preretirement Surviving Spouse's Benefit
(Service Related;
Pre-Retirement Eligible)**

Less than 25 years of service: 49% of Final Average Compensation (52% for certain Fire* members).

25 or more years of service: 69% of Final Average Compensation (72% for certain Fire* members).

**Preretirement Surviving Spouse's Benefit
(Non-Service Related;
Pre-Retirement Eligible)**

A percentage of Final Average Compensation based on years of service per the table below:

Years of Service	Certain Members*	All Others
3-10	38.0%	35.0%
11	39.4%	36.4%
12	40.8%	37.8%
13	42.2%	39.2%
14	43.6%	40.6%
15	45.0%	42.0%
16	46.4%	43.4%
17	47.8%	44.8%
18	49.2%	46.2%
19	50.6%	47.6%
20-25	52.0%	49.0%
25+	72.0%	69.0%

*Fire members who were age 45 with 25 years of service or age 50 with 20 years of service as of most recent contract date.

**Surviving Spouse's Benefit
(Retirement Eligible
Or After Retirement)**

A percentage of the benefit the member was eligible to receive at the time of death per the table below:

Police Tier I & II	75%
Police Tier III	50%
Fire Tier I & II retired before 7/1/2007	75%
Fire Tier I & II retired after 7/1/2007	90%
Fire Tier III	50%

Benefits cease upon remarriage.

Appendix C - Summary of Plan Provisions

Children's Benefits

Upon the death of an active or retired member, the following benefits are due to surviving children until they reach age 18:

Number of Dependents	% of Final Average Compensation
1	15%
2	30%
3	45%
4 or more	50%

Lump Sum Death Benefits

For active members who are eligible for retirement, with a surviving spouse or child(ren), a lump sum equal to one year's salary.

For retired members with a surviving spouse or child(ren), \$1,000 (\$5,000 for Fire members who retired after 6/30/2005) or remaining contributions with interest, whichever is greater.

For active or retired members with no surviving spouse or child(ren), \$500 or remaining contributions with interest, whichever is greater.

Vesting

10 years of service.

Termination Benefit

Members with less than 10 years of service receive a refund of their accumulated contributions.

Members with at least 10 years of service who have not met the requirements for service retirement may elect a monthly benefit commencing at age 55 equal to a percentage of Final Average Compensation per the table below:

Years of Service	Benefit
10-14	20%
15-19	30%
20-24	55%
25 or more	75%

The schedules shown under service retirement apply to all Tier II and III Police and Fire members.

Cost of Living Adjustments

Monthly pension benefits shall be increased by the lesser of 3% or \$50 (\$65 for Fire retirements after 6/30/2007). The increase will be made annually, beginning in the 13th month of retirement.

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.

Actuarially Determined Total Contribution (“ADTC”) - This is the total periodic contributions to a defined benefit plan prior to offsetting for the expected portion paid by employees, 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.

City of Omaha Police & Fire Retirement System 2022 Experience Study

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Principal and Consulting Actuary

Yelena Pelletier, ASA
Consulting Actuary

AUGUST 18, 2022

Topics

1

Overview of an Experience Study

2

Economic assumptions

3

Demographic assumptions

4

Funding method

5

Impact of proposed changes on valuation results

Experience Study

▪ Objectives

- Bring actuarial assumptions in line with recent experience
- Reflect emerging long-term trends

▪ Scope

- Economic assumptions: inflation, interest rate, DROP interest rate, pay increases
- Demographic assumptions: mortality, turnover, retirement, disability, COTA “load”, DROP election rate
- Funding method: cost method, amortization method, asset smoothing method

▪ Sources of data

- Census data from 2016-2020 valuations
- Social Security Administration annual trustees report
- Milliman’s Capital Market Assumptions

Topics

1 Overview of an Experience Study

2 Economic assumptions

3 Demographic assumptions

4 Funding method

5 Impact of proposed changes on valuation results

Economic Assumptions - Inflation

Current assumption: 2.50%

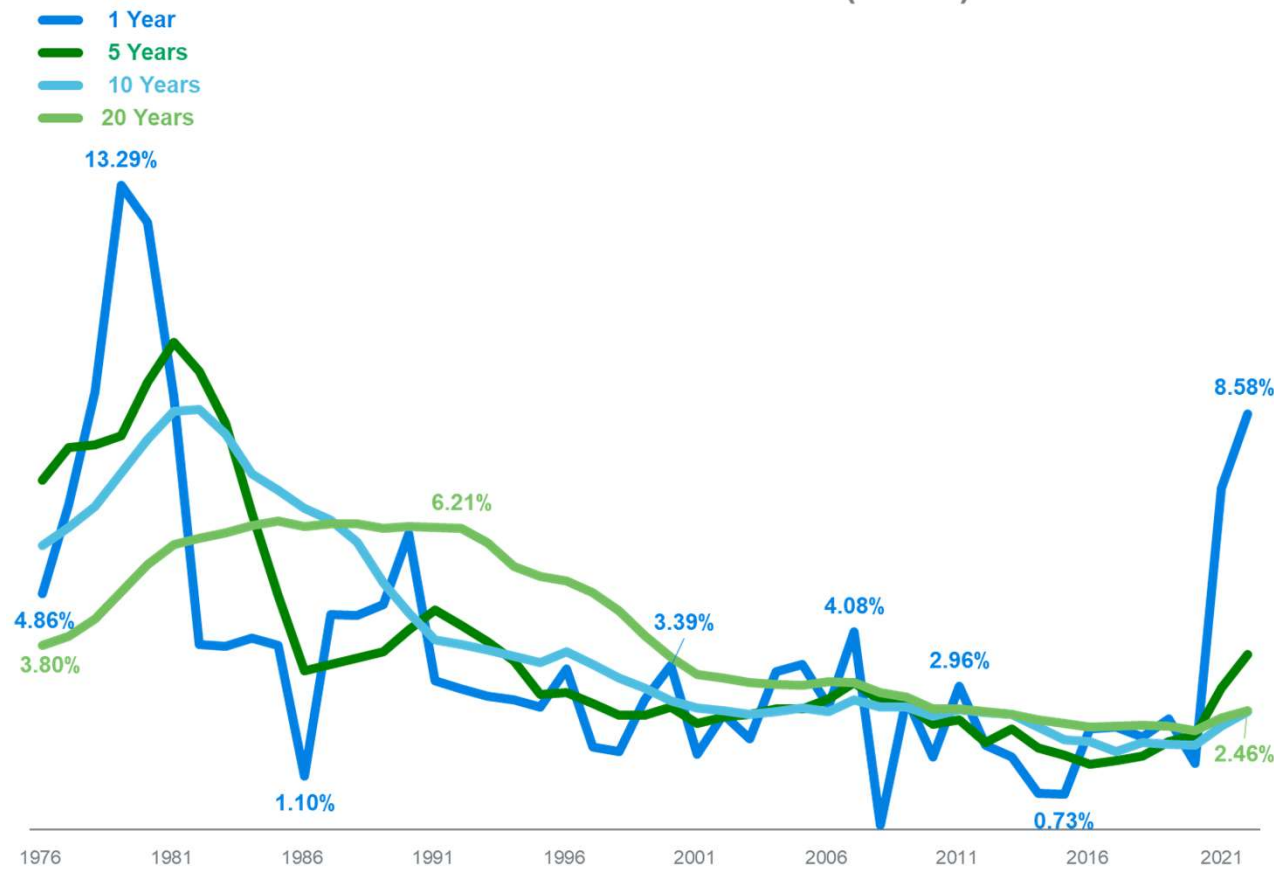
Analysis

The graph at right shows historical CPI-U through 2021; there is a clear pattern of declining inflation over the past 40+ years.

The Social Security Administration studies long-term inflation trends and projections on an annual basis. In the 2022 Trustees report, the projected annual inflation for 2024 and thereafter under the intermediate cost assumptions was 2.40%.

Proposed assumption: no change

Consumer Price Index - All Urban Consumers (CPI-U)



Economic Assumptions – Interest Rate

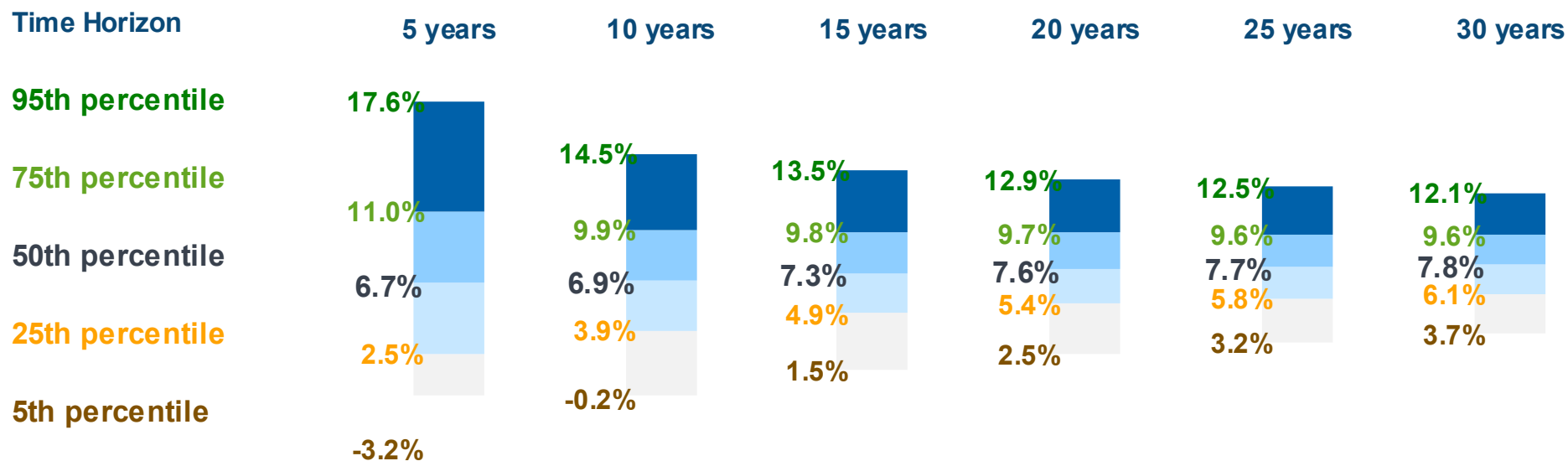
Current assumption: 7.75%

Analysis

Using Milliman’s December 31, 2021 capital market assumptions and the current 2.50% inflation rate, the expected long-term return for the target asset allocation (without margin for manager alpha) is 7.8%.

Proposed assumption: no change

Expected compound annual nominal returns based on System’s target asset allocation, Milliman’s December 31, 2021 Capital Market Assumptions and 2.50% inflation



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Economic Assumptions – DROP Interest Crediting Rate

Current assumption: 4.00%

Analysis

The interest rate on DROP accounts is set annually by the Board and is between 0% and 7%. The rate chosen can be no more than 50% of the annual return on the trust's assets for the prior year. Based on the 30-year expected return at the 50th percentile (the “median” return), the maximum interest crediting rate would be 3.91%.

Proposed assumption: no change

Relationship of investment return to Interest Crediting Rate



Economic Assumptions – Pay Increases (Police)

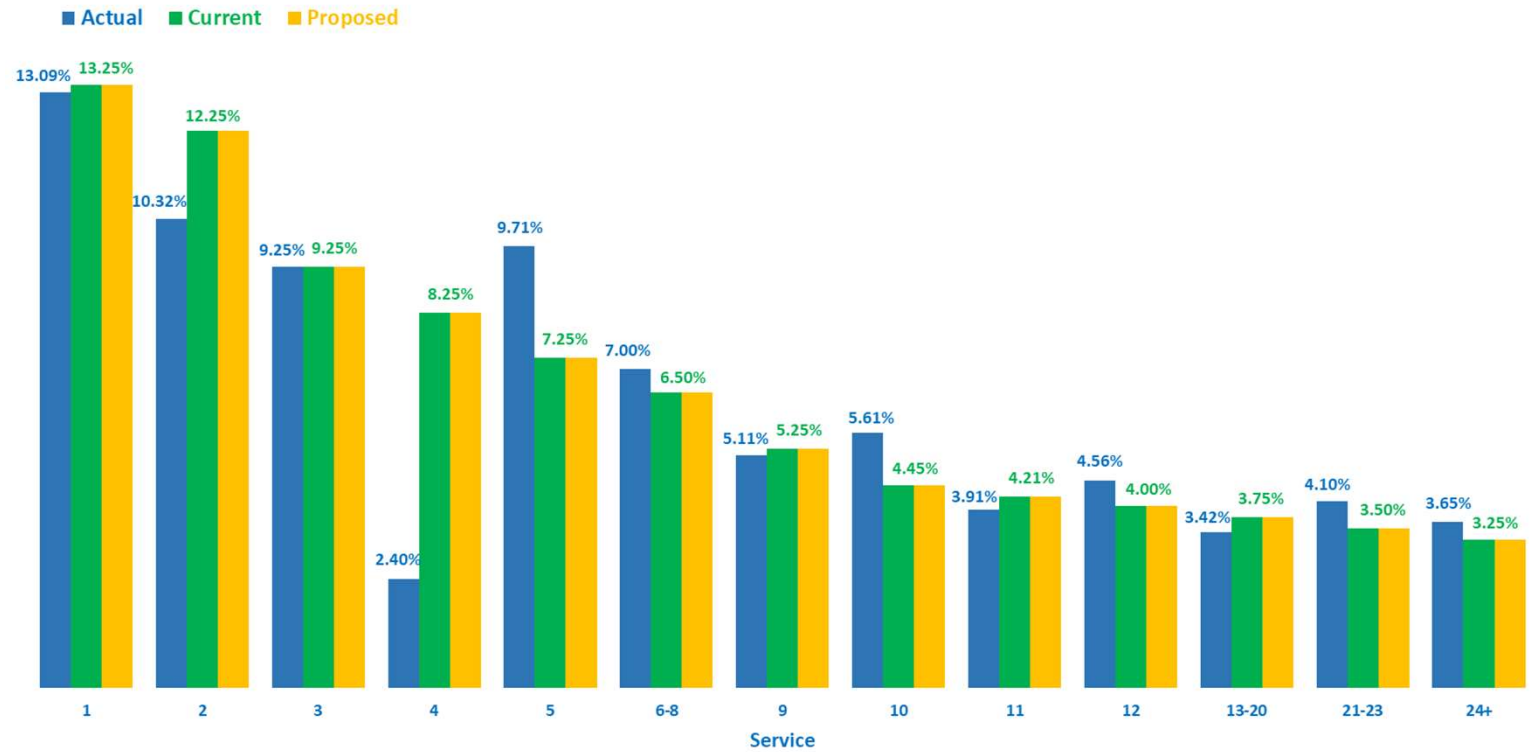
Current assumption: graded based on service from 15.25% to 3.25%

Analysis

The graph at right shows that actual pay increases have been close to what was anticipated by the current assumptions at most levels of service.

For all service levels* combined, the expected salaries were 100.02% of the actual salaries during the period we studied.

Annual pay increases by length of service



Proposed assumption: no change

*Note: we excluded members with less than one year of service from our analysis because partial earnings in the first year cause distorted results.

Economic Assumptions – Pay Increases (Fire)

Current assumption: graded based on service from 8.25% to 3.25%

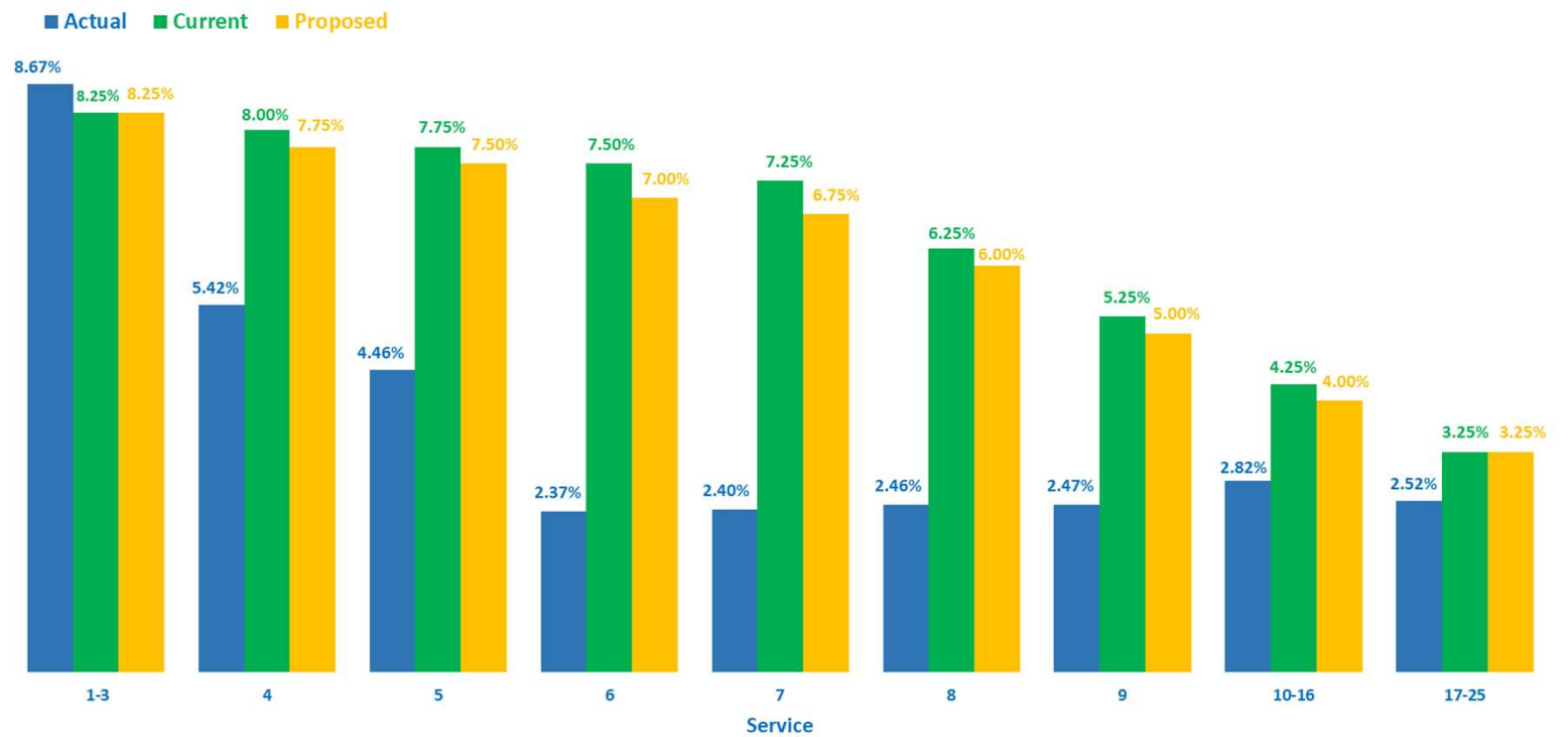
Analysis

The graph at right shows that actual pay increases have been less than what was anticipated by the current assumptions at most levels of service.

For all service levels* combined, the expected salaries were 101.62% of the actual salaries during the period we studied.

Proposed assumption: 0.25% - 0.50% decrease for years 4-16

Annual pay increases by length of service



*Note: we excluded members with less than one year of service from our analysis because partial earnings in the first year cause distorted results.

Topics

1 Overview of an Experience Study

2 Economic assumptions

3 Demographic assumptions

4 Funding method

5 Impact of proposed changes on valuation results

Demographic Assumptions – Mortality

Current assumption (adopted in 2018):

- RP-2014 Mortality Table, adjusted to 2006
- Generational projection of future improvements in longevity using the Ultimate Scale used by the Nebraska Public Employees Retirement System
- Employee rates before retirement; healthy or disabled annuitant rates after retirement

Analysis

The System does not have enough members for its mortality experience to be considered “credible”. As a result, we look to large-scale studies of mortality to set this assumption. The Pub-2010 mortality tables were published in early 2019 and are the first mortality tables constructed solely using mortality data from public pension plans. The Public Safety version of this mortality has been used in the System’s financial reporting (GASB) calculations since 2019.

The MP-2021 Scale is the basis for projecting future improvements in longevity for many public and private plans.

Proposed assumption: Update to Pub-2010 Public Safety mortality tables with the MP-2021 projection scale



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Demographic Assumptions – Turnover (Police)

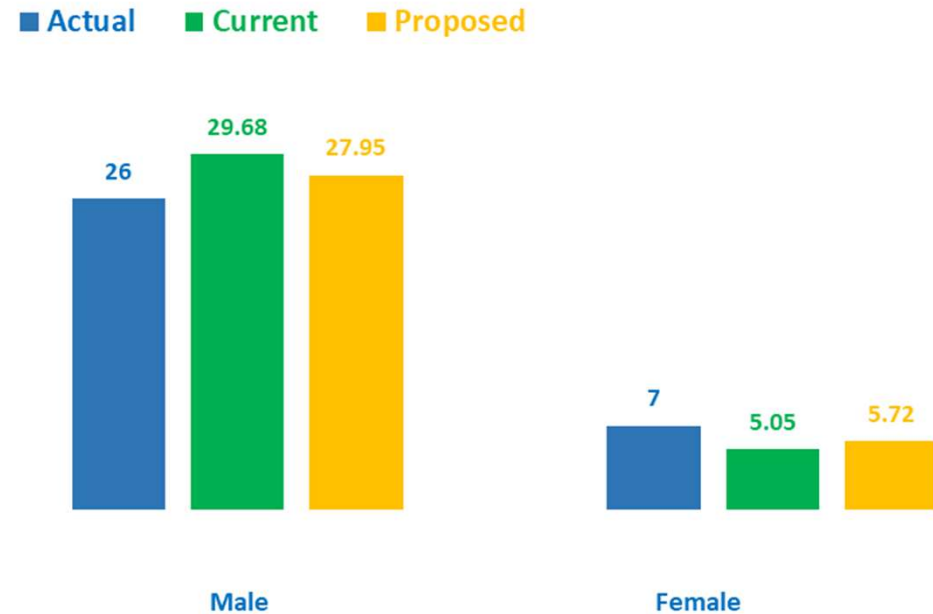
Current assumption: decreasing rates based on years of service, same rates for males and females

Analysis

Overall there were slightly fewer terminations (33) than expected (34.73). Looking at males and females separately, fewer males terminated than expected, while more females terminated than expected.

Proposed assumption: slight decrease in termination rates for males and slight increase in termination rates for females

Number of terminations by gender



Demographic Assumptions – Turnover (Fire)

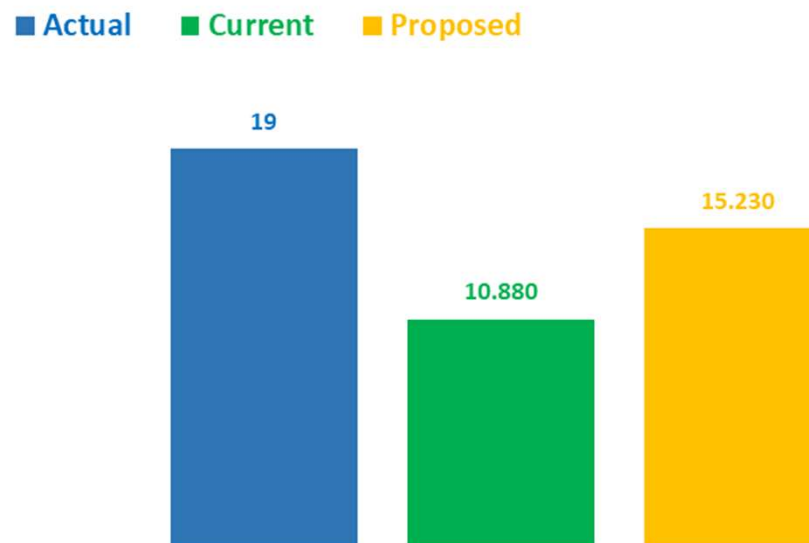
Current assumption: decreasing rates based on years of service, same rates for males and females

Analysis

Overall there were more terminations (19) than expected (10.88). In particular, more terminations than expected occurred for those with 4-19 years of service. Males and females terminated at similar rates.

Proposed assumption: increase in termination rates for 4-19 years of service, keep unisex rates

Number of terminations



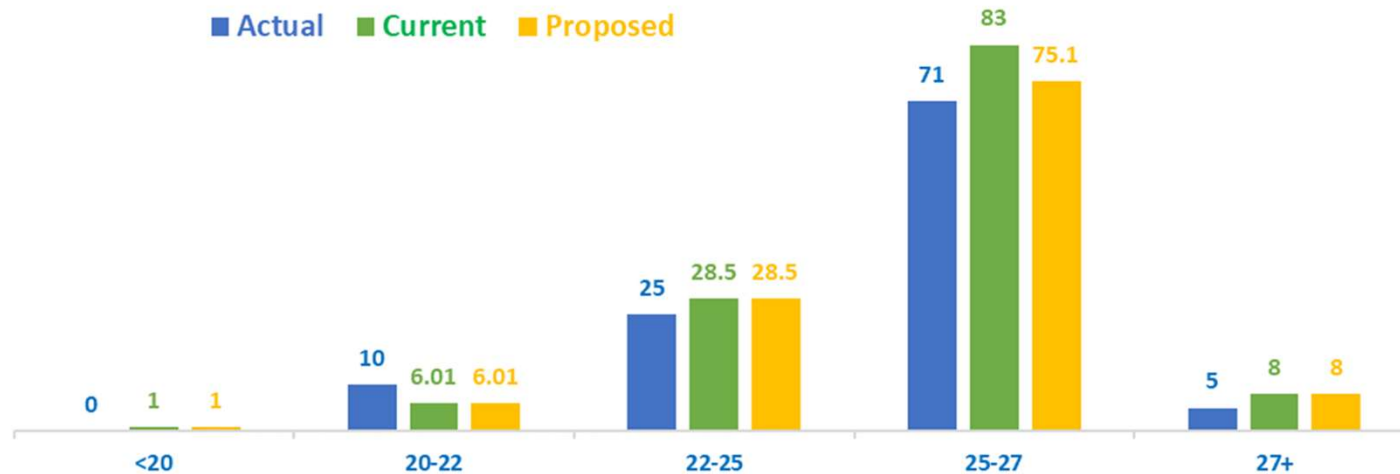
Demographic Assumptions – Retirement (Police)

Current assumption: varies by Tier and service with all assumed to retire once they reach 25 years of service (30 years of service for those hired after 1/1/2010)

Analysis: We analyzed only members that were hired prior to 1/1/2010 (Tier I and Tier II). There is no experience for those hired after 1/1/2010 (Tier III) yet, and the current assumption for this group appears reasonable. Overall there were slightly more retirements (111) than expected (107.27). Retirements were similar to expected at most age and service levels, but some members (mostly in Tier II) continued to work past 25 years of service.

Proposed assumption: Extend rates to 27 years of service (90% at 25-26 years of service) for Tier II; no change for Tier I and Tier III

Number of retirements by service



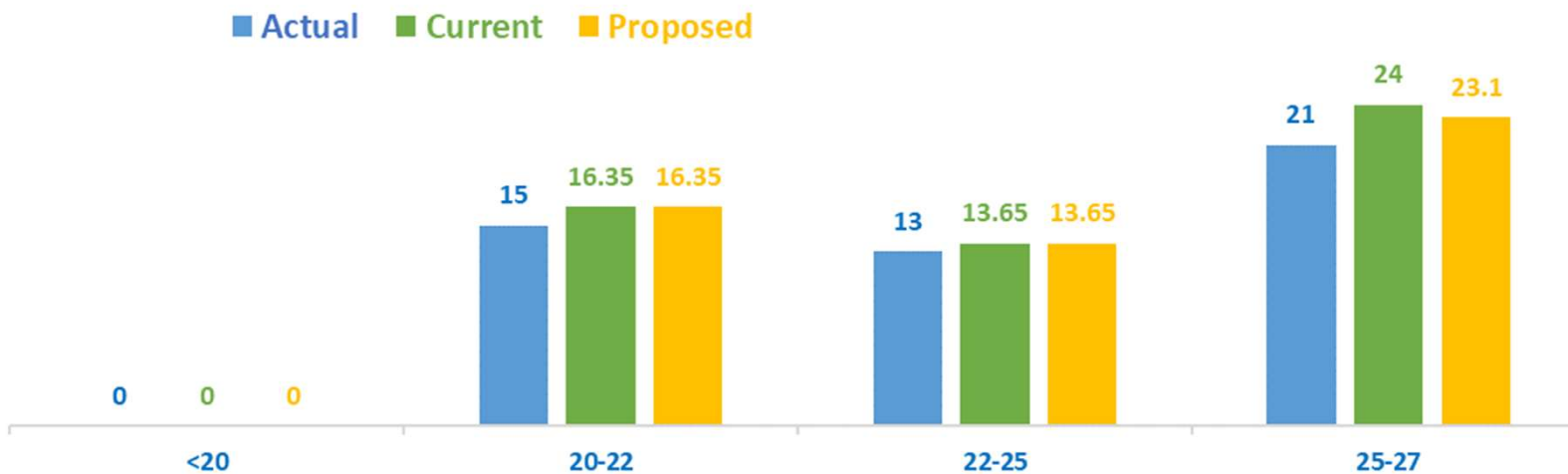
Demographic Assumptions – Retirement (Fire)

Current assumption: varies by Tier and service with all assumed to retire once they reach 25 years of service (30 years of service for those hired after 1/1/2013)

Analysis: We analyzed only members that were hired prior to 1/1/2013. There is no experience for those hired after 1/1/2013 (Tier III) yet, and the current assumption for this group appears reasonable. Overall there were slightly fewer retirements (47) than expected (48.56). Retirements were similar to expected at most age and service levels, but some members (mostly in Tier II) continued to work past 25 years of service.

Proposed assumption: Extend rates to 27 years of service (90% at 25-26 years of service) for Tier II; no change for Tier I and Tier III

Number of retirements by service



Demographic Assumptions – Disability

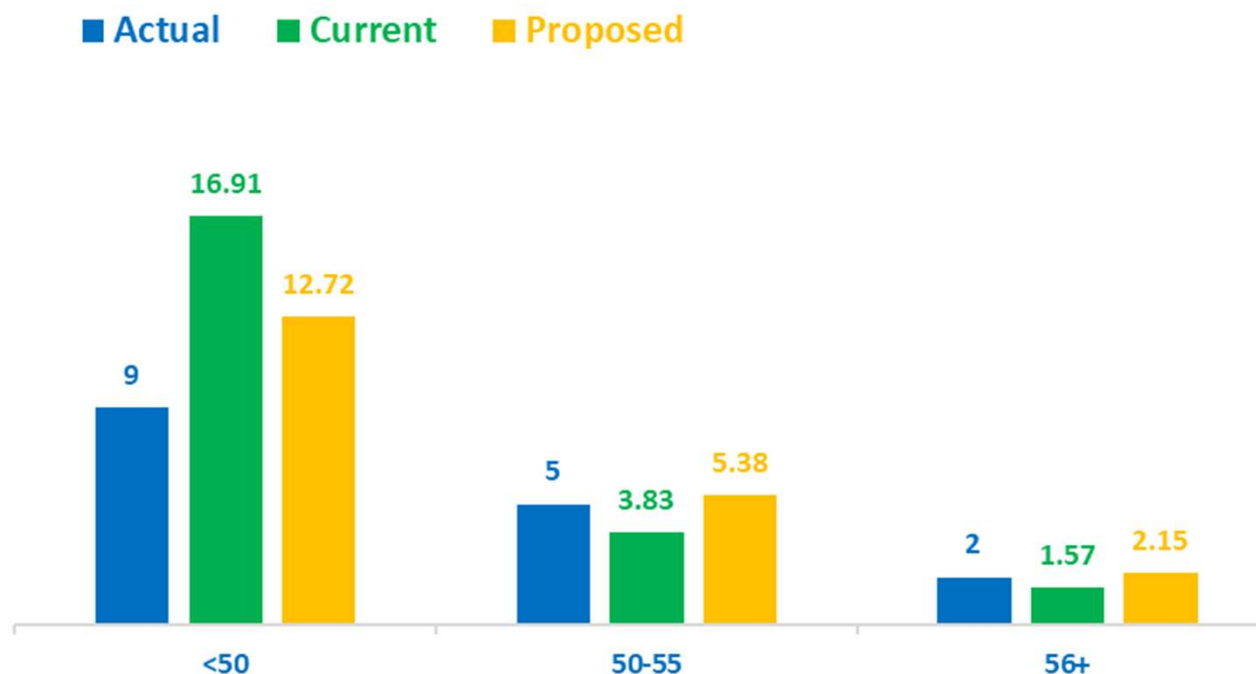
Current assumption: various rates starting at 0.17% at age 20 and increasing to 0.92% at age 60

Analysis

Overall there were fewer disabilities (16) than expected (22.3). However, there were more disabilities than expected between the ages of 50 and 59.

Proposed assumption: adjust current rates by 75% for ages under 50 and by 135% for ages 50-59

Number of disabilities by age



Demographic Assumptions – COTA Load

Current assumption: each member is assumed to retire with the same level of COTA (Career Overtime Average) the member has on the valuation date

Analysis

For members who are eligible for COTA, we analyzed the ratio of pay with COTA to pay without COTA by age and service. For Police members, COTA increases pay on average by 11.9%. For Fire members, COTA increases pay on average by 4.2%. The impact of COTA is generally higher at higher ages and service levels, when members are closer to retirement.

COTA “load” by age and service

Police		Age						Total
<u>Service</u>	<u>30-34</u>	<u>35-39</u>	<u>40-44</u>	<u>45-49</u>	<u>50-54</u>	<u>55-59</u>	<u>60+</u>	
10-14	6.9%	11.8%	10.7%	12.2%	9.0%		8.0%	11.3%
15-19		11.8%	13.9%	10.5%	10.5%	11.7%	9.1%	12.0%
20-24			12.1%	12.4%	12.6%	13.6%	5.7%	12.4%
25+				11.1%	11.7%	15.7%		12.5%
Total	6.9%	11.8%	12.7%	11.6%	11.5%	13.6%	7.4%	11.9%

Fire		Age						Total
<u>Service</u>	<u>30-34</u>	<u>35-39</u>	<u>40-44</u>	<u>45-49</u>	<u>50-54</u>	<u>55-59</u>	<u>60+</u>	
5-10	1.9%	3.6%	2.8%	1.5%	9.1%			2.9%
10-14	2.9%	3.2%	4.1%	4.0%	2.4%	7.7%		3.7%
15-19		4.0%	4.1%	4.3%	5.5%	6.0%	-0.1%	4.6%
20-24			4.6%	3.7%	4.4%	5.8%	6.2%	4.4%
25+				2.9%	4.8%			4.6%
Total	2.3%	3.3%	4.1%	4.0%	4.5%	6.0%	5.7%	4.2%

Proposed assumption: COTA will increase pay at retirement by 12% for Police and 4.5% for Fire



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Demographic Assumptions – DROP Election

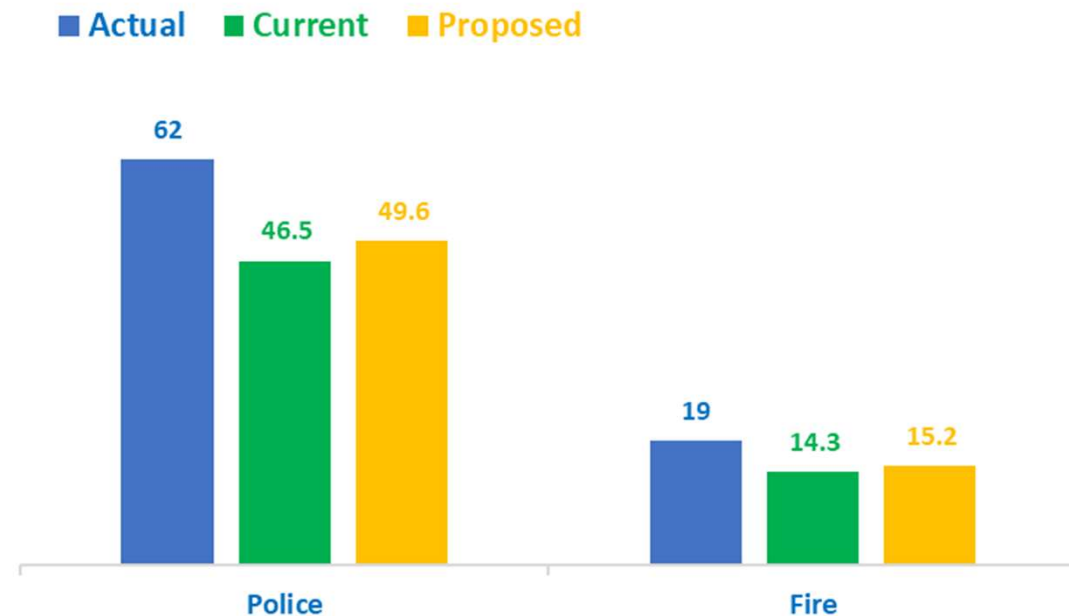
Current assumption: 75% of retirement-eligible members are assumed to enter DROP

Analysis

We only analyzed members in Tiers I and II since Tier III has had no DROP experience yet. For both Police and Fire members, more elected the DROP than expected

Proposed assumption: increase to 80% for Police and 90% for Fire

Number of members electing the DROP



Topics

1 Overview of an Experience Study

2 Economic assumptions

3 Demographic assumptions

4 **Funding method**

5 Impact of proposed changes on valuation results

Funding Method – Cost Method

Current method: Entry Age Normal

Analysis

Entry Age Normal is the method prescribed by GASB 67/68 for financial reporting purposes, Entry Age Normal provides a stable progression of costs over a member's working lifetime.

Proposed method: no change

Funding Method – Amortization Method

Current method: level percent with layered 20 year bases

Analysis

Level percent amortization means that the annual amortization payment is expected to increase at a predictable rate (3.0%).

Layered bases means that a new amortization base is established each year for the actuarial gains or losses that emerged since the last valuation.

The amortization period is 20 years; this period is reasonable given the demographic profile of the plan's active membership.

Proposed method: no change

Funding Method – Asset Smoothing Method

Current method: four year asymptotic smoothing with a +/- 20% corridor

Analysis

Five years is the predominant period for asset smoothing and provides a nice balance between dampening market fluctuations while not straying too far from market value. Four years provides somewhat less smoothing. Consideration should be given to lengthening the smoothing period to five years.

“Asymptotic” smoothing means that each year the actuarial value moves 25% of the way towards the market value. A market gain or loss in any given year is therefore recognized 25% in the first year, 18.75% in the second year, 14.06% in the third year, and so on in increasingly small amounts each year. This approach provides good smoothing but can be difficult for stakeholders to understand. Consideration should be given to moving to “non-asymptotic” smoothing.

A 20% corridor means that the actuarial value of assets can never stray more than 20% away from the market value of assets. This is the predominant corridor for plans that use one.

Proposed method: No change

Topics

1 Overview of an Experience Study

2 Economic assumptions

3 Demographic assumptions

4 Funding method

5 **Impact of proposed changes on valuation results**

Impact of Proposed Changes Based on January 1, 2021 Valuation

	Baseline	Proposed Changes
Accrued Liability	\$1,542,475,231	\$1,583,848,676
Actuarial Value of Assets	849,308,716	849,308,716
Unfunded Accrued Liability	693,166,515	734,539,960
Funded Ratio	55.06%	53.62%
Total Normal Cost Rate	21.291%	20.200%
Prior Service Rate	0.881%	0.845%
UAL Amortization Rate	<u>31.702%</u>	<u>32.392%</u>
Actuarially Determined Total Contribution Rate	53.874%	53.437%
Employee Contribution Rate*	<u>16.576%</u>	<u>16.560%</u>
Actuarially Determined Employer Contribution Rate	37.298%	36.877%
City Ordinance Contribution Rate*	33.768%	33.785%
Prior Service Rate	<u>0.881%</u>	<u>0.845%</u>
Bargained City Contribution Rate	34.649%	34.630%
Contribution Rate (Shortfall)/Margin	-2.649%	-2.247%

**Weighted blend of applicable Police and Fire rates*

Caveats

In preparing this study, we relied without audit on information furnished by the City as of each valuation date from January 1, 2016 through January 1, 2020. This information includes, but is not limited to, plan provisions, employee data, and financial information. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes. Since the study results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete or missing. If any data or other information is inaccurate or incomplete, 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.

The calculations reported herein have been made on a basis consistent with our understanding of the plan provisions of The City of Omaha Employees' Retirement System. Furthermore, the calculations were determined in conformance with generally recognized and accepted actuarial principles and practices, which are consistent with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board and the applicable Guides to Professional Conduct, amplifying Opinions, and supporting Recommendations of the American Academy of Actuaries.

The study results were developed using models that use standard actuarial techniques. 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 (ASOP). The models, including all input, calculations, and output may not be appropriate for any other purpose.

Milliman's work is prepared solely for the internal business use of the City of Omaha. 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 Board may provide a copy of Milliman's work, in its entirety, to the Board'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 Board; and (b) the Board 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. If this report is distributed to other parties, we request that it be copied in its entirety and distributed along with a copy of the January 1, 2021 actuarial valuation report in its entirety as well, because that document provides background information that is important in understanding the basis for the results contained herein.

Caveats

The cost calculations reported herein have been made on a basis consistent with our understanding of the actuarial methods and assumptions adopted by the City. Additional determinations may be needed for other purposes, 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 assumption, method and technique used is reasonable taking into account the experience of the Plan and reasonable expectations or would, in the aggregate, result in a total contribution equivalent to that which would be determined if each such assumption, method, or technique were reasonable. Differences between our projections and actual amounts depend on the extent to which future experience conforms to the assumptions made for this analysis. Actual experience will not conform exactly to the assumptions made for this analysis. Actual amounts will differ from projected amounts to the extent that actual experience deviates from expected experience.

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, Principal and Consulting Actuary

Yelena Pelletier, ASA, Consulting Actuary



Questions?



This work product was prepared solely for the City and the System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

INTEROFFICE MEMORANDUM

Law Department

DATE: May 16, 2022

TO: Members of the 2022 Charter Convention

FROM: Bernard J. in den Bosch, Deputy City Attorney

SUBJECT: Suggested Charter Revisions – Miscellaneous

I do want to pass along one request that has been made by an entity that is typically not affiliated with the City. Since the City's pension systems are funded at a rate below 80%, the City is required to make a special report and appear before the Legislature's Retirement Committee each year. Several members of the Committee have asked that the City reconsider the language in Section 6.09 of the Charter that states that the pension systems are to be funded "with the city and the employee making substantially equal contributions." One of the reasons for this request is that the City's pension systems are different than many of the other pension systems in the State. In most other public pension systems, if the employee and governmental entity contributions do not meet the Actuarially Required Contribution (ARC) in any given year, the governmental entity is required to make a contribution representing the difference between the ARC and what was contributed to the pension system through the typical contribution method.

I have indicated to the Committee that I would forward their request to the next Charter Convention.

November 22, 2022 Retirement Committee Hearing Transcript – Exchange Between Committee Chairman, Senator Mark Kolterman and City of Omaha Deputy Attorney, Bernard in den Bosch Discussing the Omaha City Charter Pension Provision

At the November 22, 2022 hearing on the presentation of the political subdivision underfunded plan reports, Retirement Committee Chairman had the following exchange with Bernard in den Bosch, Omaha City Deputy Attorney who has presented the City of Omaha's underfunded plan reports each year.

BERNARD in den BOSCH: When I was before this committee last year, there was some discussion about the charter convention and there was in fact a charter convention that met last summer. You had asked and I did submit to that charter convention a request that they consider changing the language. And I think it's 6.07 of the charter that requires substantially equal contributions by the city and the employees. That was presented to them. I provided them a memo that they received prior to the-- at the start of the charter convention and I did discuss it with them in a meeting and they have-- they met in committees and decided to bring forward what they wanted to bring forward and then the city council brought a subset of those forward for a vote. Unfortunately, the charter convention did not make that recommendation, which I don't know that I can answer for them, so to speak. The reality is, and I don't know if they're unfair, is, you know, significant changes are made. There's-- we're seeing some positive. I know it's, it's very slow. That's very difficult for most for people to, to understand, but we are seeing those positive changes. So that is not the only mechanism by which charter changes can be brought. City council can make a-- adopt an ordinance at any point in time to put it on, on a ballot. And, you know, I, I, I certainly can indicate that that's what this committee would like to have done, but obviously, other people can make similar requests. I'm-- I have some ability to make a suggestion. I don't have an ability to make anybody do anything necessarily. So I figured I would address that prospectively because I figured if I didn't, then I probably will still be addressing it

KOLTERMAN: Well, the concern that I have-- and I'm just-- I mean, I've always been blatantly honest with you. The percentage of the ARCs that you pay, the actuarially required contributions over the last five years has continually declined. In 2016, you paid 106.81 percent, but then in 2010-- 2017, you paid 91.2 percent of the ARC. In 2018, you paid 86.8 percent and in 2019, you paid 87.4 and last year you paid 88.24 percent of the ARC. We don't have this year's yet. And your unfunded actuarial liability actually decreased slightly from \$230 to \$229 million. But, but my concern is-- and this is exactly what we saw with the Omaha Public Schools plan, they weren't making their ARC payments. And that, that's what's-- I mean, if you go back to 2014, that's what Cavanaugh Macdonald had indicated, that you, you were going to run out of money if you didn't make those ARC payments. And that's, that's just the minimum amount that you should be making. The other thing that we've heard for the-- at least since I've chaired this committee the last seven years is that you couldn't put more money in than an equal amount to what the, the employees were putting in because of your charter. And so every year, I think if you look at the record, on the record every year, I've asked you to go back and take a look at the charter or at least have some discussion. When that came up this year, I asked my staff and I talked to my committee. I said, are you hearing anything about the charter? Because I was under the impression the charter was something that could only be addressed every so often. Now I hear that you can do it—

BERNARD in den BOSCH: Though historically, the charter—

KOLTERMAN: --more often-- at any time you wanted to.

BERNARD in den BOSCH: Historically, the council has never done it under the charter conventions, but you can.

KOLTERMAN: The reason I have the concerns about this is, number one, the people that are in the pension plan deserve to know that their plan is going to be funded. And to ask the-- I believe right now-- I'm not sure I have that in front of me. I think I do-- your employees are-- what percentage are the employees actually putting in?

BERNARD in den BOSCH: About 10, 10.2 percent.

KOLTERMAN: Yeah and so if you ask them to put-- and, and you're matching that-- if you--

BERNARD in den BOSCH: And we're-- actually, the city puts in about 18 percent.

KOLTERMAN: OK, but you-- you're at-- they, they can't put more than 10 percent in. It's rank and file. So if you change the charter, it will give you the opportunity to do so. And now I'm going to go back to what happened in 2010. You passed some sort of an ordinance allowing extra charges on restaurant tax or some sort of a occupation tax. It's my understanding that was designed to be used to help take care of the pension plans that were in dire straits already back in 2010. There's a disconnect here somewhere. I, I don't understand what it's all about. I mean, what do you do with the excess money that's coming from that, that restaurant tax? Does that go into the general fund?

BERNARD in den BOSCH: I think-- the restaurant tax, I think, certainly was in part to pay the difference, the increased contributions for the police and fire pension system was at least the discussion at the time. But it goes into the general fund. There are-- there have been increased contributions for both, but, but there's no question that the restaurant tax revenue has exceeded the amount--.

KOLTERMAN: So--

BERNARD in den BOSCH: --that's being--

KOLTERMAN: So if the restaurant tax was put into place to take care of pension problems or at least part of it, where, where do we go-- and you're not willing to look at making a-- the only people who can make additional contributions in here is the city of Omaha. I mean, you're already asking the employees to take a big burden here. So it's almost like everything we've asked over the last seven years has fallen on deaf ears. It doesn't make any sense to me. I think the people in-- the citizens of Omaha need to understand what's going on here. I think it's a blatant disrespect to the employees as well as the citizens of Omaha. And I'm sorry if I'm kind of upset about this, but I like to think that if you listen, work with us, we're willing to work with you. But I don't see any cooperation whatsoever from the city of Omaha. So with that, I don't know what to ask unless you have an answer for that.

BERNARD in den BOSCH: I, I don't, I don't-- and all I can say is what I think I've already said. And I, and I appreciate what you're saying. I think there is a concern. The, the ARC, at least in my view, has gone up and down a little bit, but we still haven't met it. There's no question since we made the

assumption changes in, in 2018, we have not met the ARC. We actually met the ARC for the couple of years before that. When we changed the rate of return, we have not and I-- that's absolutely true.

KOLTERMAN: You know, with Omaha Public Schools, we put in statute that they had to make their ARC payments. I don't know if we have the right to do that to you or not. I think we probably have some sort of ability to help you in that regard, but.

BERNARD in den BOSCH: I don't know that.

KOLTERMAN: I mean, we can't do it-- I mean, we're here-- you are here today because your plan continues to be underfunded.

BERNARD in den BOSCH: We are.

KOLTERMAN: And city, city of Lincoln worked with us. They're over 80 percent. Omaha Public Schools, they're-- granted, they're not at 80 percent, but they're going in the right direction. I don't know what more to say—

BERNARD in den BOSCH: No.

Appendix E
Omaha Public Power District

2022 Reporting Form for Underfunded Political Subdivision Pension Plans Omaha Public Power District

1. Please list the following information for plan years 2018 through current plan year 2022:

a. Funding Status – There are currently multiple ways to identify and value funded status. For your consideration, the district is aware of two and they are as follows:

i. **Present Value of Accrued Plan Benefits:** present value of benefits based on compensation and service to the date of the actuarial valuation.

Funded Ratio	2018	2019	2020	2021	2022
PVAPB (%)	76.7	74.0	75.1	78.6	82.2

ii. **Actuarial Accrued Liability:** present value of retirement benefits adjusted for assumptions for future increases in compensation and service attributable to past accounting periods.

Funded Ratio	2018	2019	2020	2021	2022
AAL (%)	70.0	67.8	68.9	72.0	75.5

b. Assumed rate of return – The discount rate of return is itemized in the table below:

	2018	2019	2020	2021	2022
Discount Return %	7.0	7.0	7.0	7.0	6.5

c. Actual investment return – The actual return is itemized in the table below:

	2018	2019	2020	2021	2022
Actual Return %	-6.3	18.9	13.3	6.4	Not Yet Available

d. Member and employer contributions rates - percentage

	2018	2019	2020	2021	2022
Employee Contributions (%)	6.7	7.2	7.7	8.3	9.0

The OPPD percentage rate is calculated by dividing the Annual Required Contribution into the Valuation Compensation as follows:

	2018	2019	2020	2021	2022
Employer Contributions (%)	29.8	33.0	31.6	29.4	28.0

e. Normal cost – percentage

	2018	2019	2020	2021	2022
Covered Compensation (%)	12.1	12.3	12.1	12.2	13.4

f. Actuarial required contribution – percentage & dollar amount

Assumed percentage of covered compensation

	2018	2019	2020	2021	2022
ARC (%)	29.8	33.0	31.6	29.4	28.0

Dollar amount in millions

	2018	2019	2020	2021	2022
ARC (\$)	53.6	59.2	59.1	56.5	55.8

g. Actuarially required contribution - actual dollars contributed and percentage of actuarial required contribution actually contributed

	2018	2019	2020	2021	2022
ARC (\$) actually made	53.6	59.2	59.1	56.5	55.8
ARC Made (%)	100	100	100	100	Not Yet Available

2. Please provide a brief narrative of the circumstances that led to the current underfunding of the retirement plan.

The primary reasons for the pension's present funding level are lower investment performance from 2000-2008, increase in mortality tables due to longer life expectancy, and reduction of the plan's projected earnings rate (discount rate). All of these items have impacted the funding status for the universe of defined benefit plans.

3. Have there been any changes in the actuarial methods and/or assumptions since the previous actuarial valuation report? If so, please describe.

The District changed its discount rate from 7.0% to 6.5% and adopted updated mortality tables in 2022.

4. In what year is the plan's future funding ratio expected to reach 100%?

The plan's funding ratio is expected to reach 100% in 2042.

5. What is the method used to amortize the unfunded actuarial liability?

The unfunded liability is amortized over 20 years as a level dollar amount. A new amortization base is established each year for unexpected changes in the unfunded liability (i.e., plan amendments, assumption changes, or gains/losses). Because of the 20-year amortization period, the plan is not projected to be fully funded until the end of the last amortization period, which is 2042 based on the new amortization bases that were effective January 1, 2022.

6. Please provide a description of corrective actions implemented to improve the funding status of the plan including, but not limited to, benefit changes, increased contribution rates and/or employer contributions. Please include any actuarial projections based on these changes and attach a copy of the actuarial projections.

- a. In 2012, the OPPD Board of Directors approved a change in the retirement benefit for employees hired after December 31, 2012. Employees hired on January 1, 2013 and later accrue a retirement benefit using a cash balance model instead of a benefit using final average compensation. In addition to providing more convenience to future employees, there was a decrease in actuarially projected plan costs which is expected to reduce future pension costs.
- b. In 2013, the District changed early retirement eligibility, which generally prevents employees from receiving early retirement benefits before the age of 55.
- c. The employee contribution rate increased from 6.2% to 6.7% in 2018, 7.2% in 2019, 7.7% in 2020, 8.3% in 2021 and 9.0% in 2022 and later.

d. In 2021, the District contributed an additional \$95.0 million to the Retirement Plan in excess of the \$56.5 million annual required contribution.

7. Please describe any recent or ongoing negotiations with bargaining groups that may impact the funding of the plan.

The District agreed to new three-year agreements with its bargaining groups during 2022. There were limited modifications in the agreements related to the retirement plan. As a result of previous negotiations, employee contributions to the retirement plan gradually increased to 9.0% where they will remain.

8. Please attach a copy of the most recent Actuarial Experience Study. When will the next Actuarial Experience Study be completed and available for review by the Committee?

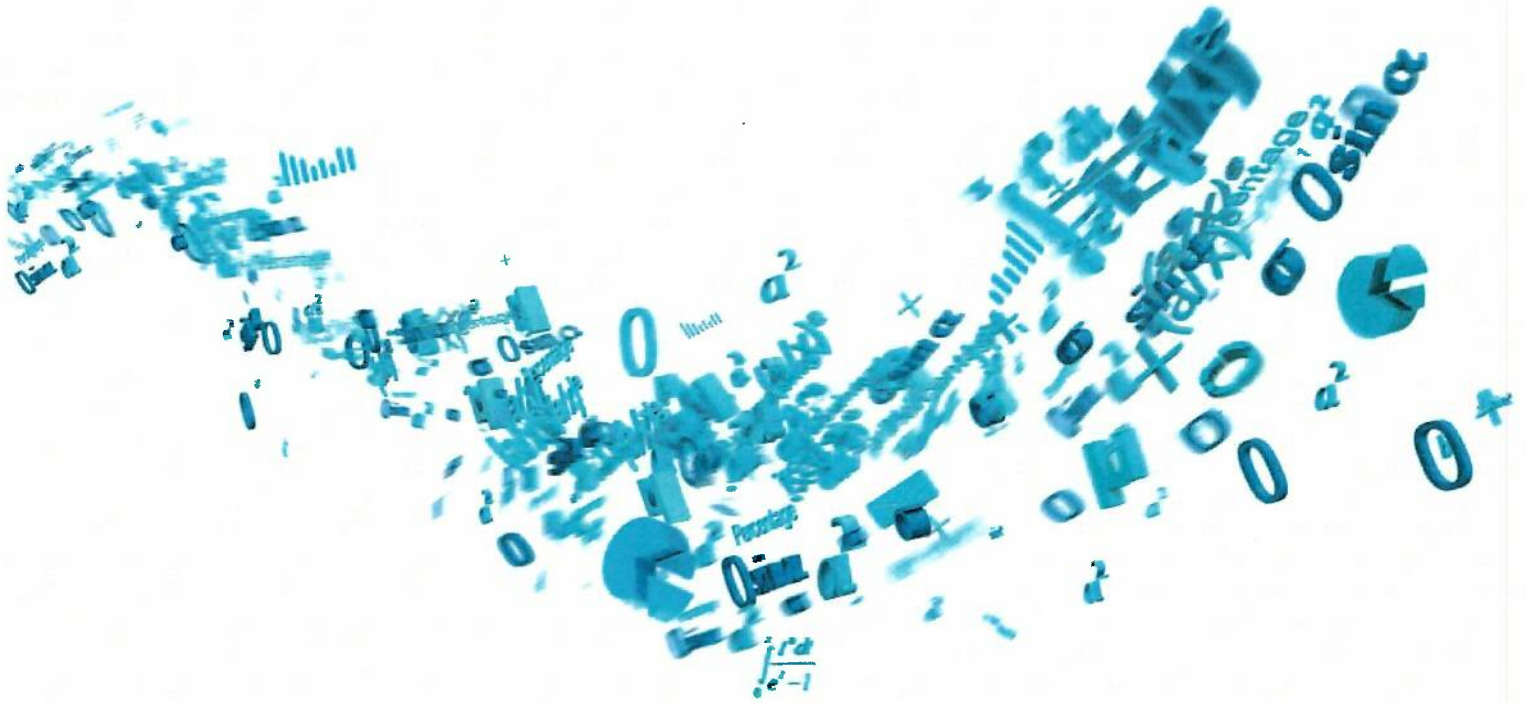
The most recent Actuarial Experience Study was completed in 2021 and was provided with the submittal on October 15, 2021. The next Actuarial Experience Study is expected to be completed in 2026.

9. What is the current assumed rate of return? If the rate has been changed in the past year, or if there are plans to review the rate for the upcoming year, please describe.

The discount rate is currently 6.5% and was lowered from 7.0% as a result of an asset/liability study.

10. Please attach the most recent actuarial valuation report. If the valuation report is completed biannually (or less often) please include an updated report for the interim year/s, if available.

The January 1, 2022 actuarial valuation report is attached.



Actuarial Report

Omaha Public Power District

Retirement Plan

As of January 1, 2022

Contents

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Introduction

This report documents the results of the January 1, 2022 actuarial valuation of the Omaha Public Power District Retirement Plan for the plan sponsor and for Omaha Public Power District (OPPD). The information provided in this report is intended strictly for documenting information relating to contribution and funding requirements for the 2022 plan year.

Determinations for purposes other than the funding valuation may be significantly different from the results in this report. Thus, the use of this report for purposes other than those expressed here may not be appropriate.

This valuation has been conducted in accordance with generally accepted actuarial principles and practices, including the applicable Actuarial Standards of Practice as issued by the Actuarial Standards Board. This plan is a governmental plan as defined in IRC section 414(d), and as such the plan is not subject to the ERISA minimum funding requirements.

A valuation model was used to develop the liabilities for the January 1, 2022 valuation. The valuation model relies on ProVal software, which was developed by Winklevoss Technologies, LLC. Experts within Aon selected this software and determined it is appropriate for performing valuations. The valuation team coded and reviewed the software for the provisions, assumptions, methods, and data of the OPPD Retirement Plan. The valuation team relied on experts at Aon for the development of the capital market assumptions models underlying the interest rate.

Future actuarial measurements may differ significantly from the current measurements presented in this report due (but not limited to) to such factors as the following:

- Plan experience differing from that anticipated by the economic or demographic assumptions;
- Changes in actuarial methods or 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); and
- Changes in plan provisions or applicable law;
- Issuance of additional regulatory guidance.

Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements.

Funded status measurements shown in this report are determined based on various measures of plan assets and liabilities. Plan assets are measured based on the asset valuation method described in the Actuarial Assumptions and Methods section of this report. Plan liabilities are measured based on the interest rates and other assumptions summarized in the Actuarial Assumptions and Methods section of this report. These funded status measurements may not be appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.

In determining contribution requirement for the Plan, Aon may be assisting the appropriate plan fiduciary as it performs tasks that are required for the administration for an employee benefit plan. Aon may be consulting with the employer/plan sponsor (OPPD) as it considers alternative strategies for funding the plan. Thus, Aon potentially will be providing assistance to OPPD (and/or certain of its employees) acting in a fiduciary capacity (for the benefit of plan participants and beneficiaries) and to OPPD (and/or its executives) acting in a settlor capacity (for the benefit of the employer sponsoring the Plan).

In conducting the valuation, we have relied on personnel, plan design, and asset information supplied by OPPD as of the valuation date. While we cannot verify the accuracy of all the information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy or completeness of the information and believe that it has produced appropriate results.

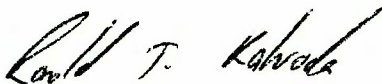
The actuarial assumptions and methods used in this valuation are described in the Actuarial Assumptions and Methods section of this report. OPPD selected the economic and demographic assumptions. With the exception of the assumed active management premium reflected in the interest rate (i.e., expected return on assets), Aon provided guidance with respect to these assumptions, and it is our belief that the assumptions represent reasonable expectations of anticipated plan experience. The interest rate is based on an underlying expected passive return and assumed active management premium. The underlying expected passive return is within the range we would consider to be reasonable based on Aon's forward-looking capital market assumptions. The active management premium was selected by OPPD. We are unable to assess the reasonability of the assumed active management premium, as such an assessment would require a substantial amount of additional work beyond the scope of our assignment.

For each economic and demographic assumption that has a significant effect on the measurement, and that the actuary has determined does not significantly conflict with what, in the actuary's professional judgment, is reasonable for the purpose of the measurement, the information and analysis used to support this determination are described in more detail in the 2022 Actuarial Assumptions document.

Certain aspects of the funding results included in this report are subject to Actuarial Standard of Practice No. 51 (ASOP 51) on risk assessments for pension funding calculations. The January 1, 2022 ASOP 51 risk assessment analysis for the OPPD Retirement Plan is contained in a separate report.

The undersigned are familiar with the near-term and long-term aspects of pension valuations and collectively meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. The information provided in this report is dependent upon various factors as documented throughout this report, which may be subject to change. Each section of this report is considered to be an integral part of the actuarial opinions.

To our knowledge, no colleague of Aon providing services to OPPD has any material direct or indirect financial interest in OPPD. Thus, we believe there is no relationship existing that might affect our capacity to prepare and certify this actuarial report for OPPD.



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September 2022

Summary

The following page summarizes the results of the January 1, 2022 actuarial valuation. For comparison purposes, the results of the January 1, 2021 and January 1, 2020 actuarial valuations are also shown.

This plan is a governmental plan as defined in IRC section 414(d), and as such the Plan is not subject to the ERISA minimum funding requirements.

Plan Changes

There have been no plan changes since the prior valuation.

Assumption Changes

The January 1, 2022 valuation results reflect the following assumption changes:

- A change in the interest rate from 7.00% to 6.50%
- The mortality table for healthy participants was updated from the PUB-2010 General table projected using Scale MP-2020 with generational projection to the PUB-2010 General table projected using Scale MP-2021 with generational projection.
- The mortality table for disabled participants was updated from the PUB-2010 General Disabled Retiree table projected using Scale MP-2020 with generational projection to the PUB-2010 General Disabled Retiree table projected using Scale MP-2021 with generational projection.

Method Changes

There have been no method changes since the prior valuation.

Summary

	January 1, 2020	January 1, 2021	January 1, 2022
Interest Rate	7.00%	7.00%	6.50%
Present Value of Future Benefits (PVB)	\$ 1,777,229,220	\$ 1,833,861,686	\$ 1,984,751,265
Accrued Liability (EAN)	\$ 1,567,265,214	\$ 1,607,360,663	\$ 1,719,541,400
Actuarial Value of Assets	<u>1,079,189,274</u>	<u>1,157,752,902</u>	<u>1,297,473,778</u>
Unfunded Accrued Liability	\$ 488,075,940	\$ 449,607,761	\$ 422,067,622
Gross Normal Cost	\$ 22,596,426	\$ 23,440,427	\$ 26,666,330
As Percentage of Covered Compensation	12.1%	12.2%	13.4%
Annual Required Contribution (ARC) ¹	\$ 59,093,356	\$ 56,547,072	\$ 55,798,020
As Percentage of Covered Compensation	31.6%	29.4%	28.0%
Number of Participants			
Retired and Beneficiaries	2,258	2,296	2,316
Terminated and Vested	490	501	485
Disabled	32	26	19
Active	<u>1,796</u>	<u>1,788</u>	<u>1,808</u>
Total	4,576	4,611	4,628
Valuation Compensation ²	\$ 187,099,498	\$ 192,252,415	\$ 199,011,518

¹ Adjusted to reflect timing of contributions.

² Expected compensation during the plan year for active participants under the 100% assumed retirement age.

Funding Requirements

The Funding Requirements section presents the results of the ongoing plan valuation, which determines the contribution levels.

Included in the Funding Requirements are the following sections:

- *Assets and Liabilities*—This section develops the basic quantities upon which the actual contributions are based.
- *Contributions*—This section shows the development of the contribution amount for the year.
- *Experience*—This section develops and analyzes the actuarial gain or loss during the past year.

This plan is a governmental plan as defined in IRC section 414(d), and as such the plan is not subject to the ERISA minimum funding requirements.

Assets and Liabilities

The Asset and Liabilities section includes the following:

- **Unfunded Accrued Liability and Normal Cost**—The actuarial valuation determines the unfunded accrued liability and the normal cost of the plan for the current year. The contribution then consists of the normal cost plus a payment on the unfunded accrued liability, if any.
- For employees already retired or terminated with a vested pension, the benefits to be paid have been determined. For other employees, future benefit payments based on service and projected pay must be estimated. As of the current valuation date, these liabilities have been valued as shown on the following pages.
- **Development of the Actuarial Value of Assets**—The actuarial valuation determines an actuarial value of assets, which has been adjusted to smooth out any significant annual changes in the market value of assets.

Valuation Results

The following table shows the basic valuation results as of January 1, 2022, both before and after changes.

	Before Changes	After Changes
Accrued Liability		
Retirees and Beneficiaries	\$ 1,072,289,953	\$ 1,118,178,092
Terminated Vested	40,537,577	43,730,870
Active and Disabled Employees	<u>519,117,593</u>	<u>557,632,438</u>
Total	\$ 1,631,945,123	\$ 1,719,541,400
Actuarial Value of Assets	<u>1,297,473,778</u>	<u>1,297,473,778</u>
Unfunded Accrued Liability	\$ 334,471,345	\$ 422,067,622
Funded Ratio	79.5%	75.5%
Gross Normal Cost	\$ 23,920,103	\$ 26,666,330
Number of Participants		
Retired and Beneficiaries		2,316
Terminated Vested		485
Disabled		19
Active		<u>1,808</u>
Total		4,628
Valuation Compensation ¹		\$ 199,011,518

¹ Expected compensation during the plan year for active participants under the 100% assumed retirement age.

Market Value of Assets

Market Value, 12/31/2021	\$ 1,289,136,318
Receivable for 2021 Plan Year	<u>0</u>
Market Value of Assets, 1/1/2022	\$ 1,289,136,318

Actuarial Value of Assets

The actuarial value of assets phases in the difference between expected and actual asset return over a five-year period. Therefore, only 20% of the prior year's return in excess of (or short of) the expected return is recognized in this year's valuation. Said another way, 80% of the excess (or shortfall) is not recognized. This 80% that is not reflected is decreased 20% in each of the succeeding valuations until it reaches 0%, at which time all of the excess (or shortfall) has been recognized.

Asset (Gain)/Loss

Market Value of Assets, 1/1/2021	\$ 1,157,752,902
OPPD Contributions for 2021	151,500,00
Employee Contributions for 2021	15,645,344
Benefit Payments in 2021	(105,821,462)
Administrative Expenses in 2021	(187,671)
Expected Earnings in 2021	<u>80,669,030</u>
Expected Market Value of Assets, 1/1/2022	\$ 1,299,558,143
Actual Market Value of Assets, 1/1/2022	<u>1,289,136,318</u>
Asset (Gain)/Loss (Expected – Actual)	\$ 10,421,825

Actuarial Value of Assets

Market Value of Assets, 1/1/2022	\$ 1,289,136,318
80% of Asset (Gain)/Loss for 2021	<u>8,337,460</u>
Actuarial Value of Assets, 1/1/2022	\$ 1,297,473,778

The return on the market value of assets during the 2021 Plan Year was approximately 5.90%.

Contributions

This section includes the calculation of the Annual Required Contribution (ARC) applicable to the 2022 Plan Year. The ARC is determined based on OPPD's funding policy. The funding policy is based on the following:

- Entry age normal cost method
- 20-year fresh start of the unfunded accrued liability as of January 1, 2015
- One-year amortization of the increase in accrued liability due to certain plan amendments, including single-year ad hoc retiree cost-of-living adjustments
- 20-year amortization of other plan or assumption changes and actual gains or losses
- Amortizations are closed group amortizations based on level amounts

Annual Required Contribution for 2022

Gross Normal Cost, 1/1/2022	\$	26,666,330
Expected Employee Contributions during 2022		(17,911,037)
Net Amortization Charges, 1/1/2022		44,935,286
Interest at 6.50% to 12/31/2022		<u>4,071,996</u>
Total Charges at 12/31/2022	\$	57,762,575
Discount for Monthly Contributions		<u>(1,964,555)</u>
Annual Required Contribution for 2022 Plan Year— Adjusted for Assumed Monthly Contributions	\$	55,798,020

Schedule of Amortization Payments to be Recognized in the Annual Required Contribution

OPPD has elected to amortize all future gains/losses and plan amendments over a period of 20 years.

Source	Date Established	Original Amount	Remaining Years	Present Value 1/1/2022	Payment Due 1/1/2022
2015 Fresh Start	01/01/2015	\$361,570,248	13	\$285,807,651	\$31,206,051
2016 Plan Amendment	01/01/2016	1,268,369	14	1,047,051	109,071
2016 Assumption Changes	01/01/2016	50,292,679	14	41,517,124	4,324,817
2016 (Gain)/Loss	01/01/2016	28,105,800	14	23,201,626	2,416,901
2017 Assumption Changes	01/01/2017	(1,501,900)	15	(1,291,218)	(128,943)
2017 (Gain)/Loss	01/01/2017	27,887,279	15	23,975,326	2,394,218
2018 Plan Amendment	01/01/2018	949,609	16	846,765	81,399
2018 Assumption Changes	01/01/2018	(14,359,293)	16	(12,804,135)	(1,230,851)
2018 (Gain)/Loss	01/01/2018	20,544,594	16	18,319,548	1,761,043
2019 Assumption Changes	01/01/2019	33,164,231	17	30,563,464	2,838,422
2019 (Gain)/Loss	01/01/2019	34,126,681	17	31,450,438	2,920,796
2020 Assumption Changes	01/01/2020	(5,488,202)	18	(5,211,084)	(469,020)
2020 (Gain)/Loss	01/01/2020	14,320,622	18	13,597,527	1,223,836
2021 Assumption Changes	01/01/2021	4,428,357	19	4,320,337	377,901
2021 (Gain)/Loss	01/01/2021	(24,995,155)	19	(24,385,450)	(2,133,000)
2022 Assumption Changes	01/01/2022	87,596,277	20	87,596,277	7,464,716
2022 Additional Contribution	01/01/2022	(95,000,000)	20	(95,000,000)	(8,095,641)
2022 (Gain)/Loss	01/01/2022	(1,483,625)	20	<u>(1,483,625)</u>	<u>(126,430)</u>
Total				\$422,067,622	\$44,935,286

Experience

This section presents the development and analysis of the actuarial gain/loss during the past year. Gains or losses result when actual plan experience over the prior year differs from the Actuarial Assumptions.

Development of Actuarial Gain or Loss for 2021

Unfunded Accrued Liability (Surplus), 1/1/2021	\$ 449,607,761
Plus: Interest to 12/31/2021 at 7.00%	31,472,543
Plus: 2021 Total Normal Cost	23,440,427
Plus: Interest to 12/31/2021 at 7.00%	1,640,830
Less: 2021 OPPD Contributions	(151,500,000)
Less: Interest to 12/31/2021 at 7.00%	(2,735,567)
Less: 2021 Employee Contributions	(15,645,344)
Less: Interest to 12/31/2021 at 7.00%	(538,326)
Less: 2021 Administrative Expenses	187,671
Less: Interest to 12/31/2021 at 7.00%	<u>6,457</u>
Equals: Expected Unfunded Accrued Liability (Surplus), 1/1/2022	\$ 335,936,452
Less: Actual Unfunded Accrued Liability (Surplus) Before Changes, 1/1/2022	<u>334,471,345</u>
Equals: Actuarial Gain (Loss) for 2022 plan year	\$ (1,465,107)

Reconciliation of Unfunded Accrued Liability (Surplus)

Unfunded Accrued Liability (Surplus) Before Changes, 1/1/2022	\$ 334,471,345
Change in Unfunded Due to Plan Amendment	0
Change in Unfunded Due to Assumption Change	87,596,277
Change Due to Retiree Cost of Living Adjustment (COLA)	<u>0</u>
Actual Unfunded Accrued Liability (Surplus), 1/1/2022	\$ 422,067,622

Accrued Benefit Values

This section presents the results of a separate valuation of the plan's obligations, based only on benefits accrued as of the valuation date of January 1, 2022. The focus of this valuation differs from the calculation of ongoing funding requirements, which anticipates benefits to be earned by future service and salary increases. This accrued benefit valuation assumes an ongoing plan and, therefore, differs from a calculation of termination liabilities which would be based on the benefits and assumptions appropriate for a terminating plan.

The American Academy of Actuaries, in Actuarial Standards of Practice Number 4, has provided recommended procedures for the calculation of the Present Value of Vested Accrued Benefits and the Present Value of Accrued Benefits. The results under both illustrations include the sum of the present value of:

- All benefits expected to be paid to former participants and their beneficiaries; and
- Benefits expected to be paid at a future date to present active participants, based on only service and pay prior to the date of calculation.

The *Present Value of Vested Accrued Benefits* recognizes only the benefits in which an active participant retains a right, independent of continuation of employment, beyond the calculation date. It does not include any additional benefits which might arise because of future death or disability that would not become payable if the participant had terminated employment before the occurrence of the death or disability.

The *Present Value of All Accrued Benefits* recognizes All Accrued Benefits expected to become payable at future dates, including the accrued portion of disability and preretirement death benefits. Thus, the accrued benefit of a non-vested participant is included in this calculation to the extent it will become payable (i.e., vest) upon the occurrence of a future event such as termination, death, disability, or retirement.

The accrued benefit used in these calculations is based on the personnel data supplied by OPPD.

The interest rate used in these calculations is the same as the funding interest rate.

Vested Accrued Benefits, 1/1/2022

Retired and Beneficiaries	\$ 1,118,178,092
Terminated Vested	43,730,870
Active and Disabled Employees	<u>321,653,863</u>
Total Vested	\$ 1,483,562,825
Non-vested Benefits, 1/1/2022	<u>94,030,873</u>
Total Accrued Benefits, 1/1/2022	\$ 1,577,593,698
Interest Rate Used for These Calculations	6.50%

Historical Accrued Benefit Values and Funded Ratios

Valuation Date	Interest Rate	Accrued Benefit Value	Actuarial Assets	Funded Ratio	Market Assets	Funded Ratio
1/1/2022	6.50%	\$ 1,577,593,698	\$ 1,297,473,778	82.2%	\$ 1,289,136,318	81.7%
1/1/2021	7.00%	\$ 1,473,660,125	\$ 1,157,752,902	78.6%	\$ 1,157,752,902	78.6%
1/1/2020	7.00%	\$ 1,436,730,837	\$ 1,079,189,274	75.1%	\$ 1,055,344,216	73.5%
1/1/2019	7.00%	\$ 1,408,802,678	\$ 1,042,187,515	74.0%	\$ 919,804,594	65.3%
1/1/2018	7.00%	\$ 1,347,839,267	\$ 1,033,752,901	76.7%	\$ 1,020,385,607	75.7%
1/1/2017	7.00%	\$ 1,309,514,839	\$ 995,616,705	76.0%	\$ 904,819,988	69.1%
1/1/2016	7.00%	\$ 1,274,917,795	\$ 973,844,079	76.4%	\$ 869,489,088	68.2%
1/1/2015	7.75%	\$ 1,147,857,404	\$ 949,166,647	82.7%	\$ 903,563,000	78.7%
1/1/2014	7.75%	\$ 1,063,458,429	\$ 905,699,590	85.2%	\$ 886,689,000	83.4%
1/1/2013	7.75%	\$ 1,027,634,931	\$ 852,552,291	83.0%	\$ 800,941,000	77.9%
1/1/2012	7.75%	\$ 985,638,320	\$ 805,762,548	81.8%	\$ 711,973,000	72.2%
1/1/2011	7.75%	\$ 929,439,034	\$ 771,588,331	83.0%	\$ 707,943,000	76.2%
1/1/2010	8.00%	\$ 854,121,013	\$ 733,227,289	85.8%	\$ 636,262,350	74.5%
1/1/2009	8.00%	\$ 782,059,197	\$ 698,111,470	89.3%	\$ 505,449,000	64.6%
1/1/2008	8.20%	\$ 702,387,775	\$ 695,741,868	99.1%	\$ 659,737,600	93.9%
1/1/2007	8.20%	\$ 653,802,476	\$ 656,473,880	100.4%	\$ 635,020,300	97.1%
1/1/2006	8.20%	\$ 609,284,807	\$ 611,924,676	100.4%	\$ 574,286,900	94.3%
1/1/2005	8.40%	\$ 553,591,549	\$ 577,885,164	104.4%	\$ 549,264,200	99.2%
1/1/2004	8.40%	\$ 515,350,617	\$ 545,565,278	105.9%	\$ 508,132,200	98.6%
1/1/2003	8.50%	\$ 476,951,308	\$ 519,723,240	109.0%	\$ 433,102,700	90.8%
1/1/2002	8.75%	\$ 425,266,689	\$ 544,184,070	128.0%	\$ 494,471,300	116.3%

Historical Actuarial Accrued Liabilities and Funded Ratios

Valuation Date	Interest Rate	Actuarial Accrued Liability	Actuarial Assets	Funded Ratio	Market Assets	Funded Ratio
1/1/2022	6.50%	\$ 1,719,541,400	\$1, 297,473,778	75.5%	\$ 1,289,136,318	75.0%
1/1/2021	7.00%	\$ 1,607,360,663	\$ 1,157,752,902	72.0%	\$ 1,157,752,902	72.0%
1/1/2020	7.00%	\$ 1,567,265,214	\$ 1,079,189,274	68.9%	\$ 1,055,344,216	67.3%
1/1/2019	7.00%	\$ 1,537,959,944	\$ 1,042,187,515	67.8%	\$ 919,804,594	59.8%
1/1/2018	7.00%	\$ 1,476,147,956	\$ 1,033,752,901	70.0%	\$ 1,020,385,607	69.1%
1/1/2017	7.00%	\$ 1,443,717,502	\$ 995,616,705	69.0%	\$ 904,819,988	62.7%
1/1/2016	7.00%	\$ 1,406,958,596	\$ 973,844,079	69.2%	\$ 869,489,088	61.8%
1/1/2015	7.75%	\$ 1,310,736,895	\$ 949,166,647	72.4%	\$ 903,563,000	68.9%
1/1/2014	7.75%	\$ 1,224,899,093	\$ 905,699,590	73.9%	\$ 886,689,000	72.4%
1/1/2013	7.75%	\$ 1,184,996,831	\$ 852,552,291	71.9%	\$ 800,941,000	67.6%
1/1/2012	7.75%	\$ 1,155,410,379	\$ 805,762,548	69.7%	\$ 711,973,000	61.6%
1/1/2011	7.75%	\$ 1,094,908,920	\$ 771,588,331	70.5%	\$ 707,943,000	64.7%
1/1/2010	8.00%	\$ 1,018,913,896	\$ 733,227,289	72.0%	\$ 636,262,350	62.4%
1/1/2009	8.00%	\$ 963,324,892	\$ 698,111,470	72.5%	\$ 505,449,000	52.5%
1/1/2008	8.20%	\$ 868,897,940	\$ 695,741,868	80.1%	\$ 659,737,600	75.9%
1/1/2007	8.20%	\$ 819,314,262	\$ 656,473,880	80.1%	\$ 635,020,300	77.5%
1/1/2006	8.20%	\$ 771,906,685	\$ 611,924,676	79.3%	\$ 574,286,900	74.4%
1/1/2005	8.40%	\$ 702,300,052	\$ 577,885,164	82.3%	\$ 549,264,200	78.2%
1/1/2004	8.40%	\$ 658,260,260	\$ 545,565,278	82.9%	\$ 508,132,200	77.2%
1/1/2003	8.50%	\$ 614,382,408	\$ 519,723,240	84.6%	\$ 433,102,700	70.5%
1/1/2002	8.75%	\$ 548,292,461	\$ 544,184,070	99.3%	\$ 494,471,300	90.2%

Personnel Information

The actuarial valuation was based on personnel data supplied by OPPD. The first of the following tables contains a summary of the total participant group as of January 1, 2022. For comparison purposes, the January 1, 2021 figures are also shown.

Age and service have been determined for each participant in years and completed months as of the valuation date.

Number of Participants

	January 1, 2021	January 1, 2022
Retired and Beneficiaries	2,296	2,316
Terminated Vested	501	485
Disabled	26	19
Active	<u>1,788</u>	<u>1,808</u>
Total	4,611	4,628

Personnel Characteristics of Active Participants as of January 1, 2022

	Number	Average Age	Average Years of Service	Average Entry Age	Average Pay
Male	1,420	45.4	13.9	31.5	—
Female	<u>388</u>	<u>47.1</u>	<u>12.2</u>	<u>34.9</u>	—
Total	1,808	45.8	13.5	32.3	\$ 105,075

Characteristics for Inactive Participants

	Number	Average Age	Average Annual Benefit ¹
Retired and Beneficiaries	2,316	71.5	\$ 45,371
Terminated Vested	485	51.8	\$ 18,209

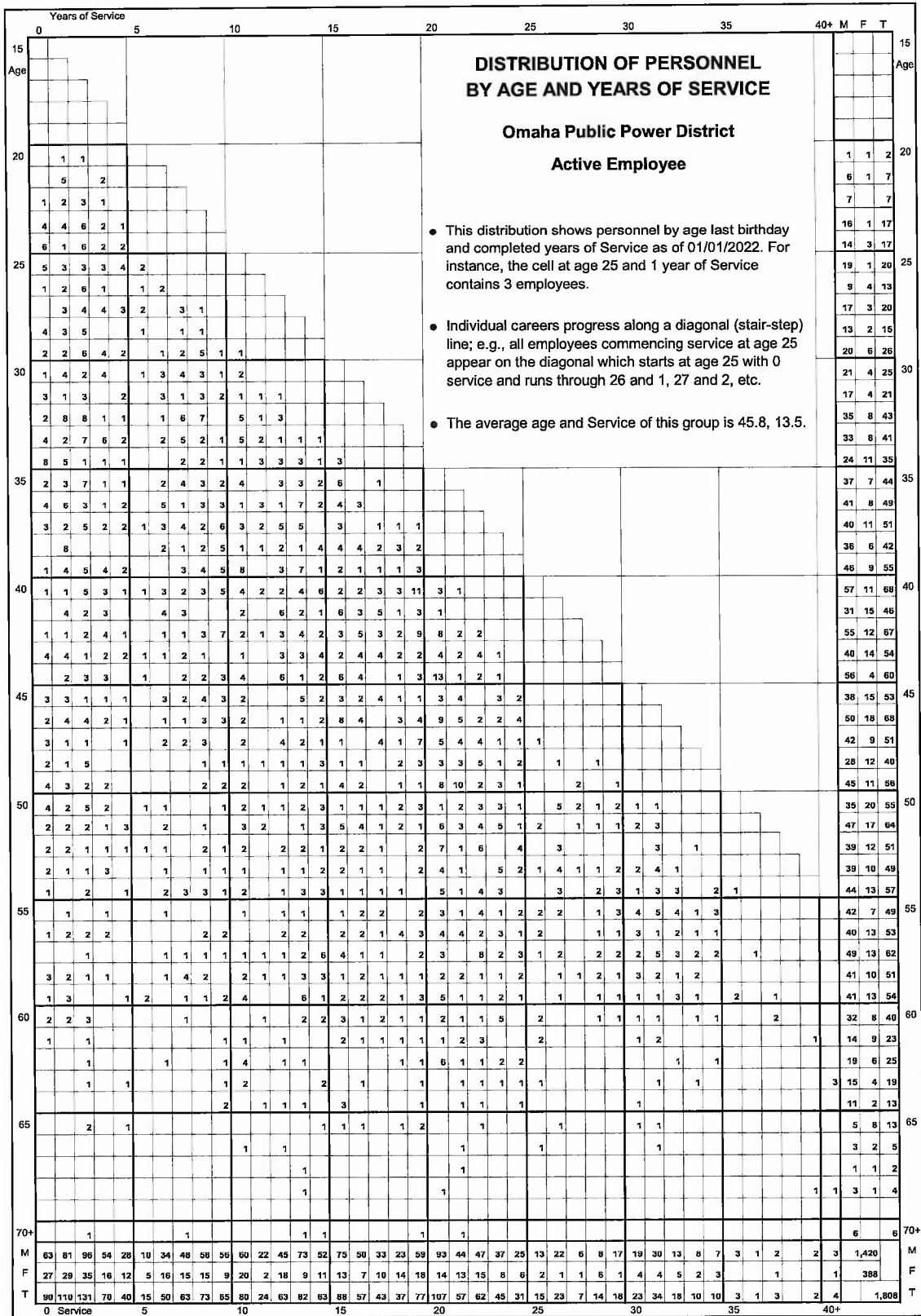
¹ Does not include terminated vested participants under the cash balance formula.

Distribution of Personnel

The following pages provide graphical and statistical summaries of the personnel data. Included are the following:

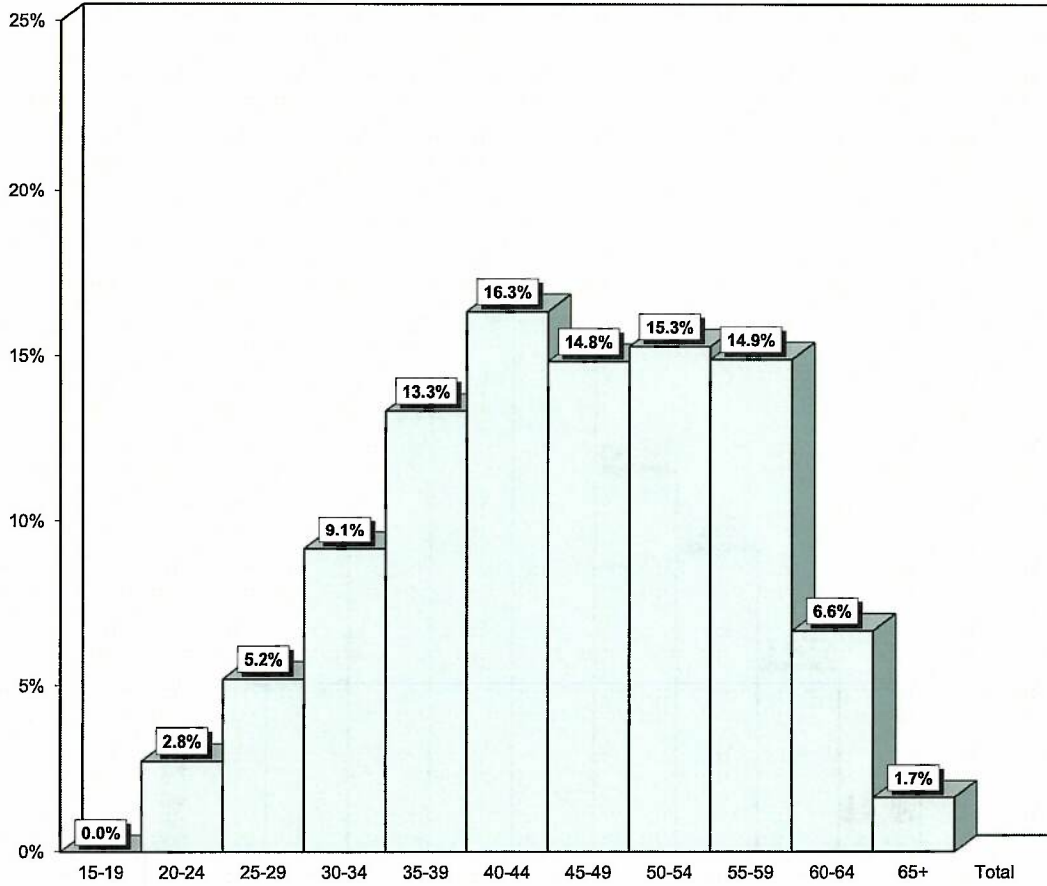
- A grid which presents the distribution of active participants by age and service.
- A bar chart which presents the distribution of active participants by five-year age groupings.
- A bar chart which presents the distribution of active participants currently age 55 or older by five-year groupings of expected service at age 65.

These charts and graphs are useful tools for analyzing many different characteristics of the current participants of the plan. When compared to prior years' valuations, trends in the active participant population can also be observed.



Distribution of Personnel by Age

**Omaha Public Power District
 Active Employee**



Age:

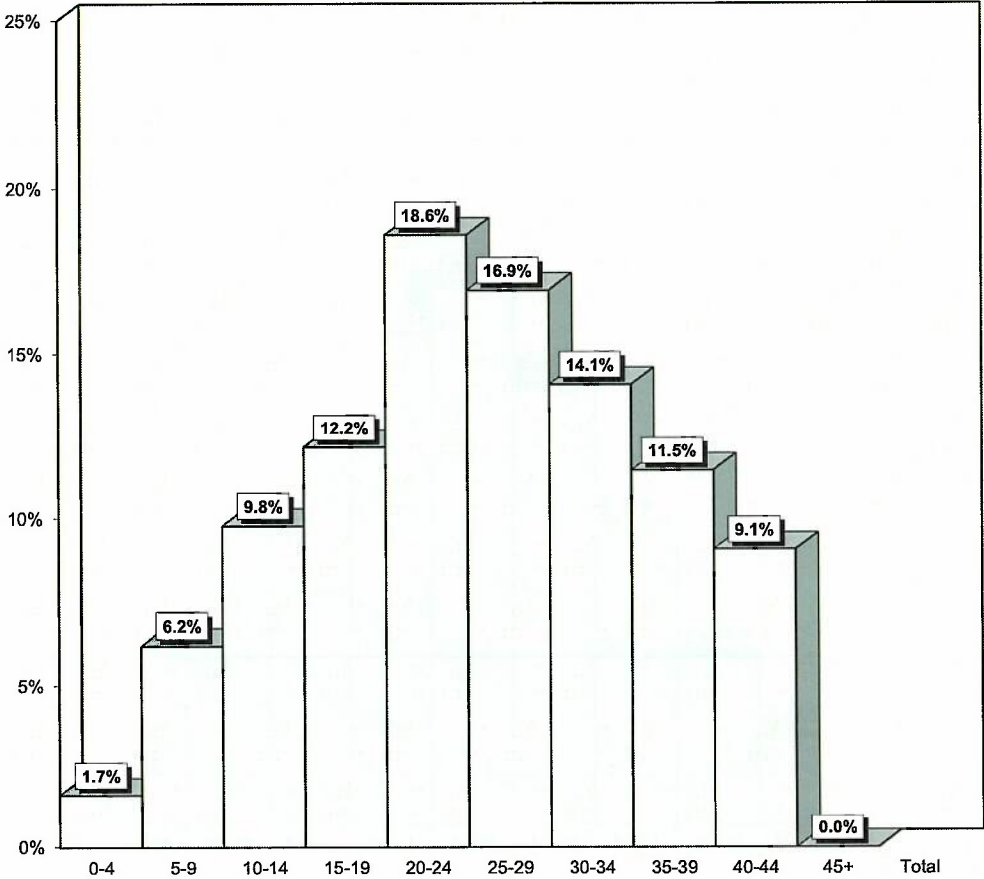
Number	0	50	94	165	241	295	268	276	269	120	30	1,808
Average Service	0.0	2.0	3.6	6.1	9.2	13.0	14.6	17.6	20.0	18.9	18.5	13.5

Detail of Employees 55 & Over

Age	55	56	57	58	59	60	61	62	63	64	65	66+
Number	49	53	62	51	54	40	23	25	19	13	13	17
Average Service	24.0	18.6	22.0	17.1	18.0	18.4	19.7	18.1	21.3	17.0	17.2	19.6

**Distribution of Personnel
 By Expected Service At Age 65
 (Based Upon Personnel Age 55 And Over)**

**Omaha Public Power District
 Active Employee**



Service:

Number	7	26	41	51	78	71	59	48	38	0	419
Average Service At Age 65*	3.4	7.4	12.6	17.4	22.3	27.1	32.0	37.8	41.7	0.0	25.2

* Or Current
 Age if Older

Plan Provisions

Plan Name	Omaha Public Power District Retirement Plan.
Effective Date	The original Plan became effective December 31, 1945. The plan was restated effective January 1, 2018.
Plan Year	Calendar year.
Eligibility	Full-time employees become eligible upon date of employment.
Participation	Each eligible employee shall immediately become a participant. A part-time employee may elect not to become a member. As of January 1, 2013 for non-union 763 employees and May 31, 2013 for union 763 employees, all new hires receive cash balance benefits.

Final Average Pay Formula Provisions

Normal Retirement	
Eligibility	Age 65.
Benefit	A normal retiree shall receive a monthly benefit equal to 2.25% of the participant's average monthly compensation per year of credited service. Participants who were participants in certain other prior pension plans will have their benefits reduced by prior plan benefits. Certain participants may have additional accrual rates apply by special provisions. A minimum benefit of the actuarial equivalent of a participant's contributions accumulated with interest at 5.5% to date of retirement exists for all participants.
Unreduced Early Retirement	
Eligibility	Ninety age/service points.
Benefit	An early retiree shall receive a monthly benefit computed in the same manner as a normal retirement benefit but based on the participant's average monthly compensation and credited service at the time of termination. This benefit is unreduced for early commencement.

Early Retirement

Eligibility

Some grandfathered at age 50 with 10 years of service and 70 age/service points. Else, Union 763 is age 50 with 25 years of service, and all others are age 55 with 20 years of service, or age 62 with 10 years of service.

Benefit

An early retiree shall receive a monthly benefit computed in the same manner as a normal retirement benefit but based on the participant's average monthly compensation and credited service at the time of termination. Further, this benefit will be reduced by the lesser of 3% per year from age 62, or 3% per point from 90 age/service points.

Deferred With Vesting

Eligibility

Five years of continuous service.

Benefit

A vested participant who terminates shall be entitled to receive an accrued benefit computed in the same manner as a normal retirement benefit, but based on the participant's average monthly compensation and credited service at the time of termination. Benefits may commence for early retirement. This benefit will be reduced 6% for each year the commencement date precedes age 65.

Preretirement Surviving Spouse Benefit

Eligibility

Five years of continuous service.

Benefit

A spouse who survives a vested participant who has not yet retired shall receive one-half of the benefit to which the participant would have been entitled had the participant retired on the day immediately preceding death. The benefit is reduced by 2% for each year that the surviving spouse is more than five years younger than the participant. The benefit continues during the lifetime of the spouse and begins upon the participant's death.

Preretirement Dependent Survivor Benefit

Eligibility

Actively employed full-time district employees.

Benefit

The percent of base pay at time of death paid as a survivor benefit will be 20% for one dependent, 40% for two dependents, and 50% for three or more dependents. The survivor benefit is offset by amounts payable from the preretirement surviving spouse benefit, workers' compensation survivor payments, and payments from other district-sponsored sources.

Return of Contributions

Eligibility

Plan participants not eligible for vested, death, early or normal retirement benefits. Terminated vested participants have the option to receive this benefit in lieu of their accrued benefit.

Benefit

Participant contributions accumulated with 5.5% interest will be returned.

Normal Form of Benefits

An unmarried participant shall receive a Life Annuity. Married participants will receive an unreduced 50% Joint and Survivor Annuity.

Definitions

Continuous Service	Years of employment with the district during which an employee is compensated for 1,000 or more hours.
Credited Service	One-twelfth of a year of credited service for each calendar month of Service to the district as a full-time employee or as a member by a part-time employee. For union 763 employees attaining 90 points after May 31, 2013, credited service is frozen upon attaining 90 points.
Compensation	Regular wages for services rendered to the District, including base pay, shift differentials and pay for service as an acting crew leader, but excluding any bonuses, pay for overtime and special pay.
Average Monthly Compensation	Average of compensation for the highest 18 consecutive months.
Employee Contributions	See table below. Rate may be adjusted based on the plan's funded status. For union 763 employees attaining 90 points after May 31, 2013, contributions are stopped upon attaining 90 points.

Year	Rate
2017	6.2%
2018	6.7%
2019	7.2%
2020	7.7%
2021	8.3%
2022	9.0%

Cash Balance Formula Provisions

Accrued Benefit

Pay Credits

A participant shall receive annual pay credits equal to a percentage of salary based on points (age plus service) as shown in the table below:

Points	2017	2018	2019	2020	2021	2022
<30	7.0%	8.0%	9.0%	10.0%	10.0%	10.0%
30-39	8.0%	9.0%	10.0%	10.5%	10.5%	10.5%
40-49	9.0%	10.0%	11.0%	11.5%	11.5%	11.5%
50-59	10.0%	10.5%	11.0%	11.5%	11.5%	12.0%
60-69	11.0%	11.5%	12.0%	12.5%	12.5%	12.5%
70-79	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%
80+	16.0%	16.0%	16.0%	16.0%	16.0%	16.0%

Interest Credits

A participant's account will increase annually at an interest crediting rate of 6.00%.

Normal Retirement

Eligibility	Age 65.
Benefit	Lump sum or an actuarial equivalent monthly benefit of their cash balance account.

Early Retirement

Eligibility	Some grandfathered at age 50 with 10 years of service and 70 age/service points. Else, Union 763 is age 50 with 25 years of service, and all others are age 55 with 20 years of service, or age 62 with 10 years of service.
Benefit	Lump sum or an actuarial equivalent monthly benefit of their cash balance account.

Deferred With Vesting

Eligibility	Five years of continuous service.
Benefit	Lump sum or an actuarial equivalent monthly benefit of their cash balance account.

Preretirement Surviving Spouse Benefit

Eligibility	Five years of continuous service.
Benefit	Lump sum or an actuarial equivalent monthly benefit of their cash balance account.

Preretirement Dependent Survivor Benefit

Eligibility	Actively employed full-time district employees.
Benefit	The percent of base pay at time of death paid as a survivor benefit will be 20% for one dependent, 40% for two dependents, and 50% for three or more dependents. The survivor benefit is offset by amounts payable from the preretirement surviving spouse benefit, workers' compensation survivor payments, and payments from other district-sponsored sources.

Return of Contributions

Eligibility	Plan participants not eligible for vested, death, early, or normal retirement benefits.
Benefit	Participant contributions accumulated with 5.5% interest will be returned.

Definitions

- Continuous Service** Years of employment with the district during which an employee is compensated for 1,000 or more hours.
- Credited Service** One-twelfth of a year of credited service for each calendar month of Service to the district as a full-time employee or as a member by a part-time employee.
- Compensation** Regular wages for services rendered to the District, including base pay, shift differentials and pay for service as an acting crew leader, but excluding any bonuses, pay for overtime and special pay.
- Employee Contributions** See table below. Rate may be adjusted based on the plans funded status.

Year	Rate
2017	6.2%
2018	6.7%
2019	7.2%
2020	7.7%
2021	8.3%
2022	9.0%

Actuarial Assumptions and Methods

The actuarial assumptions and methods used in the January 1, 2022 valuation are stated below.

Interest Rate	6.50%, based on the following factors: —Passive Return 6.15% —Active Management Premium 0.35% —Plan Expenses 0.00% (immaterial based on recent history and future expectations)																				
Inflation	2.50%																				
Salary Scale	Rates based on age. Sample rates below. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th style="text-align: left;">Age</th> <th style="text-align: left;">Annual Increase</th> </tr> </thead> <tbody> <tr><td>25</td><td>12.00%</td></tr> <tr><td>30</td><td>6.80%</td></tr> <tr><td>35</td><td>5.80%</td></tr> <tr><td>40</td><td>4.90%</td></tr> <tr><td>45</td><td>4.40%</td></tr> <tr><td>50</td><td>4.00%</td></tr> <tr><td>55</td><td>3.80%</td></tr> <tr><td>60</td><td>3.50%</td></tr> <tr><td>64</td><td>2.50%</td></tr> </tbody> </table>	Age	Annual Increase	25	12.00%	30	6.80%	35	5.80%	40	4.90%	45	4.40%	50	4.00%	55	3.80%	60	3.50%	64	2.50%
Age	Annual Increase																				
25	12.00%																				
30	6.80%																				
35	5.80%																				
40	4.90%																				
45	4.40%																				
50	4.00%																				
55	3.80%																				
60	3.50%																				
64	2.50%																				
Retirement Rates																					
Actives	See Table A.																				
Terminated Vesteds	Age 64.																				
Healthy Mortality	PUB-2010 General table projected using Scale MP-2021 with generational projection.																				
Disabled Mortality	PUB-2010 General Disabled Retiree table projected using Scale MP-2021 with generational projection.																				
Withdrawal Rates	Select and ultimate table (see Table B).																				
Disability Rates	See Table C.																				
Spousal Benefits	80% of males and 80% of females are assumed to be married. Males are assumed to be two years older than their spouses; females two years younger.																				
Form of Payment																					
Final Average Pay Formula	50% Joint and Survivor if married, else Single Life Annuity. 60% of terminated vested participants are assumed to elect the lump sum return of their contributions with interest.																				
Cash Balance Formula	100% lump sum.																				
Asset Valuation Method	Each year's asset gain or loss is spread evenly over five years. Assets were restated to market value January 1, 2021.																				
Actuarial Method	Entry Age Normal (Level Percent of Pay) Cost Method.																				
Section 415 Limits	All applicable IRC section 415 limits have been taken into account.																				

Table A
 Retirement Rates¹

Age	Service							
	<20	21	22	23	24	25	26	27
50	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
51	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
52	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
53	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
54	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
55	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
56	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.075
57	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
58	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
59	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.075
60	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
61	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
62	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
63	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.600
64	0.150	0.150	0.150	0.150	0.150	0.150	0.600	0.600
65	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450
66	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
67	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
68	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
69	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300

Age	Service							
	28	29	30	31	32	33	34	35+
50	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
51	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
52	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
53	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
54	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
55	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.600
56	0.075	0.075	0.075	0.075	0.075	0.075	0.600	0.600
57	0.150	0.150	0.150	0.150	0.150	0.600	0.600	0.400
58	0.200	0.200	0.200	0.200	0.600	0.600	0.400	0.400
59	0.075	0.075	0.075	0.600	0.600	0.400	0.400	0.400
60	0.150	0.150	0.600	0.600	0.400	0.400	0.400	0.400
61	0.150	0.600	0.600	0.400	0.400	0.400	0.400	0.400
62	0.600	0.600	0.400	0.400	0.400	0.400	0.400	0.400
63	0.600	0.400	0.400	0.400	0.400	0.400	0.400	0.400
64	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400
65	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450
66	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
67	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
68	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
69	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300

¹ Rates assume early retirement eligibility requirement is met.

Table B

Withdrawal Rates (prior to Eligibility for Early Retirement)

Age	Total	Age	Total
20	.0625	45	.0190
21	.0575	46	.0190
22	.0525	47	.0190
23	.0475	48	.0190
24	.0425	49	.0190
25	.0375	50	.0190
26	.0370	51	.0190
27	.0365	52	.0190
28	.0360	53	.0190
29	.0355	54	.0190
30	.0350	55	.0190
31	.0345	56	.0190
32	.0340	57	.0190
33	.0310	58	.0190
34	.0280	59	.0190
35	.0250	60	.0190
36	.0220	61	.0190
37	.0190	62	.0190
38	.0190	63	.0190
39	.0190	64	.0190
40	.0190		
41	.0190		
42	.0190		
43	.0190		
44	.0190		

Select turnover rates shown below are used for the first three years of employment.

	Service		
	1	2	3
All	.0750	.0750	.0750

Table C

Disability Rates

Age	Male	Female	Age	Male	Female
20	.00030	.00030	45	.00160	.00240
21	.00030	.00030	46	.00180	.00270
22	.00030	.00030	47	.00210	.00300
23	.00030	.00030	48	.00250	.00330
24	.00030	.00030	49	.00280	.00360
25	.00030	.00030	50	.00330	.00400
26	.00030	.00030	51	.00390	.00440
27	.00030	.00040	52	.00460	.00490
28	.00030	.00040	53	.00530	.00540
29	.00030	.00040	54	.00610	.00590
30	.00030	.00040	55	.00690	.00640
31	.00030	.00050	56	.00770	.00690
32	.00030	.00050	57	.00860	.00740
33	.00030	.00060	58	.00950	.00800
34	.00030	.00060	59	.01050	.00850
35	.00040	.00070	60	.01150	.00900
36	.00040	.00080	61	.01260	.00960
37	.00050	.00090	62	.01380	.01010
38	.00060	.00100	63	.01510	.01050
39	.00070	.00120	64	.01640	.01090
40	.00080	.00130			
41	.00090	.00150			
42	.00100	.00170			
43	.00120	.00190			
44	.00140	.00220			

Appendix F
Omaha Public Schools for the
OSERS Plan



Dr. Cheryl J. Logan
Superintendent

P 531-299-9822
F 531-299-0415

3215 Cuming Street
Omaha, NE 68131

district.ops.org

SUPERINTENDENT'S OFFICE

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October 12, 2022

Senator Mark Kolterman
District 24
State Capitol
PO Box 94604
Lincoln, NE 68509-4604

Senator Kolterman,

As requested in your letter dated September 1, 2022, included herein is the information required for the 2022 Reporting Form for Underfunded Political Subdivision Pension Plans.

1. Please list the following information for plan years 2018 through current plan year 2022:

a. Funding status

Information for OSERS is shown below. Dollar amounts are shown in millions.

	<u>1/1/2018</u>	<u>1/1/2019</u>	<u>1/1/2020</u>	<u>1/1/2021</u>	<u>1/1/2022</u>
<u>Actuarial Value of Assets:</u>					
Funded Ratio (AVA/AAL)	64%	63%	63%	62%	63%
Unfunded AAL (AAL-AVA)	\$771	\$814	\$848	\$914	\$913
<u>Market Value of Assets:</u>					
Funded Ratio (MVA/AAL)	58%	54%	58%	59%	66%
Unfunded AAL (AAL-MVA)	\$902	\$999	\$942	\$976	\$850

b. Assumed rate of return

The assumed rate of return was 7.5% from January 1, 2017 to January 1, 2021. The assumed rate of return has been adjusted as follows based on the December 6, 2021, Experience Study issued by Cavanaugh Macdonald:

January 1, 2022	7.40%
January 1, 2023	7.30%
January 1, 2024	7.20%
January 1, 2025	7.00%

Every student. Every day.
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c. Actual investment return

The dollar-weighted annualized rate of return, net of investment and administrative expenses, measured on the actuarial value of assets.

2017	4.20%
2018	2.90%
2019	5.20%
2020	6.00%
2021	8.90%

d. Member and employer contribution rates – percentage

From 2014 forward, the statutory member and employer contribution rates are 9.78% and 9.878%, respectively. The District also makes an additional contribution if the statutory rates are less than the full actuarial contribution rate (see section 1(g)).

e. Normal cost – percentage

The following is from the January 1, 2017 actuarial valuation through the January 1, 2022 valuation:

1/1/2018	13.00%
1/1/2019	12.96%
1/1/2020	12.88%
1/1/2021	12.76%
1/1/2022	12.59%

f. Actuarially required contribution (ARC) – percentage & dollar amount

See response to 1(g)

g. ARC contribution – actual dollar amount contributed & percentage of ARC actually contributed

<u>Reporting Period Ending</u>	<u>Annual Required Contribution</u>	<u>Total Employer Contribution</u>	<u>Employer Contribution as a Percentage of ARC Contribution</u>	<u>Employer Contribution as a Percentage of Covered Payroll</u>
12/31/2017	\$57,941,493	55145000 ⁽¹⁾	95.17% ⁽²⁾	15.35%
12/31/2018	\$63,111,681	\$63,112,000	100.00%	16.80%
12/31/2019	\$61,699,371	\$64,755.00	104.95%	17.75%
12/31/2020	\$63,114,251	\$64,646,000	102.43%	17.74%
12/31/2021	\$67,216,627	\$69,162,000	102.89%	18.11%

⁽¹⁾ Total employer contribution was for the short plan year September 1, 2016 through December 31, 2016

⁽²⁾ Based on the Board of Trustees' funding policy, not state statute. If state statute were used, this would be at or above 100%

2. Please provide a brief narrative of the circumstances that led to the current underfunding of the retirement plan.

As of January 1, 2022, the System had a market value of assets of \$1.626 billion, an increase of \$221 million from the prior valuation. The investment return for 2021 on the market value of assets was 17.8%.

The actuarial or smoothed value of assets as of January 1, 2022, was 1.563 billion, an increase of \$95 million from the prior valuation. This represents a return of 8.9% for calendar year 2021. There is currently \$63.3 million of deferred (unrecognized) investment gain (approximately 3.9% of the market value of assets). There was a substantial increase (improvement) in this deferred gain during the year (up from a \$62.4 million deferred loss from a year earlier). Absent additional unfavorable investment experience in future years to offset the recognition of this deferred gain, the System’s funded ratio will increase, and the actuarial contribution rate will decrease as it is reflected through the asset smoothing method. If this occurs, the System’s funded status would be expected to increase while the contribution shortfall would likely decrease.

The valuation results reflect net favorable experience for the 2021 plan year. The largest source of favorable experience (\$21 million) resulted from the return on actuarial value of assets (about 8.9%) being more than the expected return of 7.5%.

3. Have there been any changes in the actuarial methods and/or assumptions since the previous actuarial valuation report? If so, please describe.

By state statute, an experience study must be performed for all Nebraska public retirement plans, which includes the Omaha School Employees Retirement System, at least every four years. As a result of the 2021 quadrennial experience study, several changes to the actuarial assumptions and methods were recommended and adopted by the Board at their January 20, 2022 meeting. Please see the experience study report, dated December 6, 2021 for complete details and discussion on all of the actuarial assumption and method changes.

- Economic assumptions (phased in over four years):

	Current (2022)	2023	2024	2025
	<u>Valuation</u>	<u>Valuation</u>	<u>Valuation</u>	<u>Valuation</u>
Price Inflation	2.70%	2.60%	2.55%	2.35%
Real Return	4.70%	4.70%	4.65%	4.65%
Investment Return	7.40%	7.30%	7.20%	7.00%
General Wage Inflation	3.20%	3.10%	3.05%	2.85%
Covered Payroll Growth	3.20%	3.10%	3.05%	2.85%

- Demographic assumptions:
 - Mortality assumption was changes to the Pub-2010 General Employees Median Mortality Table. Generational mortality improvements will be modeled using the NPERS projection scale. No generational mortality improvement is reflected for disabled members.
 - Retirement rates and termination of employment rates for both Certificated and Classified members were adjusted to partially reflect observed experience.
 - The probability of a vested member electing a refund upon termination was adjusted for both Certificated and Classified members. The assumption is now based on years of service.
 - Active member marriage assumption was reduced from 100% to 85%.

- An explicit assumption for administrative expenses of 0.24% of payroll is included as a component of the actuarial contribution rate.
- Amortization period was reduced from 20 to 25 years for future amortization bases.

4. In what year is the plan’s funding ration expected to reach 100%?

If all actuarial assumptions are met each year in the future, the plan’s funding ratio is expected to reach 100% in 2049.

5. What is the method used to amortize the unfunded actuarial liability?

Effective with the January 1, 2017 valuation, OSERS began to amortize the UAAL using a “layered” approach. Under this method, the UAAL is split into pieces or “layers”; the initial or legacy UAAL was amortized, as a level-percent of payroll, over a closed 30-year period that began with the September 1, 2013 valuation. All ensuring UAAL bases, were to be amortized, as a level-percent of payroll, over a new 25-year period commencing on the respective valuation date. At the March 6, 2019 meeting, the Board of Trustees modified the system’s funding policy to reset the legacy amortization base equal to the UAAL as of January 1, 2019 with payments calculated as a level percentage of payroll over a closed 30-year period. New layers of UAAL that occur in the future will be amortized over new 30-year periods. As a result of the quadrennial experience study performed in 2021, effective with the January 1, 2022 valuation, new amortization bases will be amortized as a level-percent of pay over a closed 25-year period.

6. Please provide a description of corrective actions implemented to improve the funding status of the plan including, but not limited to, benefit changes, increased contribution rates and/or employer contributions. Please include any actuarial projections based on these changes and attach a copy of the actuarial projections.

- On August 16, 2022, Omaha Public Schools (OPS) transferred \$29.5 million to OSERS to fund the full 2022 actuarial required contribution, which is amortized over a 30-year period. This payment was \$7.7 million more than the statutorily required contribution of \$21.8 million. This was the fourth consecutive year OPS transferred more to OSERS to fund the plan than required. On August 6, 2021, OPS transferred \$24.1 million to OSERS to fund the 2021 actuarial required contribution, while only \$22.2 million was required. On August 18, 2020, OPS transferred \$21.4 million to OSERS to fund the 2020 actuarial required contribution, while only \$19.8 million was required. On August 8, 2019, OPS transferred \$21.3 million to OSERS to fund the 2019 actuarial required contribution, while only \$18.2 million was required.
- Projected additional District contributions over the next five years, based on the OSERS Board of Trustees’ policy, and assuming all assumptions are met in calendar years 2023 through 2027 are:

August 31, 2023	\$23.0 million
August 31, 2024	\$24.8 million
August 31, 2025	\$29.0 million
August 31, 2026	\$28.8 million
August 31, 2027	\$28.7 million

- The above projections are in addition to the statutorily required contributions attributable to the employee / employer (9.78% for employee and 9.878% for employer (or 101% of the employee contribution)). The projected numbers are meant to provide a trend and may not be relied upon as an absolute projection of the additional District contributions for future years. The actual investment returns on the trust assets in the future will heavily impact the amount of any additional District contributions in the future.

7. Please describe recent or ongoing negotiations with bargaining groups that may impact the plan's funding.

- Employees of the District are affiliated with several unions.
 - The Omaha Education Association (OEA) represents the District's teachers. The District and OEA are currently in year 2 of a 2-year contract covering the 2021-22 and 2022-23 school years. The total package (i.e., salaries and benefits) increased 4.57% for the 2022-23 fiscal year.
 - Service Employees International Union Local 226 (Local 226) represents the five different bargaining units within the District: Office Personnel, Operations, Nutrition, Transportation and Paraprofessionals.
 - The Office Personnel bargaining unit is in year 2 of a 2-year contract covering the 2021-22 and 2022-23 fiscal years. The total package (i.e., salaries and benefits) increased 9.92% for the 2022-23 fiscal year.
 - The Operations bargaining unit is in year 2 of a 2-year contract covering the 2021-22 and 2022-23 fiscal years. The total package (i.e., salaries and benefits) increased 4.27% for the 2022-23 fiscal year.
 - The Nutrition bargaining unit is in year 2 of a 2-year contract covering the 2021-22 and 2022-23 fiscal years. The total package (i.e., salaries and benefits) increased 4.50% for the 2022-23 fiscal year.
 - The Paraprofessionals bargaining unit is in year 2 of a 2-year contract covering the 2021-22 and 2022-23 fiscal years. The total package (i.e., salaries and benefits) increased 6.58% for the 2022-23 fiscal year.
 - The Transportation bargaining unit is in year 2 of a 2-year contract covering the 2021-22 and 2022-23 fiscal years. The total package (i.e., salaries and benefits) increased 4.14% for the 2022-23 fiscal year.
 - The Maintenance and Crafts Group is currently in year 1 of a 2-year contract covering the 2022-23 and 2023-24 fiscal years. The total package (i.e., salaries and benefits) increased 3.00% for the 2022-23 fiscal year.
 - The District and the Omaha School Administrators Association is currently in year 2 of a 2-year contract for the 2021-22 and 2022-23 fiscal years. The total package (i.e., salaries and benefits) increased 4.53% for the 2022-23 fiscal year.
 - The District and the Omaha School Psychologists Association are currently in year 3 of a 3-year contract for the 2020-21, 2021-22, and 2022-23 fiscal years. The total package (i.e., salaries and benefits) increased 4.19% for the 2022-23 fiscal year.
 - The District and Eastern Nebraska School Security Union Local #28 are currently in negotiations for a two-year contract for the 2021-22 and 2022-23 fiscal years. No agreement has been reached.
 - The District and the Educational Interpreters/Transliterators are currently in year 2 of a 2-year contract covering the 2021-22 and 2022-23 fiscal years. The total package (i.e., salaries and benefits) increased 2.67% for the 2022-23 fiscal year.
 - The District and the Bilingual Liaisons are currently in year 2 of a 2-year contract covering the 2021-22 and 2022-23 fiscal years. The Bilingual Liaisons were previously part of the non-negotiated group, so new salary schedules were created for the 2021-22 and 2022-23 fiscal years. The total package (i.e., salaries and benefits) increased 4.29% for the 2022-23 fiscal year.

8. Please attach a copy of the most recent Actuarial Experience Study. When will the next Actuarial Experience Study be completed and available for review by the Committee?

The most recent four-year Actuarial Experience Study covering the period January 1, 2017 through December 31, 2020 is attached herein.

9. What is the current assumed rate of return? If the rate has been changed in the past year, or if there are plans to review the rate in the upcoming year, please describe.

By state statute, an experience study must be performed for all Nebraska public retirement plans, which includes the Omaha School Employees Retirement System, at least every four years. As a result of the 2021 quadrennial experience study, several changes to the actuarial assumptions and methods were recommended and adopted by the Board at their January 20, 2022 meeting. Please see the experience study report, dated December 6, 2021 for complete details and discussion on all of the actuarial assumption and method changes. The rate of return will be lowered over four years from 7.5% to 7.0%.

10. Please attach the most recent actuarial valuation report. If the valuation report is completed biannually (or less often) please indicate an updated report for the interim year/s. if available.

A copy of the current report (as of January 1, 2022) is attached herein.

Sincerely,



Cheryl Logan Ed.D.
Superintendent
Omaha Public Schools

Enclosures:

- 70th Annual Actuarial Report – Omaha School Employees Retirement System (January 1, 2022)
- Omaha School Employees Retirement System – Four Year Experience Study (January 1, 2017 to December 31, 2020)



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**Seventieth
Annual Actuarial Report**

**OMAHA SCHOOL EMPLOYEES'
RETIREMENT SYSTEM**

as of January 1, 2022



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The experience and dedication you deserve

April 27, 2022

OSERS Board of Trustees
Board of Education
Omaha School Employees' Retirement System
3215 Cuming Street
Omaha, NE 68131

Re: Seventieth Annual Actuarial Report

Dear Board Members:

At your request, we have performed an actuarial valuation of the Omaha School Employees' Retirement System (OSERS) as of January 1, 2022. The major findings of the valuation are contained in this report, including the actuarial contribution rate and the additional School District contribution for the valuation year ending December 31, 2022. Several changes to the actuarial assumptions and methods have been adopted by the Board as a result of the quadrennial experience study completed in 2021. In addition, Legislative Bill 147 (LB 147), which was passed by the 2021 Nebraska Legislature, modified the eligibility requirements to participate in the System. These changes, and their impact on the current valuation results, are discussed in further detail in the Executive Summary of this report

In preparing this report, we relied, without audit, on information (some oral and some written) supplied by the System's staff. This information includes, but is not limited to, statutory provisions, member data and financial information. While we found this information to be reasonably consistent and comparable with information used in prior years, we did not audit the data. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

In order to prepare the results in this report, we have utilized actuarial models that were developed to measure liabilities and develop actuarial costs. These models include tools that we have produced and tested, along with commercially available valuation software that we have reviewed to confirm the appropriateness and accuracy of the output. In utilizing these models, we develop and use input parameters and assumptions about future contingent events along with recognized actuarial approaches to develop the needed results. 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; 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

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plan provisions or applicable law. Due to the limited scope of our report, we did not perform an analysis of the potential range of future measurements. The Board of Education has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix C based on the experience study performed in 2021.

The actuarial computations presented in this report are for purposes of determining the actuarial contribution rate for the System, as set out in the Nebraska State Statutes. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes. For example, actuarial computations for purposes of fulfilling financial accounting requirements for the System under Governmental Accounting Standards No. 67 and No. 68 are presented in separate reports.

We note that as we prepare this report, the world is still recovering from the Covid-19 pandemic. We have considered all available information, but do not believe there is sufficient data yet to warrant the modification of any of our assumptions at this time. We will continue to monitor the situation and advise the Board in the future of any adjustments we believe would be appropriate.

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

This is to certify that the independent consulting actuaries have experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement system and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System. We, Patrice A. Beckham, FSA and Bryan K. Hoge, FSA, are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein. We are available to answer any questions on the material contained in this report or to provide explanations or further details as may be appropriate.

We herewith submit the following report and look forward to discussing it with you.

Respectfully Submitted,

Cavanaugh Macdonald Consulting, LLC

A handwritten signature in cursive script, appearing to read 'Patrice Beckham', written in black ink.

Patrice A. Beckham, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in cursive script, appearing to read 'Bryan K. Hoge', written in black ink.

Bryan K. Hoge, FSA, EA, FCA, MAAA
Consulting Actuary



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EXECUTIVE SUMMARY

The primary purposes of performing the actuarial valuation are as follows:

- to calculate the actuarial required contribution (ARC) rate necessary to maintain the solvency of the System, as set out in the Board of Education's Funding Policy,
- to determine the additional School District contribution amount, if any, given the fixed statutory contribution rates for members, the School District (101% of members' contributions), and the State of Nebraska;
- to evaluate the funded status of the System and disclose various asset and liability measures as of the valuation date;
- to evaluate and disclose the key risks to funding the System pursuant to Actuarial Standard of Practice Number 51;
- to determine the actual versus expected experience of the System since the last valuation; and
- to analyze and report on trends in System contributions, assets, and liabilities over the past several years.

By state statute, an experience study must be performed for all Nebraska public retirement plans, which includes the Omaha School Employees Retirement System, at least every four years. As a result of the 2021 quadrennial experience study, several changes to the actuarial assumptions and methods were recommended and adopted by the Board at their January 20, 2022 meeting. Please see the experience study report, dated December 6, 2021 for complete details and discussion on all of the actuarial assumption and method changes. The key assumption changes include:

- Economic assumptions (phased in over four years):
 - Price inflation assumption was lowered from 2.75% to 2.35%.
 - Investment return assumption was lowered from 7.50% to 7.00%.
 - Payroll growth assumption was lowered from 3.25% to 2.85%.
 - Individual salary increase assumption was changed to reflect the lower general wage inflation, as well as changes to the merit salary scale to better reflect the observed experience.
- Demographic assumptions:
 - Mortality assumption was changed to the Pub-2010 General Employees Median Mortality Table. Generational mortality improvements will be modeled using the NPERS projection scale. No generational mortality improvement is reflected for disabled members.
 - Retirement rates and termination of employment rates for both Certificated and Classified members were adjusted to partially reflect observed experience.
 - The probability of a vested member electing a refund upon termination was adjusted for both Certificated and Classified members. The assumption is now based on years of service.
 - Active member marriage assumption was reduced from 100% to 85%.
- An explicit assumption for administrative expenses of 0.24% of payroll is included as a component of the actuarial contribution rate.
- Amortization period was reduced from 30 to 25 years for future amortization bases.



EXECUTIVE SUMMARY

The changes to the economic assumptions are being phased in over four years, beginning with the January 1, 2022 valuation, as follows:

	Current (2022 Valuation)	2023 Valuation	2024 Valuation	2025 Valuation
Price Inflation	2.70%	2.60%	2.55%	2.35%
Real Return	4.70%	4.70%	4.65%	4.65%
Investment Return	7.40%	7.30%	7.20%	7.00%
General Wage Inflation	3.20%	3.10%	3.05%	2.85%
Covered Payroll Growth	3.20%	3.10%	3.05%	2.85%

The impact of the changes in the actuarial assumption and methods on the January 1, 2022 valuation results is summarized in the following table (\$ in millions). The net impact was an increase in both the actuarial accrued liability (\$0.1 million) and the actuarial required contribution rate (0.08% of payroll).

(\$ in millions)	Prior Assumptions and Methods	Current Assumptions and Methods	Difference
Actuarial Accrued Liability (AAL)	\$2,475.9	\$2,476.1	\$0.1
Actuarial Value of Assets	<u>1,562.8</u>	<u>1,562.8</u>	<u>0.0</u>
Unfunded AAL (UAAL)	\$ 913.2	\$ 913.3	\$0.1
Funded Ratio	63.12%	63.12%	0.00%
Normal Cost Rate	12.69%	12.59%	(0.10%)
Administrative Expenses	0.00%	0.24%	0.24%
UAAL Amortization Rate	<u>14.42%</u>	<u>14.36%</u>	<u>(0.06%)</u>
Total Actuarial Required Contribution	27.11%	27.19%	0.08%
Total Statutory Contribution Rate	21.66%	21.66%	0.00%
Additional Required District Contribution	\$21.5	\$21.8	\$0.3

Note: Numbers may not add/subtract due to rounding.

While the current valuation results reflect only a modest change to both the actuarial accrued liability and the actuarial required contribution rate, the continued phase-in of the economic assumptions is expected to increase both the unfunded actuarial accrued liability (UAAL) and the additional required contribution by the District over the next three years, absent the impact of future favorable experience. For example, if the ultimate set of economic assumptions was fully recognized in this valuation, it would increase the UAAL by an additional \$98.8 million and the total actuarial contribution rate by 2.27% of pay. The resulting additional required District contribution would increase to \$30.6 million.



EXECUTIVE SUMMARY

In addition to the changes to the actuarial assumptions and methods, Legislative Bill 147 (LB 147), passed by the 2021 Legislature, modified the eligibility requirements to participate in the System. Previously, an employee had to be hired on a full-time basis, which constituted a work week of no less than 30 hours. LB 147 provided employees who are contracted for less than 30 hours per week to participate in the System, if they average more than 30 hours per week during any three calendar months of a fiscal year. We did not receive census data that would allow us to quantify the impact of LB 147 on the January 1, 2022 valuation.

This report presents the results of the January 1, 2022 actuarial valuation of the Omaha School Employees' Retirement System (OSERS). The actuarial valuation results provide a "snapshot" view of the System's financial condition on January 1, 2022 based on the System's membership, benefit structure, and assets on that date. Key results are shown in the following table:

(\$ in millions)	January 1, 2022	January 1, 2021	Change
Actuarial Accrued Liability (AAL)	\$2,476.1	\$2,381.4	\$94.7
Actuarial Value of Assets	<u>1,562.8</u>	<u>1,467.8</u>	95.0
Unfunded AAL (UAAL)	\$913.3	\$913.5	(\$0.2)
Funded Ratio	63.12%	61.64%	1.48%
Normal Cost Rate	12.59%	12.76%	(0.17%)
Administrative Expense Rate	0.24%	0.00%	0.24%
UAAL Contribution Rate	<u>14.36%</u>	<u>14.77%</u>	<u>(0.41%)</u>
Total Actuarial Contribution Rate	27.19%	27.53%	(0.34%)
Statutory Contribution Rate	<u>(21.66%)</u>	<u>(21.66%)</u>	<u>0.00%</u>
Contribution Shortfall	5.53%	5.87%	(0.34%)
Additional District Contribution*	\$21.8	\$22.2	(\$0.4)

* Contribution amount is calculated as of August 31

The valuation results reflect net favorable actuarial experience for the 2021 valuation year as demonstrated by an unfunded actuarial accrued liability that was less than expected, based on the results of the prior valuation. The rate of return on the market value of assets during 2021 was 17.8%, higher than the assumed rate of return for that period of 7.50%. Due to the use of an asset smoothing method, all of the 2021 investment experience is not reflected immediately in the valuation. As a result, the return on the actuarial value of assets for 2021 was 8.9%, which resulted in an actuarial gain of \$21.1. The favorable asset experience was partially offset by a net actuarial loss of \$15.3 million on liabilities. During calendar year 2021, the additional contribution by the School District of \$24.1 million was higher than the additional actuarial contribution of \$22.2 million. Which resulted in a \$1.9 million decrease in the unfunded actuarial accrued liability.



EXECUTIVE SUMMARY

Membership

Over the last decade, there have been multiple changes to the benefit structure for OSERS members although all members contribute at the same rate of 9.78%. A summary of the key provision changes is below:

Provision	Tier 1 (Pre July 1, 2013)	Tier 2 (July 1, 2013)	Tier 3 (July 1, 2016)	Tier 4 (July 1, 2018)
Final Average Compensation (FAC)	Average of highest 3 fiscal years	Average of highest 5 fiscal years	Average of highest 5 fiscal years	Average of highest 5 fiscal years
Benefit formula	2.0% * FAC * Years of Creditable Service	2.0% * FAC * Years of Creditable Service	2.0% * FAC * Years of Creditable Service	2.0% * FAC * Years of Creditable Service
Cost of Living Adjustment	Lesser of 1.5% and actual CPI Medical COLA starting 10 years after retirement	Lesser of 1.0% and actual CPI. Medical COLA starting 10 years after retirement	Lesser of 1.0% and actual CPI. No medical COLA	Lesser of 1.0% and actual CPI. No medical COLA
Form of payment	5 years certain and life	5 years certain and life	5 years certain and life	5 years certain and life
Normal Retirement	35 Years of Service Age 65 and 5 Years of Omaha Service Age 62 and 10 Years of Service Rule of 85 (Min age of 55)	35 Years of Service Age 65 and 5 Years of Omaha Service Age 62 and 10 Years of Service Rule of 85 (Min age of 55)	Age 65 and 5 Years of Omaha Service Rule of 85 (Min age of 55)	Age 65 and 5 Years of Omaha Service Rule of 85 (Min age of 60)
State Service Annuity	\$3.50 * Years of Service	\$3.50 * Years of Service	No state service annuity	No state service annuity

Each benefit tier has a slightly lower cost than the prior tier as evidenced in a lower normal cost rate (see Exhibit 4). Over time, as current active members covered by benefit Tiers 1 through 3 leave covered employment and are replaced by Tier 4 members the cost of the System is expected to decrease slightly. However, it is expected to take another 10 to 15 years before the impact on the valuation results is material.



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The following table summarizes the System's membership, by group, in the current and prior valuation. The active member count decreased from 7,182 to 7,086 (1.3%) and the number of members receiving a benefit increased from 5,089 to 5,238 (2.9%). The total projected payroll increased by 4.3% from \$373.7 million in the January 1, 2021 valuation to \$389.6 million in the current valuation.

SYSTEM MEMBERSHIP	Jan. 1, 2022	Jan. 1, 2021	% Chg
1. Active Members			
a. Certificated			
(1) Tier 1	2,422	2,628	(7.8)
(2) Tier 2	619	684	(9.5)
(3) Tier 3	453	514	(11.9)
(4) Tier 4	<u>1,190</u>	<u>954</u>	24.7
(5) Total	4,684	4,780	(2.0)
b. Classified			
(1) Tier 1	892	1,030	(13.4)
(2) Tier 2	278	323	(13.9)
(3) Tier 3	238	285	(16.5)
(4) Tier 4	<u>994</u>	<u>764</u>	30.1
(5) Total	2,402	2,402	0.0
c. Total			
(1) Tier 1	3,314	3,658	(9.4)
(2) Tier 2	897	1,007	(10.9)
(3) Tier 3	691	799	(13.5)
(4) Tier 4	<u>2,184</u>	<u>1,718</u>	27.1
(5) Total	7,086	7,182	(1.3)
2. Retirees and Disabled Members	4,954	4,829	2.6
3. Beneficiaries	284	260	9.2
4. Inactive Vested Members			
(1) Tier 1	1,156	1,108	4.3
(2) Tier 2	171	115	48.7
(3) Tier 3	<u>34</u>	<u>0</u>	
(4) Total	1,361	1,223	11.3
5. Nonvested Terminations			
(1) Tier 1	253	272	(7.0)
(2) Tier 2	122	146	(16.4)
(3) Tier 3	227	239	(5.0)
(4) Tier 4	<u>550</u>	<u>260</u>	111.5
(5) Total	1,152	917	25.6
6. Total	14,837	14,411	3.0



EXECUTIVE SUMMARY

Assets

As of January 1, 2022, the System had total assets of \$1.626 billion measured on a market value basis. This was an increase of \$220.7 million from the prior valuation and represents an annualized net rate of return, as provided by the Nebraska Investment Council, of 17.8%.

The market value of assets is not used directly in the calculation of the unfunded actuarial accrued liability (UAAL) and actuarial contribution rate. An asset valuation method, which smooths the effect of market fluctuations, is used to determine the value of assets used in the valuation. This amount, called the “actuarial value of assets”, is equal to the expected asset value, based on the actuarial value in the prior valuation and the assumed investment return of 7.5% for 2021, plus 25% of the difference between the actual market value and the expected asset value. The resulting value must be no less than 80% of market value and no more than 120% of market value (referred to as a “corridor”). The corridor did not apply this year as the actuarial value of assets was 96% of market value. The actuarial value of assets as of January 1, 2022 was \$1.563 billion, an increase of \$95.0 million from the prior year. The components of change in the actuarial and market values of assets from January 1, 2021 to January 1, 2022 are shown in the following table.

	Asset Values (\$M)	
	Market	Actuarial
Net Assets, as of January 1, 2021	\$1,405.4	\$1,467.8
• Adjustment for Late Reporting	0.0	0.0
Adjusted Net Assets, as of January 1, 2021	\$1,405.4	\$1,467.8
• District, State and Member Contributions	108.4	108.4
• Benefits Payments and Refunds	(143.2)	(143.2)
• Investment Return, Net of Expenses	255.4	129.8
Preliminary Assets, January 1, 2021	\$1,626.0	\$1,562.8
• Application of Corridor	N/A	0.0
Final Assets, as of January 1, 2022	\$1,626.0	\$1,562.8

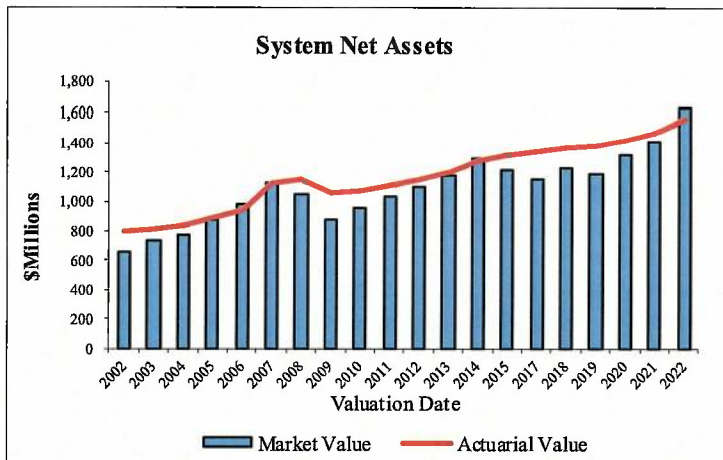
The dollar-weighted annualized rate of return, net of investment and administrative expenses, measured on the actuarial value of assets was approximately 8.9%. A comparison of asset values on both the market and actuarial basis is shown below:

	1/1/2018	1/1/2019	1/1/2020	1/1/2021	1/1/2022
Market Value of Assets	\$1,234	\$1,194	\$1,324	\$1,405	\$1,626
Actuarial Value of Assets	1,365	1,379	1,418	1,468	1,563
Actuarial Value/ Market Value	111%	115%	107%	104%	96%

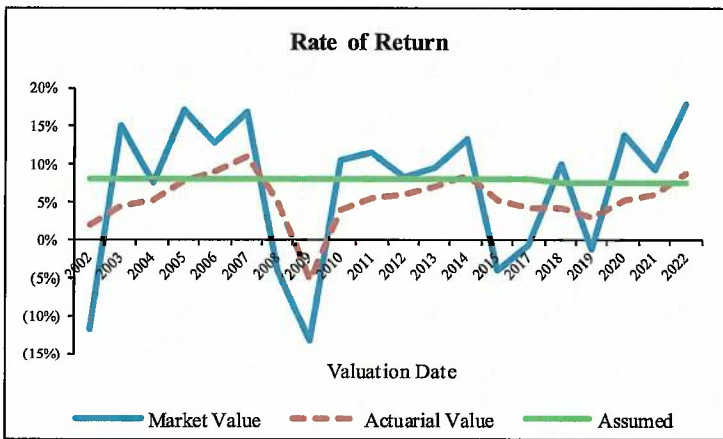


EXECUTIVE SUMMARY

Due to the strong investment performance during calendar year 2021, the System has a deferred asset gain (market value of assets exceeds the actuarial value) for the first time since the 2014 valuation. Absent unfavorable investment experience in future years to offset the recognition of this deferred gain, it will work through the asset smoothing method and increase the System's funded ratio and decrease the actuarial contribution rate. The recognition of the deferred investment gain in future years would be expected to lower the additional School District contributions as well if no other changes were made.



With the use of an asset smoothing method, the actuarial value is expected to be both above and below the market value of assets over a long period of time. However, for most of this period, the actuarial value of assets has exceeded the market value of assets.



The historical estimated rate of return on both the actuarial and market value of assets is shown in this graph. The asset smoothing method mitigates the volatility of market value returns as shown in the rates of return on the actuarial versus market value of assets.

Liabilities

The actuarial accrued liability is that portion of the present value of future benefits that will not be paid by future employer normal costs or member contributions. The difference between this liability and asset values at the same date is referred to as the unfunded actuarial accrued liability. The unfunded actuarial accrued liability will be reduced if the employer's contributions exceed the employer's normal cost for the year, after allowing for interest earned on the prior balance of the unfunded actuarial accrued liability. Benefit improvements, experience gains and losses, and changes in actuarial assumptions and methods also impact the total actuarial accrued liability and the unfunded portion thereof.



EXECUTIVE SUMMARY

The unfunded actuarial accrued liability as of January 1, 2022 is shown below:

Actuarial Accrued Liability	\$ 2,476,073,000
Actuarial Value of Assets	<u>1,562,787,000</u>
Unfunded Actuarial Accrued Liability	\$ 913,286,000

Numerous factors contributed to the change in the System's UAAL during the 2021 plan year. The components are examined in the following discussion.

Actuarial gains (or losses) result from actual experience that is more (or less) favorable than anticipated based on the actuarial assumptions. These "experience" (or actuarial) gains or losses are reflected in the UAAL and are measured as the difference between the expected unfunded actuarial accrued liability and the actual unfunded actuarial accrued liability, taking into account any changes due to assumption, method or benefit provision changes. Overall, the System experienced an actuarial gain of \$5.8 million. The investment return on the actuarial value of assets of 8.9% was higher than the assumed return of 7.5% for 2021, resulting in an actuarial gain of \$21.1 million. This was partially offset by a net actuarial loss of \$15.3 million on the actuarial accrued liability. The largest source of unfavorable liability experience was larger salary increases than expected by the actuarial assumptions. Exhibit 9 shows a breakdown of the various sources of liability experience during the 2021 plan year.

The change in the unfunded actuarial accrued liability between January 1, 2021 and January 1, 2022 is shown in the following table (in millions):

Change in Unfunded Actuarial Accrued Liability (\$M)	
Unfunded Actuarial Accrued Liability, January 1, 2021	\$914
• Expected Change in UAAL	
- Amortization Method	11
- Contributions greater than the actuarial required contribution	(2)
• Investment Experience	(21)
• Liability Experience	15
• Assumption Changes	0
• Other Experience	(4)
Unfunded Actuarial Accrued Liability, January 1, 2022	\$913

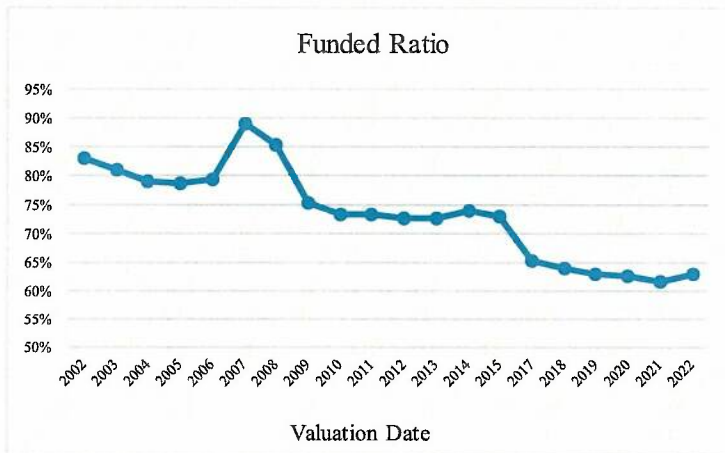
An evaluation of the unfunded actuarial accrued liability on a pure-dollar basis may not provide a complete analysis since only the difference between the assets and liabilities (which are both large numbers) is reflected. Another way to evaluate the unfunded actuarial accrued liability and the progress made in its funding is to track the funded status, the ratio of the actuarial value of assets to the actuarial accrued liability. Note that the funded ratio does not necessarily indicate whether or not additional funding is needed, nor does it indicate whether or not the plan has sufficient funds to settle all current obligations.



EXECUTIVE SUMMARY

The funded status of OSERS is shown below (in millions):

	1/1/17	1/1/18	1/1/19	1/1/20	1/1/21	1/1/22
Using Actuarial Value of Assets:						
Funded Ratio (AVA/AAL)	65%	64%	63%	63%	62%	63%
Unfunded AAL (AAL - AVA)	\$713	\$771	\$814	\$848	\$914	\$913
Using Market Value of Assets:						
Funded Ratio (MVA/AAL)	56%	58%	54%	58%	59%	66%
Unfunded AAL (AAL - MVA)	\$902	\$902	\$999	\$942	\$976	\$850



Changes in actuarial assumptions and methods, coupled with investment returns below the assumed rate and contributions below the actuarial rate significantly reduced the funded ratio over much of this period. However, with the Board's current funding policy and the statutory requirement for the full actuarial contribution to be made, the funded ratio is expected to increase in the future, assuming all assumptions are met.

Contributions

The actuarial contribution rate for the System consists of:

- a “normal cost” for the portion of projected liabilities allocated by the actuarial cost method to service of members during the year following the valuation date,
- an “administrative expense contribution rate” for the expenses expected to be paid from the trust during the year following the valuation date,
- an “unfunded actuarial accrued liability contribution” for the excess of the portion of projected liabilities allocated to service to date over the actuarial value of assets.

The actuarial contribution rate is computed based on the Board of Education's Funding Policy. On that basis, the actuarial contribution rate (Item 4 in the following table) is equal to the sum of the normal cost rate, the administrative expense rate, and the amortization payment on the UAAL. Effective with the January 1, 2017 valuation, OSERS began to amortize the UAAL using a “layered” approach. Under this method, the UAAL is split into pieces or layers; the initial or legacy UAAL was amortized, as a level-percent of payroll, over a closed 30-year period that began with the September 1, 2013 valuation (27 years remained as of the January 1, 2017 valuation). All ensuing UAAL bases were to be amortized, as a level-percent of payroll, over a new 25-year period commencing on the respective valuation date. At the March 6, 2019 meeting, the OSERS Board of Trustees modified the System's Funding Policy to reset the legacy



EXECUTIVE SUMMARY

amortization base to the unfunded actuarial accrued liability (UAAL) as of January 1, 2019 with payments calculated as a level percentage of payroll over a closed 30-year period. New layers of UAAL that occurred in the future were also to be amortized over new 30-year periods. As a result of the quadrennial experience study performed in 2021, effective with the January 1, 2022 valuation, new amortization bases will be amortized as a level-percent of pay over a closed 25-year period.

The actuarial contribution rate for the plan year ending December 31, 2022, and the resulting additional School District contribution, is computed based on the January 1, 2022 actuarial valuation. The ongoing, fixed contributions to the System are set by state statute and are shown below in item 5, "Statutory Contribution Rate". They include the member contribution rate of 9.78%, the State contribution rate of 2.00%, and the School District contribution rate which is 101% of the member contribution rate.

Based on the results of this valuation, the District's additional contribution for the 2022 plan year is 5.53%, or \$21.8 million, as shown in the table below:

Contribution Rate	Actuarial Valuation	
	1/1/2022	1/1/2021
1. Normal Cost	12.59%	12.76%
2. Administrative Expenses	0.24%	0.00%
3. UAAL Contribution	<u>14.36%</u>	<u>14.77%</u>
4. Total Actuarial Contribution Rate	27.19%	27.53%
5. Statutory Contribution Rate	21.66%	21.66%
6. Contribution Shortfall / (Margin) (4)-(5)	5.53%	5.87%
7. Additional District Contribution (\$M)	\$21.8	\$22.2

Various factors resulted in a net decrease in the actuarial contribution rate from the prior valuation. Overall, the total contribution rate has decreased by 0.34%, as shown in the following table.

Total Actuarial Contribution Rate	
Total Contribution Rate as of January 1, 2021	27.53%
• Contributions Different Than Actuarial Rate	(0.03%)
• Investment Experience	(0.32%)
• Liability Experience	0.23%
• Change in Normal Cost Rate	(0.07%)
• Payroll Growth Different Than Expected	(0.17%)
• Assumption Changes	0.08%
• Other Experience	(0.06%)
Total Contribution Rate as of January 1, 2022	27.19%



EXECUTIVE SUMMARY

The difference in the actuarial contribution rate and the statutory contribution rate results in a contribution shortfall for 2022 of 5.53% of covered payroll, or \$21.8 million. Due to the favorable investment experience on the market value of assets for the year ending December 31, 2021, the \$62.4 million of deferred investment loss in the prior valuation has been eliminated and a deferred investment gain of \$63.3 million currently exists (market value exceeds the actuarial value of assets). Absent unfavorable investment experience in future years to offset the recognition of the deferred investment gain, the actuarial contribution rate is expected to decrease as the deferred investment experience is reflected through the asset smoothing method. If this occurs, the System's funded status is expected to increase and the actuarial contribution rate shortfall is expected to decrease. The following table illustrates the impact of the deferred investment experience and the phase-in of the economic assumptions on the District's additional contribution, if all assumptions are met in the future (\$ in millions):

Year Ended December 31,	Total Payroll	Actuarial Recommended Contribution	Member and State Statutory	District Statutory	District Additional	District Additional (August 31)
2022	\$389.6	27.19%	11.78%	9.88%	5.53%	\$21.8
2023	402.0	27.32%	11.78%	9.88%	5.66%	23.0
2024	414.8	27.58%	11.78%	9.88%	5.92%	24.8
2025	424.9	28.40%	11.78%	9.88%	6.74%	29.0
2026	437.5	28.16%	11.78%	9.88%	6.50%	28.8
2027	449.9	27.97%	11.78%	9.88%	6.31%	28.7
2028	462.4	27.81%	11.78%	9.88%	6.15%	28.8

Favorable/unfavorable experience such as future investment returns above/below the assumed rate of return will decrease/increase the amount of the additional District Contribution.

Comments

The System's unfunded actuarial accrued liability decreased slightly from \$913.5 million in the January 1, 2021 valuation to \$913.3 million in the January 1, 2022 actuarial valuation, and the funded ratio increased from 62% to 63%. Net favorable experience occurred during the 2021 valuation year, the result of a \$21.1 million actuarial gain on assets and a \$15.3 million actuarial loss on liabilities. This experience decreased the unfunded actuarial accrued liability and the payment thereon. The additional contribution made by the School District in 2021 was \$24.1 million, \$1.9 million higher than the additional actuarial contribution of \$22.2 million. The higher contribution by the District served to decrease the unfunded actuarial accrued liability more quickly than scheduled by the System's funding policy.

The Nebraska statutes provide that the School District shall contribute the greater of (a) one hundred and one percent of the contributions made by the employees or (b) such amount as may be necessary to maintain the solvency of the System, as determined annually by the Board of Education upon recommendation of the actuary. The Board of Education has adopted a Funding Policy that sets the criteria for determining the contribution amount necessary to maintain the solvency of the System. On this basis, the Actuarial Contribution Rate for the valuation year ending December 31, 2022 is 27.19% of payroll. The total of contributions expected to be paid by members, the State, and the School District for valuation year ending December 31, 2022 is 21.66% of payroll, so the actuarial contribution rate for 2022



EXECUTIVE SUMMARY

exceeds the statutory contribution rates by 5.53% of payroll, or \$21.8 million. This contribution shortfall of \$21.8 million represents the additional required contribution by the School District needed for the 2022 plan year. Given the System’s current funded status, the additional District contribution is expected to be needed for many years.

The deferred investment gain (market value less actuarial value of assets) is \$63.3 million as of January 1, 2022. Absent unfavorable investment experience in future years, the deferred investment gain will eventually be reflected in the actuarial value of assets in future years. While the use of an asset smoothing method is common for public retirement systems, it is important to identify the potential impact of the deferred investment experience. This is accomplished by comparing the key valuation results using both the actuarial and market value of assets:

	Using Actuarial Value of Assets	Using Market Value of Assets
Actuarial Accrued Liability	\$2,476,073,000	\$2,476,073,000
Asset Value	<u>1,562,787,000</u>	<u>1,626,049,000</u>
Unfunded Actuarial Accrued Liability	\$913,286,000	\$850,024,000
Funded Ratio	63.12%	65.67%
Normal Cost Rate	12.59%	12.59%
Administrative Expense Rate	0.24%	0.24%
UAAL Contribution Rate	<u>14.36%</u>	<u>13.32%</u>
Actuarial Contribution Rate	27.19%	26.15%
Total Statutory Contribution Rate	<u>(21.66%)</u>	<u>(21.66%)</u>
Contribution Shortfall	5.53%	4.49%
Additional District Contribution	\$21,801,926	\$17,701,745

A typical retirement plan faces many different risks. The term “risk” is most commonly associated with an outcome with undesirable results. However, in the actuarial world risk can be translated as uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. Actuarial Standard of Practice Number 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions. Risk evaluation is an important part of managing a defined benefit plan. Please see the Risk Considerations section of this report for an in-depth discussion of the specific risks facing OSERS.

We conclude this executive summary by presenting comparative statistics and actuarial information from both the January 1, 2021 and January 1, 2022 valuations.



EXECUTIVE SUMMARY

	Jan. 1, 2022	Jan. 1, 2021	% Chg
SYSTEM MEMBERSHIP			
1. Active Membership			
- Number of Members	7,086	7,182	(1.3)
- Projected Payroll for Upcoming Fiscal Year	\$389.6M	\$373.7M	4.3
- Average Projected Salary	54,980	52,027	5.7
2. Inactive Membership			
- Number Not in Pay Status	2,513	2,140	17.4
- Number of Retirees/Beneficiaries/Disableds	5,238	5,089	2.9
- Total Annual Benefits in Pay	\$140.2M	\$137.0M	2.3
ASSETS AND LIABILITIES			
1. Net Assets			
- Market Value	\$1,626M	\$1,405M	15.7
- Actuarial Value	1,563M	1,468M	6.5
2. Projected Liabilities			
- Retired Members	\$1,459M	\$1,409M	3.5
- Inactive Members	70M	57M	22.8
- Active Members	<u>1,386M</u>	<u>1,335M</u>	3.8
- Total Liability	2,915M	2,801M	4.1
3. Actuarial Accrued Liability (AAL)	\$2,476M	\$2,381M	4.0
4. Unfunded Actuarial Accrued Liability	\$913M	\$914M	(0.1)
5. Funded Ratio			
a. Actuarial Value Assets/AAL	63.12%	61.64%	2.4
b. Market Value Assets/AAL	65.67%	59.02%	11.3
SYSTEM CONTRIBUTIONS			
1. Total Actuarial Contribution Rate	27.19%	27.53%	(1.2)
2. Statutory Contribution Rate			
a. Member Contribution Rate	9.78%	9.78%	0.0
b. Employer Contribution Rate	9.88%	9.88%	0.0
c. State Contribution Rate	<u>2.00%</u>	<u>2.00%</u>	0.0
d. Total	21.66%	21.66%	0.0
3. Contribution Shortfall/(Margin) (1.) - (2.d.)	5.53%	5.87%	(5.8)
4. Additional District Contribution*	\$21,801,926	\$22,199,627	(1.8)

M = (\$)Millions

Numbers may not add due to rounding.

* Contribution amount is calculated as of August 31



EXECUTIVE SUMMARY

HISTORICAL CHANGES IN THE OSERS UNFUNDED ACTUARIAL ACCRUED LIABILITY

(dollars in millions)

	Valuation Date													
	9/1/03	9/1/04	9/1/05	9/1/06	9/1/07	9/1/08	9/1/09	9/1/10	9/1/11	9/1/12	9/1/13	9/1/14		
Prior Valuation UAAL	163	191	223	240	246	138	198	349	390	406	437	455		
Amortization Method	4	5	6	7	5	3	4	6	2	8	9	10		
Actual Contributions	0	0	2	0	3	0	0	2	4	0	2	0		
Less than ARC	0	0	0	(2)	0	(7)	(2)	0	0	(4)	0	(4)		
More than ARC	0	0	0	(2)	0	(7)	(2)	0	0	(4)	0	(4)		
Actual vs Expected Experience														
Investment	27	23	1	(10)	(29)	33	151	42	26	20	12	(6)		
Salary	(5)	(6)	(1)	4	1	1	0	(13)	(15)	(12)	(6)	(8)		
Retirement	3	0	3	2	2	3	(2)	(4)	(1)	4	4	6		
Mortality	2	5	4	3	3	1	(2)	0	(2)	2	(2)	(1)		
Termination of Employment	(4)	(1)	2	3	1	7	2	3	2	0	1	(1)		
Other	1	3	0	(1)	(3)	(1)	0	0	0	13	(8)	(5)		
Benefit Changes	0	0	0	0	(3) ²	0	0	0	0	0	(4)	0		
Assumption Changes	0	0	0	0	0	20	0	0	0	0	10	0		
Change to Actuarial Methods	0	3 ¹	0	0	(88) ³	0	0	5	0	0	0	0		
Data Refinement	0	0	0	0	0	0	0	0	0	0	0	0		
Total Change for Year End	28	32	17	6	(108)	60	151	41	16	31	18	(9)		
UAAL on Valuation Date	191	223	240	246	138	198	349	390	406	437	455	446		

¹Included part-time members who are vested

²Increase in member contribution rate

³Actuarial asset value reset to market value



EXECUTIVE SUMMARY

HISTORICAL CHANGES IN THE OSERS UNFUNDED ACTUARIAL ACCRUED LIABILITY (CONT.)

(dollars in millions)

	Valuation Date							Total
	9/1/15	1/1/17	1/1/18	1/1/19	1/1/20	1/1/21	1/1/22	
Prior Valuation UAAL	446	486	713	771	814	848	914	914
Amortization Method	9	12	7	7	12	11	11	138
Actual Contributions								
Less than ARC	0	0	3	0	0	0	0	16
More than ARC	(5)	(4)	0	0	(3)	(2)	(2)	(35)
Actual vs Expected Experience								
Investment	34	63	44	62	31	21	(21)	524
Salary	(3)	*	3	(29)	(12)	(10)	19	(92)
Retirement	9	*	7	6	8	8	5	63
Mortality	2	*	(1)	6	6	(4)	(1)	21
Termination of Employment	(2)	*	(1)	(6)	(8)	(5)	(13)	(20)
Other	(4)	(6)	(4)	(3)	0	(2)	2	(18)
Benefit Changes	0	0	0	0	0	0	0	(7)
Assumption Changes	0	138	0	0	0	0	0	168
Change to Actuarial Methods	0	0	0	0	0	0	0	(80)
Data Refinement	0	0	0	0	0	49	0	49
Total Change for Year End	40	227*	58	43	34	66	(1)	
UAAL on Valuation Date	486	713	771	814	848	914	913	

* Not calculated. Total liability experience was a \$24 million loss, which is included in the total change at year end.

Note: Although a total column is shown, the amounts in each year are not additive because they are calculated on each valuation date and, therefore, represent a value at a different point in time.



EXHIBIT 1 – SUMMARY OF FUND ACTIVITY (MARKET VALUE OF ASSETS)

**SUMMARY OF FUND ACTIVITY
(Market Value Basis)**

For Period Ended December 31, 2021

NET ASSETS ON JANUARY 1, 2021	\$ 1,405,393,000
ADJUSTMENT FOR LATE REPORTING*	0
ADJUSTED NET ASSETS ON JANUARY 1, 2021	\$ 1,405,393,000

ADDITIONS

Salary deductions	\$ 37,352,000
School District payroll-related contributions	37,727,000
School District additional contributions	24,145,000
Purchases of service	289,000
State service annuity receipts	1,625,000
Sec. 79-916 deposits	7,290,000
Income from investments, including realized and unrealized gains	257,723,000
Total additions	\$ 366,151,000

DEDUCTIONS

Retirement benefits	\$ (136,807,000)
Refunds to employees	(6,392,000)
Investment fees	(1,388,000)
Administrative expenses	(319,000)
Other	(82,000)
Personnel costs	(507,000)
Total deductions	\$ (145,495,000)

NET ASSETS ON JANUARY 1, 2022*	\$ 1,626,049,000
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* As provided by the Nebraska Investment Council (NIC). Please note that December 31 statements for a few of OSERS' investment managers are typically not available when the NIC investment reports are prepared. If that is the case, it is necessary for the NIC to subsequently adjust the market values in their reports to account for the late data. These adjustments, if any, are shown as an "adjustment for late reporting" in this exhibit.



EXHIBIT 2 – ACTUARIAL VALUE OF NET ASSETS

ACTUARIAL VALUE OF NET ASSETS

As of January 1, 2022

1. Actuarial Value of Assets as of January 1, 2021	\$	1,467,834,000
2. Adjustment for Late Reporting		0
3. Adjusted Actuarial Value of Assets as of January 1, 2021	\$	1,467,834,000
4. Actual Contributions/Disbursements		
a. Contributions	\$	108,428,000
b. Benefit payments		(143,199,000)
c. Net change	\$	<u>(34,771,000)</u>
5. Expected Value of Assets as of January 1, 2022	\$	1,541,700,000
6. Market Value of Assets as of January 1, 2022	\$	1,626,049,000
7. Difference between Market and Expected Values (6) – (5)	\$	84,349,000
8. Initial Actuarial Value of Assets as of January 1, 2022 (5) + [(7) x 25%]	\$	1,562,787,000
9. Corridor as of January 1, 2022		
a. 120% of Market Value of Assets as of January 1, 2022	\$	1,951,259,000
b. 80% of Market Value of Assets as of January 1, 2022	\$	1,300,839,000
10. Final Actuarial Value of Assets as of January 1, 2022* (8), but not greater than (9a), nor less than (9b)	\$	1,562,787,000
11. Actuarial value divided by market value (10) / (6)		96.1%
12. Market value less actuarial value	\$	63,262,000

* The estimated annualized rate of return on the actuarial value of assets for the period ended December 31, 2021 is about 8.9%



ACTUARIAL BALANCE SHEET

As of January 1, 2022

ASSETS

Actuarial Value of Assets	\$	1,562,787,000
Present Value of Contributions for Unfunded Actuarial Accrued Liability		913,286,000
Present Value of Future Normal Costs		<u>438,747,000</u>
Total Assets	\$	2,914,820,000

LIABILITIES

<u>Present Value of Future Benefits</u>		
Retirees, Beneficiaries, and Disableds	\$	1,459,396,000
Inactive Vesteds		63,154,000
Nonvested Terminations		6,490,000
Active Members		
Retirement benefits	\$	1,309,280,000
Termination benefits		66,895,000
Death benefits		<u>9,605,000</u>
		<u>1,385,780,000</u>
Total Liabilities	\$	2,914,820,000



EXHIBIT 4 – NORMAL COST RATE

NORMAL COST RATE

As of January 1, 2022

	<u>Tier 1</u>	<u>Tier 2</u>	<u>Tier 3</u>	<u>Tier 4</u>	<u>Total</u>
1. Normal Cost Amount					
a. Retirement	\$21,620,421	\$4,557,157	\$3,104,123	\$8,063,541	\$37,345,242
b. Termination	4,353,933	939,416	610,329	1,733,715	7,637,393
c. Mortality	<u>213,233</u>	<u>45,801</u>	<u>33,245</u>	<u>102,280</u>	<u>394,559</u>
e. Total	\$26,187,587	\$5,542,374	\$3,747,697	\$9,899,536	\$45,377,194
2. Expected Payroll for Current Actives During 2022	\$200,584,658	\$43,622,281	\$30,604,018	\$85,690,879	\$360,501,836
3. Normal Cost Rate (1.e.) ÷ (2)	13.06%	12.71%	12.25%	11.55%	12.59%



EXHIBIT 5 – UNFUNDED ACTUARIAL ACCRUED LIABILITY

UNFUNDED ACTUARIAL ACCRUED LIABILITY

As of January 1, 2022

1. Present Value of Future Benefits	\$	2,914,820,000
2. Present Value of Future Normal Costs	\$	<u>438,747,000</u>
3. Actuarial Accrued Liability (1) – (2)	\$	2,476,073,000
4. Actuarial Value of Assets	\$	<u>1,562,787,000</u>
5. Unfunded Actuarial Accrued Liability (3) – (4)	\$	913,286,000



EXHIBIT 6 – AMORTIZATION OF THE UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)

AMORTIZATION OF THE UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)

Effective with the January 1, 2017 valuation, OSERS began to amortize the UAAL using a “layered” approach. Under this method, the UAAL is split into pieces or layers; the initial or legacy UAAL was amortized, as a level-percent of payroll, over a closed 30-year period that began with the September 1, 2013 valuation (27 years remained as of the January 1, 2017 valuation). All ensuing UAAL bases were to be amortized, as a level-percent of payroll, over a new 25-year period commencing on the respective valuation date. At the March 6, 2019 meeting, the OSERS Board of Trustees modified the System’s Funding Policy to reset the legacy amortization base to the unfunded actuarial accrued liability (UAAL) as of January 1, 2019 with payments calculated as a level percentage of payroll over a closed 30-year period. New layers of UAAL that occur in the future are also amortized over new 30-year periods. As a result of the quadrennial experience study performed in 2021, effective with the January 1, 2022 valuation, future bases will be amortized, as a level-percent of pay, over a closed 25-year period.

Amortization Bases	Original Amount	1/1/2022 Remaining Payments	Date of Last Payment	Outstanding Balance as of 1/1/2022	Annual Contribution*
2019 UAAL Base	\$ 814,069,000	27	1/1/2048	\$ 847,080,005	\$ 52,061,694
2020 Experience Base	21,863,793	28	1/1/2049	22,476,095	1,354,035
2021 Experience Base	54,475,149	29	1/1/2050	55,262,041	3,267,016
2022 Assumption Change Base	130,000	25	1/1/2046	130,000	8,348
2022 Experience Base	(11,662,141)	25	1/1/2046	(11,662,141)	(748,882)
Total				\$ 913,286,000	\$ 55,942,211

* Contribution amount reflects mid-year timing.

1. Total UAAL Amortization Payments	\$ 55,942,211
2. Projected Payroll for plan year ending December 31, 2022	\$ 389,585,114
3. UAAL Amortization Payment Rate	14.36%



EXHIBIT 7 – ANALYSIS OF CONTRIBUTION RATE

ANALYSIS OF CONTRIBUTION RATE

The System is financed by contributions from the members, the School District and the State. Effective September 1, 2013, the members contribute 9.78% of pay. The District is obligated to pay the greater of (a) one hundred and one percent of the member contributions or (b) such amount as may be necessary to maintain the solvency of the System. Under the Funding Policy adopted by the Board in May, 2013, the Actuarial Recommended Contribution rate (ARC) is the normal cost rate plus the contribution necessary to amortize the UAAL. Effective July 1, 2014, the State of Nebraska contributes 2.0% of pay.

1. Normal Cost Rate	12.59%
2. Administrative Expenses	0.24%
3. UAAL Contribution Rate	14.36%
4. Actuarial Recommended Contribution Rate (1) + (2) + (3)	27.19%
5. Statutory Contribution Rate:	
(a) Member	9.78%
(b) District	9.88%
(c) State	2.00%
(d) Total	21.66%
6. Contribution Shortfall (4) - (5d)	5.53%
7. Additional District Contribution at August 31, 2022 (6) * \$389,585,114 * (1.074 ^ (2/12))	\$ 21,801,926



EXHIBIT 8 – PROJECTION OF ADDITIONAL DISTRICT CONTRIBUTIONS

PROJECTION OF ADDITIONAL DISTRICT CONTRIBUTIONS

The projections below are based on the open group projection model prepared in conjunction with the January 1, 2022 actuarial valuation. It is assumed that all actuarial assumptions are met each year in the future, including the assumed rate of return on the market value of assets. The projections also assume the number of active members remains constant in the future. To the extent actual experience differs from that assumed, the actual valuation results in future years will also differ and the additional contribution required by the District will vary from the amounts shown below. The projections are not intended to predict the specific amount of the additional District contributions in the future, but rather to indicate the general trend and magnitude of such contributions if the actuarial assumptions are met.

Year Ended December 31,	Total Payroll	Actuarial Recommended Contribution	Member and State Statutory	District Statutory	District Additional	District Additional (August 31)
2022	\$389,585,114	27.19%	11.78%	9.88%	5.53%	\$21,801,926
2023	402,002,440	27.32%	11.78%	9.88%	5.66%	23,022,107
2024	414,809,112	27.58%	11.78%	9.88%	5.92%	24,842,910
2025	424,948,422	28.40%	11.78%	9.88%	6.74%	28,966,326
2026	437,545,594	28.16%	11.78%	9.88%	6.50%	28,762,986
2027	449,898,657	27.97%	11.78%	9.88%	6.31%	28,710,539
2028	462,384,213	27.81%	11.78%	9.88%	6.15%	28,759,108

Favorable/unfavorable experience such as future investment returns above/below the assumed rate of return will decrease/increase the amount of the additional District Contribution.



EXHIBIT 9 – CALCULATION OF ACTUARIAL GAIN/(LOSS)

CALCULATION OF ACTUARIAL GAIN/(LOSS)

The overall actuarial gain/(loss) is comprised of both a liability gain/(loss) and an actuarial asset gain/(loss). Each of these represents the difference between the expected and actual values as of January 1, 2022.

1. Expected Actuarial Accrued Liability		
a. Actuarial Accrued Liability as of January 1, 2021	\$	2,381,356,000
b. Normal Cost for plan year ending December 31, 2021		43,862,000
c. Benefit payments for plan year ending December 31, 2021		(143,199,000)
d. Additional liability for state service annuities and service purchases		1,914,000
e. Interest on a., b., c., and d. to end of year		176,689,000
f. Assumption changes		130,000
g. Expected Actuarial Accrued Liability	\$	<u>2,460,752,000</u>
2. Actuarial Accrued Liability as of January 1, 2022	\$	2,476,073,000
3. Liability Gain/(Loss) (1.g.) – (2)	\$	(15,321,000)
4. Liability Gain/(Loss) as a Percent of Actuarial Accrued Liability		(0.62%)
5. Expected Actuarial Value of Assets		
a. Adjusted actuarial value of assets as of January 1, 2021	\$	1,467,834,000
b. Contributions for plan year ending December 31, 2021 (including state service annuities and service purchases)		108,428,000
c. Benefit payments for plan year ending December 31, 2021		(143,199,000)
d. Interest on a., b., and c. to end of year		108,637,000
e. Expected actuarial value of assets	\$	<u>1,541,700,000</u>
6. Actuarial Value of Assets as of January 1, 2022	\$	1,562,787,000
7. Asset Gain/(Loss) (6) – (5.e.)	\$	21,087,000
8. Asset Gain/(Loss) as a Percent of Actuarial Value of Assets		1.35%
9. Overall Actuarial Gain/(Loss) (3) + (7)	\$	5,766,000



EXHIBIT 9 – CALCULATION OF ACTUARIAL GAIN/(LOSS)

Gain/(Loss) By Source

The System experienced a net actuarial loss on liabilities of \$15.3 million during the plan year ended December 31, 2021. The major components of this overall loss are shown below:

Liability Sources	<u>\$Millions</u>
Salary Increases	\$ (19.3)
Mortality	1.0
Terminations	12.7
Retirements	(4.6)
Disability	0.1
New Entrants/Rehires	(5.5)
Miscellaneous	0.3
Total Liability Gain/(Loss)	\$ (15.3)
Asset Gain/(Loss)	\$ 21.1
Net Actuarial Gain/(Loss)	\$ 5.8

Comments

The purpose of conducting an actuarial valuation of a retirement system is to determine the costs and liabilities for the benefits under the system, to determine the annual level of contribution required to support these benefits and, finally, to analyze the system's overall experience as it compares with the actuarial assumptions used in the valuation. The costs and liabilities of a retirement system reported in the valuation depend not only upon the level of benefits provided, but also upon factors such as investment return on invested funds, mortality rates for active and retired members, withdrawal rates among active members, rates at which salaries increase, and rates of retirement for ages at which members retire. The actuarial assumptions employed as to these and other contingencies in the current valuation are set forth in Appendix C of this report.

Net demographic actuarial experience for the year was a loss of \$15.3 million, about 0.6% of actuarial accrued liability. The largest source of unfavorable experience was a \$19.3 million loss due to higher salaries than expected.

Another significant component of the experience for the year ending December 31, 2021 was the investment experience. The rate of return on the market value of assets during 2021 was 17.8%, which is significantly higher than the assumed 7.5% during that period. Due to the asset smoothing method, the rate of return on the actuarial value of assets was 8.9% during 2021, resulting in an experience gain. As of January 1, 2022, there is a deferred investment gain of \$63.3 million. Absent unfavorable investment experience, the deferred gain will flow through the valuation over the next few years and decrease both the UAAL and the actuarial contribution rate. Our analysis shows that a return of about 2.7% on the market value of assets would result in a 7.4% return on the actuarial value of assets, and eliminate the deferred gains.



EXHIBIT 10 – SCHEDULE OF CONTRIBUTIONS

**SCHEDULE OF CONTRIBUTIONS FROM THE EMPLOYER
AND OTHER CONTRIBUTING ENTITIES**

HISTORICAL FUNDING INFORMATION

<u>Year Ending</u>	<u>Annual Required Contribution (a)</u>	<u>Total Employer Contribution* (b)</u>	<u>Percentage of ARC Contribution (b) / (a)</u>
8/31/2005	\$22,459,221	\$20,210,403	89.99%
8/31/2006	24,311,628	26,766,000	110.10%
8/31/2007	28,143,388	24,981,000	88.76%
8/31/2008	19,491,557	26,162,000	134.22%
8/31/2009	24,103,114	25,918,000	107.53%
8/31/2010	30,900,224	29,182,000	94.44%
8/31/2011	34,180,566	30,255,000	88.52%
8/31/2012	32,957,547	37,109,000	112.60%
8/31/2013	35,032,074	33,623,000	95.98%
8/31/2014	34,225,147	38,198,000	111.61%
8/31/2015	34,614,093	39,562,000	114.29%
8/31/2016	37,665,061	40,564,000	107.70%
12/31/2016**	12,836,281	13,861,000	107.98%
12/31/2017	57,941,493	55,145,000	95.17%
12/31/2018	63,111,681	63,112,000	100.00%
12/31/2019	61,699,371	64,755,000	104.95%
12/31/2020	63,114,251	64,646,000	102.43%
12/31/2021	67,216,627	69,162,000	102.89%

* Includes State and School District contributions.

** For the short Plan Year from September 1, 2016 through December 31, 2016.

Note: The Total Employer Contribution for fiscal year ending 8/31/2014 was changed because during our work on the GASB reports, we discovered the Service Annuity contribution was different from what was initially reported to us. This figure now matches the number found in the GASB reports.



EXHIBIT 11 – SCHEDULE OF FUNDING PROGRESS

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll [(b - a)/c]
9/1/2005	\$ 887,165,000	\$ 1,126,967,000	\$ 239,802,000	78.72%	\$ 231,708,783	103.49%
9/1/2006	948,938,000	1,195,354,000	246,416,000	79.39%	248,759,070	99.06%
9/1/2007	1,117,628,000	1,255,527,000	137,899,000	89.02%	272,844,149	50.54%
9/1/2008	1,149,289,000	1,346,999,000	197,710,000	85.32%	272,720,007	72.50%
9/1/2009	1,061,326,000	1,410,318,000	348,992,000	75.25%	287,770,291	121.27%
9/1/2010	1,078,269,000	1,467,850,000	389,581,000	73.46%	302,229,282	128.90%
9/1/2011	1,110,033,000	1,516,284,000	406,251,000	73.21%	310,228,916	130.95%
9/1/2012	1,155,495,000	1,592,738,000	437,243,000	72.55%	307,258,065	142.30%
9/1/2013	1,205,265,000	1,660,287,000	455,022,000	72.59%	313,946,237	144.94%
9/1/2014	1,277,546,000	1,723,970,000	446,424,000	74.10%	323,077,710	138.18%
9/1/2015	1,312,905,000	1,798,706,000	485,801,000	72.99%	333,166,135	145.81%
1/1/2017	1,337,983,000	2,050,581,000	712,598,000	65.25%	351,940,122	202.48%
1/1/2018	1,365,013,000	2,136,385,000	771,372,000	63.89%	359,359,507	214.65%
1/1/2019	1,378,824,000	2,192,893,000	814,069,000	62.88%	375,598,301	216.74%
1/1/2020	1,417,961,000	2,265,653,000	847,692,000	62.59%	364,799,331	232.37%
1/1/2021	1,467,834,000	2,381,356,000	913,522,000	61.64%	364,310,430	250.75%
1/1/2022	1,562,787,000	2,476,073,000	913,286,000	63.12%	381,926,844	239.13%

* The actuarial value of assets was reset to market value as of 9/1/2007.

** Covered Payroll was annualized for the short Plan Year in 2016.



EXHIBIT 12 – SOLVENCY TEST

SOLVENCY TEST

A short-term solvency test, which is one method of determining a system's progress under its funding program, compares the plan's present assets with: 1) the liability for active member contributions on deposit; 2) the liability for future benefits to present retirees; and (3) the liability for service already rendered by active members. In a system that has been following the level-percent of payroll financing discipline, the obligation for active member contributions on deposit (Item 1) and the liabilities for future benefits to present retired lives (Item 2) will be fully covered by present assets with the exception of rare circumstances. The obligation for service already rendered by active members (Item 3) will be partially covered by the remainder of present assets. Absent any significant benefit changes, if the system has been using level cost financing, the funded portion of Item 3 usually will increase over a period of time.

Actuarial Valuation*	Active Member Contributions	Retirees, Beneficiaries, and Inactives	Active Members Employer Financed Portion	Actuarial Value of Assets	Portion of Liabilities Covered by Assets		
	(1)	(2)	(3)		(1)	(2)	(3)
2012	\$249,903,000	\$955,399,000	\$387,436,000	\$1,155,495,000	100%	95%	0%
2013	272,347,000	1,001,953,000	385,987,000	1,205,265,000	100%	93%	0%
2014	281,672,000	1,058,156,000	384,142,000	1,277,546,000	100%	94%	0%
2015	292,731,000	1,129,399,000	376,576,000	1,312,905,000	100%	90%	0%
2017	306,276,000	1,266,557,000	477,748,000	1,337,983,000	100%	81%	0%
2018	316,337,000	1,311,949,000	508,099,000	1,365,013,000	100%	80%	0%
2019	326,524,000	1,356,615,000	509,754,000	1,378,824,000	100%	78%	0%
2020	334,253,000	1,414,441,000	516,959,000	1,417,961,000	100%	77%	0%
2021	338,589,000	1,465,905,000	576,862,000	1,467,834,000	100%	77%	0%
2022	338,431,000	1,529,040,000	608,602,000	1,562,787,000	100%	80%	0%

* The actuarial valuation date for years prior to 2017 was September 1.



EXHIBIT 13 – ESTIMATED BENEFIT PAYMENTS

ESTIMATED BENEFIT PAYMENTS*

<u>Year End</u>	<u>Currently In-Pay</u>	<u>Currently Not-In-Pay</u>	<u>Total</u>
2022	\$139,504,000	\$ 6,065,000	\$145,569,000
2023	139,157,000	10,827,000	149,984,000
2024	138,662,000	15,770,000	154,432,000
2025	137,998,000	20,981,000	158,979,000
2026	137,047,000	26,884,000	163,931,000
2027	135,789,000	33,507,000	169,296,000
2028	134,396,000	40,390,000	174,786,000
2029	132,806,000	47,699,000	180,505,000
2030	130,981,000	55,581,000	186,562,000
2031	128,956,000	63,908,000	192,864,000
2032	126,756,000	72,778,000	199,534,000
2033	123,916,000	82,098,000	206,014,000
2034	120,871,000	92,062,000	212,933,000
2035	117,267,000	102,631,000	219,898,000
2036	113,675,000	113,498,000	227,173,000

*Amounts shown are the cash flows for current members only, based on the current benefit structure and assuming that all actuarial assumptions are met in each future year. To the extent that actual experience deviates from that expected, results will vary. Amounts are shown in future nominal dollars and have not been discounted to the valuation date.



RISK CONSIDERATIONS

Actuarial Standards of Practice are issued by the Actuarial Standards Board and are binding on credentialed actuaries practicing in the United States. These standards generally identify what the actuary should consider, document and disclose when performing an actuarial assignment. In September, 2017, Actuarial Standard of Practice Number 51, *Assessment and Disclosure of Risk in Measuring Pension Obligations*, (ASOP 51) was issued as final with application to measurement dates on or after November 1, 2018. This ASOP, which applies to funding valuations, actuarial projections, and actuarial cost studies of proposed plan changes, was first applicable for the January 1, 2019 actuarial valuation for the Omaha School Employees' Retirement System (System).

A typical retirement plan faces many different risks. The term "risk" is most commonly associated with an outcome with undesirable results. However, in the actuarial world, risk can be translated as uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. ASOP 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions.

The various risk factors for a given plan can have a significant impact – positive or negative – on the actuarial projection of liability and contribution rates.

There are a number of risks inherent in the funding of any defined benefit plan. These include:

- economic risks, such as investment return and price inflation;
- demographic risks such as mortality, active membership size, payroll growth, aging population including impact of baby boomers, and retirement ages;
- contribution risk, i.e., the potential for contribution rates to be too high for the plan sponsor/employer to pay; and
- external risks such as the regulatory and political environment.

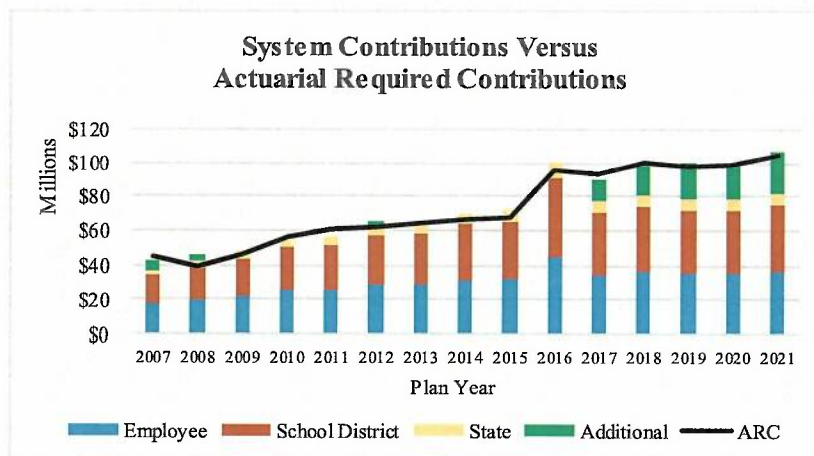
The last two risk are not required to be assessed by the actuary under ASOP 51.

In assessing the risks associated with funding a pension plan, it is important to realize that each retirement system is unique and may have different risks. This discussion is intended to identify and disclose the more significant risks to the funding of OSERS.

The biggest risk to any retirement system is the inability to pay benefits when they are due. That risk is minimized by the accumulation of assets in the System's trust. There is generally a direct correlation between healthy, well-funded retirement plans and consistent contributions equal to the full actuarial contribution each year. As the following graph illustrates, the School District has contributed at least the full actuarial required contribution in 10 of the past 15 years and has contributed an amount very close to the actuarial contribution in the other years.



RISK CONSIDERATIONS



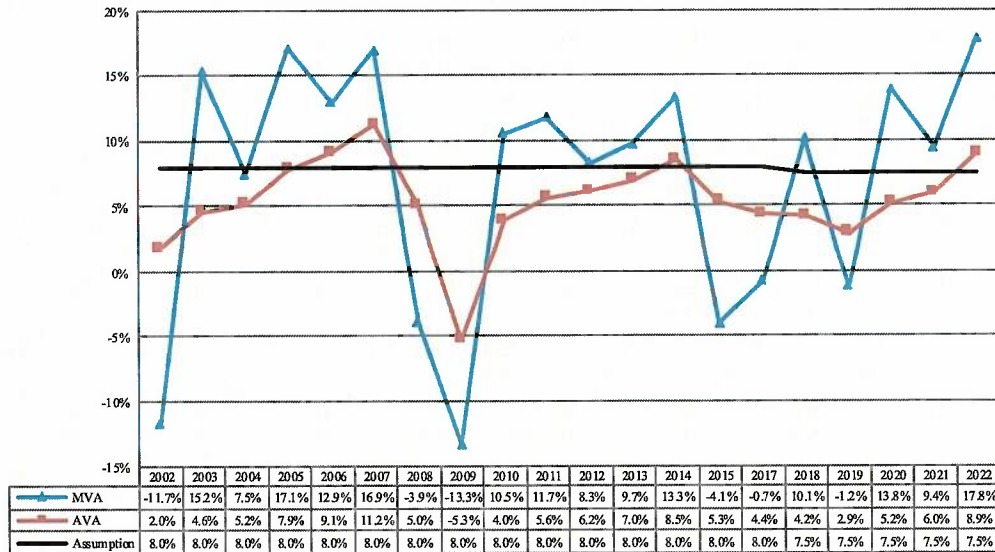
Current state statutes require the School District to contribute any shortfall between the actuarial required contribution rate and the statutory contributions by members, the State of Nebraska and the School District on or before August 31. As a result, the full actuarial contribution rate can be expected to be contributed in future years and the funded status of OSERS should improve over time, if actuarial assumptions are met.

The System's funding policy, as modified in 2019, amortizes the legacy UAAL over a closed 30-year period, with payments calculated as a level-percent of pay. Effective with the January 1, 2022 actuarial valuation, new layers are amortized over a closed 25-year period. Both 30 and 25 years are relatively long amortization periods and thus will tend to improve the System's funded status relatively slowly. The payment pattern which develops a payment schedule that is level as a percent of payroll is the most common method used by public plans, but it is less conservative than the level-dollar amortization method because the dollar amount of the unfunded actuarial accrued liability increases for many years before finally starting to decline, particularly over long periods like 30 years, even if all assumptions are met. In addition, amortization as a level percent of pay requires the use of an assumption regarding the growth of covered payroll in future years (currently 3.20% per year). This introduces another possible source of variation between actual and expected experience, thus increasing the funding risk for the System. If actual payroll does not increase as assumed, which could be due to a decline in the number of active members or actual salary increases that are less than expected, the UAAL contribution rate will increase. The dollar payment on the UAAL is the same, but the higher UAAL contribution rate ultimately pushes more of the UAAL funding to the District's additional contribution.

Perhaps the most significant risk factor for most Systems, including OSERS, is investment return because of the volatility of returns associated with the asset allocations. Over the past 20 years, actual returns each year have varied significantly from the assumed rate of return (see following graph). This is to be expected, given the underlying capital market assumptions and the System's asset allocation and standard deviation, but it does create a high degree of uncertainty or risk. The compound rate of return over this period was about 6.5%, but the range of returns varied from +18% to -13%. When actual investment returns are lower than the assumed rate of return, there is an increasing trend in the actuarial contribution rate absent offsetting gains on liabilities or changes in actuarial assumptions or methods. The investment experience of the last two decades has been significantly lower than the assumption, resulting in a higher actuarial contribution rate.



RISK CONSIDERATIONS



The System is currently 63% funded using the actuarial value of assets and 66% funded on a market value basis. The low funded ratio has increased the actuarial required contribution rate and the School District now has an obligation to make an additional contribution of around 6% of covered payroll. As the District’s obligation to make the additional contributions is statutory, some risk of unmanageable contribution levels exists. The risk associated with investment returns has the potential to create significant volatility in the amount of additional District contributions. Given the asset allocation of the portfolio and the associated volatility of returns in any one year, it would not be unexpected to have returns that are more than 10% lower than the assumed return of 7.40%. In that case, the District’s additional contribution could increase significantly (around 0.70% of pay or \$2.7 million in the first year alone) because the full impact of the “miss” on investments impacts the District’s additional contribution rate.

A key demographic risk for all retirement systems, including OSERS, is improvements in mortality (longevity) greater than anticipated. While the actuarial assumptions reflect small, continuous improvements in mortality experience over time and these assumptions are refined in every experience study, the risk arises because there is a possibility of some sudden shift, perhaps from a significant medical breakthrough that could quickly increase liabilities. Likewise, there is some possibility of a significant public health crisis that could result in a significant number of additional deaths in a short time period, as experienced with Covid-19. This kind of event is also significant, although the experience is more easily absorbed. While either of these events could happen, it represents a relatively small probability and thus represents much less risk than the volatility associated with investment returns.

The following exhibits in this section summarize certain historical information that helps indicate how certain key risk metrics may have changed over time. Many of the changes are due to the maturity of the Plan.



EXHIBIT 14 – HISTORICAL ASSET VOLATILITY RATIOS

As a retirement plan matures, the size of the market value of assets usually increases relative to the covered payroll of active members, on which the Plan is funded. The size of the plan assets relative to covered payroll, sometimes referred to as the asset volatility ratio, is an important indicator of the contribution risk (variability) for the plan. The higher this ratio, the more sensitive a plan's contribution rate is to investment return volatility. In other words, it will be harder to recover from investment losses with increased contributions (contribution rates will be higher).

OSERS' historical trends are somewhat different than those observed in most public plans. This is due both to the length of time the System has been in existence (since 1909) and the slow growth of assets over this period compared to payroll. The result is a stable or decreasing asset volatility ratio rather than an increasing trend which is more typical. As the System's funding improves over the long term, the asset volatility ratio is expected to increase.

Actuarial Valuation Date	Market Value of Assets	Actual Covered Payroll	Asset Volatility Ratio	Increase in ACR with a Return 10% Lower than Assumed*
9/1/2007	\$1,117,628,000	\$272,844,149	4.10	2.63%
9/1/2008	1,050,281,000	272,720,007	3.85	2.47%
9/1/2009	884,438,000	287,770,291	3.07	1.97%
9/1/2010	951,214,000	302,229,282	3.15	2.02%
9/1/2011	1,033,128,000	310,228,916	3.33	2.14%
9/1/2012	1,095,565,000	307,258,065	3.57	2.29%
9/1/2013	1,170,347,000	313,946,237	3.73	2.40%
9/1/2014	1,294,722,000	323,077,710	4.01	2.58%
9/1/2015	1,211,107,000	333,166,135	3.64	2.34%
1/1/2017	1,148,582,000	351,940,122	3.26	2.09%
1/1/2018	1,234,040,000	359,359,507	3.43	2.20%
1/1/2019	1,193,800,000	375,598,301	3.18	2.04%
1/1/2020	1,323,663,000	364,799,331	3.63	2.33%
1/1/2021	1,405,393,000	364,310,430	3.86	2.48%
1/1/2022	1,626,049,000	381,926,844	4.26	2.74%

Note: Years prior to the 9/1/2010 valuation were provided by the prior actuary.

* The impact of asset smoothing is not reflected in the increase in the Actuarial Contribution Rate (ACR). Current year assumptions and methods are used for all years shown. With asset smoothing, the first-year impact on contributions would be about 25% of the amount shown.

The assets at January 1, 2022 are 426% of payroll, so underperforming the investment return assumption by 10.00% (i.e., earning -2.60% for one year) is equivalent to a loss of about \$163 million or 43% of payroll. The impact on the actuarial contribution rate would be 2.74% once the full amount of actuarial loss worked through the asset smoothing method. While the impact in the first year is mitigated by the asset smoothing method, this illustrates the contribution risk associated with volatile investment returns.



EXHIBIT 15 – HISTORICAL CASH FLOWS

Plans with negative cash flows will experience increased sensitivity to investment return volatility. Cash flows, for this purpose, are measured as contributions less benefit payments. If the System has negative cash flows and experiences returns below the assumed rate, there are fewer assets to be reinvested to earn the higher returns that typically follow. While any negative cash flow will produce such a result, it is typically a negative cash flow of more than 4% to 5% of market value of assets that may cause significant concerns. In general, large negative cash flow is not a major risk for OSERS at this time.

Year End	Market Value of Assets (MVA)	Contributions*	Benefit Payments	Net Cash Flow	Net Cash Flow as a Percent of MVA
8/31/2007	\$1,117,628,000	\$44,037,000	\$68,286,000	(\$24,249,000)	(2.17%)
8/31/2008	1,050,281,000	49,099,000	72,912,000	(23,813,000)	(2.27%)
8/31/2009	884,438,000	49,943,000	77,503,000	(27,560,000)	(3.12%)
8/31/2010	951,214,000	56,616,000	81,260,000	(24,644,000)	(2.59%)
8/31/2011	1,033,128,000	58,242,000	86,015,000	(27,773,000)	(2.69%)
8/31/2012	1,095,565,000	68,139,000	90,621,000	(22,482,000)	(2.05%)
8/31/2013	1,170,347,000	65,248,000	95,107,000	(29,859,000)	(2.55%)
8/31/2014	1,294,722,000	72,072,000	100,810,000	(28,738,000)	(2.22%)
8/31/2015	1,211,107,000	75,065,000	106,735,000	(31,670,000)	(2.61%)
12/31/2016	1,148,582,000	101,826,000	152,808,000	(50,982,000)	(4.44%)
12/31/2017	1,234,040,000	92,397,000	121,005,000	(28,608,000)	(2.32%)
12/31/2018	1,193,800,000	101,704,000	127,578,000	(25,874,000)	(2.17%)
12/31/2019	1,323,663,000	102,468,000	133,824,000	(31,356,000)	(2.37%)
12/31/2020	1,405,393,000	103,010,000	137,486,000	(34,476,000)	(2.45%)
12/31/2021	1,626,049,000	108,428,000	143,199,000	(34,771,000)	(2.14%)

Note: Years prior to Year End 8/31/2010 were provided by the prior actuary.

** Contributions include additional revenue coming into the System such as Purchases of Service and State Service Annuity receipts.*

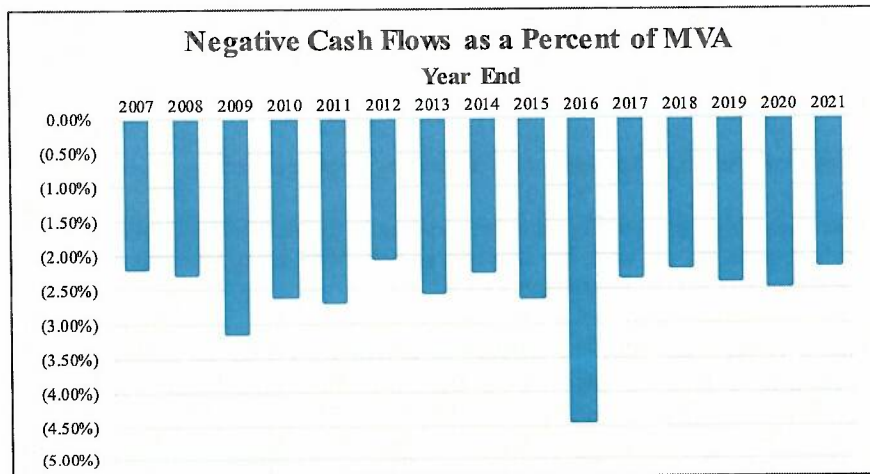




EXHIBIT 16 – LIABILITY MATURITY MEASUREMENTS

Most public sector retirement systems were established after World War 2 and have been in operation for many years. As a result, they have aging plan populations, and in some cases declining active populations, resulting in an increasing ratio of retirees to active members and a growing percentage of retiree liability. With more of the total liability residing with retirees, investment volatility has a greater impact on the funding of the plan since it is more difficult to restore the system financially after losses occur when there is comparatively less payroll over which to spread costs. Because OSERS has been in existence for a very long time (prior systems dating back to 1909 were consolidated to create OSERS), there has been no significant change in the percent of liability attributable to retirees over the last 15 years. The ratio of retiree liability to covered payroll has increased over this time period, however, which indicates an increase in contribution risk.

Actuarial Valuation Date	Retiree Liability (a)	Total Actuarial Accrued Liability (b)	Retiree Percentage (a) / (b)	Covered Payroll (c)	Ratio (b) / (c)
9/1/2007	\$725,838,000	\$1,255,527,000	57.8%	\$272,844,149	4.60
9/1/2008	783,518,000	1,346,999,000	58.2%	272,720,007	4.94
9/1/2009	818,000,000	1,410,318,000	58.0%	287,770,291	4.90
9/1/2010	850,325,000	1,467,850,000	57.9%	302,229,282	4.86
9/1/2011	874,656,000	1,516,284,000	57.7%	310,228,916	4.89
9/1/2012	935,442,000	1,592,738,000	58.7%	307,258,065	5.18
9/1/2013	978,397,000	1,660,287,000	58.9%	313,946,237	5.29
9/1/2014	1,028,802,000	1,723,970,000	59.7%	323,077,710	5.34
9/1/2015	1,099,161,000	1,798,706,000	61.1%	333,166,135	5.40
1/1/2017	1,230,588,000	2,050,581,000	60.0%	351,940,122	5.83
1/1/2018	1,274,528,000	2,136,385,000	59.7%	359,359,507	5.94
1/1/2019	1,311,452,000	2,192,893,000	59.8%	375,598,301	5.84
1/1/2020	1,364,109,000	2,265,653,000	60.2%	364,799,331	6.21
1/1/2021	1,408,667,000	2,381,356,000	59.2%	364,310,430	6.54
1/1/2022	1,459,396,000	2,476,073,000	58.9%	381,926,844	6.48

Note: Years prior to the 9/1/2010 valuation were provided by the prior actuary.

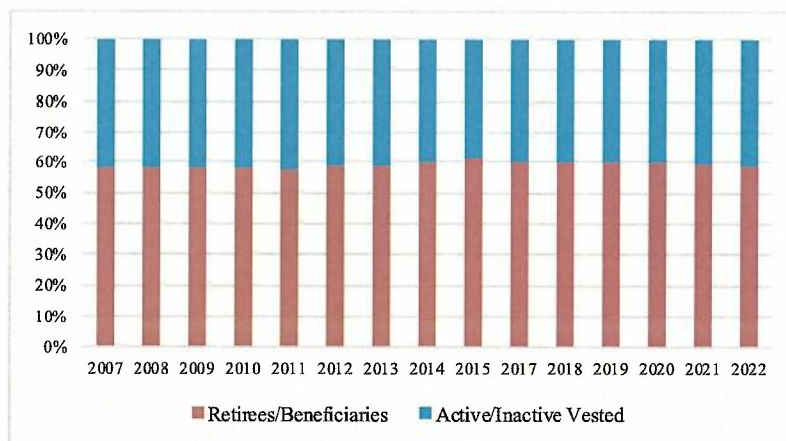




EXHIBIT 17 – COMPARISON OF VALUATION RESULTS UNDER ALTERNATE INVESTMENT RETURN ASSUMPTIONS

This exhibit is a sensitivity analysis that compares the key January 1, 2022 valuation results under the current investment return assumption and four (4) alternate investment return assumptions, both higher and lower than the current assumption. This information is intended to illustrate the impact of the investment return assumption on the funding of the System. Note that only the investment return assumption is changed for this purpose, as identified in the heading below. This may not result in a set of economic actuarial assumptions that complies with Actuarial Standard of Practice Number 27. The alternate return assumptions are only for purposes of identifying the impact of different investment return assumptions on the funding results. All other actuarial assumptions are unchanged for purposes of this analysis

	6.90%	7.15%	7.40%	7.65%	7.90%
Investment Return Assumption					
Contributions					
Normal Cost Rate	14.22%	13.37%	12.59%	11.86%	11.18%
Administrative Expenses	0.24%	0.24%	0.24%	0.24%	0.24%
UAAL Contribution	15.98%	15.17%	14.36%	13.55%	12.74%
Total Actuarial Contribution Rate	30.44%	28.78%	27.19%	25.65%	24.16%
Statutory Contribution Rate	21.66%	21.66%	21.66%	21.66%	21.66%
Contribution Shortfall/(Margin)	8.78%	7.12%	5.53%	3.99%	2.50%
Additional District Contribution	\$34,588,083	\$28,059,572	\$21,801,926	\$15,736,601	\$9,863,838
Actuarial Accrued Liability (\$ in millions)	\$2,626.5	\$2,549.6	\$2,476.1	\$2,405.9	\$2,338.9
Actuarial Value of Assets (\$ in millions)	\$1,562.8	\$1,562.8	\$1,562.8	\$1,562.8	\$1,562.8
Unfunded Actuarial Accrued Liability (\$ in millions)	\$1,063.8	\$986.8	\$913.3	\$843.1	\$776.1
Funded Ratio	59.5%	61.3%	63.1%	65.0%	66.8%

Note: Dollar amounts may not add due to rounding.



APPENDIX A

HISTORICAL BACKGROUND



APPENDIX A – HISTORICAL BACKGROUND

Historical Background

Since 1909, the Omaha School District has maintained a retirement system for its teachers. Since then, systems covering other employees were added. In 1951, the Nebraska Legislature consolidated the existing systems into one new System. Amendments of significance in the Nebraska statutes and federal Social Security Act have occurred from time to time. These changes in order of their occurrence are outlined briefly below:

1951 - New System

Prior to 1951, three separate retirement systems existed. In 1951 the Nebraska Legislature repealed these three separate systems and created the present single System covering all employees. This act provided, however, that a member of a pre-existing system might elect to retain his benefit and contribution rights under one of the former systems in lieu of the new System benefits and contributions. The members who so elected then became known by the following titles for retirement purposes:

- (1) Employees covered by the former Omaha Teachers Retirement System were known as "Teachers,"
- (2) Employees covered by the former Non-Teaching Employee Retirement System were known as "Non-Teachers,"
- (3) Employees covered by the former Cafeteria Employee Retirement System were known as "Cafeteria."

All other employees became members of the new System and received credit for membership service starting September 1, 1951. Benefits as well as contributions under the new System became directly related to a member's compensation by formula. The maximum covered annual compensation under the new System became \$5,000, but the maximum for Teachers, Non-Teachers and Cafeteria remained \$3,000.

1955 Amendments

On September 24, 1955, Omaha School employees voted to become participants in the federal Social Security program. All Social Security benefits are payable in addition to the System benefits. As a result of Social Security coverage, changes were made in the benefit and contribution formulas of the System effective August 31, 1955. In general, the changes reduced contributions and benefits to 60% of the rates formerly in effect. In addition, the maximum covered compensation was increased from \$5,000 to \$6,000 except for Teachers, Non-Teachers and Cafeteria which remained at \$3,000.

The amount contributed by the School District was also reduced to 60% of the rates in effect prior to the change and the School District's contributions, matching the refunds paid upon the withdrawal or death of employees, were retained in the retirement fund rather than being returned to the School District.

1963 Amendments

Effective September 1, 1963, several changes were made in the new System. The limit on covered compensation for contributions and benefits of members was removed.



APPENDIX A – HISTORICAL BACKGROUND

The service retirement annuity credit was increased in order to integrate with the modifications in federal Social Security between 1955 and 1963. The disability annuity for members was increased to 100% of the service retirement annuity accrued to date of disability and the restriction as to the number of years for which it was payable was removed. The offset in the benefit formula for the Nebraska State Service Annuity credit was placed on a year-to-year basis for all members, increasing the annuity credit for service after September 1, 1951 for active and retired alike.

The employees who were participating as Teachers, Non-Teachers and Cafeteria began to make contributions and receive benefit credits at the same rates as other members of the System. It should be noted that any employee who retained rights under a pre-existing system still receives credit in accordance with the provisions of the former system if this is more than the credit, after the State service annuity offset, would be under the 1963 amendments.

The contribution rate for employees was changed to integrate with the modifications in Social Security and was no longer subject to revision depending upon the degree of actuarial soundness of the System as had been provided in 1962. The School District became solely responsible for maintaining the solvency of the System on the basis of annual actuarial valuations. The School District again became entitled to refunds equal to the refunds paid upon withdrawal or death of employees.

The restriction prohibiting the crediting of interest on refunds to employees who withdraw from employment during the first ten years of service was removed. Thus, all employees who withdraw after one year or more of service receive interest on their contributions made since September 1, 1951.

1965 Amendments

Effective September 1, 1965, a pre-retirement survivor's annuity was added to the System for long-service employees. This change gave an employee with 25 or more years of service protection at death approximately equivalent in value to the vesting which already existed at termination of employment for an employee with the same period of service.

Effective January 1, 1966, the Social Security tax base was increased from \$4,800 to \$6,600 per year. This change became effective in the System's contribution and benefit formulas as of September 1, 1966.

1967 Amendments

The 77th Session of the Nebraska Legislature enacted LB 494 which amended the Nebraska School Retirement System, effective October 23, 1967. A major change was the increase in the State service annuity credit from \$1.50 to \$3.00 per month for each year of credited service after July 1, 1968 and the removal of the 35 year limitation on credited State service. For the purpose of determining the new State service annuity offset in calculating the net Omaha annuity, the additional \$1.50 per month for each year of service after July 1, 1968 is not applicable, but removal of the 35 year limitation does apply. This means that the State service annuity offset is still determined on the basis of \$1.50 per month for each year of service. The increase in the State service annuity offset by virtue of eliminating the 35 year limitation represents a lower cost to the Omaha System for those members having more than 35 years of State service by age 65.



APPENDIX A – HISTORICAL BACKGROUND

Another change with regard to the State service annuity was the manner in which the funds are transferred from the State to the Omaha System to pay these annuities. For retirements occurring after the effective date of the amendments (October 23, 1967), the State transfers the commuted value (equivalent single sum) of the individual State service annuity to the Omaha System and then the payment of the monthly annuity to the retired member is the School District's responsibility.

In 1967 the eligibility provisions for the pre-retirement survivors' annuity and the vested retirement rights were changed, reducing the service required from 25 years to 20 years and thereby granting these options to a larger number of employees.

Effective January 1, 1968, the federal Social Security taxable wage base was increased from \$6,600 to \$7,800 per year. This change became effective in the System's contribution and benefit formulas as of September 1, 1968.

1969 Amendments

The 80th Session of the Nebraska Legislature enacted LB 530 which amended the System effective August 11, 1969. The provisions of this bill improved the benefit structure of the System in two ways. The membership annuity credits (credits after 9/1/51) were increased approximately 10% and the Social Security wage base was "frozen" at the \$7,800 level for purposes of calculating benefit credits and employee contributions.

By freezing the Social Security base, benefit credits and employee contributions for service after September 1, 1969 will not be reduced by virtue of future increases in the Social Security wage base. The System benefits will remain integrated with the Social Security program at the level provided by the \$7,800 base.

1972 Amendments

During 1972, the Nebraska Legislature enacted LB 1116 which amended the System. These amendments were to become effective for retirements occurring on or after September 1, 1972. The provisions of this bill improved the benefit structure of the System and liberalized the eligibility condition for qualification upon termination for the deferred vested retirement benefit.

The benefits of the System were improved by increasing the membership annuity credits (credits after 9/1/51) by approximately 20% over those in existence on September 1, 1971.

In order to be eligible upon resignation to elect a deferred vested service annuity, the years of creditable service was reduced from 20 years to 15 years.

1973 Amendments

The 1973 Session of the Nebraska Legislature enacted LB 445 which created increases in the State service annuity of the Nebraska School Retirement System. LB 445 provides for (a) a State service annuity credit of \$3.00 per month for each year of creditable service for all emeritus members and for all full time school employees who retire on or after July 1, 1973 and (b) for increases in the State service annuity for members who retired prior to July 1, 1973 based upon the difference between the Consumers Price Index on the date of retirement and July 1, 1973.



APPENDIX A – HISTORICAL BACKGROUND

1976 Amendments

The 1976 Session of the Nebraska Legislature enacted LB 994 which increased the membership annuity credits (credits after 9/1/51) by 20%.

The members' contributions were increased to 2.90% of compensation up to \$7,800 per year plus 5.25% of salary in excess of that amount.

1979 Amendments

The 1979 Session of the Nebraska Legislature changed the mandatory retirement date from age 65 to age 70. Late retirement benefits are actuarially increased from what would have been payable at the normal retirement date.

1982 Amendments

The 1982 Session of the Nebraska Legislature enacted LB 131 which made considerable changes to the System. LB 131 was approved by the Governor on February 19, 1982.

The most major revision in the System was to change the previous primary benefit formula from the step rate formula based on each year of salary to a final average compensation formula. The primary benefit formula became 1.5% of final average compensation for each year of creditable service not in excess of 30. Final average compensation was then defined to be 1/36 of the total compensation received during the three fiscal years of highest compensation. Also, the creditable service not in excess of 30 years was allowed to continue to accrue after the fiscal year in which the employee attains age 65. In addition, the State service annuity offset of \$1.50 per year of creditable service was removed with respect to the final average compensation formula. The prior provisions of the System were retained as a minimum benefit, recognizing creditable service for those provisions through the earlier of the date of retirement or August 31, 1983.

Another major revision in the System was to change the step rate formula for employee contributions to a level 4.90% of compensation. In addition, the provision entitling the School District to receive refunds of its own contributions equal to the contributions refunded to employees was removed.

The early retirement date was liberalized. Previously an employee needed to have either 35 years of creditable service or to have attained age 60 with 25 years of creditable service. Now an employee can retire early if he has at least 10 years of creditable service and has attained age 55.

The actuarial equivalent of the annuity payable at the end of the fiscal year in which the employee attains age 65 was changed in the following two ways:

1. For employees retiring before age 62, the monthly formula retirement annuity is a reduced amount based on the actuarial equivalent of the annuity deferred to the employee's 62nd birthday. If retirement is at age 62 or later, there is no actuarial reduction. Previously there was an actuarial reduction, based on the benefit deferred to age 65, for any retirement before age 65.
2. For employees retiring on or after age 65, the monthly formula retirement annuity is to be based on total years of creditable service (not in excess of 30) and the employee's entire compensation history at date of retirement. Consequently, for retirements after the fiscal year in which the employee attains age 65 there is no longer an actuarial increase from the benefit available at the normal retirement date.



APPENDIX A – HISTORICAL BACKGROUND

The eligibility provision to elect a deferred vested service annuity upon resignation was changed from 15 years of creditable service to 10 years.

1983 Amendments

The 1983 Session of the Nebraska Legislature enacted LB 488 which created benefit increases effective September 1, 1983 for members having retired before February 21, 1982. The amount of benefit increase was limited to the smaller of:

1. The percentage increase in the Consumer Price Index for all Urban consumers from the effective date of retirement to June 30, 1983 applied to benefits being paid and
2. The sum of \$1.50 per month for each year of creditable service and \$1.00 per month for each completed year of retirement from the effective date of retirement to June 30, 1983, actuarially adjusted for joint and survivor elections.

1985 Amendments

The 1985 Session of the Nebraska Legislature enacted LB 215 which removed the 30 year limit on years of service used in the benefit formula, provided for vesting after five years of service rather than ten years, and reduced the eligibility period for disability from ten years of service to five years of service.

LP215 also provided for the employer “pick up” of employee contribution under IRC 414(h), thereby allowing employee contributions to be made on a pre-tax basis.

Unisex factors are now being used for determining early retirement reductions and actuarial equivalents for joint and survivor optional benefits.

1986 Amendments

The 1985 Session of the Nebraska Legislature enacted LB 1048 which granted increases in benefits for most retirees to reflect cost-of-living increases over the last several years. The increases ranged up to a maximum of 10.5%.

1987 Amendments

A "window of opportunity" was created for the buy-in or buy-back of service credits for participants qualifying for that right.

1989 Amendments

LB 237 was enacted by the 1989 Session of the Nebraska Legislature and provided: annual benefit accruals of 1.65% of final average compensation (up from 1.50%), unreduced benefits if a member retires with 35 or more years of service, a five year certain and life thereafter annuity as the normal form of benefit (instead of just a life annuity), employee contributions of 5.8% of pay (up from 4.9%), and increased benefits to retirees (the increases ranged up to 9.0%). There were some other changes as a result of this bill, but none that had a direct actuarial cost impact.



APPENDIX A – HISTORICAL BACKGROUND

1992 Amendments

The 1992 Session of the Nebraska Legislature enacted LB 1001 which increased annual benefit accruals from 1.65% of final average compensation to 1.70%, and increased benefits to retirees (3% increase per year of retirement, not exceeding 9% total increase), a change in the preretirement joint and survivor option to allow it to become effective automatically after 20 years of service, and allowed employees to “buy-in” their time with other public school systems by means of a tax-deferred rollover of their refund from that System.

1995 Amendments

The 1995 Session of the Nebraska Legislature enacted LB 505 which increased annual benefit accruals from 1.70% to 1.80% of final average compensation. It also provided for unreduced retirement benefits when the sum of age and service equals or exceeds 85 (still maintaining the age 55 minimum), and reduced early retirement reductions to .25% per month prior to age 62. Early retirement at 84, 83, or 82 points is also allowed with a maximum reduction of 3%, 6% and 9% respectively. Employee contributions were increased to 6.3% of pay. The bill also provided for a one time increase to current retirees of 3% per year since retirement (not to exceed 9%), or if larger, 90% restoration of the purchasing power of their original pension.

There are other changes resulting from this bill, which are not included since they did not have a direct actuarial impact. One change with no actuarial impact but worth noting is the provision for employer “pick up” of employee contributions to the System used to buy in outside service, pursuant to Section 414(h) of the Internal Revenue Code.

1998 Amendments

The 1998 Session of the Nebraska Legislature enacted LB 497 which increased annual benefit accruals from 1.80% to 1.85% of final average compensation. The bill also provided for a one time increase to current retirees of 3% per year since retirement (not to exceed 9%) and provides an annual automatic cost of living adjustment, not greater than 1.5%, beginning January 1, 2000.

2000 Amendments and Cost of Living Adjustment

The 2000 session of the Nebraska Legislature enacted LB 155 which increased accruals from 1.85% to 2.00% of final average compensation.

Pursuant to LB 497, the OSERS Board and the Omaha School District Board authorized a 1.5% discretionary COLA beginning January 1, 2000 in addition to the automatic COLA.

2001 Amendments and Cost of Living Adjustment

The 2001 session of the Nebraska Legislature enacted LB 711 which provided that certain members who previously left employment due to pregnancy could purchase their “lost” service. It also provided a post-retirement supplemental benefit to assist with medical costs. The supplement commences 10 years after retirement, beginning at \$10 per month for each year retired and increasing by \$10 each year to a maximum of \$250 per month. For retirees with less than twenty years of service, the benefit is reduced proportionately.

Additionally, the OSERS Board and the Omaha School Board authorized a discretionary COLA to restore full purchasing power, beginning January 1, 2001, in addition to the automatic COLA.



APPENDIX A – HISTORICAL BACKGROUND

2002 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2002.

2003 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2003.

2004 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2004.

2005 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2005.

2006 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2006.

2007 Amendment and Cost of Living Adjustment

The 2007 session of the Nebraska Legislature enacted Section 79-9, 113 which changed the employee contribution rate from 6.30% of compensation to 7.30% and provided for an employer contribution equal to 101% of the employee contribution rate.

The automatic 1.5% COLA was granted beginning January 1, 2007.

2008 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2008.

2009 Amendment and Cost of Living Adjustment

The 2009 session of the Nebraska Legislature enacted Legislative Bill 187 (LB 187), which increased the State's contribution from 0.7% to 1.0% of covered pay from July 1, 2009 to July 1, 2014. On July 1, 2014 the State's contribution returns to 0.7%. LB 187 also increased the employee contribution rate from 7.30% of compensation to 8.30%. The School District's contribution is equal to 101% of the employee contribution rate so the District's contribution rate increased from 7.373% of compensation to 8.383% as a result of the increase in the member contribution rate.

The automatic 1.5% COLA was granted beginning January 1, 2009.

2010 Amendment and Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2010.



APPENDIX A – HISTORICAL BACKGROUND

2011 Amendment and Cost of Living Adjustment

The 2011 session of the Nebraska Legislature enacted Legislative Bill 382 (LB 382), which increased the Member's contribution from 8.30% of compensation to 9.30%. The School District's contribution is equal to 101% of the employee contribution rate so the District's contribution rate increased from 8.383% of compensation to 9.393% as a result of the increase in the member contribution rate. LB 382 also extended the 1% of payroll contribution by the State from July 1, 2014 to July 1, 2017.

The automatic 1.5% COLA was granted beginning January 1, 2011.

2012 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2012.

2013 Amendments and Cost of Living Adjustment

The 2013 session of the Nebraska Legislature enacted Legislative Bill 553 (LB 553), which increased the Member contribution rate from 9.30% of pay to 9.78% of pay. The School District's contribution is equal to 101% of the employee contribution rate so the District's contribution rate increased from 9.393% of pay to 9.878% of pay as a result of the increase in the member contribution rate. LB 553 also ended the scheduled decrease in the State contribution rate and instead increased the State contribution from 1.0% of pay to 2.0% of pay, effective July 1, 2014. LB 553 also created a new benefit structure for members hired on or after July 1, 2013. For these members, annual cost of living adjustments will be the lesser of 1.0% or CPI, and the final average compensation is defined as 1/60 of the total compensation received during the five fiscal years of highest compensation.

The automatic 1.5% COLA was granted beginning January 1, 2013.

2014 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2014.

2015 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2015.



APPENDIX A – HISTORICAL BACKGROUND

2016 Amendments and Cost of Living Adjustment

The 2016 session of the Nebraska Legislature enacted Legislative Bill 447 (LB 447), which created a new benefit structure for members hired on or after July 1, 2016. The changes result in the same benefit structure for new OSERS members as for new members of the Nebraska School Retirement System. These members will not receive the supplemental medical COLA offered to employees hired before July 1, 2016. Other changes for these employees include a revised early retirement benefit reduction schedule and different retirement eligibility requirements.

The automatic 1.5% COLA was granted beginning January 1, 2016.

2017 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2017.

2018 Amendments and Cost of Living Adjustment

The 2017 session of the Nebraska Legislature enacted Legislative Bill 415 (LB 415), which created a new benefit structure for members hired on or after July 1, 2018. The changes result in the same benefit structure for new OSERS members as for new members of the Nebraska School Retirement System. The changes for these employees include a revised early retirement benefit reduction schedule and different retirement eligibility requirements.

The 2018 session of the Nebraska Legislature enacted Legislative Bill 1005 (LB 1005), which also affects the benefit provisions for members hired on or after July 1, 2018. As a result of LB 1005, the Board has the authority to set the actuarial assumptions used to determine the benefit amounts payable under optional forms of payment for members hired on or after July 1, 2018.

The automatic 1.5% COLA was granted beginning January 1, 2018.

2019 Cost of Living Adjustment

The automatic 1.5% COLA for members hired before July 1, 2013 was granted beginning January 1, 2019.

2020 Cost of Living Adjustment

The automatic 1.5% COLA for members hired before July 1, 2013 was granted beginning January 1, 2020.



APPENDIX A – HISTORICAL BACKGROUND

2021 Amendments and Cost of Living Adjustment

The 2021 session of the Nebraska Legislature enacted Legislative Bill 147 (LB 147), which re-defines the term Regular Employee. The bill allows employees who are contracted to less than 30 hours per week to participate in the System, if they average more than 30 hours per week during any three calendar months of a fiscal year.

The automatic 1.5% COLA for members hired before July 1, 2013 was granted beginning January 1, 2021.

The automatic 1.0% COLA for members hired on or after July 1, 2013 was granted beginning January 1, 2021.



APPENDIX B

SUMMARY OF PLAN PROVISIONS



APPENDIX B – SUMMARY OF PLAN PROVISIONS

Contributions

Employee Contributions: Employees contribute 9.78% of compensation, effective September 1, 2013. Such contributions are payable each year while employed. Contributions accumulated with interest are refundable at resignation unless the vested retirement benefit has been elected and at death unless the pre-retirement survivor's benefit has been elected.

State Contribution: The State contributes annually an amount equal to 2.0% of the members' compensation, effective July 1, 2014.

School District Contribution: The School District contributes the greater of (a) one hundred and one percent of the contributions by the employees or (b) such amount as may be necessary to maintain the solvency of the system, as determined annually by the board upon recommendation of the actuary engaged by the trustees.

Interest Credited on Refunds: Contributions made prior to September 1, 1951 and refunded at withdrawal or death are not credited with interest. Contributions after September 1, 1951 are credited with interest beginning September 1, 2016 at the rate equal to the daily treasury yield curve for one-year treasury securities, as published by the secretary of the treasury of the United States, that applies on September 1 of each year.

Benefits

General: The System provides annuities upon retirement from service or disability and upon death to designated survivors.

The service retirement formula is 2.0% per year of creditable service times the final average compensation.

Final average compensation is defined as 1/36 of the total compensation received during the three fiscal years of highest compensation for those who became members before July 1, 2013. For those who became members on or after July 1, 2013, final average compensation is defined as 1/60 of the total compensation received during the five fiscal years of highest compensation.

Annuities are paid for life, with 5 years guaranteed. Optional forms of payment are available.

The disability annuity, the pre-retirement survivor annuity and the vested retirement right are summarized in the following sections.

Benefits in pay status are subject to an annual cost of living adjustment equal to the lesser of 1.5% or CPI for those who became members before July 1, 2013. There is an additional COLA if surplus assets exist beginning January 1, 2000. Effective October 3, 2001, a medical cost of living adjustment is payable to retired members. Such amount will commence after the 10th year of retirement and shall be an amount equal to \$10 per month for each year retired (subject to a maximum of \$250 per month), prorated for years of service less than 20. For those who became members on or after July 1, 2013, the annual cost of living adjustment is capped at 1.0%.

Those who became members on or after July 1, 2016 are not eligible to receive the medical COLA benefit.



APPENDIX B – SUMMARY OF PLAN PROVISIONS

Retirement Annuities: An employee who becomes a member before July 1, 2016 may begin receiving a retirement benefit once the employee has left the employment of the School district, selected a retirement date and

- (a) has completed 35 years of creditable service,
or
- (b) has 10 years of creditable service (with at least five of those years being creditable Omaha service) and attained age 55,
or
- (c) remained employed until his or her 65th birthday and completed at least five years of creditable Omaha service.

If an employee who was a member before July 1, 2016 begins receiving an annuity at or after age 62, or has achieved 85 points and is at least age 55, there is no adjustment for the retirement annuity. If, however, such employee begins receiving an annuity before age 62, the annuity shall be reduced by 0.25% for each month prior to age 62, but if 84 points have been achieved then the reduction is limited to 3%, if 83 points, 6%, and 82 points, 9%.

An employee who became a member on or after July 1, 2016 and before July 1, 2018 may begin receiving a retirement benefit once the employee has left the employment of the School district, selected a retirement date and

- (a) has attained age 55 and the sum of the member's attained age and creditable service totals 85,
or
- (b) has 5 years of creditable service and attained age 60.

For employees who became members on or after July 1, 2016 and before July 1, 2018, if an employee begins receiving an annuity before age 65, such annuity shall be reduced by 0.25% for each month prior to age 65. If, however, the employee has achieved 85 points and is at least age 55, then there is no reduction to the annuity.

An employee hired on or after July 1, 2018 may begin receiving a retirement benefit once the employee has left the employment of the School district, selected a retirement date and

- (a) has attained age 60 and the sum of the member's attained age and creditable service totals 85,
or
- (b) has 5 years of creditable service and attained age 60.

For employees who were hired on or after July 1, 2018, if an employee begins receiving an annuity before age 65, such annuity shall be reduced by 0.25% for each month prior to age 65. If, however, the employee has achieved 85 points and is at least age 60, then there is no reduction to the annuity.

Disability Retirement Annuities: Each employee who becomes totally disabled and who has completed five or more years of creditable Omaha service is entitled to a disability retirement annuity equal to the amount of service annuity earned to date of disability. Alternatively, the employee may defer the disability retirement and accrue service and compensation increases in the interim. The disability retirement annuity is payable each month until disability ceases, if before unreduced retirement, or death.



APPENDIX B – SUMMARY OF PLAN PROVISIONS

Pre-Retirement Survivor Annuities: Upon the death of a member who has completed 20 or more years of creditable service and who has not retired, a pre-retirement survivor annuity shall be paid to the member's primary beneficiary. The survivor must be a spouse or one other person whose attained age in the calendar year of the member's death is no more than 10 years less than the attained age of the member in such calendar year. If there is no beneficiary form on file with OSERS, the member's spouse at the time of death is deemed to be the beneficiary and eligible for a pre-retirement survivor annuity. The survivor annuity is the actuarial equivalent of the member's annuity accrued to the date of death, determined on the basis of the member's and beneficiary's attained ages on said date. The survivor annuity is payable in lieu of a refund of the member's accumulated contributions. However, a member may elect out of the survivor annuity and specify that such a refund be paid in lieu of the annuity. An election out of the pre-retirement survivor annuity is entirely independent of the election of a joint and survivor option at retirement. Within 60 days after the member's death, the beneficiary may request a refund of the member's accumulated contributions instead of the annuity; provided, however, that the member may direct the System to pay only an annuity.

If the member (not retired) has less than 20 years of creditable service, or the beneficiary does not meet the requirements stated above, a refund of the member's accumulated contributions shall be paid.

Vested Retirement Right: Each employee who has completed five or more years of creditable Omaha service is eligible upon resignation to elect a deferred vested benefit, first payable as an unreduced amount at age 65, in lieu of a refund of his accumulated contributions. With ten or more years of total creditable service (including at least five years of creditable Omaha service), the deferred vested benefit could commence, unreduced, at age 62 for employees who became members before July 1, 2016. If benefits start before age 62 (but not earlier than attained age 55), the benefit shall then be reduced as described above.

For employees who became members on or after July 1, 2016 and before July 1, 2018, the deferred vested benefit could commence, unreduced, at age 65. If benefits start before age 65 (but not earlier than attained age 55), the benefit shall then be reduced as described above.

For employees who were hired on or after July 1, 2018, the deferred vested benefit could commence, unreduced, at age 65. If benefits start before age 65 (but not earlier than attained age 60), the benefit shall then be reduced as described above.



APPENDIX C

ACTUARIAL ASSUMPTIONS AND METHODS



APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

The valuation assumptions and methods used in conducting the current actuarial valuation are as follows:

Actuarial Assumptions

Investment Return Assumption: 7.40% per annum, compounded annually, net of investment expenses.
Note: This assumption will decrease each year until reaching the ultimate rate of 7.00% in the 2025 valuation.

Inflation (CPI): 2.70% compounded annually.
Note: This assumption will decrease each year until reaching the ultimate rate of 2.35% in the 2025 valuation.

Assumed Interest Rate Credited on Employee Contributions: 2.70% compounded annually.
Note: This assumption will decrease each year until reaching the ultimate rate of 2.35% in the 2025 valuation.

Total Payroll Growth: 3.20% compounded annually.
Note: This assumption will decrease each year until reaching the ultimate rate of 2.85% in the 2025 valuation.

Mortality Rates: Active members use the Pub-2010 General Members (Median) Employee Mortality Table projected generationally using the NPERS projection scale.
Retirees use the Pub-2010 General Members (Median) Retiree Mortality Table projected generationally using the NPERS projection scale.
Beneficiaries use the Pub-2010 General Members (Median) Contingent Survivor Mortality Table projected generationally using the NPERS projection scale.
Disabled retirees use the Pub-2010 Non-Safety Disabled Retiree Mortality Table, without generational improvement.

Disability: None assumed.

Termination of Employment: (prior to retirement eligibility) Illustrative rates of termination are as follows:

Certificated:

Percent Terminating	
<u>Duration</u>	<u>Rate</u>
1	10.00%
5	8.00
10	4.50
15	2.50
20	1.25
25	1.00
30	0.75



APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

Classified:

<u>Duration</u>	<u>Percent Terminating</u>	
	<u>Male</u>	<u>Female</u>
1	10.00%	13.00%
5	6.00	8.00
10	2.65	4.00
15	1.60	1.75
20	1.00	0.80
25	0.50	0.50
30	0.50	0.50

Retirement Rates:

Early retirement rates are assumed to occur according to the schedule illustrated below:

Became members before July 1, 2016

Certificated:		Classified:	
<u>Age</u>	<u>Early</u>	<u>Age</u>	<u>Early</u>
55	6%	55	5%
56	6	56	3
57	6	57	3
58	6	58	3
59	8	59	3
60	12	60	3
61	12	61	7

Became members on or after July 1, 2016

Certificated:		Classified:	
<u>Age</u>	<u>Early</u>	<u>Age</u>	<u>Early</u>
60	12%	60	3%
61	12	61	7
62	12	62	7
63	12	63	7
64	12	64	7



APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

Unreduced retirement rates are assumed to occur according to the schedule illustrated below:

Became members before July 1, 2018

Certificated:

<u>Age</u>	<u>1st Year Eligible</u>	<u>Ultimate</u>
55	40%	
56	40	40%
57	40	20
58	40	20
59	40	20
60	30	20
61	22	20
62	22	25
63	25	20
64	25	25
65	40	30
66	40	40
67	40	40
68	40	35
69	100	35
70	100	100

Classified:

<u>Age</u>	<u>1st Year Eligible</u>	<u>Ultimate</u>
55	35%	
56	13	10%
57	13	10
58	13	10
59	13	10
60	13	10
61	13	10
62	18	15
63	18	15
64	18	15
65	18	35
66	18	35
67	18	30
68	18	30
69	18	25
70	100	25
71	100	25
72	100	25
73	100	25
74	100	25
75	100	100



APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

Members hired on or after July 1, 2018

Certificated:

<u>Age</u>	<u>1st Year Eligible</u>	<u>Ultimate</u>
60	40%	
61	22	20%
62	22	25
63	25	20
64	25	25
65	40	30
66	40	40
67	40	40
68	40	35
69	100	35
70	100	100

Classified:

<u>Age</u>	<u>1st Year Eligible</u>	<u>Ultimate</u>
60	30%	
61	13	10%
62	18	15
63	18	15
64	18	15
65	18	35
66	18	35
67	18	30
68	18	30
69	18	25
70	100	25
71	100	25
72	100	25
73	100	25
74	100	25
75	100	100

Deferred vested members are assumed to retire at first unreduced retirement age.



APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

Salary Scale:

Salaries are assumed to increase according to the schedule illustrated below:

<u>Duration</u>	<u>Annual Salary Increase</u>	
	<u>Certificated</u>	<u>Classified</u>
0	5.30%	6.60%
1	5.30	5.45
2	5.30	5.20
3	5.30	4.95
4	5.30	4.70
5	5.30	4.60
6	5.30	4.50
7	5.30	4.40
8-9	5.30	4.20
10	5.30	5.30
11	5.30	4.20
12-14	5.30	3.70
15	5.95	5.70
16-19	5.15	3.70
20	5.45	5.20
21-23	4.25	3.70
24	4.70	3.70
25	6.20	5.20
26-29	3.45	3.45
30	4.20	5.20
31-34	3.45	3.20
35	4.20	3.70
36-39	3.20	3.20
40	3.95	4.20
41+	3.20	3.20

Note: The salary scale reflects a general wage growth assumption of 3.20% as of January 1, 2022. The general wage growth assumption, and therefore the salary scale, will decrease each year until reaching the ultimate rate of 2.85% in the 2025 valuation.

Pre-Retirement Survivor Annuity:

It is assumed that females are three years younger than males, and that 85% of members are married.

Probability of Electing a Refund:

The proportion of terminating vested members electing a refund of member contributions:

- 20% for Certificated members with less than 15 years of service
- 10% for Certificated members with 15 or more years of service
- 35% for Classified members with less than 11 years of service
- 25% for Classified members with 11 or more years of service

Cost of Living Adjustments:

- 1.5% if became member before 7/1/2013
- 1.0% if became member on or after 7/1/2013



APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

Inactive Vested Load	A 5% load on deferred monthly benefits is included to reflect that some inactive vested members' account balances are greater than the present value of their deferred benefit.
Administrative Expense	0.24% of payroll
Decrement Timing:	Middle of year
Valuation Salary Methodology	<p>Valuation salaries are imputed using each member's contribution amount during the prior year. For members who did not work a full year, their salaries are annualized using current salary rates.</p> <p>Salaries are assumed to increase by 2.0% for members who have not yet finalized their contract negotiations as of the valuation date. This assumption did not impact any members in the January 1, 2022 valuation.</p>



APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial Cost Method

The actuarial cost method is a procedure for allocating the actuarial present value of pension plan benefits and expenses to time periods. The method used for the valuation is known as the individual entry-age actuarial cost method, and has the following characteristics.

- (i) The annual normal costs for individual active member are sufficient to accumulate the value of the member's pension at time of retirement.
- (ii) Each annual normal cost is a constant percentage of the member's year-by-year projected pensionable compensation.

The entry-age actuarial cost method allocates the actuarial present value of each member's projected benefits on a level basis over the member's pensionable compensation between the entry-age of the member and the assumed exit-ages.

The portion of the actuarial present value allocated to the valuation year is called the normal cost. The portion of the actuarial present value not provided for by the actuarial present value of future normal costs is called the actuarial accrued liability. Deducting accrued assets from the actuarial accrued liability determines the unfunded actuarial accrued liability (UAAL).

Asset Valuation Method

Assets are valued at expected value at the valuation date plus 25% of the difference between the market value and expected value. As a starting point for implementation of this asset valuation method, the actuarial value of assets as of September 1, 1996 was set equal to the market value. As of September 1, 2007, the actuarial value was again reset to market value. The smoothing method was again implemented in the 2008 valuation. Effective September 1, 2008, the actuarial value must fall within a corridor of 80% to 120% of market value.

UAAL Amortization Method

Effective with the January 1, 2019 valuation, OSERS amortizes the UAAL using a "layered" approach. Under this method, the UAAL is split into pieces; the first piece is amortized, as a level-percent of pay, over a closed 30-year period beginning with the January 1, 2019 valuation (27 years remain as of the January 1, 2022 valuation). Future UAAL bases that result from future actuarial experience will be amortized, as a level-percent of pay, over a new 25-year closed period commencing on the respective valuation date.



APPENDIX D
MEMBERSHIP DATA



APPENDIX D—MEMBERSHIP DATA

SUMMARY OF MEMBERSHIP DATA

	Active	Inactive Vesteds	Nonvested Terminations	Retirees*	Beneficiaries	Deferred Disabldeds	In-Pay Disabldeds	Total
Members on 1/1/2021	7,182	1,213	917	4,814	260	10	15	14,411
Terminated – vested	(231)	231	0	0	0	0	0	0
Terminated – refund due	(338)	0	338	0	0	0	0	0
Terminated – refunded	(221)	(38)	(107)	0	0	0	0	(366)
Retired	(226)	(35)	0	261	0	0	0	0
Disability retirement	0	(1)	0	0	0	1	0	0
Death	(12)	(3)	(1)	(135)	(10)	0	(1)	(162)
Payments ended	0	0	0	(1)	(3)	0	0	(4)
New beneficiaries	0	0	0	0	37	0	0	37
New Alternate Payees	0	0	0	1	0	0	0	1
New members	838	0	81	0	0	0	0	919
Rehires	94	(18)	(76)	0	0	0	0	0
Corrections/adjustments	0	1	0	0	0	0	0	1
Members on 1/1/2022	7,086	1,350	1,152	4,940	284	11	14	14,837

* Includes QDROs



APPENDIX D – MEMBERSHIP DATA

HISTORICAL SUMMARY OF MEMBERS

The following table displays selected historical data that was used in the actuarial valuation for the System.

Date January 1*	Valuation		Active Members				Average			Number			Act/Ret Ratio
	Total Count	Number	Age	Entry Age	Service	Annual Pay (\$)	Pay Increase	Inactive Vested	Inactive Nonvested	Retired			
1998	8,204	5,680	44.2	33.7	10.5	28,912		330		2,194	2.59		
1999	8,564	5,864	43.9	34.0	9.9	29,493	2.01%	386		2,314	2.53		
2000	8,885	6,057	43.8	34.1	9.7	30,544	3.56%	380		2,448	2.47		
2001	9,156	6,259	44.0	34.4	9.6	32,091	5.06%	368		2,529	2.47		
2002	9,409	6,383	43.9	34.5	9.4	33,406	4.10%	384		2,642	2.42		
2003	9,425	6,279	44.0	34.5	9.5	33,877	1.41%	385		2,761	2.27		
2004	9,711	6,399	44.2	34.6	9.6	34,698	2.42%	473		2,839	2.25		
2005	10,124	6,623	44.1	34.8	9.3	35,234	1.54%	485		3,016	2.20		
2006	10,522	6,972	44.1	34.9	9.2	35,732	1.41%	442		3,108	2.24		
2007	10,769	7,041	44.2	35.1	9.1	36,720	2.77%	483		3,245	2.17		
2008	11,228	7,313	44.2	35.2	9.0	37,725	2.74%	515		3,400	2.15		
2009	11,480	7,438	44.5	35.5	9.0	38,686	2.55%	553		3,489	2.13		
2010	11,644	7,491	44.7	35.4	9.3	39,152	1.20%	566		3,587	2.09		
2011	11,602	7,215	45.1	35.2	9.9	40,394	3.17%	680		3,707	1.95		
2012	11,881	7,315	44.9	35.0	9.9	40,793	0.99%	723		3,843	1.90		
2013	12,152	7,372	44.9	34.9	10.0	41,731	2.30%	813		3,967	1.86		
2014	12,477	7,415	44.7	34.8	9.9	42,427	1.67%	937		4,125	1.80		
2015	12,938	7,393	44.5	34.7	9.8	44,050	3.83%	984	210	4,351	1.70		
2017	13,386	7,462	44.5	34.1	10.4	44,998	2.15%	1,035	347	4,542	1.64		
2018	13,703	7,569	44.5	34.1	10.4	46,233	2.74%	1,043	413	4,678	1.62		
2019	13,788	7,177	44.8	33.8	11.0	47,300	2.31%	1,114	671	4,826	1.49		
2020	14,218	7,366	44.5	33.9	10.6	47,571	0.57%	1,163	709	4,980	1.48		
2021**	14,411	7,182	44.2	33.4	10.8	52,027	9.37%	1,223	917	5,089	1.41		
2022	14,837	7,086	44.1	33.4	10.7	54,980	5.68%	1,361	1,152	5,238	1.35		

* Years prior to 2017 have a valuation date of September 1.

** Salary data refinement.



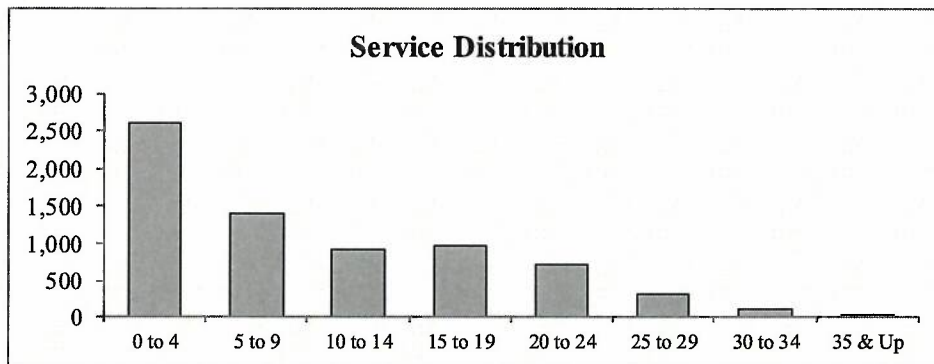
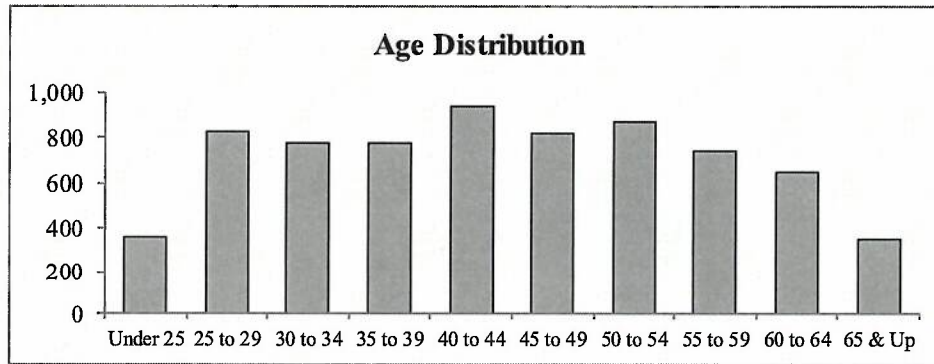
APPENDIX D- MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS**

as of January 1, 2022

Total

Age	Service								Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	355	0	0	0	0	0	0	0	355
25 to 29	717	109	0	0	0	0	0	0	826
30 to 34	351	366	56	0	0	0	0	0	773
35 to 39	238	229	239	67	0	0	0	0	773
40 to 44	248	153	166	314	54	0	0	0	935
45 to 49	169	120	118	155	238	18	0	0	818
50 to 54	158	124	114	153	157	142	22	0	870
55 to 59	167	109	89	124	109	84	52	9	743
60 to 64	118	129	94	101	117	43	27	16	645
65 & Up	93	80	39	49	43	22	13	9	348
Total	2,614	1,419	915	963	718	309	114	34	7,086





APPENDIX D-MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
PROJECTED SALARY DISTRIBUTION OF ACTIVE MEMBERS**

as of January 1, 2022

Age	Service										Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	Total		
Under 25	12,911,066	0	0	0	0	0	0	0	0	12,911,066	
25 to 29	31,768,535	5,736,994	0	0	0	0	0	0	0	37,505,529	
30 to 34	15,371,406	20,214,175	3,470,581	0	0	0	0	0	0	39,056,162	
35 to 39	11,167,068	12,308,429	15,234,480	4,762,105	0	0	0	0	0	43,472,082	
40 to 44	11,733,455	8,655,189	10,249,003	22,885,246	4,046,169	0	0	0	0	57,569,062	
45 to 49	7,825,978	6,487,756	7,066,461	10,853,366	18,387,971	1,582,054	0	0	0	52,203,586	
50 to 54	7,784,938	6,448,659	6,546,166	9,812,864	11,810,165	12,255,904	1,970,407	0	0	56,629,103	
55 to 59	7,191,407	4,934,701	4,678,464	7,253,015	6,977,589	6,249,821	4,272,558	800,011	0	42,357,566	
60 to 64	4,610,821	5,909,290	4,211,432	5,496,619	6,603,768	2,338,062	2,039,216	1,225,620	0	32,434,828	
65 & Up	3,082,772	3,534,730	1,707,406	2,409,835	2,048,272	1,099,751	757,770	805,594	0	15,446,130	
Total	113,447,446	74,229,923	53,163,993	63,473,050	49,873,934	23,525,592	9,039,951	2,831,225	0	389,585,114	



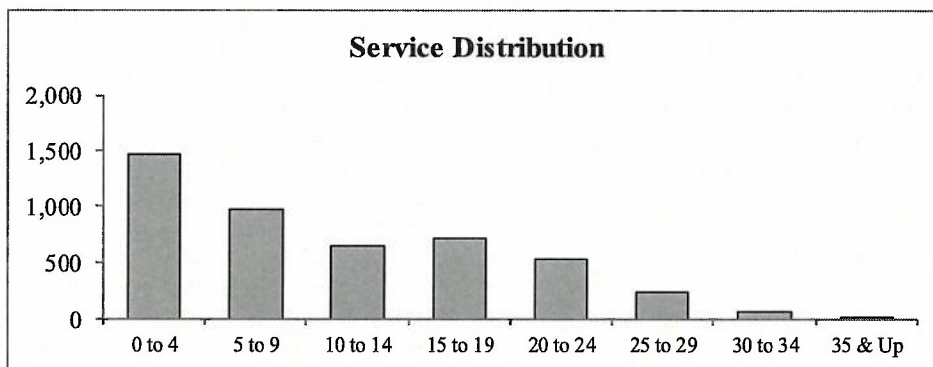
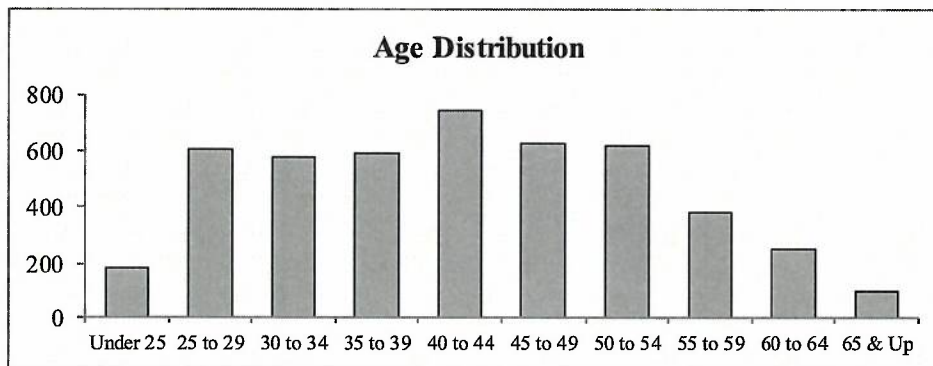
APPENDIX D- MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS**

as of January 1, 2022

Certificated - Total

Age	Service								Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	187	0	0	0	0	0	0	0	187
25 to 29	513	94	0	0	0	0	0	0	607
30 to 34	213	321	48	0	0	0	0	0	582
35 to 39	138	181	215	60	0	0	0	0	594
40 to 44	144	115	144	294	45	0	0	0	742
45 to 49	87	81	93	136	215	14	0	0	626
50 to 54	85	74	77	103	130	132	18	0	619
55 to 59	51	37	40	70	71	65	41	7	382
60 to 64	34	45	27	46	53	20	16	9	250
65 & Up	18	21	12	15	12	6	4	7	95
Total	1,470	969	656	724	526	237	79	23	4,684





APPENDIX D - MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
PROJECTED SALARY DISTRIBUTION OF ACTIVE MEMBERS**

as of January 1, 2022

Certificated - Total

Age	Service							Total	
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34		35 & Up
Under 25	8,807,764	0	0	0	0	0	0	0	8,807,764
25 to 29	26,324,402	5,218,661	0	0	0	0	0	0	31,543,063
30 to 34	11,530,918	18,698,301	3,126,893	0	0	0	0	0	33,356,112
35 to 39	8,168,625	10,812,998	14,274,625	4,467,445	0	0	0	0	37,723,693
40 to 44	8,783,560	7,333,048	9,557,497	22,204,568	3,605,465	0	0	0	51,484,138
45 to 49	5,513,732	5,225,823	6,165,441	10,113,359	17,371,027	1,352,239	0	0	45,741,621
50 to 54	5,497,635	4,869,003	5,301,755	7,564,010	10,575,724	11,792,790	1,704,523	0	47,305,440
55 to 59	3,659,790	2,322,362	2,781,293	5,041,061	5,380,744	5,372,458	3,608,722	639,308	28,805,738
60 to 64	2,074,091	3,075,117	1,802,784	3,249,919	4,125,056	1,515,643	1,428,279	808,671	18,079,560
65 & Up	1,169,275	1,516,910	874,746	1,161,598	937,835	529,245	377,384	727,830	7,294,823
Total	81,529,792	59,072,223	43,885,034	53,801,960	41,995,851	20,562,375	7,118,908	2,175,809	310,141,952



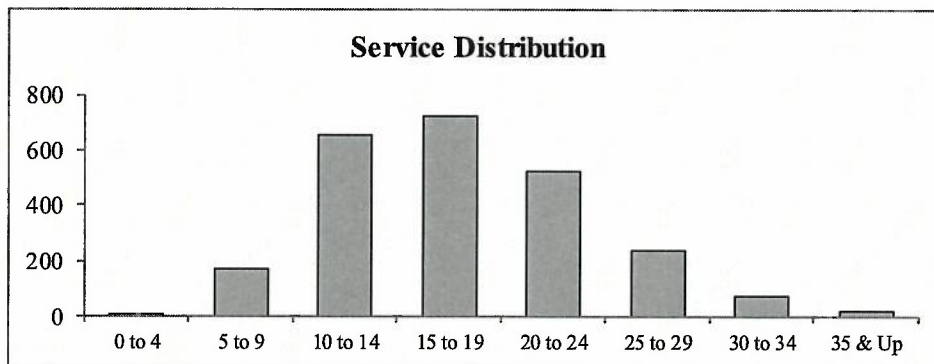
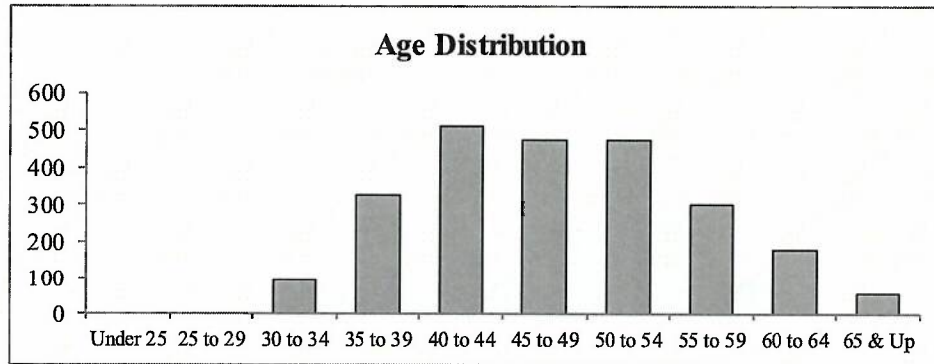
APPENDIX D- MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS**

as of January 1, 2022

Certificated - Tier 1

Age	Service								Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	1	43	48	0	0	0	0	0	92
35 to 39	3	49	215	60	0	0	0	0	327
40 to 44	1	26	144	294	45	0	0	0	510
45 to 49	0	17	93	136	215	14	0	0	475
50 to 54	0	16	77	103	130	132	18	0	476
55 to 59	1	9	40	70	71	65	41	7	304
60 to 64	0	10	27	46	53	20	16	9	181
65 & Up	0	1	12	15	12	6	4	7	57
Total	6	171	656	724	526	237	79	23	2,422





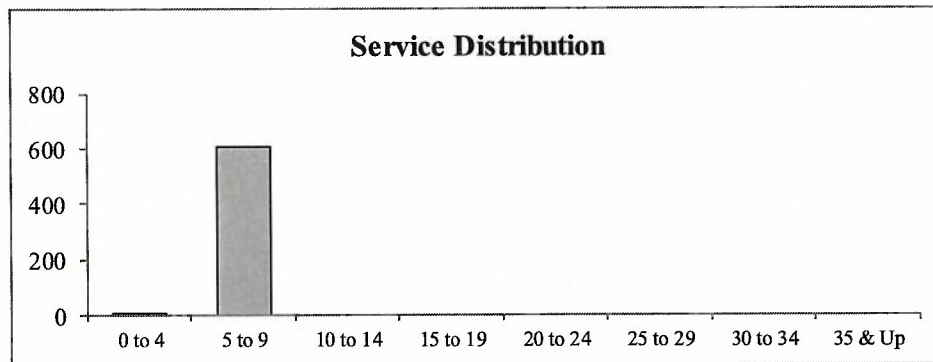
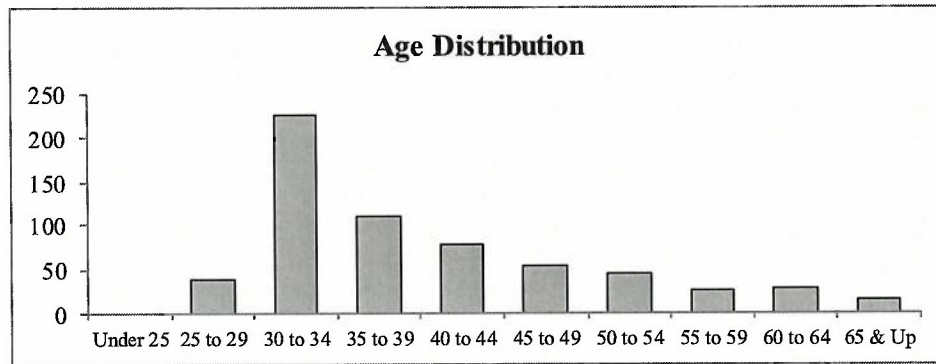
APPENDIX D— MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS**

as of January 1, 2022

Certificated - Tier 2

Age	Service								Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	0	39	0	0	0	0	0	0	39
30 to 34	5	220	0	0	0	0	0	0	225
35 to 39	0	109	0	0	0	0	0	0	109
40 to 44	1	76	0	0	0	0	0	0	77
45 to 49	0	54	0	0	0	0	0	0	54
50 to 54	2	44	0	0	0	0	0	0	46
55 to 59	1	24	0	0	0	0	0	0	25
60 to 64	0	28	0	0	0	0	0	0	28
65 & Up	0	16	0	0	0	0	0	0	16
Total	9	610	0	0	0	0	0	0	619





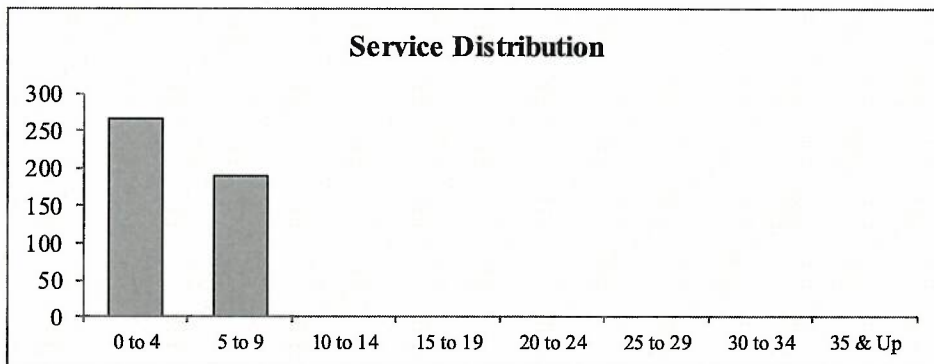
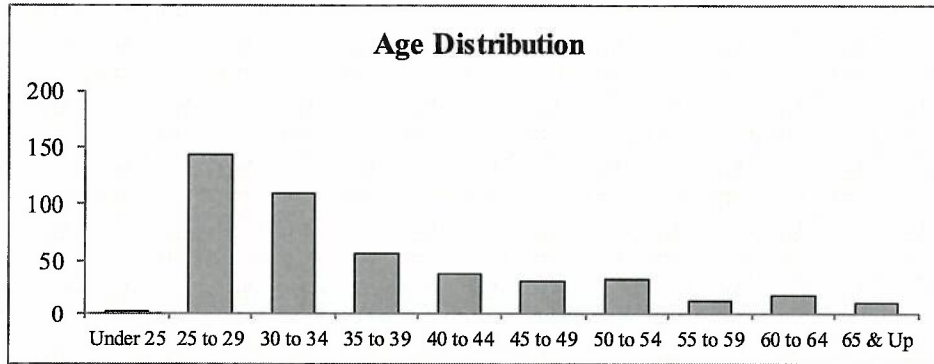
APPENDIX D- MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS**

as of January 1, 2022

Certificated - Tier 3

Age	Service								Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	2	0	0	0	0	0	0	0	2
25 to 29	88	55	0	0	0	0	0	0	143
30 to 34	51	58	0	0	0	0	0	0	109
35 to 39	33	23	0	0	0	0	0	0	56
40 to 44	25	13	0	0	0	0	0	0	38
45 to 49	21	10	0	0	0	0	0	0	31
50 to 54	19	14	0	0	0	0	0	0	33
55 to 59	9	4	0	0	0	0	0	0	13
60 to 64	10	7	0	0	0	0	0	0	17
65 & Up	7	4	0	0	0	0	0	0	11
Total	265	188	0	0	0	0	0	0	453





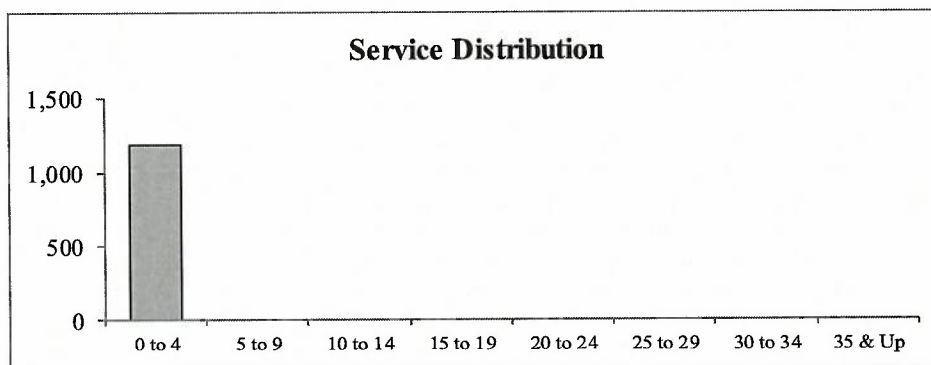
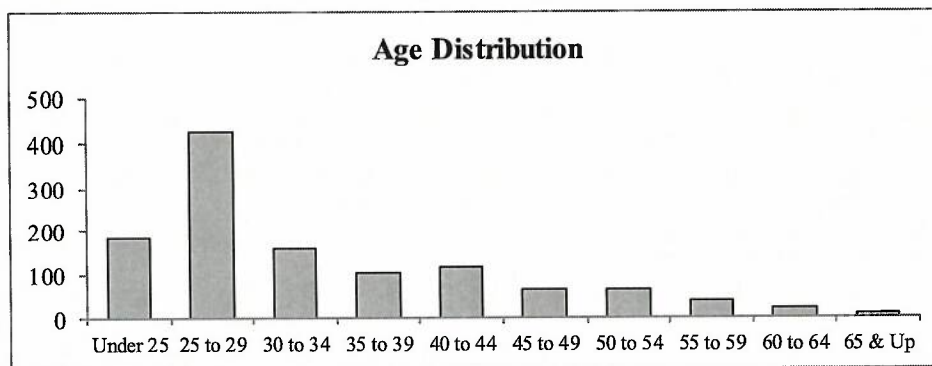
APPENDIX D- MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS**

as of January 1, 2022

Certificated - Tier 4

Age	Service								Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	185	0	0	0	0	0	0	0	185
25 to 29	425	0	0	0	0	0	0	0	425
30 to 34	156	0	0	0	0	0	0	0	156
35 to 39	102	0	0	0	0	0	0	0	102
40 to 44	117	0	0	0	0	0	0	0	117
45 to 49	66	0	0	0	0	0	0	0	66
50 to 54	64	0	0	0	0	0	0	0	64
55 to 59	40	0	0	0	0	0	0	0	40
60 to 64	24	0	0	0	0	0	0	0	24
65 & Up	11	0	0	0	0	0	0	0	11
Total	1,190	0	0	0	0	0	0	0	1,190





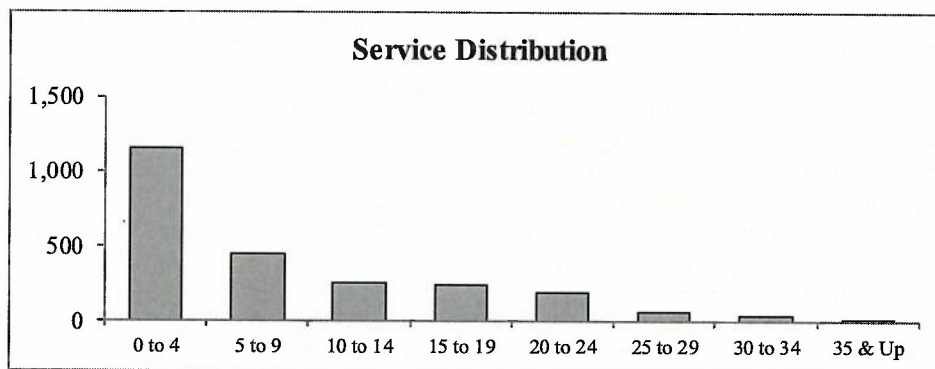
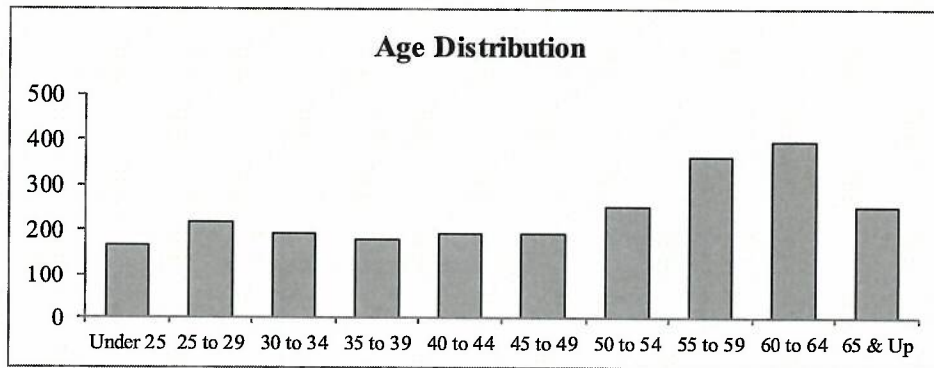
APPENDIX D- MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS**

as of January 1, 2022

Classified - Total

Age	Service								Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	168	0	0	0	0	0	0	0	168
25 to 29	204	15	0	0	0	0	0	0	219
30 to 34	138	45	8	0	0	0	0	0	191
35 to 39	100	48	24	7	0	0	0	0	179
40 to 44	104	38	22	20	9	0	0	0	193
45 to 49	82	39	25	19	23	4	0	0	192
50 to 54	73	50	37	50	27	10	4	0	251
55 to 59	116	72	49	54	38	19	11	2	361
60 to 64	84	84	67	55	64	23	11	7	395
65 & Up	75	59	27	34	31	16	9	2	253
Total	1,144	450	259	239	192	72	35	11	2,402





APPENDIX D - MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
PROJECTED SALARY DISTRIBUTION OF ACTIVE MEMBERS**

as of January 1, 2022

Classified - Total

Age	Service										Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up			
Under 25	4,103,302	0	0	0	0	0	0	0	0	0	4,103,302
25 to 29	5,444,134	518,332	0	0	0	0	0	0	0	0	5,962,466
30 to 34	3,840,488	1,515,874	343,688	0	0	0	0	0	0	0	5,700,050
35 to 39	2,998,443	1,495,431	959,855	294,660	0	0	0	0	0	0	5,748,389
40 to 44	2,949,894	1,322,141	691,506	680,679	440,704	0	0	0	0	0	6,084,924
45 to 49	2,312,247	1,261,933	901,019	740,007	1,016,944	229,815	0	0	0	0	6,461,965
50 to 54	2,287,304	1,579,655	1,244,411	2,248,853	1,234,441	463,115	265,884	0	0	0	9,323,663
55 to 59	3,531,618	2,612,339	1,897,171	2,211,953	1,596,845	877,363	663,836	160,703	0	0	13,551,828
60 to 64	2,536,730	2,834,172	2,408,648	2,246,701	2,478,713	822,419	610,936	416,949	0	0	14,355,268
65 & Up	1,913,497	2,017,820	832,660	1,248,237	1,110,437	570,506	380,386	77,764	0	0	8,151,307
Total	31,917,657	15,157,697	9,278,958	9,671,090	7,878,084	2,963,218	1,921,042	655,416	0	0	79,443,162



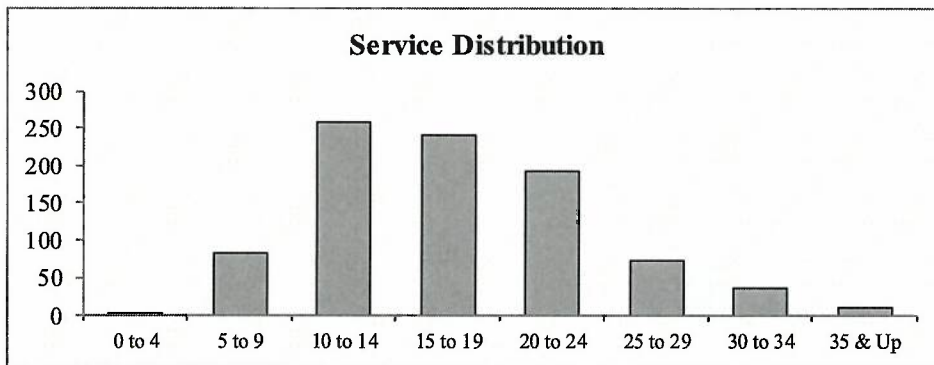
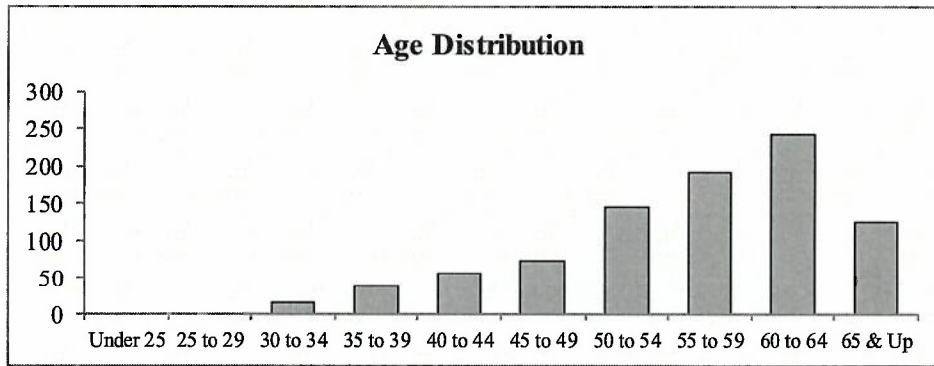
APPENDIX D- MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS**

as of January 1, 2022

Classified - Tier 1

Age	Service								Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	8	8	0	0	0	0	0	16
35 to 39	1	7	24	7	0	0	0	0	39
40 to 44	1	4	22	20	9	0	0	0	56
45 to 49	0	4	25	19	23	4	0	0	75
50 to 54	0	18	37	50	27	10	4	0	146
55 to 59	1	17	49	54	38	19	11	2	191
60 to 64	0	16	67	55	64	23	11	7	243
65 & Up	0	7	27	34	31	16	9	2	126
Total	3	81	259	239	192	72	35	11	892



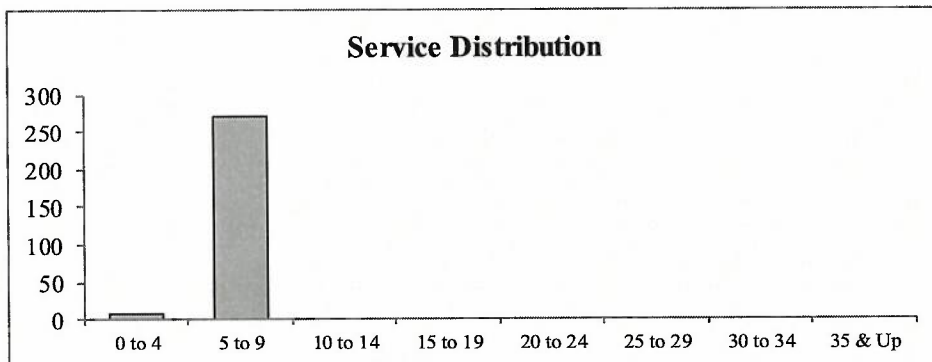
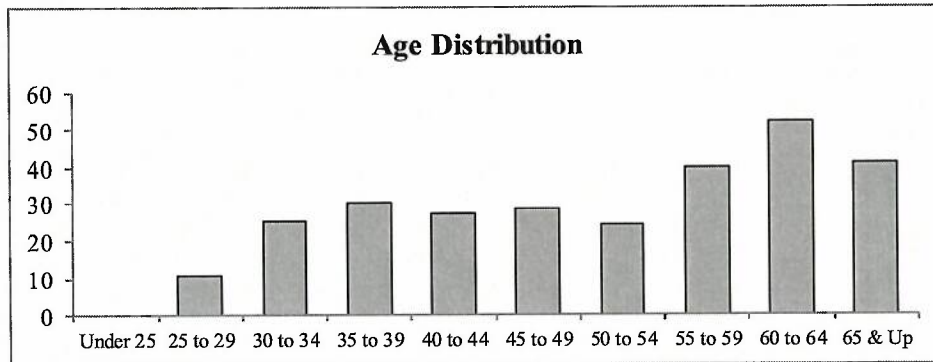


**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS**

as of January 1, 2022

Classified - Tier 2

Age	Service								Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	2	9	0	0	0	0	0	0	11
30 to 34	2	23	0	0	0	0	0	0	25
35 to 39	2	28	0	0	0	0	0	0	30
40 to 44	0	27	0	0	0	0	0	0	27
45 to 49	0	28	0	0	0	0	0	0	28
50 to 54	0	24	0	0	0	0	0	0	24
55 to 59	0	40	0	0	0	0	0	0	40
60 to 64	0	52	0	0	0	0	0	0	52
65 & Up	1	40	0	0	0	0	0	0	41
Total	7	271	0	0	0	0	0	0	278





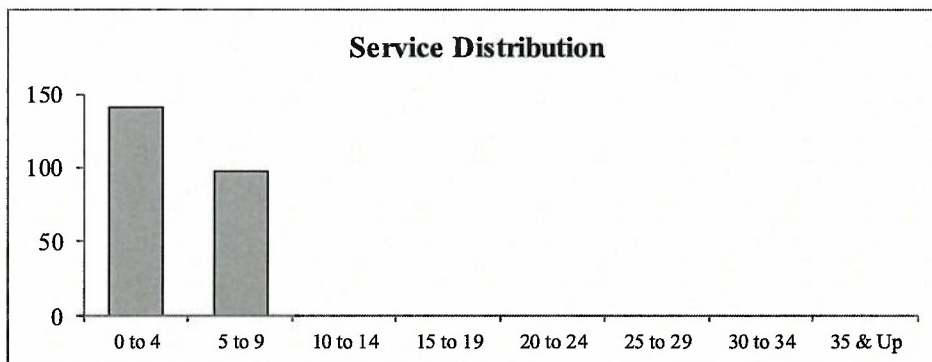
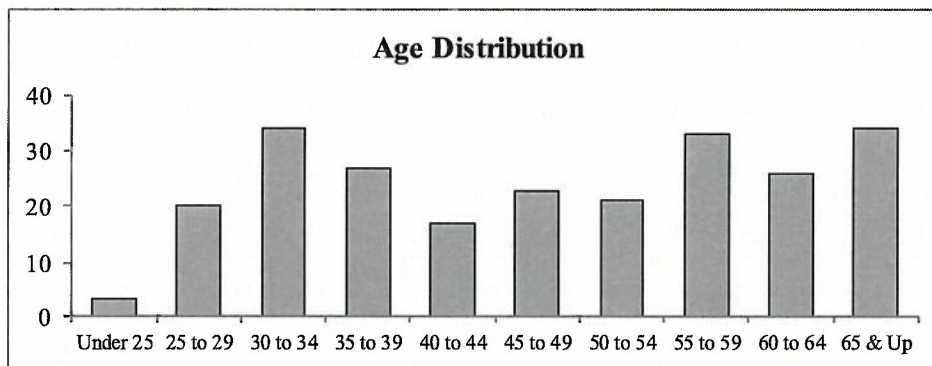
APPENDIX D- MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS**

as of January 1, 2022

Classified - Tier 3

Age	Service								Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	3	0	0	0	0	0	0	0	3
25 to 29	14	6	0	0	0	0	0	0	20
30 to 34	20	14	0	0	0	0	0	0	34
35 to 39	14	13	0	0	0	0	0	0	27
40 to 44	10	7	0	0	0	0	0	0	17
45 to 49	16	7	0	0	0	0	0	0	23
50 to 54	13	8	0	0	0	0	0	0	21
55 to 59	18	15	0	0	0	0	0	0	33
60 to 64	11	15	0	0	0	0	0	0	26
65 & Up	22	12	0	0	0	0	0	0	34
Total	141	97	0	0	0	0	0	0	238



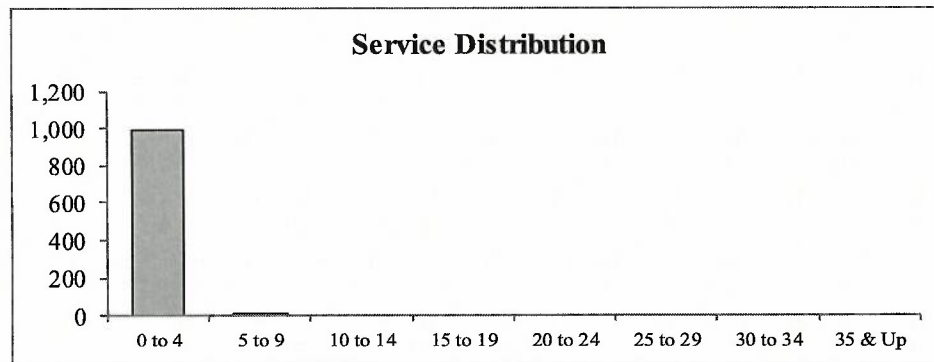
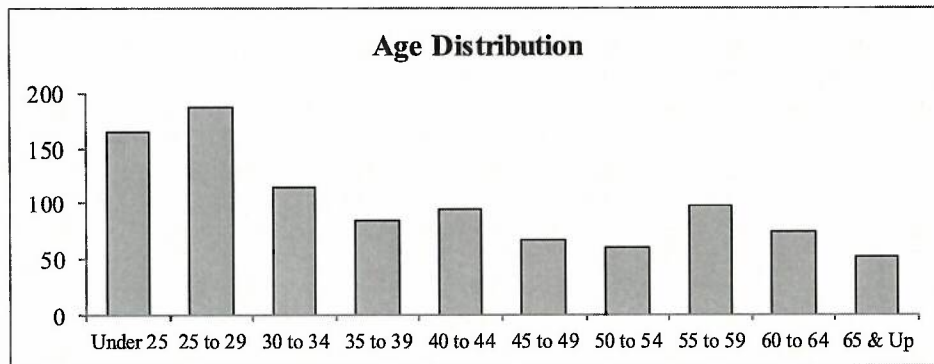


**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS**

as of January 1, 2022

Classified - Tier 4

Age	Service								Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	165	0	0	0	0	0	0	0	165
25 to 29	188	0	0	0	0	0	0	0	188
30 to 34	116	0	0	0	0	0	0	0	116
35 to 39	83	0	0	0	0	0	0	0	83
40 to 44	93	0	0	0	0	0	0	0	93
45 to 49	66	0	0	0	0	0	0	0	66
50 to 54	60	0	0	0	0	0	0	0	60
55 to 59	97	0	0	0	0	0	0	0	97
60 to 64	73	1	0	0	0	0	0	0	74
65 & Up	52	0	0	0	0	0	0	0	52
Total	993	1	0	0	0	0	0	0	994





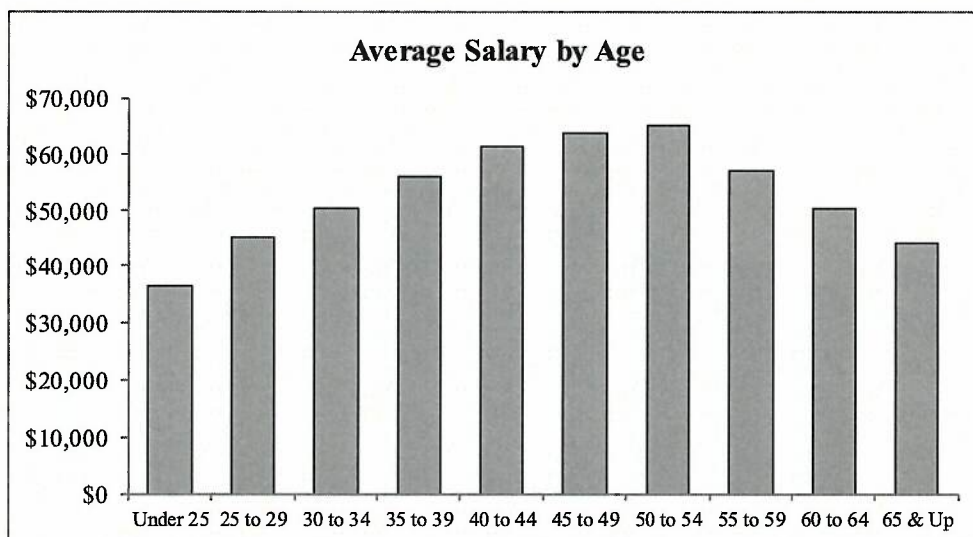
APPENDIX D—MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF ACTIVE MEMBERS**

as of January 1, 2022

Total

Age	Number			Projected Salaries		
	Males	Females	Total	Males	Females	Total
Under 25	75	280	355	\$2,731,931	\$10,179,135	\$12,911,066
25 to 29	197	629	826	9,082,901	28,422,628	37,505,529
30 to 34	183	590	773	9,781,440	29,274,722	39,056,162
35 to 39	209	564	773	12,354,736	31,117,346	43,472,082
40 to 44	238	697	935	15,573,561	41,995,501	57,569,062
45 to 49	226	592	818	15,361,229	36,842,357	52,203,586
50 to 54	208	662	870	15,190,243	41,438,860	56,629,103
55 to 59	209	534	743	13,096,676	29,260,890	42,357,566
60 to 64	188	457	645	10,683,577	21,751,251	32,434,828
65 & Up	128	220	348	6,189,056	9,257,074	15,446,130
Total	1,861	5,225	7,086	\$110,045,350	\$279,539,764	\$389,585,114



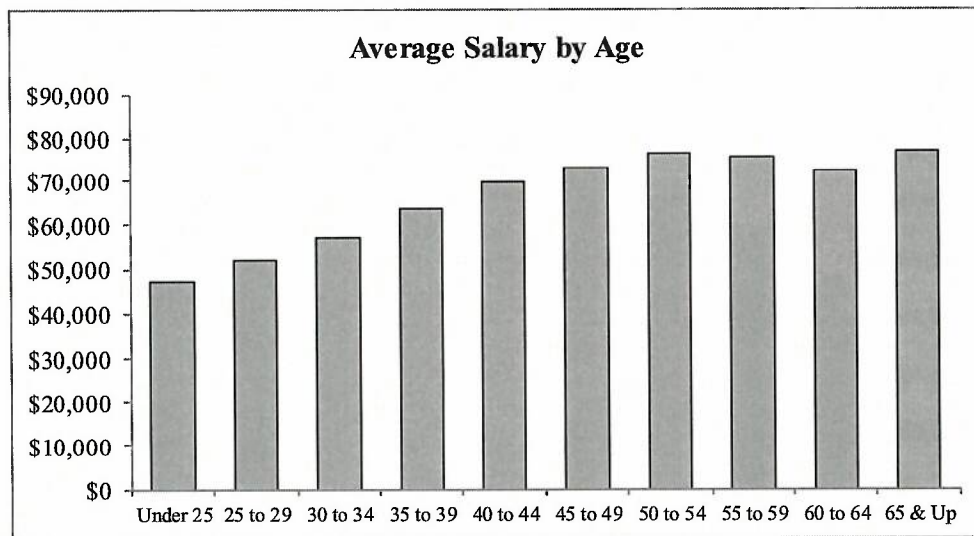


**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF ACTIVE MEMBERS**

as of January 1, 2022

Certificated

Age	Number			Projected Salaries		
	Males	Females	Total	Males	Females	Total
Under 25	26	161	187	\$ 1,193,106	\$ 7,614,658	\$ 8,807,764
25 to 29	124	483	607	6,605,350	24,937,713	31,543,063
30 to 34	124	458	582	7,501,376	25,854,736	33,356,112
35 to 39	140	454	594	9,451,555	28,272,138	37,723,693
40 to 44	182	560	742	13,233,122	38,251,016	51,484,138
45 to 49	162	464	626	12,403,757	33,337,864	45,741,621
50 to 54	136	483	619	11,214,316	36,091,124	47,305,440
55 to 59	83	299	382	6,458,184	22,347,554	28,805,738
60 to 64	62	188	250	4,491,593	13,587,967	18,079,560
65 & Up	30	65	95	2,311,980	4,982,843	7,294,823
Total	1,069	3,615	4,684	\$ 74,864,339	\$ 235,277,613	\$ 310,141,952





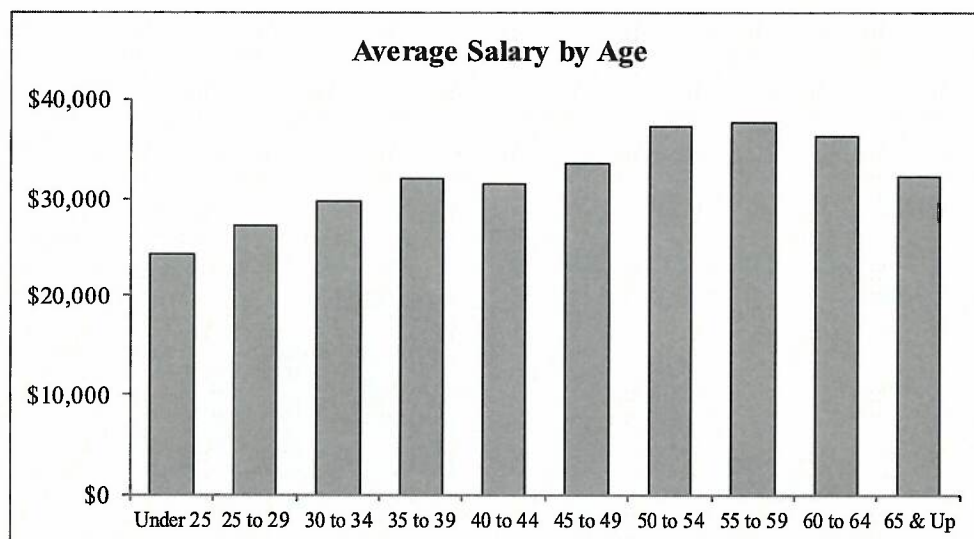
APPENDIX D— MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF ACTIVE MEMBERS**

as of January 1, 2022

Classified

Age	Number			Projected Salaries		
	Males	Females	Total	Males	Females	Total
Under 25	49	119	168	\$ 1,538,825	\$ 2,564,477	\$ 4,103,302
25 to 29	73	146	219	2,477,551	3,484,915	5,962,466
30 to 34	59	132	191	2,280,064	3,419,986	5,700,050
35 to 39	69	110	179	2,903,181	2,845,208	5,748,389
40 to 44	56	137	193	2,340,439	3,744,485	6,084,924
45 to 49	64	128	192	2,957,472	3,504,493	6,461,965
50 to 54	72	179	251	3,975,927	5,347,736	9,323,663
55 to 59	126	235	361	6,638,492	6,913,336	13,551,828
60 to 64	126	269	395	6,191,984	8,163,284	14,355,268
65 & Up	98	155	253	3,877,076	4,274,231	8,151,307
Total	792	1,610	2,402	\$ 35,181,011	\$ 44,262,151	\$ 79,443,162





APPENDIX D—MEMBERSHIP DATA

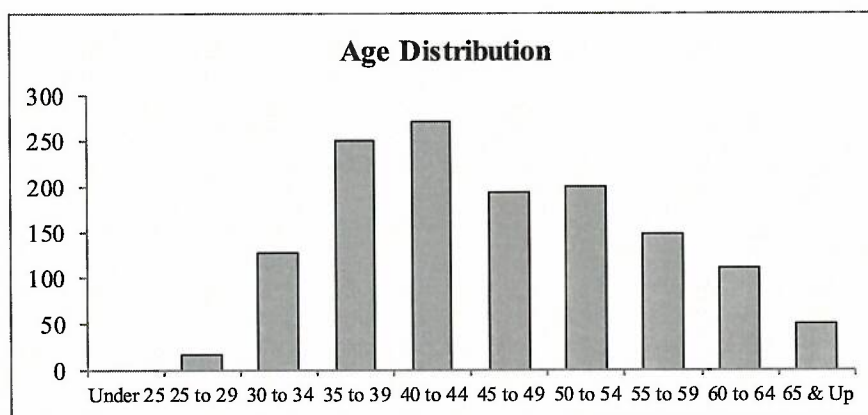
**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF INACTIVE VESTED MEMBERS**

as of January 1, 2022

Total

Age	Number			Monthly Benefit at Unreduced Retirement		
	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	\$ 0	\$ 0	\$ 0
25 to 29	1	16	17	488	5,581	6,069
30 to 34	19	108	127	9,014	55,029	64,043
35 to 39	59	190	249	44,212	129,342	173,554
40 to 44	74	195	269	68,551	149,886	218,437
45 to 49	45	148	193	63,888	128,974	192,862
50 to 54	46	154	200	61,578	124,007	185,585
55 to 59	30	118	148	24,125	77,555	101,680
60 to 64	15	94	109	10,601	47,113	57,714
65 & Up	7	42	49	6,323	17,558	23,881
Total	296	1,065	1,361	\$288,780	\$735,045	\$1,023,825

Note: Includes 11 deferred disabled members.





APPENDIX D- MEMBERSHIP DATA

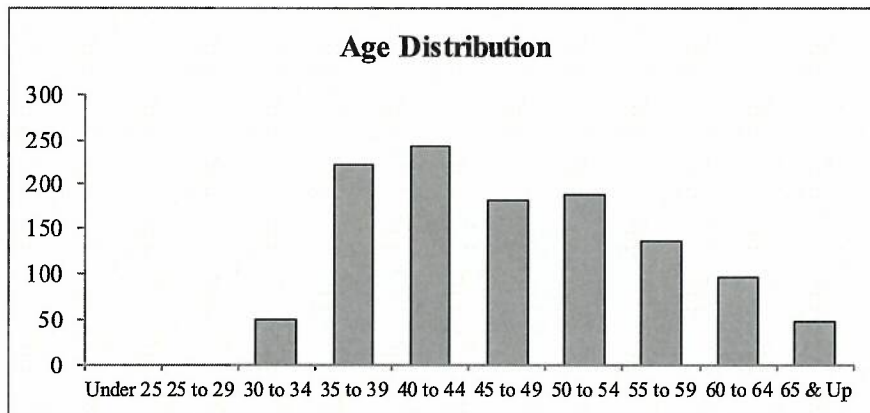
**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF INACTIVE VESTED MEMBERS**

as of January 1, 2022

Tier 1

Age	Number			Monthly Benefit at Unreduced Retirement		
	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	\$ 0	\$ 0	\$ 0
25 to 29	0	0	0	0	0	0
30 to 34	8	42	50	4,447	23,835	28,282
35 to 39	53	167	220	41,214	118,275	159,489
40 to 44	64	178	242	62,727	142,865	205,592
45 to 49	42	139	181	60,667	125,389	186,056
50 to 54	43	143	186	59,549	119,593	179,142
55 to 59	26	108	134	22,773	74,429	97,202
60 to 64	12	83	95	7,337	43,241	50,578
65 & Up	7	41	48	6,323	17,354	23,677
Total	255	901	1,156	\$ 265,037	\$ 664,981	\$ 930,018

Note: Includes 11 deferred disabled members.



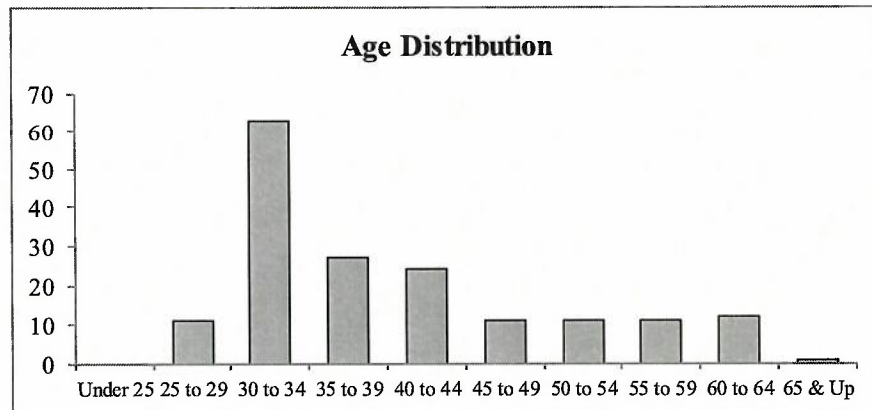


**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF INACTIVE VESTED MEMBERS**

as of January 1, 2022

Tier 2

Age	Number			Monthly Benefit at Unreduced Retirement		
	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	\$ 0	\$ 0	\$ 0
25 to 29	1	10	11	488	3,404	3,892
30 to 34	7	56	63	3,197	27,293	30,490
35 to 39	6	21	27	2,998	10,212	13,210
40 to 44	9	15	24	5,618	6,350	11,968
45 to 49	3	8	11	3,221	3,215	6,436
50 to 54	3	8	11	2,029	3,136	5,165
55 to 59	3	8	11	983	2,544	3,527
60 to 64	3	9	12	3,264	3,250	6,514
65 & Up	0	1	1	0	204	204
Total	35	136	171	\$ 21,798	\$ 59,608	\$ 81,406





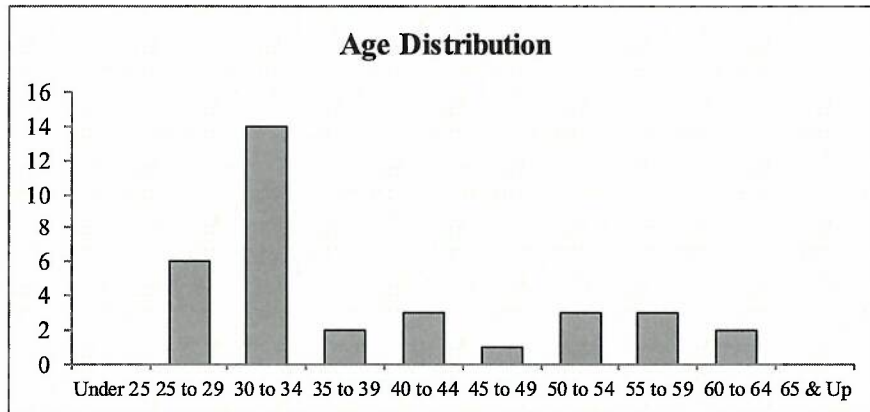
APPENDIX D- MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF INACTIVE VESTED MEMBERS**

as of January 1, 2022

Tier 3

Age	Number			Monthly Benefit at Unreduced Retirement		
	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	\$ 0	\$ 0	\$ 0
25 to 29	0	6	6	0	2,177	2,177
30 to 34	4	10	14	1,370	3,901	5,271
35 to 39	0	2	2	0	855	855
40 to 44	1	2	3	206	671	877
45 to 49	0	1	1	0	370	370
50 to 54	0	3	3	0	1,278	1,278
55 to 59	1	2	3	369	582	951
60 to 64	0	2	2	0	622	622
65 & Up	0	0	0	0	0	0
Total	6	28	34	\$ 1,945	\$ 10,456	\$ 12,401





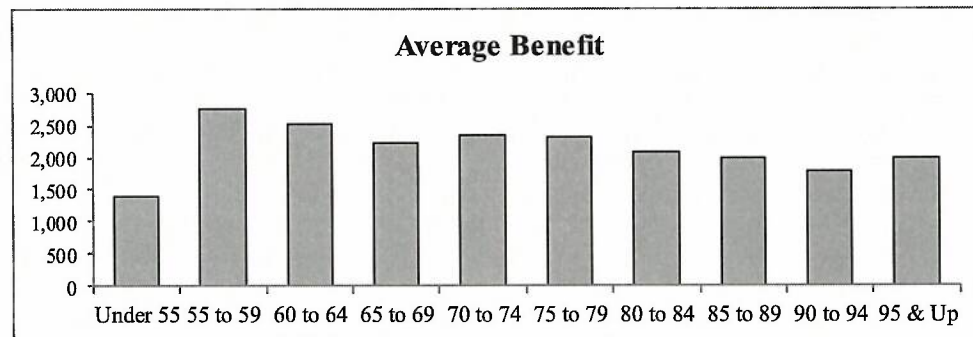
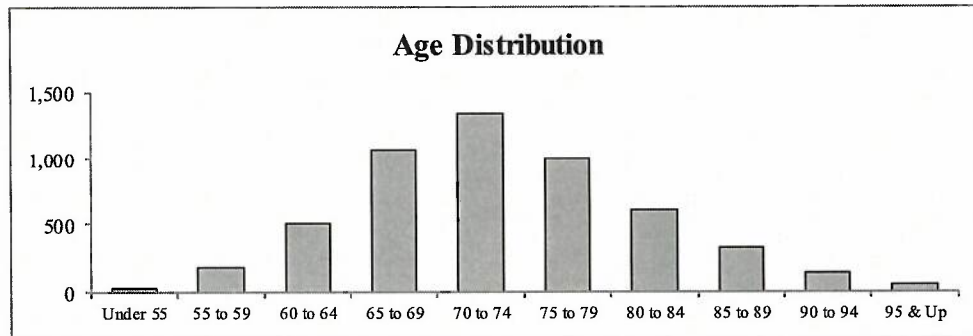
APPENDIX D—MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF RETIREES, BENEFICIARIES AND DISABLED
MEMBERS**

as of January 1, 2022

Total

Age	Number			Total Monthly Benefit		
	Males	Females	Total	Males	Females	Total
Under 55	8	13	21	\$ 7,399	\$ 21,902	\$ 29,301
55 to 59	53	129	182	144,932	339,260	484,192
60 to 64	117	395	512	275,073	969,559	1,244,632
65 to 69	280	788	1,068	655,856	1,660,176	2,316,032
70 to 74	355	988	1,343	906,097	2,187,688	3,093,785
75 to 79	322	680	1,002	824,336	1,475,527	2,299,863
80 to 84	173	426	599	421,434	809,458	1,230,892
85 to 89	87	239	326	207,747	441,046	648,793
90 to 94	24	110	134	54,445	182,913	237,358
95 & Up	12	39	51	30,934	70,537	101,471
Total	1,431	3,807	5,238	\$3,528,253	\$8,158,066	\$11,686,319





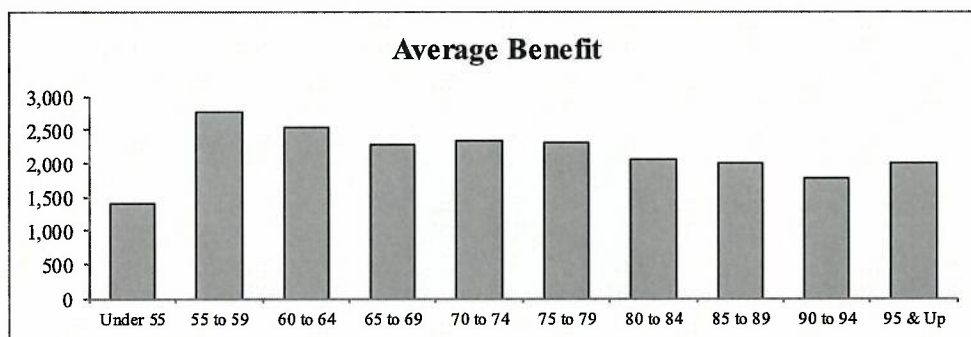
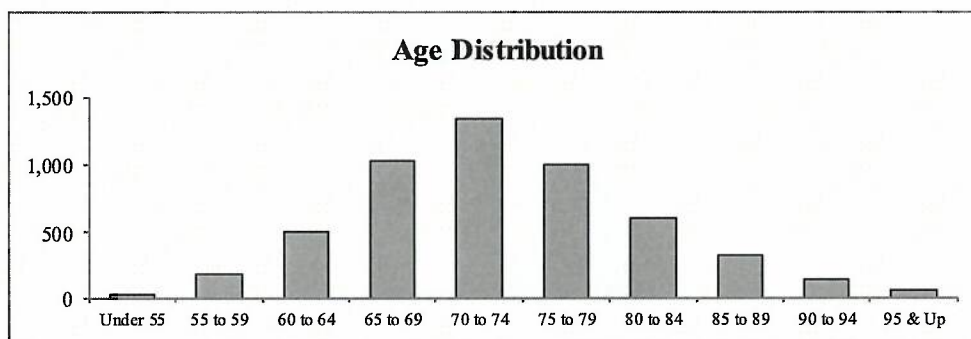
APPENDIX D- MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF RETIREES, BENEFICIARIES AND DISABLED
MEMBERS**

as of January 1, 2022

Tier 1

Age	Number			Total Monthly Benefit		
	Males	Females	Total	Males	Females	Total
Under 55	8	13	21	\$ 7,399	\$ 21,902	\$ 29,301
55 to 59	53	129	182	144,932	339,260	484,192
60 to 64	117	393	510	275,073	968,288	1,243,361
65 to 69	268	766	1,034	650,157	1,652,100	2,302,257
70 to 74	352	985	1,337	905,343	2,185,477	3,090,820
75 to 79	321	680	1,001	823,955	1,475,527	2,299,482
80 to 84	173	426	599	421,434	809,458	1,230,892
85 to 89	87	239	326	207,747	441,046	648,793
90 to 94	24	110	134	54,445	182,913	237,358
95 & Up	12	39	51	30,934	70,537	101,471
Total	1,415	3,780	5,195	\$3,521,419	\$8,146,508	\$11,667,927





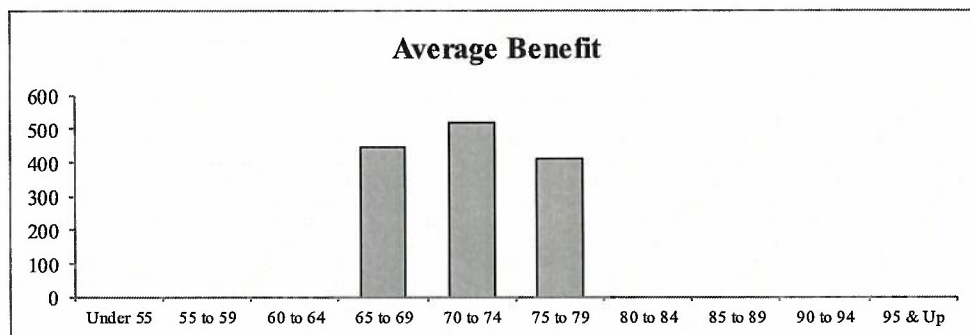
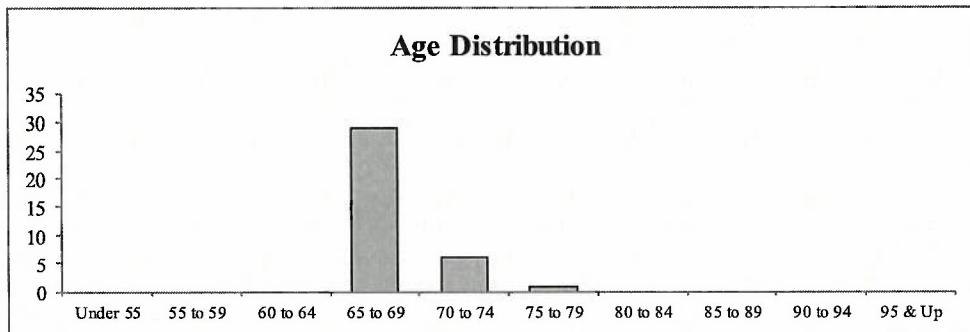
APPENDIX D— MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF RETIREES, BENEFICIARIES AND DISABLED
MEMBERS**

as of January 1, 2022

Tier 2

Age	Number			Total Monthly Benefit		
	Males	Females	Total	Males	Females	Total
Under 55	0	0	0	\$ 0	\$ 0	\$ 0
55 to 59	0	0	0	0	0	0
60 to 64	0	0	0	0	0	0
65 to 69	12	17	29	5,699	6,165	11,864
70 to 74	3	3	6	754	2,211	2,965
75 to 79	1	0	1	381	0	381
80 to 84	0	0	0	0	0	0
85 to 89	0	0	0	0	0	0
90 to 94	0	0	0	0	0	0
95 & Up	0	0	0	0	0	0
Total	16	20	36	\$6,834	\$8,376	\$15,210





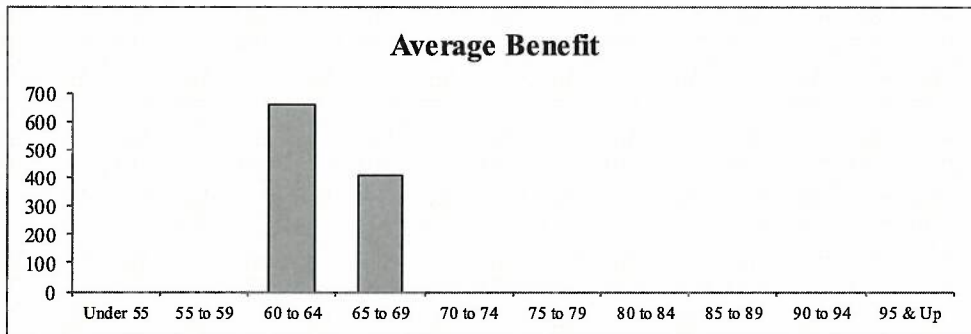
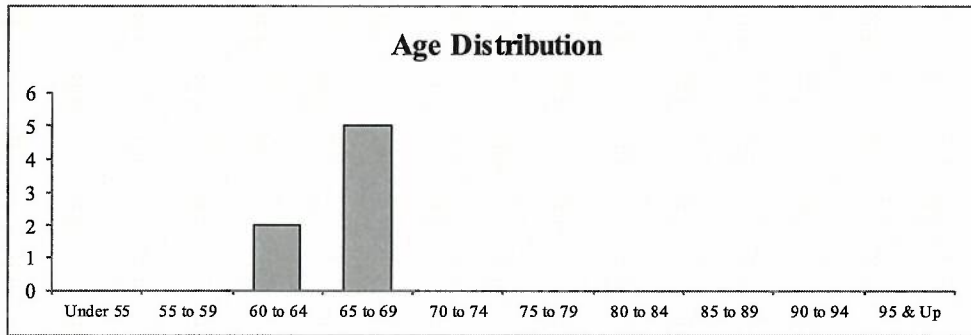
APPENDIX D- MEMBERSHIP DATA

**OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF RETIREES, BENEFICIARIES AND DISABLED
MEMBERS**

as of January 1, 2022

Tier 3

Age	Number			Total Monthly Benefit		
	Males	Females	Total	Males	Females	Total
Under 55	0	0	0	\$ 0	\$ 0	\$ 0
55 to 59	0	0	0	0	0	0
60 to 64	0	2	2	0	1,271	1,271
65 to 69	0	5	5	0	1,911	1,911
70 to 74	0	0	0	0	0	0
75 to 79	0	0	0	0	0	0
80 to 84	0	0	0	0	0	0
85 to 89	0	0	0	0	0	0
90 to 94	0	0	0	0	0	0
95 & Up	0	0	0	0	0	0
Total	0	7	7	\$ 0	\$3,182	\$3,182





Cavanaugh Macdonald

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December 6, 2021

Board of Trustees
Omaha School Employees' Retirement System
3215 Cuming Street
Omaha, NE 68131-2024

Re: 2021 Experience Study Report

Dear Trustees:

Attached please find the Experience Study report for the four-year period ending December 31, 2020. No material changes have been made to the draft version of the report that was provided to you at the September Board meeting. This report contains our recommended changes to the current set of actuarial assumptions and methods which would first be reflected in the January 1, 2022 actuarial valuation. Ultimately, you as the Board, have the authority and responsibility of adopting the assumptions and methods used in the valuation. Please note that we will need to be notified of your decision on adopting our recommended changes by the end of January, 2022 in order to reflect the new set of assumptions and methods in the January 1, 2022 actuarial valuation.

If you have any questions or need additional information, please do not hesitate to contact us. We would be happy to be of assistance.

Patrice A. Beckham, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

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**OMAHA SCHOOL EMPLOYEES
RETIREMENT SYSTEM**

**Four Year Experience Study
January 1, 2017 to December 31, 2020**

Submitted: December 6, 2021



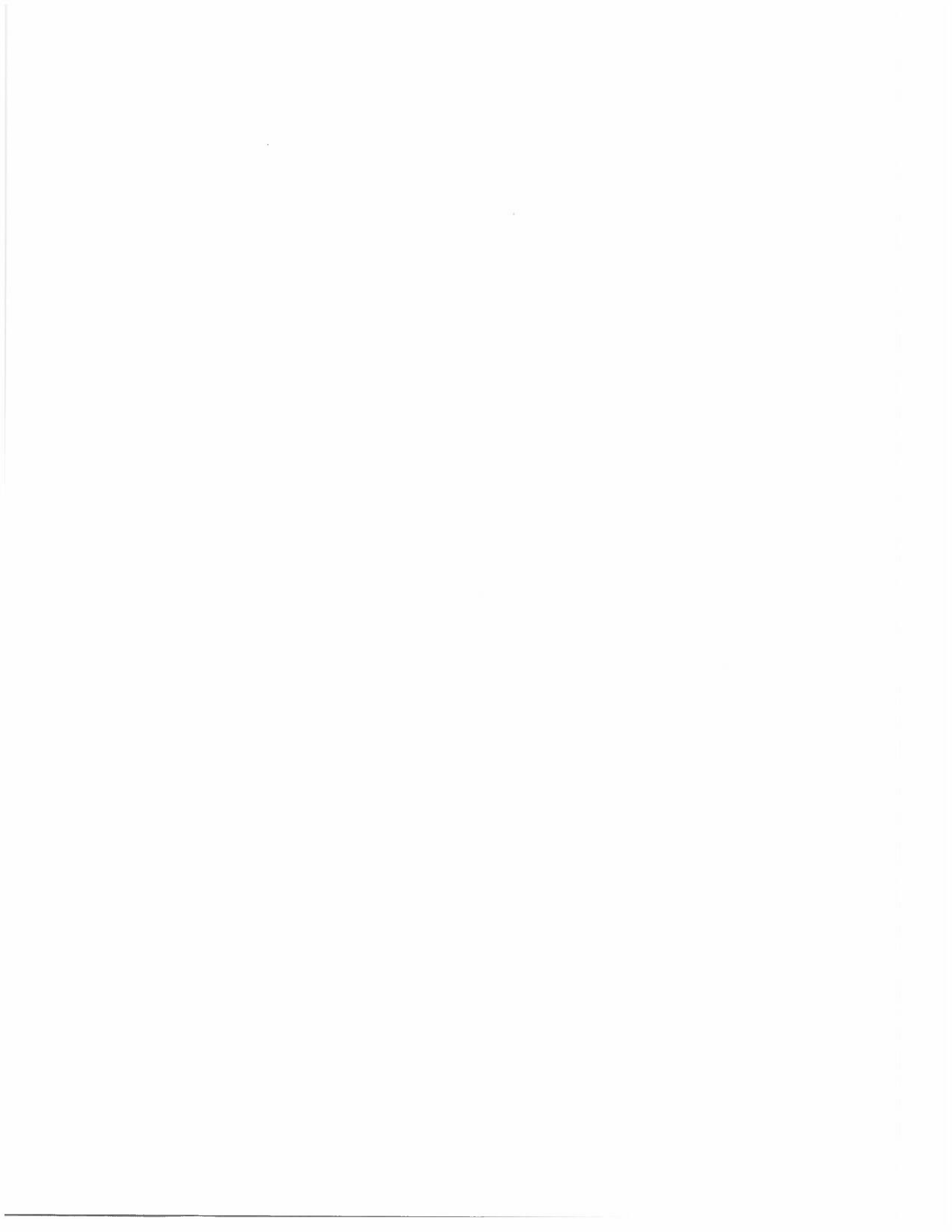




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December 6, 2021

Board of Trustees
Omaha School Employees' Retirement System
3215 Cuming Street
Omaha, NE 68131

Dear Trustees:

It is a pleasure to submit this report of our investigation of the experience of the Omaha School Employees Retirement System (OSERS) for the period of January 1, 2017 through December 31, 2020.

The purpose of this report is to communicate the results of our review of the actuarial methods and the economic and demographic assumptions to be used in the completion of the January 1, 2022 actuarial valuation. This report includes our recommended changes from the prior assumptions that are intended to better anticipate the emerging experience of the Plan. Actual future experience, however, may still differ from these assumptions. As the actuary for OSERS, our responsibility is to make recommendations for assumption and method changes. Ultimately the Board has the authority to decide whether or not to adopt the recommendations.

In preparing this report, we relied, without audit, on information supplied by the System for the annual actuarial valuations. If any data or other information is inaccurate or incomplete, our analysis and recommendation may be impacted and a revised report may need to be issued.

We hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board (ASB) and the Code of Professional Conduct and Qualification Standards for Public Statements of Actuarial Opinion of the American Academy of Actuaries.

We further certify that the assumptions developed in this report satisfy ASB Standards of Practice, in particular, No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations* and No. 35, *Selection of Demographic and Other Non-economic Assumptions for Measuring Pension Obligations*.

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Board of Trustees
December 6, 2021
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We look forward to our discussions and the opportunity to respond to your questions and comments.

We, Patrice A. Beckham and Bryan K. Hoge, are members of the American Academy of Actuaries, Enrolled Actuaries and Fellows of the Society of Actuaries. We meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

A handwritten signature in blue ink that reads 'Patrice Beckham' in a cursive script.

Patrice A. Beckham, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in blue ink that reads 'Bryan K. Hoge' in a cursive script.

Bryan K. Hoge, FSA, EA, FCA, MAAA
Consulting Actuary



SECTION 1 – INTRODUCTION

The purpose of an actuarial valuation is to provide a timely best estimate of the ultimate costs of a retirement system. Actuarial valuations of the Omaha School Employees Retirement System (OSERS or the System) are prepared annually to determine the actuarial contribution rate to fund the System on an actuarial reserve basis, i.e. the current assets plus future contributions, along with investment earnings will be sufficient to provide the benefits promised by the System. The valuation requires the use of certain assumptions with respect to the occurrence of future events, such as rates of death, disability, termination of employment, retirement age and salary changes to estimate the obligations of the System.

The basic purpose of an experience study is to determine whether the actuarial assumptions currently in use align with the actual emerging experience of the plan and to review if there have been any changes in expectations of future plan experience. This information, along with the professional judgment of the Board, its advisor, and the actuary, is used to evaluate the appropriateness of continued use of the current actuarial assumptions. When analyzing experience and assumptions, it is important to recognize that actual experience is reported in the short term while assumptions are intended to be long-term estimates of experience. Therefore, actual experience is expected to vary from study period to study period, without necessarily indicating a change in assumptions is needed.

At the request of the Board, Cavanaugh Macdonald Consulting, LLC (CMC), performed a study of the experience of OSERS, for the four-year period ending December 31, 2020. This report presents the results, analysis, and resulting recommendations of our study. It is anticipated that the changes, if approved by the Board, will first be reflected in the January 1, 2022 actuarial valuation.

These assumptions have been developed in accordance with generally recognized and accepted actuarial principles and practices that are consistent with the applicable Actuarial Standards of Practice adopted by the Actuarial Standards Board (ASB). While the recommended assumptions represent our best estimate of future experience, there are other reasonable assumption sets that could be supported by the results of this experience study. Those other sets of reasonable assumptions could produce liabilities and costs that are either higher or lower.

Our Philosophy

Similar to an actuarial valuation, the calculation of actual and expected experience is a fairly mechanical process, and differences between actuaries in this area are generally minor. However, the setting of assumptions differs, as it is more art than science. In this report, we have recommended changes to certain assumptions. To explain our thought process, we offer a brief summary of our philosophy:

- **Don't Overreact:** When we see significant changes in experience, we generally do not adjust our rates to reflect the entire difference. We will typically recommend rates somewhere between the old rates and the new experience. If the experience during the next study period shows the same result, we will probably recognize the trend at that point in time or at least move further in the direction of the observed experience. On the other hand, if experience returns closer to its prior level, we will not have overreacted, possibly causing volatility in the actuarial contribution rates.
- **Anticipate Trends:** If there is an identified trend that is expected to continue, we believe that this should be recognized. An example is the retiree mortality assumption. It is an established trend that people are living longer. Therefore, we believe the best estimate of liabilities in the valuation should reflect the expected increase in life expectancy.



SECTION 1 – INTRODUCTION

- **Simplify:** In general, we attempt to identify which factors are significant and eliminate or ignore the ones that do not materially improve the accuracy of the liability projections.

SCOPE OF THIS REPORT

The actuarial valuation utilizes various actuarial methods and two different types of assumptions: economic and demographic. Economic assumptions are related to the general economy and its impact on the System. Demographic assumptions are based on the emergence of the specific experience of the Systems' members.

All of the major actuarial assumptions that will be used in the January 1, 2022 Actuarial Valuation have been reviewed in this Study. The remainder of this report is divided as follows:

- SECTION 2 EXECUTIVE SUMMARY**
- SECTION 3 ACTUARIAL METHODS**
- SECTION 4 ECONOMIC ASSUMPTIONS**
- SECTION 5 DEMOGRAPHIC ASSUMPTIONS**
- SECTION 6 MORTALITY**
- SECTION 7 RETIREMENT**
- SECTION 8 TERMINATION OF EMPLOYMENT**



SECTION 2 – EXECUTIVE SUMMARY

Actuarial Methods

The actuarial methods outlined in the Funding Policy include:

- Entry age normal cost method
- Expected + 25% asset smoothing method
- Amortization of UAAL, as a level percent of payroll, over a closed 30 year period.

As a result of our review of these methodologies, we are recommending that future changes in the UAAL be amortized over separate 25-year closed periods beginning on the date the change is measured. The other actuarial methods are reasonable and we recommend they be retained. Having said that, we recognize that the Board may wish to use an asset smoothing method that is consistent with the methodology used by the Nebraska Public Employees Retirement System, the closed five-year asset smoothing method. That method is commonly used by public plans and meets actuarial standards so such a change is acceptable to Cavanaugh Macdonald if that is the Board's decision.

Economic Assumptions

The following set of economic assumptions is recommended:

	Current Assumptions	Proposed Assumptions
Price Inflation	2.75%	2.35%
Investment Return	7.50%	7.00%
General Wage Growth	3.25%	2.85%
Payroll Growth	3.25%	2.85%

The Nebraska Investment Council is responsible for investing OSERS' trust funds. The long term asset allocation for the OSERS portfolio is the same as that of the Nebraska Public Employees Retirement System (NPERS). Last fall, an experience study was performed for the Nebraska Public Employees Retirement System and the investment return assumption was lowered from 7.50% to 7.00% (inflation of 2.35% plus real return of 4.65%). In order to provide a smoother cost pattern, the Board decided to phase in the proposed change to the inflation assumption of 40 basis points over four years for the plans covered by NPERS. Given the asset allocation for OSERS is the same as NPERS, the NIC invests the funds of both systems, and NPERS is expected to assume responsibility for the administration of OSERS in several years we believe the same investment return assumption should be used for both systems. Therefore, we recommend the investment return assumption for OSERS be lowered from 7.50% to 7.00%. If a smoother cost pattern is desired, the Board of Trustees may want to consider a phase-in approach similar to that implemented by NPERS



SECTION 2 – EXECUTIVE SUMMARY

Although we have recommended a specific set of economic assumptions, we recognize there are other sets of economic assumptions which are also reasonable for purposes of funding OSERS. Some actuaries (and/or boards) might be more risk averse and desire a greater degree of conservatism, while others are more risk tolerant and would choose less cautious assumptions. Actuarial Standards of Practice allow for this difference in approach and perspective, as long as the assumptions are reasonable and consistent.

Demographic Assumptions

Based on the observed data and associated analysis, the recommended changes to the current demographic assumptions are:

- Change the mortality assumption to the Pub-2010 General Employees Median Mortality Table. Generational mortality improvements will be modeled using the NPERS projection scale.
- Modify the retirement rates for both certificated and classified members
- Modify the termination of employment rates for both certificated and classified members
- Modify the election of refund at termination for both certificated and classified members and adjust the assumption based on years of service
- Reduce active member marriage assumption from 100% to 85%.

Given the proposed changes to the investment return and mortality assumptions, the Board may want to revisit the definition of actuarial equivalence being used to develop the actuarial factors for optional forms of payment used for members hired on or after July 1, 2018.

Financial Impact

The financial impact of the proposed assumption changes is based on the results of the most recent actuarial valuation, performed as of January 1, 2021. While the actual results for the January 1, 2022 valuation will vary, we expect the change, as a percentage of liabilities and normal cost, to be comparable. The results are shown on the following page.



Estimate of Financial Impact of Assumption Changes
Based on January 1, 2021 Valuation

Dollars In Thousands

	Baseline (Current Assumptions)	Demographic Changes	All Assumption Changes
1. Present Value of Future Benefits	\$2,800,790	\$2,793,241	\$2,927,226
2. Present Value Future Normal Costs	<u>419,434</u>	<u>429,440</u>	<u>449,517</u>
3. Actuarial Accrued Liability (1) – (2)	\$2,381,356	\$2,363,801	\$2,477,709
4. Actuarial Value of Assets	<u>1,467,834</u>	<u>1,467,834</u>	<u>1,467,834</u>
5. Unfunded Actuarial Accrued Liability (UAAL) (3) – (4)	\$ 913,522	\$ 895,967	\$1,009,875
6. Funded Ratio (4) / (3)	61.64%	62.10%	59.24%
7. Normal Cost Rate	12.76%	12.67%	13.35%
8. Administrative Expenses	0.00%	0.00%	0.24%
9. UAAL Payment	<u>14.77%</u>	<u>14.49%</u>	<u>16.19%</u>
10. Actuarial Contribution Rate (7) + (8) + (9)	27.53%	27.16%	29.78%
10. Statutory Contribution Rate	21.66%	21.66%	21.66%
11. Contribution Shortfall/(Surplus) (9) – (10)	5.87%	5.50%	8.12%
12. Additional District Contribution	\$ 22,200	\$ 20,800	\$ 30,514



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SECTION 3 – ACTUARIAL METHODS

This section describes the actuarial methods that are used to determine the actuarial required contribution rate of the System. These methods are part of the Funding Policy adopted by the Board in 2019 and currently in use.

<i>Actuarial Cost Method</i>	Entry Age Normal
<i>Asset Valuation Method</i>	Expected + 25% Method
<i>Amortization Method</i>	Layered amortization with payments as level percent of payroll
<i>Amortization Period</i>	30 years, closed for each layer

ACTUARIAL COST METHOD

The systematic financing of a pension plan requires that contributions be made in an orderly fashion while a member is actively employed, so that the accumulation of these contributions, together with investment earnings should be sufficient to provide promised benefits and cover administration expenses. The actuarial valuation is the process used to determine when money should be contributed; i.e., as part of the budgeting process.

The actuarial valuation will not impact the amount of benefits paid or the actual cost of those benefits. In the long run, actuaries cannot change the costs of the pension plan, regardless of the funding method used or the assumptions selected. However, the choice of actuarial methods and assumptions will influence the incidence of costs.

The valuation or determination of the present value of all future benefits to be paid by the System reflects the assumptions that best seem to describe anticipated future experience. The choice of a funding method does not impact the determination of the present value of future benefits. The funding method determines only the incidence or allocation of cost. In other words, the purpose of the funding method is to allocate the present value of future benefits determination into annual costs. In order to do this allocation, it is necessary for the funding method to “break down” the present value of future benefits into two components: (1) that which is attributable to the past (2) and that which is attributable to the future. The excess of that portion attributable to the past over the plan assets is then amortized over a period of years. Actuarial terminology calls the part attributable to the past the “past service liability” or the “actuarial accrued liability”. The portion of the present value of future benefits allocated to the future is commonly known as the “present value of future normal costs”, with the specific piece of it allocated to the current year being called the “normal cost”. The difference between the plan assets and actuarial accrued liability is called the “unfunded actuarial accrued liability”.

Two key points should be noted. First, there is no single “correct” funding method. Second, the allocation of the present value of future benefits, and hence cost, to the past for amortization and to the future for annual normal cost payments is not necessarily in a one-to-one relationship with service credits earned in the past and future service credits to be earned.

There are various actuarial cost methods, each of which has different characteristics, advantages and disadvantages. However, Governmental Accounting Standard Board Statement Numbers 67 and 68 require that the Entry Age Normal cost method be used for financial reporting. Most systems do not want to use a different actuarial cost method for funding and financial reporting. In addition, the Entry Age Normal



SECTION 3 – ACTUARIAL METHODS

method has been the most common funding method for public systems for many years. This is the cost method currently used by OSERS.

The rationale of the Entry Age Normal (EAN) cost method is that the cost of each member's benefit is determined to be a level percentage of his salary from date of hire to the end of his employment with the employer. This level percentage multiplied by the member's annual salary is referred to as the normal cost and is that portion of the total cost of the employee's benefit which is allocated to the current year. The portion of the present value of future benefits allocated to the future is determined by multiplying this percentage times the present value of the member's assumed earnings for all future years including the current year. The Entry Age Normal actuarial accrued liability is then developed by subtracting from the present value of future benefits that portion of costs allocated to the future. To determine the unfunded actuarial accrued liability, the value of plan assets is subtracted from the Entry Age Normal actuarial accrued liability. The current year's cost to amortize the unfunded actuarial accrued liability is developed by applying an amortization factor.

It is to be expected that future events will not occur exactly as anticipated by the actuarial assumptions in each year. Actuarial gains/losses from experience under this actuarial cost method can be directly calculated and are reflected as a decrease/increase in the unfunded actuarial accrued liability. Consequently, the gain/loss results in a decrease/increase in the amortization payment, and therefore the contribution rate.

Considering that the Entry Age Normal cost method is the most commonly used cost method by public plans, that it develops a normal cost rate that tends to be stable and less volatile, and is the required cost method under calculations required by Governmental Accounting Standard Numbers 67 and 68, **we recommend the Entry Age Normal actuarial cost method be retained.**

ACTUARIAL VALUE OF ASSETS

In preparing an actuarial valuation, the actuary must assign a value to the assets of the fund. An adjusted market value is often used to smooth out the volatility that is reflected in the market value of assets. This is because most employers would rather have annual costs remain relatively smooth, as a percentage of payroll or in actual dollars, as opposed to a cost pattern that is extremely volatile.

The actuary does not have complete freedom in assigning this value. The Actuarial Standards Board also has basic principles regarding the calculation of a smoothed asset value, Actuarial Standard of Practice No. 44 (ASOP 44), *Selection and Use of Asset Valuation Methods for Pension Valuations*.

ASOP 44 provides that the asset valuation method should bear a reasonable relationship to the market value. Furthermore, the asset valuation method should be likely to satisfy both of the following:

- Produce values within a reasonable range around market value, AND
- Recognize differences from market value in a reasonable amount of time.

In lieu of both of the above, the standard will be met if either of the following requirements is satisfied:

- There is a sufficiently narrow range around the market value, OR
- The method recognizes differences from market value in a sufficiently short period.



SECTION 3 – ACTUARIAL METHODS

These rules or principles prevent the asset valuation methodology from being used to manipulate annual funding patterns. No matter what asset valuation method is used, it is important to note that, like a cost method or actuarial assumptions, the asset valuation method does not affect the true cost of the plan; it only impacts the incidence of cost.

OSERS values assets, for actuarial valuation purposes, based on the principle that the difference between actual and expected investment returns should be subject to partial recognition to smooth out fluctuations in the total return achieved by the fund from year to year. This philosophy is consistent with the long-term nature of a retirement system. Under this method, the actuarial value of the assets is the expected value of assets plus 25% of the difference between market value and expected value, where the expected value is last year's actuarial value, contributions and benefit payments all accumulated at the actuarial investment return assumption. This is mathematically equivalent to using a weighted average of 75% of the expected value and 25% of actual market value.

The current asset valuation method for OSERS also includes what is known as a “corridor”, which provides that once the initial determination of the actuarial value of assets is made it is compared to a corridor around market value (80% of market value to 120% of market value). If the initial actuarial value lies outside the corridor, the final actuarial value of assets is set equal to the corresponding corridor value. For example, if the initial calculation of the actuarial value of assets is 132% of market value, the actuarial value is set equal to 120% of market value. We believe the corridor is necessary to ensure actuarial standards are met.

OSERS' funded status is often compared to the Nebraska School Retirement System (NPERS School). The NPERS School system uses a different asset valuation method which recognizes the dollar amount of the difference between the actual investment return and the assumed investment return on the market value of assets equally over a closed five-year period. This is a very common methodology used by public plans and it also meets actuarial standards under ASOP 44.

The purpose of an asset valuation method is to “smooth out” the volatility that occurs in the measurement of assets using pure market value. We believe the current method has provided the desired smoothing of asset experience and complies with actuarial standards of practice. It also converges back to market value of assets more quickly when there are returns both below and above the assumed return. **Our recommendation is to retain the current asset valuation method unless the Board wishes to use the NPERS School methodology to provide consistency of results. Either method will provide the desired smoothing of actual investment experience and is acceptable under actuarial standards of practice.**

AMORTIZATION OF UAAL

As described earlier, actuarial accrued liability is the portion of the actuarial present value of future benefits that are not included in future normal costs. Thus it represents the liability that, in theory, should have been funded through normal costs for past service. Unfunded actuarial accrued liability (UAAL) exists when the actuarial accrued liability exceeds the actuarial value of plan assets. These deficiencies can result from (i) plan improvements that have not been completely paid for, (ii) experience that is less favorable than expected, (iii) assumption changes that increase liabilities, or (iv) contributions that are less than the actuarial contribution rate. If the actuarial value of assets (AVA) exceeds the actuarial accrued liability (AAL), “surplus” exists.

There are a variety of different methods that can be used to amortize the UAAL. **Each method results in a different payment stream and, therefore, has cost implications.** For each methodology, there are three characteristics:



SECTION 3 – ACTUARIAL METHODS

- The period over which the UAAL is amortized,
- The rate at which the amortization payment increases, and
- The number of components of UAAL (separate amortization bases).

Amortization Period: The amortization period can be either closed or open. If it is a closed amortization period, the number of years remaining in the amortization period declines by one in each future valuation. Alternatively, if the amortization period is an open or rolling period, the amortization period does not decline but is reset to the same number each year. This approach, which essentially “refinances” the System’s debt (UAAL) every year, is infrequently used given recent trends in the industry.

The length of the amortization period has also changed over the last decade, particularly for systems using the level percent of payroll payment methodology (see below). Based on the professional guidance of actuaries and accountants, the recommended period for actuarial gains/losses is 15 to 20 years and for assumption changes 20-25 years. The goal is to better match the expected working lifetime of the membership at the time the amortization base is created.

Amortization Payment: The level dollar amortization method is similar to the method in which a home owner pays off a mortgage. The liability, once calculated, is financed by a constant fixed dollar amount, based on the amortization period until the liability is extinguished. This results in the liability steadily decreasing while the payments, though remaining level in dollar terms, in all probability decrease as a percentage of payroll. (Even if a plan sponsor’s population is not growing, inflationary salary increases will usually be sufficient to increase the aggregate covered payroll).

The rationale behind the level percentage of payroll amortization method is that since normal costs are calculated to be a constant percentage of pay, the unfunded actuarial accrued liability should be paid off in the same manner. In addition, most public retirement systems are financed with contributions that are a level percent of covered payroll. When this method of amortizing the unfunded actuarial accrued liability is adopted, the initial amortization payments are lower than they would be under a level dollar amortization payment method, but the payments increase at a fixed rate each year so that ultimately the annual payment far exceeds the level dollar payment. The expectation is that total payroll will increase at the same rate so that the amortization payments will remain constant, as a percentage of payroll. In the initial years, the level percentage of payroll amortization payment may be less than the interest accruing on the unfunded actuarial accrued liability meaning that even if there are no experience losses, the dollar amount of the unfunded actuarial accrued liability will increase (called negative amortization). This is particularly true if the plan sponsor is paying off the unfunded actuarial accrued liability over a long period, such as 30 years.

Amortization Bases: The UAAL can either be amortized as one single amount or as components or “layers”, each with a separate amortization base, payment and period. If the UAAL is amortized as one amount, the UAAL is recalculated each year in the valuation and experience gains/losses or other changes in the UAAL are folded into the single UAAL amortization base. The amortization payment is then the total UAAL divided by an amortization factor for the applicable amortization period.

If separate amortization bases are maintained, the UAAL is composed of multiple amortization bases, each with its own payment schedule and remaining amortization period. In each valuation, the unexpected change in the UAAL is established as a new amortization base over the appropriate amortization period beginning on that valuation date. The UAAL is then the sum of all of the outstanding amortization bases on the valuation date and the UAAL payment is the sum of all of the amortization payments on the existing amortization bases. This approach provides transparency in that the current UAAL is paid off over a fixed period of time and the remaining components of the UAAL are clearly identified in each valuation. Adjustments to the UAAL in future years are also separately identified in each future year. One downside



SECTION 3 – ACTUARIAL METHODS

of this approach is that it can create some discontinuities in contribution rates when UAAL layers/components are fully paid off. If this occurs, it likely would be far in the future, with adequate time to address any adjustments needed.

Current OSERS Actuarial Amortization Method: The current amortization method used by OSERS includes an initial amortization base (established in 2019) with payments over a closed 30-year period, determined as a level percentage of payroll. A new base is created each year that includes all of the unanticipated changes in the UAAL for the year. These new bases are amortized in a consistent time frame and basis. Whenever a plan has a total UAAL of \$0 or less (i.e. there is an actuarial surplus), all of the amortization bases are eliminated and the net surplus is amortized over 30 years.

While the current method is not unreasonable, we do note that over the last decade, the Government Finance Officers Association (GFOA) and the Conference of Consulting Actuaries (CCA) have published guidance on their opinion of “best practices” regarding public pension plan funding, including the length of the amortization period. Although these recommendations are not binding, they do point to an increased focus on developing amortization policies that are designed to pay down the UAAL in a meaningful way over a reasonable period. In particular, this guidance would encourage a more rapid amortization of the annual incremental pieces, paying them off in 15 to 20 years, particularly if the level percent of payroll methodology is being used.

The Actuarial Standards Board recently released a third exposure draft of *Actuarial Standard of Practice Number 4, Measuring Pension Obligations and Determining Pension Plan Costs* which includes guidance on the selection of an amortization method. It states that the actuary should select an amortization method for each amortization base that is expected to produce payments that fully amortize the amortization base within a reasonable time period or reduce the outstanding balance by a reasonable amount each year. The current version of ASOP 4 suggests the actuary consider the following in determining a reasonable time period or reasonable amortization amount:

- a. whether the amortization period is open or closed;
- b. Source of the amortization base;
- c. anticipated pattern of amortization payments, including the length of time until payments exceed nominal interest on the outstanding balance;
- d. whether the base is positive or negative;
- e. duration of the actuarial accrued liability;
- f. average remaining working lifetime of active members; and
- g. funded status of the plan or period to insolvency.

Given the funding policy of OSERS and the goal of funding with fixed contribution rates, an argument can be made for using an amortization period on the longer end of the reasonable range. However, most of the considerations outlined in ASOP 4 would lead us to recommend a shorter amortization period than the current 30 years. The UAAL is amortized as a level percentage of payroll which creates a pattern of contributions that is back-end loaded, i.e., payments are much higher in the latter part of the amortization period. This contribution pattern results in “negative amortization” wherein the dollar amount of the UAAL increases for several years because the dollar amount of the amortization payment is less than the interest on the UAAL. The period of time the plan experiences negative amortization is dependent on the investment return assumption and the payroll growth assumption. The reduction to both of these assumptions has helped reduce the number of years of negative amortization and the resulting growth in the dollar amount of UAAL, but with an amortization period of 30 years the dollar amount of the UAAL is not expected to be lower than the initial amount for 11 years.



SECTION 3 – ACTUARIAL METHODS

Given trends in the industry, guidance from the Government Finance Officers Association (GFOA), recent guidance from the Actuarial Standards Board about amortization periods, and the State’s desire to fund these plans with fixed contribution rates, **we recommend OSERS reduce the current 30 year amortization period for new bases to 25 years.** An amortization period of 20 years would conform better to best practices in the industry, but would also introduce more volatility in the actuarial contribution rate and, therefore, any additional District contributions. To implement the change in the amortization period with minimal financial impact on the short-term valuation results, we suggest the change be made prospectively to new amortization bases and existing amortization bases remain on their current payment schedules. Under the layered amortization method, there are other, considerations that can create volatility or discontinuity in contribution rates. These can be addressed by combining amortization bases or synchronizing the amortization periods to smooth out the UAAL contribution rate in future years.

The following table illustrates the expected impact on contributions over the next seven valuations if future amortization bases for assumption changes and experience gains/losses are amortized over 25 years rather than 30 years. Note that these results rely on the projection models prepared in conjunction with the most recent actuarial valuations and assume that all assumptions are met in future years. Actual results, especially the investment returns each year, will vary from those assumed and therefore the valuation results will also vary. These projections are shown for comparative purposes only.

Jan 1	Current: 30-Year Layers			25-Year Layers			Difference
	Actuarial Rate	Statutory Rate	Shortfall / (Margin)	Actuarial Rate	Statutory Rate	Shortfall / (Margin)	
2022	28.83%	21.66%	7.17%	28.93%	21.66%	7.27%	0.10%
2023	29.41%	21.66%	7.75%	29.56%	21.66%	7.90%	0.15%
2024	29.97%	21.66%	8.31%	30.16%	21.66%	8.50%	0.19%
2025	29.97%	21.66%	8.31%	30.17%	21.66%	8.51%	0.20%
2026	29.94%	21.66%	8.28%	30.16%	21.66%	8.50%	0.22%
2027	29.93%	21.66%	8.27%	30.15%	21.66%	8.49%	0.22%
2028	29.92%	21.66%	8.26%	30.13%	21.66%	8.47%	0.21%



SECTION 4 – ECONOMIC ASSUMPTIONS

Economic assumptions include price inflation, general wage increase (the across-the-board portion of salary increases), payroll growth, the long-term investment return, interest crediting rate for member accounts, salary increase for individual members, and the cost-of-living adjustment assumptions. Unlike demographic assumptions, economic assumptions do not lend themselves to analysis based solely upon internal historical patterns, because both salary increases and investment return are influenced more by external forces which are difficult to accurately predict over the long term. The investment return and salary increase assumptions are generally selected on the basis of expectations in an inflation-free environment and then increased by the long-term expectation for price inflation.

Sources of data considered in the analysis and selection of the economic assumptions included:

- Historical observations of price and wage inflation statistics and investment returns.
- The 2020 and 2021 Social Security Trustees Reports.
- Future expectations of the Nebraska Investment Council (NIC) and their consultant (Aon Consulting), along with the expectations of other investment consultants (Horizon Actuarial Survey).
- U. S. Department of the Treasury bond rates.
- Forecasts from various sources including the Congressional Budget Office, Federal Reserve Bank and the Survey of Professional Forecasters.
- Assumptions used by other large public retirement systems, based on the Public Fund Survey, published by the National Association of State Retirement Administrators.

Note that some of these sources were published after the COVID-19 pandemic impacted the world economy and some were issued prior to the pandemic. In evaluating the forecasts, we considered the timing on the published information and the potential impact COVID-19 might have had on the forward-looking measurements.

ACTUARIAL STANDARD OF PRACTICE NUMBER 27

Actuarial Standards of Practice are issued by the Actuarial Standards Board to provide guidance to actuaries with respect to certain aspects of performing actuarial work. Actuarial Standard of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*, provides actuaries with guidance regarding the selection of economic assumptions for measuring pension obligations. Because no one knows what the future holds, an actuary must use professional judgment to estimate possible future economic outcomes, based on a mixture of past experience, future expectations, and professional judgment. Our analysis of the expected rate of return, as well as all other economic assumptions, was performed following the guidance in ASOP 27.

Due to the application of ASOP 27, it may be informative for others to be aware of the basic content of ASOP 27. The standard applies to the selection of economic assumptions to measure obligations under any defined benefit pension plan that is not a social insurance program (e.g., Social Security).

With respect to relevant data, the standard recommends the actuary review appropriate recent and long-term historical economic data but advises the actuary not to give undue weight to recent experience. Furthermore, it advises the actuary to consider that some historical economic data may not be appropriate for use in developing assumptions for future periods due to changes in the underlying environment. In addition, with respect to any particular valuation, each economic assumption should be consistent with all other economic assumptions over the measurement period.



SECTION 4 – ECONOMIC ASSUMPTIONS

ASOP 27 recognizes that economic data and analyses are available from a variety of sources, including representatives of the plan sponsor, investment advisors, economists, and other professionals. The actuary is permitted to incorporate the views of experts, but the selection or advice must reflect the actuary's professional judgment.

Recognizing that there is no correct answer, the standard calls for the actuary to select a “reasonable” economic assumption. For this purpose, an assumption is deemed reasonable if it has the following characteristics:

- a. it is appropriate for the purpose of the measurement;
- b. it reflects the actuary's professional judgment;
- c. it takes into account historical and current economic data that is relevant as of the measurement date;
- d. it reflects the actuary's estimate of future experience, the actuary's observation of the estimates inherent in market data, or a combination thereof; and
- e. it has no significant bias (i.e., it is neither significantly optimistic nor pessimistic), except when provisions for adverse deviation or plan provisions that are difficult to measure are included.

The standard goes on to discuss a “range of reasonable assumptions” which in part states “the actuary should also recognize that different actuaries will apply different professional judgment and may choose different reasonable assumptions. As a result, a range of reasonable assumptions may develop both for an individual actuary and across actuarial practice.”

The remaining section of this report will address the relevant types of economic assumptions used in the actuarial valuation to determine the obligations of the Nebraska retirement systems. In our opinion, the economic assumptions proposed in this report have been developed in accordance with ASOP No. 27.

The recent experience, and still developing impact, of COVID-19 is likely to influence both demographic experience and economic forecasts, at least in the short term. We will continue to monitor the developments related to COVID-19 and their impact on pension plans over the next year or two and keep the Board advised of any changes we believe should be made.



SECTION 4 – ECONOMIC ASSUMPTIONS

The following table summarizes the current and proposed economic assumptions:

	Current Assumptions	Proposed Assumptions
Price Inflation	2.75%	2.35%
Real Rate of Return	4.75%	4.65%
Investment Return	7.50%	7.00%
Productivity	0.50%	0.50%
General Wage Growth	3.25%	2.85%
Payroll Growth	3.25%	2.85%
Cost-of-Living Adjustment*	1.50%	1.50%
Interest Credit Rate on Contributions	2.75%	2.35%

* Assumption is 1.00% for members hired on or after July 1, 2013.

If a smoother cost pattern is desired, the Board of Trustees may want to consider a phase-in approach that implements the recommended change over the next four years.

PRICE INFLATION

Use in the Valuation: Price inflation is typically measured by the annual increase in the Consumer Price Index (CPI). This assumption underlies most of the other economic assumption, either directly or indirectly. The current assumption for price inflation, 2.75% per year, was reduced from 3.00% in the last experience study.

Future price inflation is used directly in developing the actuarial assumption for cost of living increases since they are based on the change in the Consumer Price Index (CPI). OSERS' plan provisions provide for an annual cost of living adjustment of the lesser of 1.5% or CPI-U for members hired prior to July 1, 2013. For members hired on or after July 1, 2013, the annual cost of living adjustment is capped at 1.0% rather than 1.5%. Inflation is used indirectly in the development of the assumptions for investment return, general wage increase, individual salary increases, payroll growth, and the interest crediting rate for employee contributions. Under ASOP 27, the price inflation assumption must be consistent among all economic assumptions.

Past Experience: Although economic activities, in general, and inflation in particular, do not lend themselves to prediction solely on the basis of historical analysis, historical patterns and long-term trends are factors to be considered in developing the inflation assumption. The Consumer Price Index, US City Average, All Urban Consumers, CPI-U, has been used as the basis for reviewing historical levels of price inflation. The following table provides historical annualized rates of the CPI-U over periods ending December 31, 2020.

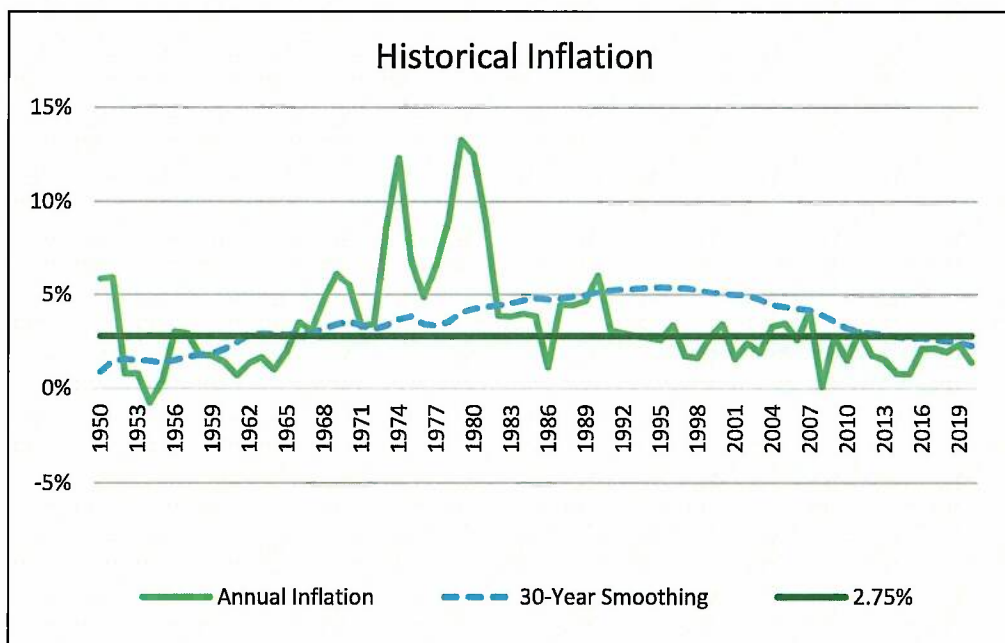


SECTION 4 – ECONOMIC ASSUMPTIONS

Periods Ending December 2020	Annualized Rate of Inflation
Last 10 Years	1.74%
Last 15 Years	1.89%
Last 20 Years	2.04%
Last 25 Years	2.14%
Last 30 Years	2.25%
Since 1913 (first available year)	3.11%

Inflation has been low over most of these periods including about 2.1% over the last 25 years and 1.7% over the last 10 years. However, as we write this report, inflation has risen and is currently above 5.0% on a year-over-year basis during the middle of calendar year 2021. It is too soon to know whether this trend is strictly short-term or might be longer term.

The following graph illustrates the historical annual change in price inflation, measured as of December 31, as well as the thirty-year rolling average.



Historical averages are heavily dependent on the period selected. For example, the period of high inflation from 1973 to 1981 has a significant impact on the averages over periods which include these years. Over more recent periods (last 25 years), measured from December 31, 2020, the average annual rate of increase



SECTION 4 – ECONOMIC ASSUMPTIONS

in the CPI-U has been much lower than the current assumption of 2.75%. Inflation has been 2.25% for the last thirty years and under 2.00% for the last ten years.

Forecasts of Inflation

For our purposes, the assumed inflation rate, and all economic assumptions, should be a forward-looking expectation of future experience. There are several sources to consider that offer expectations for future price inflation although many of these focus on a shorter timeframe than is used for pension funding. These sources are discussed below.

Investment Consultants

Based on Aon’s second quarter 2021 capital market assumptions, the ten-year price inflation assumption is 2.2% and the 30-year assumption is 2.1%. Aon is expecting future inflation to remain around 2%, as targeted by the Federal Reserve.

Using the 2021 Horizon Survey, the range of inflation assumptions for the short term (10 years) based on data for 39 consultants included in the survey was 2.0% to 2.8% with a median of 2.0%. For the 24 consultants providing an inflation assumption for a longer period (20-30 years), the median assumption was 2.2% with a range of 1.8% to 2.9%. Note that the 25th to 75th percentile range for long term inflation was 2.0% to 2.3%. These inflation expectations are consistent with Aon’s inflation assumptions.

Bond Market Expectations

Additional information to consider in formulating this assumption is obtained from measuring the spread between the nominal yield on treasury securities (bonds) and the inflation indexed yield on TIPS of the same maturity. This is referred to as the “breakeven rate of inflation” and represents the bond market’s expectation of inflation over the period to maturity. As of December 31, 2020, the difference for 30-year bonds implied inflation of 2.02% for the next thirty years. Over the last few years, the bond market has been anticipating inflation of around 2.0% or less over 30 years, in line with the target inflation rate stated by the Federal Reserve. However, market prices for treasuries and TIPS can change rapidly to reflect recent macroeconomic events as we have seen in the 18 months since the COVID-19 pandemic has spread in the United States.

Congressional Budget Office

The report of the Congressional Budget Office, “*An Update To The Budget and Economic Outlook: 2021 to 2031*”, reflects CBO’s expectations of average annual price inflation of 2.3% for the CPI-U over the next ten years.

Survey of Professional Forecasters

The Philadelphia Federal Reserve Bank conducts a quarterly survey of the Society of Professional Forecasters. Their forecast for the third quarter of 2021 was for inflation over the next ten years to average 2.44%. Given the current economic conditions, the economic outlook for inflation has risen. The prior 2021 forecasts had 10-year inflation expectations between 2.2% and 2.3%.



SECTION 4 – ECONOMIC ASSUMPTIONS

Social Security Administration

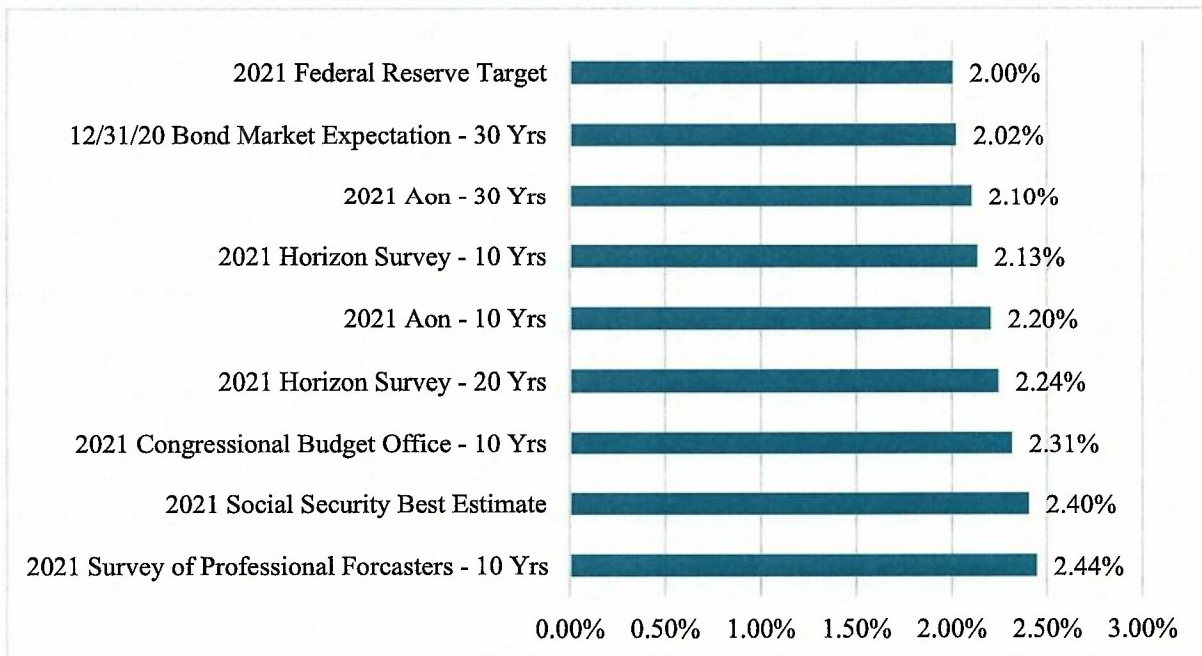
Although many economists forecast lower inflation than the assumption used by most retirement plans, they are generally looking at a shorter time horizon than is appropriate for a pension valuation. To consider a longer, similar time frame, we looked at the expected increase in the CPI by the Office of the Chief Actuary for the Social Security Administration. In the most recent report (August 2021), the projected ultimate average annual increase in the CPI over the next 75 years was estimated to be 2.40%, under the intermediate (best estimate) cost assumption. The range of inflation assumptions used in the Social Security 75-year modeling, which includes low, intermediate and high cost scenarios was 1.80% to 3.00%.

Peer System Comparison

While we do not recommend the selection of any assumption based on what other systems use, it does provide another set of relevant information to consider. The National Association of State Retirement Administrators (NASRA) Public Fund Survey collects information on the assumptions used by over 120 large retirement systems. The average inflation assumption in the most recent Public Fund Survey was 2.65% which compares to 3.75% back in the 2001 Survey. Note, however, that the most common assumption is 2.50%. It should be noted that there is a lag in this data as there is with any survey. Data for Systems that have recently conducted an experience study and made a change to this assumption is not captured in the survey data. Based on our knowledge, we believe the current average inflation assumption is 2.50% or lower. Note that we are not using this information directly to set the inflation assumption for OSERS. The real value of this data is it clearly illustrates the marked decline in the inflation assumption over the past two decades which is worth noting.

Comparison of Inflation Expectations

The following graph provides a comparison of the current levels of expected inflation.





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The lower inflation over the last 10, 20 and even 30 years, coupled with the low future inflation anticipated by the bond markets, investment consultants, and professional economic forecasters suggests the current inflation assumption of 2.75% is on the high end of the reasonable range. We are recommending the **inflation assumption be lowered to a rate of 2.35%. This change moves the assumption closer to recent inflation levels as well as closer to the levels expected by most economic forecasts.**

Consumer Price Inflation	
Current Assumption	2.75%
Recommended Assumption	2.35%

INVESTMENT RETURN

Use in the Valuation: The investment return assumption reflects the anticipated returns on the current and future assets. It is one of the primary determinants in the allocation of the expected cost of the System's benefits, providing a discount of the estimated future benefit payments to reflect the time value of money. Generally, the investment return assumption should be set with consideration of the asset allocation policy, expected long-term real rates of return on the specific asset classes, the underlying price inflation rate, and investment expenses.

The current investment return assumption is 7.50%. It should be noted that these assumptions are currently net of all investment-related expenses, as well as administrative expenses. This assumption is for the nominal rate of return and is composed of two components. The first component is price inflation (as previously discussed, this assumption is currently 2.75%). Any excess return over price inflation is referred to as the real rate of return. The current assumption for the real rate of return, which is heavily driven by the system's asset allocation and capital market assumptions, is 4.75%.

Long Term Perspective

Because the economy is constantly changing, assumptions about what may occur in the near term are volatile. Asset managers and investment consultants usually focus on this near-term horizon in order to make prudent choices regarding how to invest the trust funds. For actuarial calculations, we typically consider very long periods of time. For example, a newly hired teacher who is 25 years old may work for 35 years, to age 60, and live another 30 years, to age 90 (or longer). The retirement system would receive contributions for the first 35 years and then pay out benefits for the next 30 years. During the entire 65-year period, the system is investing assets related to the member. For such a typical career employee, more than one-half of the investment income earned on assets accumulated to pay benefits is received after the employee retires. In addition, in an open, ongoing system like OSERS, the stream of benefit payments is continually increasing as new hires replace current members who leave covered employment due to death, termination of employment, and retirement. This difference in the time horizon used by actuaries and investment consultants is frequently a source of debate and confusion when setting economic assumptions.

The long term asset allocation for the OSERS portfolio is the same as the Nebraska School Employees Retirement System and the investment responsibility for both plans rests with the NIC. **Therefore, we believe it is appropriate to rely on the analysis that was performed in the fall of 2020 for the Nebraska**



SECTION 4 – ECONOMIC ASSUMPTIONS

Public Employees’ Retirement System (NPERS) and set the investment return assumption for OSERS equal to that used for NPERS, 7.00%.

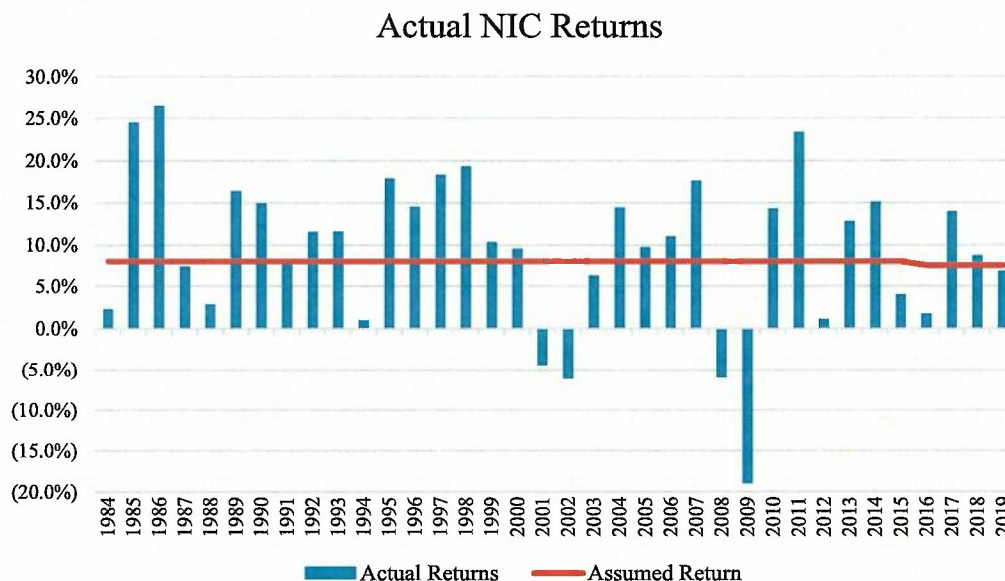
For completeness in this report, the analysis from the NPERS 2020 Experience Study report is included below.

Excerpt from NPERS 2020 Experience Study Report

NPERS Historical Returns

One of the inherent problems with analyzing historical data is that the results can look significantly different depending on the timeframe used, especially if the year-to-year results vary widely. In addition, the asset allocation can also impact the investment returns so comparing results over long periods when different asset allocations were in place may not be meaningful.

The following graph shows the actual fiscal year (June 30) returns for the NPERS portfolio (School Retirement System) for the last 36 years ending June 30, 2019. Despite significant volatility in the results from year to year, the actual geometric (compound) return was 9.9% for the last 10 years, 6.2% for the last 20 years, and 7.4% for the last 30 years.



ANNUALIZED RETURNS through 6/30/19			
5-Year Return:	6.8%	20-Year Return:	6.2%
10-Year Return:	9.9%	30-Year Return:	8.3%

Another way to analyze historical data is to consider the compound return on the NIC’s portfolio over longer periods like 20 years. As the graph below illustrates, there is a definite downward trend.



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In addition, current expected long-term returns are much lower than those actually earned in the past, especially for the fixed income portion of the portfolio, reflecting a view of the capital markets that differs markedly from what has been experienced in the past.

Forward Looking Analysis

Because the economy is constantly changing, assumptions about what may occur in the near term are volatile. Asset managers and investment consultants usually focus on this near-term horizon so as to make prudent choices regarding how to invest the trust funds, i.e., asset allocation. For actuarial calculations, we typically consider very long periods of time as some current employees will be receiving benefit payments more than 65 years from now.

We believe the most appropriate analysis to consider in setting the investment return assumption is to model the future expected returns, given the System's target asset allocation and forward-looking capital market assumptions. However, we are trained as actuaries and not as investment professionals. ASOP 27 provides that the actuary may rely on outside experts in setting economic assumptions. NPERS' assets are held and invested by the Nebraska Investment Council (NIC) who relies on a variety of internal experts and external consultants to assist with investing the funds. As part of their duties, the NIC has its investment consultant, Aon, periodically perform asset-liability studies, along with comprehensive reviews of the expected return of the various asset classes in which the NPERS portfolio is invested. We believe it is appropriate for us to consider the results of Aon's work as one factor in assessing expected future returns.

We also recognize that there can be differences of opinion among investment professionals regarding future return expectations. Horizon Actuarial Services prepares an annual study in which they survey various investment advisors (39 were included in the 2020 study) and provide ranges of results as well as averages. This information provides an additional perspective on what a broad group of investment experts anticipate for future investment returns. We perform our analysis of the expected return using the median return for each asset class in the Horizon Survey as another factor to consider in setting the investment return assumption.

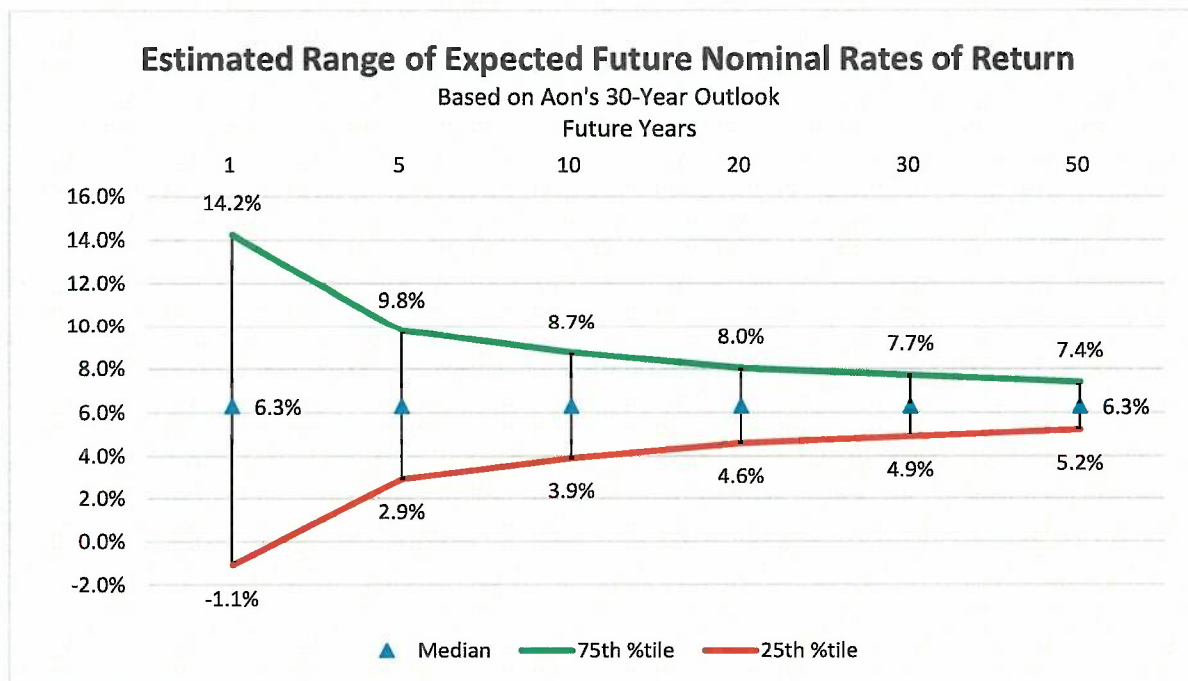


SECTION 4 – ECONOMIC ASSUMPTIONS

Our forward-looking analysis is based on the current target asset allocation for the system, as shown in the following table:

Asset Class	Long Term Policy Allocation
US Equities	27.0%
Non-US Equities	11.5%
Global Equities	19.0%
Fixed Income	30.0%
Private Equity	5.0%
Real Estate	7.5%
Total Fund	100.0%

The results in the following graph show the expected range of the compound average nominal returns over time, using Aon's 30-year forecast of capital market assumptions. **It is important to note that Aon's assumptions are as of June 30, 2020 and, therefore, reflect the impact of the pandemic.** As the graph indicates, the median nominal return is 6.3%. While the range of potential results is very high over shorter periods, the range narrows considerably over time. Over a 30-year time span, the results indicate there is a 25% chance that returns will be below 5.2% and a 25% chance they will be above 7.4%. In other words, there is a 50% chance the compound return will be between 5.2% and 7.4%. This also means there is less than a 25% chance of meeting the current assumed rate of return of 7.5%, based on Aon's assumptions.



Although it is interesting to consider the probability of reaching the nominal expected return, the investment return assumption is developed using the "building block" approach which considers both the price inflation and real return assumption individually. The current nominal assumed rate of return is composed of a price inflation assumption of 2.75% and a real rate of return of 4.75%.



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Different firms use different approaches in setting capital market assumptions so we believe it is helpful to consider the assumptions and outlook of investment professionals other than the NIC’s consultant. Using the 2020 Horizon Survey, we considered the range of capital market assumptions for the group of 39 investment firms who participated in the survey, which includes most major investment consultants. This provides another point of view from firms familiar with public plans. We believe there is value in considering both sets of capital market assumptions in our analysis.

Frequently investment consultants develop their expected return assumptions based on a timeframe of 5 to 10 years. Therefore, those assumptions may not necessarily be appropriate for the longer timeframe used by actuaries (30 to 50 years). Since both Aon and the Horizon Survey have developed longer term market return assumptions (30 and 20 years respectively), the expected returns from their assumptions are reasonably in line with the timeframe used by actuaries. Due to the timing of Aon’s capital market assumptions provided to the NIC in 2020, the set of assumptions as of June 30, 2020 are not really comparable to the Horizon Survey assumptions because of the impact of the pandemic and actions taken by the Federal Reserve Bank. Therefore, both the 3/31/2020 and the 6/30/2020 assumptions are shown below for Aon. The following table summarizes our findings of the expected real returns:

<i>Source</i>	<i>Nominal Return</i>	<i>Consultant’s Inflation Assumption</i>	<i>Real Rate of Return</i>
<i>Aon (10 years) 6/30/2020</i>	<i>5.7%</i>	<i>2.0%</i>	<i>3.7%</i>
<i>Aon (10 years) 3/31/2020</i>	<i>6.3%</i>	<i>2.1%</i>	<i>4.2%</i>
<i>Horizon Survey (10 years) Q1 2020</i>	<i>6.07%</i>	<i>1.98%</i>	<i>4.09%</i>
<i>Horizon Survey (20 years) Q1 2020</i>	<i>6.97%</i>	<i>2.17%</i>	<i>4.80%</i>
<i>Aon (30 years) 3/31/2020</i>	<i>6.44%</i>	<i>2.10%</i>	<i>4.34%</i>
<i>Aon (30 years) 6/30/2020</i>	<i>6.3%</i>	<i>2.1%</i>	<i>4.2%</i>

Given the uncertainty of capital market assumptions over a twenty to thirty-year period, the difference between Aon’s expected real return and the real return using the median assumption in the Horizon Survey is not material although Aon’s expected real returns are somewhat lower.

In addition, most investment consultants update their capital market assumption at least annually, and most commonly each quarter, while an experience study is performed only every four years. Consequently, we are also hesitant to base our assumption solely on the most recent quarterly estimate from the investment consultants because the goal is to have consistency and stability in this assumption as much as possible.

Peer System Comparison

While we do not recommend the selection of an investment return assumption be based on the assumptions used by other systems, it does provide another set of relevant information to consider as long as we recognize that asset allocation and board risk perspective varies from system to system. The following graph shows the change in the distribution of the investment return assumption from fiscal year 2001 through 2021 for the 125+ large public retirement systems included in the National Association of State

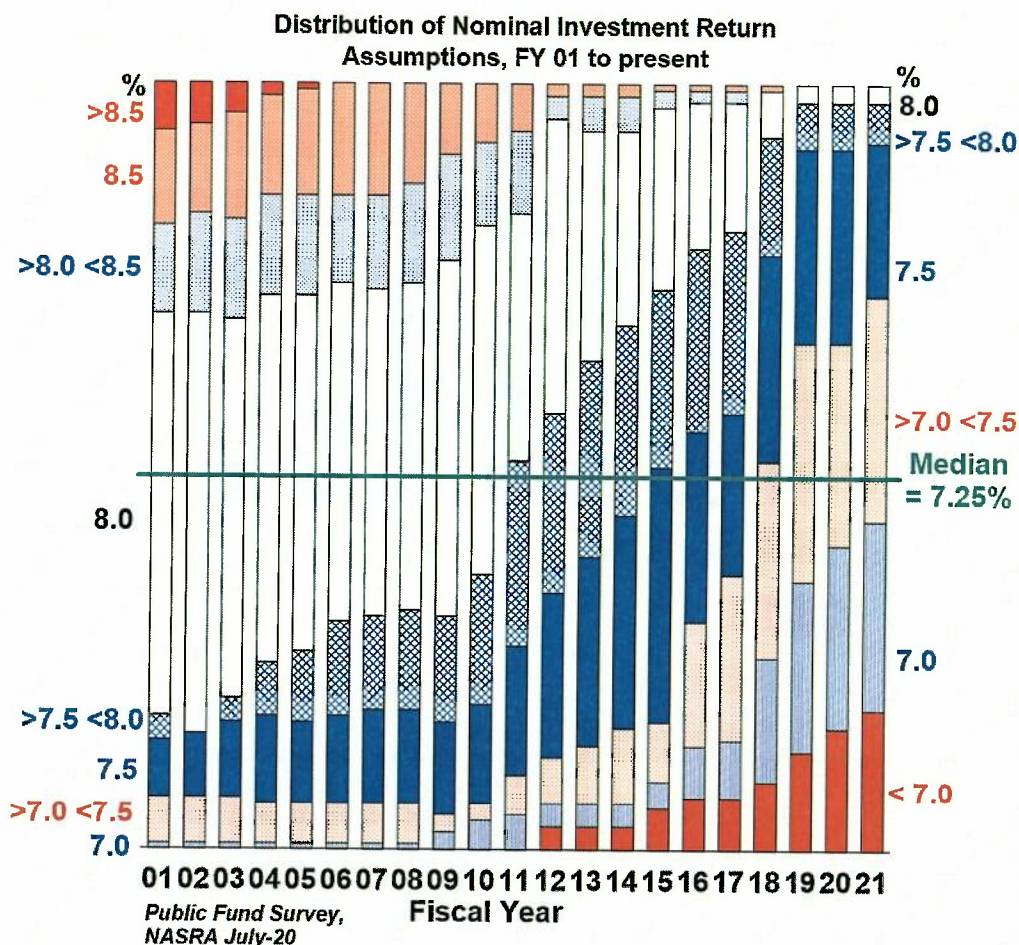


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Retirement Administrators (NASRA) Public Fund Survey. The assumed rate of return is heavily influenced by the asset allocation of the system, so comparisons must be made cautiously.

The trends observed in the data are far more valuable than the absolute return data. As the graph below indicates, the investment return assumptions used by public plans have decreased materially over the last decade.

Change in distribution of investment return assumptions, FY 01 to present

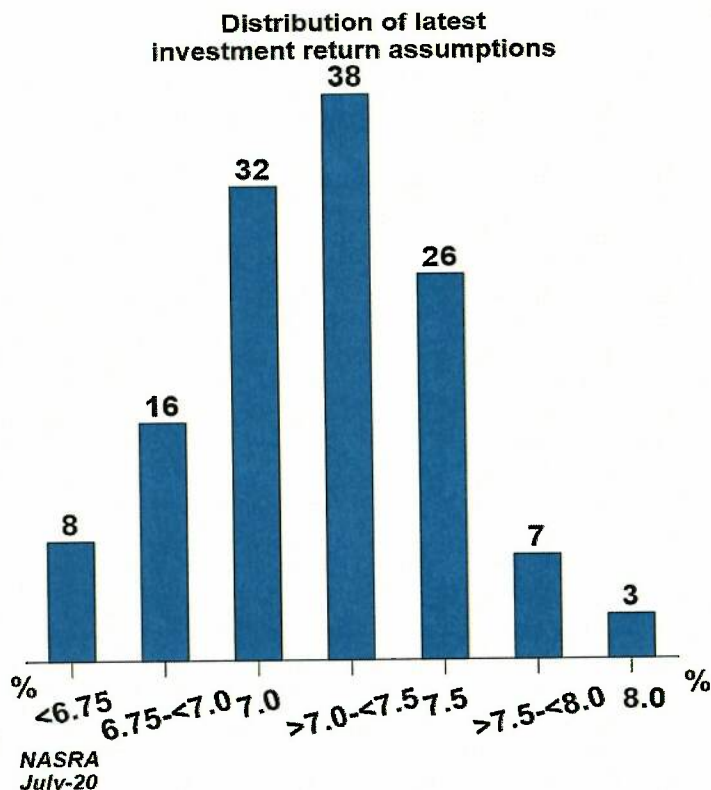


It is worth noting that the median investment return assumption when the last experience study was performed in 2016 was solidly 7.50% but dropped to 7.25% in 2018. The current distribution in July 2020 shows that while the median assumption remains 7.25%, it is moving closer to 7.00%. While 8.00% used to be the most common and the median assumption in the first half of this period (it was also NPERS' assumption), there are only 3 systems out of 130 currently using an 8.0% assumption.



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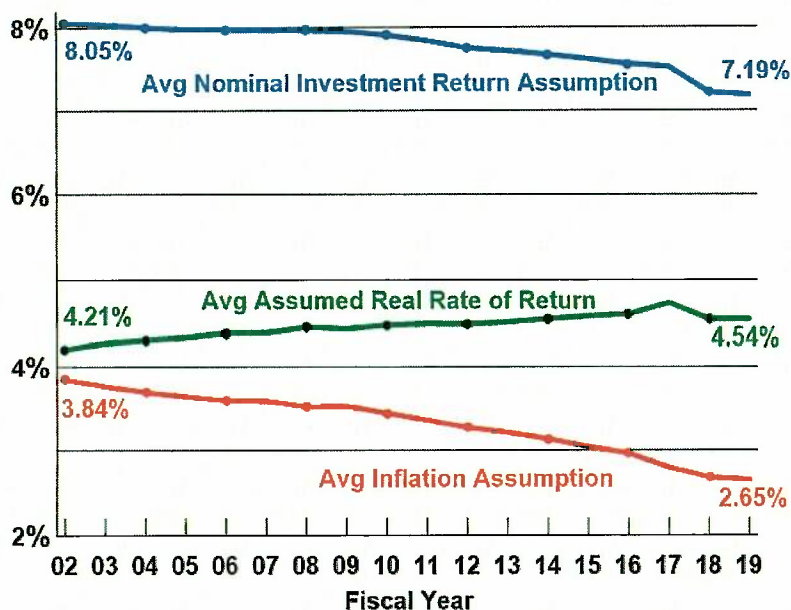
The following graph is based on the same data as the prior graph, but shows only the distribution of the current investment return assumption used by the systems in the Public Fund Survey. Of the total, only 36 of 130, or 28%, use an assumption of 7.5% or higher.



The last two graphs compare the distribution of nominal returns. However, as discussed earlier, the investment return assumption is composed of a price inflation assumption and a real rate of return assumption. The following graph compares the average of each component of the investment return over time. As can be observed, while the price inflation assumption has declined by 1.19% over this period, but the real rate of return has actually increased by 0.33%. We might also note that the average real rate of return is 4.54% compared to NPERS' current real return of 4.75% although asset allocations vary from one system to another so the value of direct comparisons is somewhat limited.



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Recommendation for Investment Return Assumption:

By actuarial standards we are required to maintain a long-term perspective in setting all assumptions, including the investment return assumption. Therefore, we believe we must consider both the short-term and long-term expectations in setting this assumption. After reviewing the available information, we recommend the investment return assumption be lowered from 7.50% to 7.00%, based on the 2.35% inflation assumption and a real rate of return of 4.65%. Furthermore, we recommend the administrative expense for each Plan be included as a separate component of the actuarial contribution rate.

<i>Investment Return</i>	
<i>Current Assumption</i>	<i>7.50%</i>
<i>Recommended Assumption</i>	<i>7.00%</i>

End of Excerpt from NPERS Experience Study Report

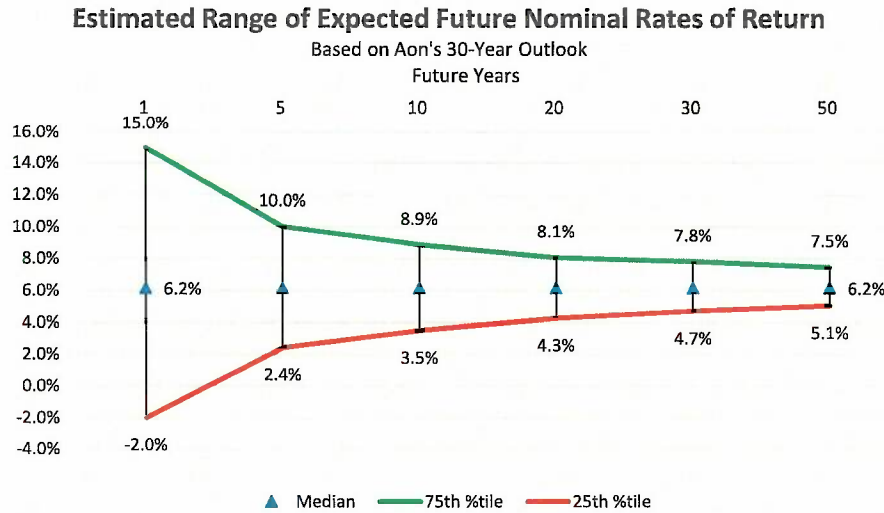
UPDATED INFORMATION ON INVESTMENT RETURN ASSUMPTIONS (2021 DATA)

The results in the following graph show the expected range of the compound average nominal returns over time, using Aon’s 30-year forecast of capital market assumptions (June 30, 2021 assumptions). As the graph indicates, the median nominal return is down slightly from 2020 to 6.2%. While the range of potential results is very high over shorter periods, the range narrows considerably over time. Over a 30-year time span, the results indicate there is a 25% chance that returns will be below 4.7% and a 25% chance they will be above 7.8%. In other words, there is a 50% chance the compound return will be between 4.7% and



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7.8%. This also means there is slightly more than a 25% chance of meeting the current assumed rate of return of 7.5%, based on Aon’s assumptions.



Expected returns on both 2020 and 2021 capital market assumptions for both Aon and the Horizon Survey are shown in the following table:

Source	Nominal Return	Consultant's Inflation Assumption	Real Rate of Return
6/30/2020 Aon (10 years)	5.7%	2.0%	3.7%
6/30/2021 Aon (10 years)	5.7%	2.2%	3.5%
2020 Horizon Survey (10 years)	6.07%	1.98%	4.09%
2021 Horizon Survey (10 years)	5.61%	2.13%	3.48%
2020 Horizon Survey (20 years)	6.97%	2.17%	4.80%
2021 Horizon Survey (20 years)	6.55%	2.24%	4.31%
6/30/2020 Aon (30 years)	6.3%	2.1%	4.2%
6/30/2021 Aon (30 years)	6.2%	2.1%	4.1%

The long term out look for the distribution of investment returns has not changed significantly from the analysis performed for NPERS in late 2020. The 2021 Horizon Survey reflected a more significant decrease in the expected return likely because many of the capital market assumptions in the 2020 Survey were



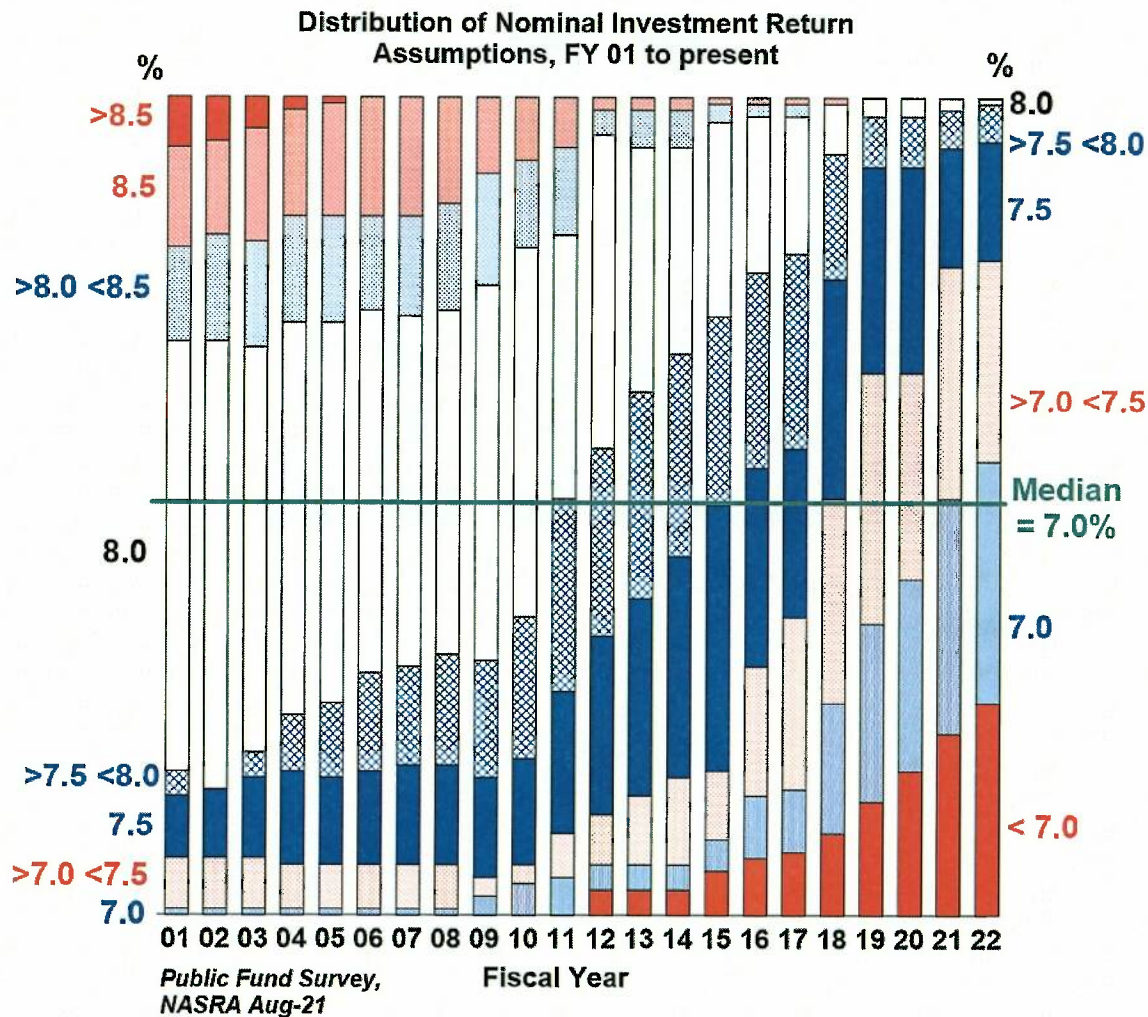
SECTION 4 – ECONOMIC ASSUMPTIONS

gathered prior to the Covid-19 pandemic. Based on the 2021 data in the Horizon Survey, the Aon expected return is consistent with the median assumptions in the Horizon Survey.

While the information from the capital market assumptions developed by investment consultants is an important piece of our analysis, we recognize that they generally update their capital market assumption at least annually, and most commonly each quarter, while an experience study is performed only every four years. Consequently, we are hesitant to base our assumption solely on the most recent quarterly estimate from the investment consultants because the goal is to have consistency and stability in this assumption as much as possible.

UPDATED NASRA INFORMATION

The most recent data from the NASRA Public Fund Survey (August 2021) is shown in the following graphs. Note the median investment return assumption is now 7.00% compared to 7.25% in 2020.

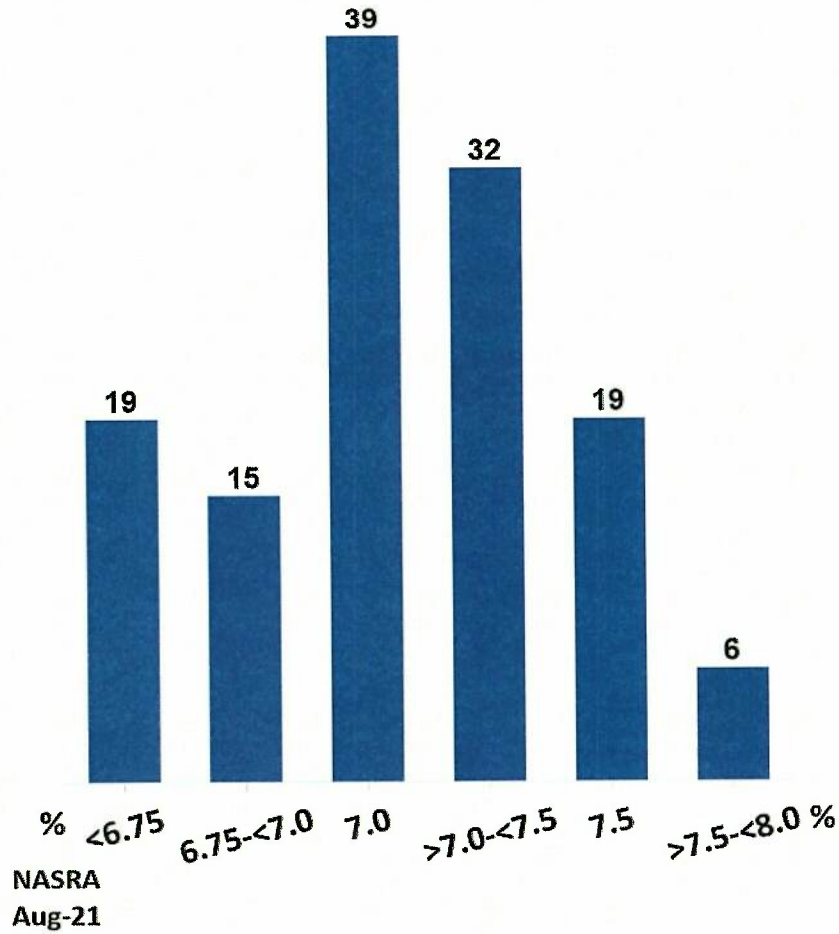




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The following graph shows the number of systems using investment return assumptions in each rate group. As with most surveys, the data is continually changing and we see more systems lowering their rate of return.

Distribution of Nominal Investment Return Assumptions





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INVESTMENT AND ADMINISTRATIVE EXPENSES

The OSERS trust fund pays the administrative expenses of the system in addition to member benefits so an assumption must be made about such expenses. Investment consulting firms, including Aon, typically issue reports that describe their capital market assumptions, which are net of investment-related expenses. Therefore, no direct adjustment to the expected return is necessary to account for investment-related expenses. Active management strategies are used by the NIC and many other retirement systems with the expectation that they will result in investment returns sufficiently above passive index funds to at least cover the increased investment fees. We have assumed that active management strategies would result in the same returns, net of investment expenses, as passive management strategies.

There is some variance of practice on how administrative expenses are handled in the valuation process. The two most common are:

- Explicit: a separate component of the actuarial contribution rate.
- Implicit: an offset or reduction to the investment return assumption.

For OSERS, the past practice has been to set the investment return assumption as the net return after both investment and administrative expenses. Using this methodology, the investment return assumption is theoretically lowered to reflect the impact of paying administrative expenses from investment income. Using this methodology, the adjustment to the investment return assumption would be about 7 basis points. The investment return assumption is typically rounded, so there has not necessarily been an explicit reduction to the investment return assumption for the payment of administrative expenses.

The current GASB accounting standards require administrative expenses to be separately accounted for in disclosure and, more importantly, in the projection of plan assets in future years to determine the discount rate used to calculate the Net Pension Liability. Therefore, technically, the expected long-term rate of return for GASB purposes is net only of investment expenses – not both investment and administrative expenses. If this guidance was followed, as written, the discount rate used to calculate the GASB pension liability for OSERS should be slightly higher than the current 7.50% assumed rate of return. This could lead to some confusion or misunderstanding as to why a rate other than the assumed rate of return in the valuation is being used so the 7.50% assumption has been used. Essentially, the impact of administrative expenses is reflected twice in the projection of plan assets into the future as administrative expenses are directly reflected and the 7.50% long term return assumption is net of administrative expenses. The use of 7.50% for the GASB long-term rate of return has not resulted in a depletion date so we do not believe this approach creates a problem although it could be argued that it does not technically comply with GASB requirements.

To be consistent with the GASB standards and avoid related complexities, as well as enhance the transparency of the System's funding we are recommending a change in the way administrative expenses are reflected in the funding valuation. We recommend an explicit administrative expense charge be added to the normal cost rate as part of the actuarial required contribution rate. Although this change is not required for funding purposes, it is more explicit and direct than the current approach and provides more transparency. In addition, it permits the discount rate in the GASB accounting valuation to be developed on a consistent basis with the funding valuation (assuming assets are not projected to be depleted in the GASB projection of fiduciary net position) and removes any questions about the approach used for GASB reporting. NPERS recently moved to an explicit approach for administrative expenses as well. With NPERS assuming responsibility for the administration of OSERS in a few years, it might make sense to take a consistent approach.



SECTION 4 – ECONOMIC ASSUMPTIONS

The recommended approach includes a separate expense assumption, determined as a percent of aggregate covered payroll, to be included in the actuarial contribution rate each year. This amount is set in the experience study and remains level until it is reevaluated in the next study. If this approach had been used in the last actuarial valuation, the actuarial contribution rate would have increased as follows:

Administrative Expenses	Covered Payroll	Contribution Rate
881,000	373,700,000	0.24%

Our recommendation is to include a contribution rate of 0.24% of covered payroll in the actuarial contribution rate until the next experience study. Note that actual administrative expenses are directly paid by the trust fund each year so the recommended approach closely models the actual practice.

COST OF LIVING ADJUSTMENTS

OSERS’ plan design includes an annual COLA based on actual inflation up to 1.5% (members hired prior to July 1, 2013) or 1.0% (members hired on or after July 1, 2013). Based on the proposed inflation assumption of 2.35% and the expected variability, the assumption for members hired before July 1, 2013 is 1.5% and the assumption for those hired after July 1, 2013 is 1.0%.

GENERAL WAGE INCREASE (GENERAL WAGE INFLATION)

Background: The general wage increase assumption represents the real wage growth over time in the general economy. Another way to think about this assumption is it anticipates how much the pay scales themselves will change from year to year. It does not necessarily indicate how much the pay increases received by individual members will be (the individual salary increase assumption) or how the total covered payroll may change (the payroll growth assumption).

General wage inflation can be thought of as the “across the board” rate of salary increases and is composed of the price inflation assumption combined with an assumption for the real rate of wage increase. In constructing the individual salary increase assumption, the general wage inflation assumption is further combined with an assumption for service-based salary increases (called a merit scale). The individual salary increase assumption is discussed later in this report. Given the current price inflation assumption of 2.75%, the current wage growth assumption of 3.25% implies an assumed real rate of wage increase or real wage growth assumption of 0.50%.

Historical Perspective: Historically, general wage inflation has nearly always exceeded price inflation, at least over longer periods of time. Since 1951, when the National Average Wage Index from the Social Security System began, wage inflation in the general economy has been around 1.0% higher than price inflation. In the last ten years, general wage inflation has been about 0.60% higher than price inflation. Because the National Average Wage is based on all wage earners in the country, it can be influenced by the mix of jobs (full-time vs. part-time, manufacturing vs. service, etc.) as well as by changes in some segments of the workforce that are not seen in all segments (e.g. regional changes or growth in computer technology). Further, if compensation is shifted between wages and benefits, the wage index would not accurately reflect increases in total compensation. OSERS membership is composed exclusively of school employees working in the Omaha metro area, whose wages and benefits are linked as a result of state and local tax revenues, funding allocations, and governing policies. Because the competition for workers can, in the long term, extend across industries and geography, the broad national earnings growth will have some impact on OSERS members. In the shorter term, however, the wage growth of OSERS and the nation may be less directly correlated.



SECTION 4 – ECONOMIC ASSUMPTIONS

Forecasts of Future Wages: The wage index used for the historical analysis is projected forward by the Office of the Chief Actuary of the Social Security Administration in their 75-year projections. In the August, 2021 report the annual increase in the National Average Wage Index under the intermediate cost assumption (best estimate) was 3.55%, 1.15% higher than the Social Security intermediate inflation assumption of 2.4% per year. The range of the assumed real wage inflation in the 2020 Trustees report was 0.53% to 1.77% per year.

Compensation data gathered and compiled by the Bureau of Labor and Statistics also indicates that public employment is receiving larger increases in compensation than wages alone. In other words, benefits are becoming a larger portion of total compensation. This trend supports the use of a lower general wage increase assumption for those in public employment compared to private employment.

Based on data available and our professional judgment, **we recommend that the long-term assumed real wage increase assumption remain unchanged at 0.50% per year. When coupled with the price inflation assumption of 2.35%, the resulting recommendation for the general wage increase assumption is 2.85%.**

PAYROLL GROWTH

The payment on the unfunded actuarial accrued liability is determined as a level percent of payroll. Therefore, an assumption regarding future annual increases in covered payroll is required. The wage inflation assumption is most commonly used for this purpose. The current assumption of 3.25% is the same as the general wage increase/wage inflation assumption.

The current payroll growth assumption also reflects the assumption that there will be no future growth or decline in number of active members. With no assumed change in the size of the active membership, future salary growth due only to general wage increases is anticipated. If increases should occur not only because of wage increases but also because of additional active members, there will be a larger pool of covered payroll over which to spread the payment on the unfunded actuarial accrued liability, which would result in lower UAAL payments as a percent of payroll. The uncertainties in light of current conditions in public employment and the national economy in general, along with actual experience, argue against anticipating any increase or decrease in active membership for funding purposes.

We recommend the payroll growth assumption, used to amortize the UAAL, be lowered from 3.25% to 2.85%, reflecting the decrease in the general wage increase assumption.

TOTAL SALARY INCREASE

Estimates of future salaries are based on assumptions for two types of increases:

- Increases in each individual's salary due to promotion or longevity (often called a merit scale), and
- Increases in the general wage level of the membership, which are directly related to price and wage inflation.

Our recommended general wage increase assumption is 2.85% (2.35% inflation and 0.50% real wage growth). Therefore, the merit salary scale will be added to the 2.85% general wage increase assumption to develop the total individual salary increase assumption.



SECTION 4 – ECONOMIC ASSUMPTIONS

As noted above, future salary increases are the result of two components. Actual salary experience is reported in total, rather than by components, so the experience study reviewed total salary increases for the study period. There continues to be considerable pressure on the school district’s budget which may have had an impact on the salary increases observed in the study period. In our study, we compared individual salary increases for any member active in any two consecutive periods (e.g. 2017 and 2018, 2018 and 2019, etc.). The average actual increase during this period was 3.85% for Certificated members while the expected increase was 5.39%. The actual increase for Classified members was 3.05% while the expected increase was 4.40%.

The following table shows the salary experience by year for durations 0 through 40 for both the current and prior study period:

2017 – 2020 SALARY EXPERIENCE						
<u>Year End</u>	<u>Certificated</u>			<u>Classified</u>		
	<u>Actual</u>	<u>Expected</u>	<u>A/E Ratio</u>	<u>Actual</u>	<u>Expected</u>	<u>A/E Ratio</u>
2017	6.14%	5.42%	113%	2.04%	4.40%	46%
2018	1.96%	5.40%	36%	1.12%	4.40%	26%
2019	3.16%	5.38%	59%	4.91%	4.36%	113%
2020	4.18%	5.38%	78%	4.42%	4.45%	99%
Total	3.85%	5.39%	71%	3.05%	4.40%	69%

Since price and wage inflation are a component of the salary increase assumption, we would expect actual salary increases to be lower than the current assumption when actual price and wage inflation are lower than the assumption. During the study period, price inflation was around 2.1%, compared to the current assumption of 2.75%, and the increase in the national average wage index was 3.0% compared to the current assumption of 3.25%. The actual salary increases for certificated members with more than 25 years of service (a proxy for actual general wage increases) was 2.0%, close to the increase in price inflation. This information suggests that we could expect actual wage increases reflected in our data to be around 0.75% to 1.25% lower than expected, simply as a function of the overall economy during this period. As illustrated in the table above, the actual increases were about 1.5% lower for Certificated and 1.35% lower for Classified, relatively consistent with the difference in actual and assumed general wage increases so the current merit scale is a relatively good fit overall.

As a result of adjusting the general wage increase assumption from 3.25% to 2.85%, the individual salary increase assumption will be lower than the current assumption. In order to refine the merit salary increase assumption to reflect the actual experience and the current salary schedules in the various labor agreements, we are recommending some modifications to the merit scale.



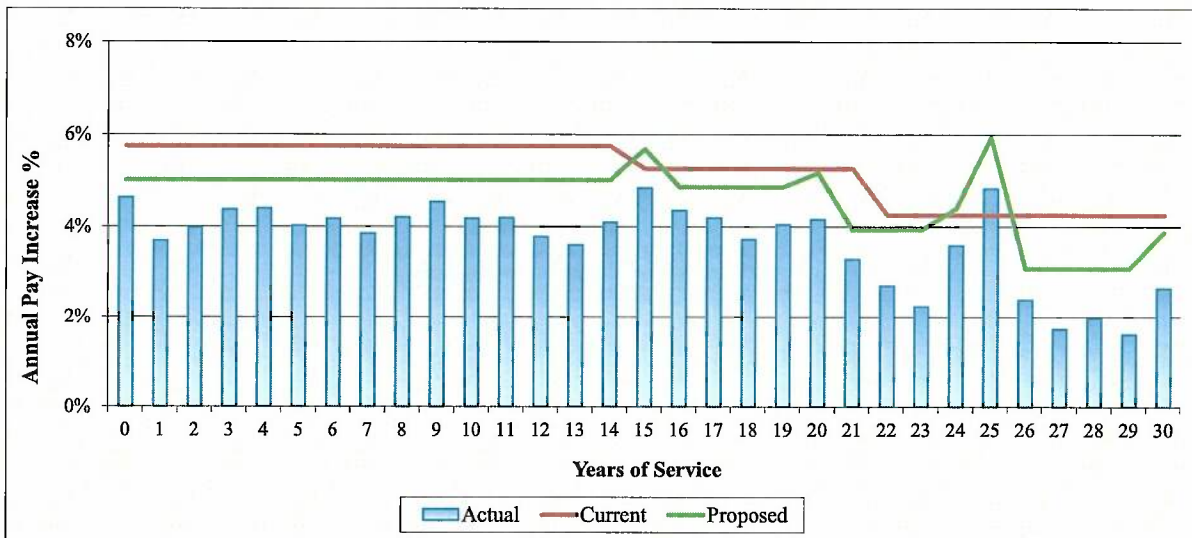
SECTION 4 – ECONOMIC ASSUMPTIONS

Certificated Members

Beginning with the last experience study, the contracts with the Omaha Education Association (OEA) have been reviewed to identify the various components of salary increases including adjustment of the salary grids from year to year, salary increases due to movement through the various steps (based on years of experience and additional college credits toward a master's or higher degree). The contracts also reveal salary increases applicable to the Long Service Increment (LSI) pay. Our recommendation for the salary merit scale was developed based on the salary schedules and LSI in the OEA contract four years ago and the recommended changes are based on the most recent OEA contract (2021 -2023). It is to be expected that additional refinements to the assumption may be needed in future years as more data becomes available.

Long service increments of certain dollar amounts for members of the OEA are granted at durations 15, 20, 25, 30, 35 and 40 years. Our assumption reflects this pattern of LSI increases as well as other salary increases expected to occur for active members.

The following graph for durations 0 through 30 shows the current assumption (red line) and the proposed assumption (green line) for the total individual salary increase assumption for certificated members. Note this assumption includes the general wage increase assumption which is 3.25% for the current assumption and 2.85% for the proposed assumption. Both assumptions are higher than the actual wage inflation in the general economy and that is also observed in the OSERS data. As a result, it is to be expected that both the current and proposed assumptions will be higher than the actual experience observed (blue bars). The aggregate expected salary increase under the proposed assumption is 4.83% so the A/E ratio is 81% (actual 3.89% divided by expected of 4.83%).



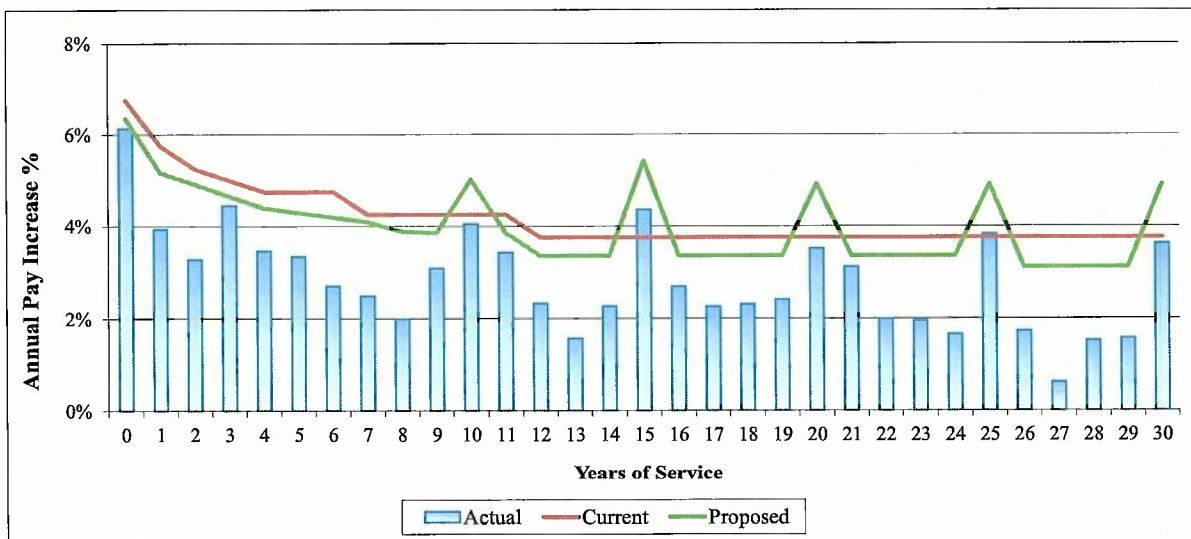


SECTION 4 – ECONOMIC ASSUMPTIONS

Classified Members

The long service increments for classified members occur upon completion of 10, 15, 20, 25, and 30 years of service. This pattern was evident in the salary data for the study period and we adjusted the assumption to anticipate “spikes” at those durations (see graph below for analysis of current and proposed assumptions).

We focused on experience for durations one through 30 as there was limited data for durations beyond 30. The following graph shows the current assumption (red line) and the proposed assumption (green line) for the total individual salary increase assumption for certificated members. Note this assumption includes the general wage increase assumption which is 3.25% for the current assumption and 2.85% for the proposed assumption. Both assumptions are higher than the actual wage inflation in the general economy and that is also observed in the OSERS data. As a result, it is to be expected that both the current and proposed assumptions will be higher than the actual experience observed (blue bars). The aggregate expected salary increase under the proposed assumption is 4.19% so the A/E ratio is 74% (actual 3.08% divided by expected of 4.19%).





SECTION 4 – ECONOMIC ASSUMPTIONS

INTEREST CREDITS ON ACCOUNT BALANCES

Member contribution balances are credited with interest each September 1. The rate is set in State Statute and is “a rate equal to the daily treasury yield curve for one-year treasury securities, as published by the Secretary of the Treasury of the United States.”

In the past, the interest crediting rate has been set equal to the price inflation assumption. We believe this is a reasonable long-term assumption and **recommend lowering the interest crediting rate from 2.75% to 2.35%.**



SECTION 5 – DEMOGRAPHIC ASSUMPTIONS

DEMOGRAPHIC ASSUMPTIONS

Actuarial Standard of Practice No. 35 (ASOP 35) provides guidance to actuaries regarding the selection of demographic and other non-economic assumptions for measuring pension obligations. ASOP 35 states that the actuary should use professional judgment to estimate possible future outcomes based on past experience and future expectations, and select assumptions based upon application of that professional judgment. The actuary should select reasonable demographic assumptions in light of the particular characteristics of the defined benefit plan that is the subject of the measurement. A reasonable assumption is one that is expected to appropriately model the contingency being measured and is not anticipated to produce significant cumulative actuarial gains or losses over the measurement period.

The actuary should follow the following steps in selecting the demographic assumptions:

1. Identify the types of assumptions. Types of demographic assumptions include but are not limited to retirement, mortality, termination of employment, disability, election of optional forms of payment, administrative expenses, family composition, and treatment of missing or incomplete data. The actuary should consider the purpose and nature of the measurement, the materiality of each assumption, and the characteristics of the covered group in determining which types of assumptions should be incorporated into the actuarial model.
2. Consider the relevant assumption universe. The relevant assumption universe includes experience studies or published tables based on the experience of other representative populations, the experience of the plan sponsor, the effects of plan design, and general trends.
3. Consider the assumption format. The assumption format includes whether assumptions are based on parameters such as gender, age or service. The actuary should consider the impact the format may have on the results, the availability of relevant information, the potential to model anticipated plan experience, and the size of the covered population.
4. Select the specific assumptions. In selecting an assumption the actuary should consider the potential impact of future plan design as well as the factors listed above.
5. Evaluate the reasonableness of the selected assumption. The assumption should be expected to appropriately model the contingency being measured. The assumption should not be anticipated to produce significant actuarial gains or losses.

ASOP 35 General Considerations and Application: Each individual demographic assumption should satisfy the criteria of ASOP 35. In selecting demographic assumptions, the actuary should also consider the internal consistency between the assumptions, materiality, cost effectiveness, and the combined effect of all assumptions. At each measurement date the actuary should consider whether the selected assumptions continue to be reasonable, but the actuary is not required to do a complete assumption study at each measurement date. In addition, ASOP 35 requires the actuary to include a specific assumption with respect to expected mortality improvements after the measurement date. In our opinion, the demographic assumptions recommended in this report have been developed in accordance with ASOP 35.



SECTION 5 – DEMOGRAPHIC ASSUMPTIONS

Overview of Analysis: The purpose of a study of demographic experience is to compare what actually happened to the individual members of the System during the study period (January 1, 2017 through December 31, 2020) with what was expected to happen based on the actuarial assumptions. Four years is a relatively short observation period for experience given the assumptions are being set with a long-term time horizon in mind. Therefore, we have considered the results of the prior Experience Study when practical to do so.

It takes a fair amount of data to provide experience study results that are credible for demographic assumptions. Because the membership or certain subsets of the membership are relatively small, some assumptions have been selected based more on our professional judgment of reasonable future outcomes than actual experience. Furthermore, a single study period is a relatively short observation period, particularly given the size of OSERS' membership. Therefore, the System's size limits the full credibility of the findings, particularly when the total group is split into subsets such as certificated/classified and/or male/female. Our recommendations were made, taking these factors into account.

Studies of demographic experience generally involve three steps:

- First, the number of members changing membership status, called decrements, during the study is tabulated by age, duration, gender, group, and membership class as appropriate (active, retired, etc.).
- Next, the number of members expected to change status is calculated by multiplying certain membership statistics, called exposure, by the expected rates of decrement.
- Finally, the number of actual decrements is compared with the number of expected decrements. The comparison is called the actual to expected ratio (A/E Ratio), and is expressed as a percentage.

In general, if the actual experience differs significantly from the overall expected results, or if the pattern of actual decrements, or rates of decrement, by age, sex, or duration deviates significantly from the expected pattern, new assumptions are considered. Recommended revisions are normally not an exact representation of the experience during the observation period. Judgment is required to anticipate future experience from past trends and current evidence, including a determination of the amount of weight (credibility) to assign to the most recent experience.

In our analysis, we use a methodology to analyze the experience that we call a liability-weighted approach. The relative liability of the member is approximated by using the member's compensation and years of service to estimate the benefit level. The exposure and actual occurrences are then multiplied by the benefit level to provide the liability-weighted experience. (For retiree mortality, the weight is simply the benefit amount.) This approach is particularly insightful when analyzing experience in a non-homogenous group. While we reviewed experience on both a count and liability-weighted basis, we have generally found the liability-weighted experience to be a better basis for setting assumptions. Therefore, in most situations we assign more credibility to the liability-weighted results in evaluating experience and developing new assumptions, if necessary.

Revised rates of decrement are tested by recalculating the expected number of decrements during the study period, with results shown as revised A/E Ratios.



SECTION 5 – DEMOGRAPHIC ASSUMPTIONS

ASOP 35 states that the actuary should use professional judgment to estimate possible future outcomes based on past experience and future expectations, and select assumptions based upon application of that professional judgment. The actuary should select reasonable demographic assumptions in light of the particular characteristics of the defined benefit plan that is the subject of the measurement. A reasonable assumption is one that is expected to appropriately model the contingency being measured and is not anticipated to produce significant cumulative actuarial gains or losses over the measurement period.

	Recommended Revisions	
	Certificated	Classified
Mortality	Yes	Yes
Retirement	Yes	Yes
Termination of Employment	Yes	Yes
Probability of Refund	No	Yes



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SECTION 6 – MORTALITY

MORTALITY

One of the most important demographic assumptions in the valuation is mortality because it projects the length of time benefits are expected to be paid to current and future retirees and beneficiaries. If members live longer than expected, the true cost of future benefit obligations will be greater than stated.

Over the last few generations, rates of mortality have been declining, meaning people are generally living longer. Furthermore, the experience of large, public retirement systems that include school employees indicate that school groups, and teachers in particular, continue to exhibit better mortality than the average working population.

There are distinct differences in the mortality rates of males and females, healthy retired members, disabled retired members and non-retired members. Because of those differences in mortality, these groups are studied separately.

The Society of Actuaries periodically publishes mortality tables derived from large, national studies. In recent years, they have tended to publish families of tables, allowing actuaries to select a table that is based on a subset of data most similar to that of the data the actuary is trying to value. In early 2019, the Society released a set of tables based solely on public plan data. This family of tables, called the Pub-2010 tables, includes tables based not only on the gender and status factors already noted, but also on the type of membership (teachers, public safety, and general government), as well as further breakdowns based on those members who were above or below the median benefit amounts. Because most other recent families of tables had excluded public sector data, the Pub-2010 tables are expected to be quite useful for valuing the benefits for public retirement systems like OSERS.

Actuaries sometimes use various adjustments to these standard mortality tables in order to match the observed mortality rates of a specific retirement system. One of the most common adjustments is an age adjustment that can be either a “set back” or a “set forward”. A one-year age set back treats all members as if they were one year younger than they truly are when applying the rates in the mortality table. For example, a one year set back would treat a 61-year old retiree as if he will exhibit the mortality of a 60-year old in the standard mortality table. Another adjustment that can be used is to “scale” a mortality table by multiplying the probabilities of death by factors less than one (to reflect better mortality) or factors greater than one (to reflect poorer mortality). Scaling factors can be applied to an entire table or a portion of the table. Of course, if necessary, actuaries may use both methods to develop an appropriate table to model the mortality of the specific plan population.

An important note in the examination of mortality is that there is a tendency for better mortality to be observed in the portion of the population with higher benefits than in the portion with lower benefits. Because the goal of an actuarial valuation is to model the expected benefit payments to be provided by a system, actuaries will often analyze mortality experience on a benefit-weighted basis rather than simply considering headcounts (number of members dying). This benefit-weighted approach is typically used in the development of standard mortality tables, and so it makes sense to use a consistent basis to evaluate how a mortality table fits the actual experience of a group.

ASOP 35 requires the actuary to make a specific recommendation with respect to future improvements in mortality although it does not require that an actuary assume there will be future improvements. There have been significant improvements in longevity in the past, although there are different opinions about future expectations. We believe it is prudent to anticipate that the trend will continue to some degree in the future. Therefore, we believe it is appropriate to reflect some future mortality improvement as part of the mortality assumption.



SECTION 6 – MORTALITY

There are two widely used ways to reflect future improvements in mortality:

- (1) Static table with “margin”
- (2) Generational mortality

The first approach to reflecting mortality improvements is through the use of a static mortality table with “margin.” Under this approach, the A/E ratio is intentionally targeted to be over 100% so that mortality can improve without creating actuarial losses. This approach is mandated by the Internal Revenue Service for determining minimum funding amounts for corporate pension plans as mortality improvements are projected seven years for retirees and 15 years for actives. While there is no formal guideline for the amount of margin required (how far above 100% is appropriate for the A/E ratio), we typically prefer to have a margin of around 10% at the core retirement ages. The goal is still for the general shape of the curve to be a reasonable fit to the observed experience. Depending on the magnitude and duration of mortality improvement, the margin would decrease and eventually may become insufficient. When that occurs, the assumption would need to be updated.

Another approach, referred to as generational mortality, directly anticipates future improvements in mortality by using a different set of mortality rates for each year of birth, with the rates for later years of birth assuming lower mortality than the rates for earlier years of birth. The varying mortality rates by year of birth create a series of tables that contain “built-in” mortality improvements, e.g., a member who turns age 65 in 2040 has a longer life expectancy than a member who turns age 65 in 2020. When using generational mortality, the A/E ratios for the observed experience are set near 100% as future mortality improvements will be reflected directly in the actuarial valuation process. OSERS has used a generational approach for mortality for many years. This is our preferred approach for addressing future mortality improvements.

The table below shows life expectancy at age 65 based on the Pub-2010 General Employees Mortality Table with generational mortality improvements, an indication of how long a new retiree would expect to receive monthly payments, at various points in time.

Life Expectancy		
Year	Male	Female
2021	20.7	23.2
2041	21.9	24.3
2061	23.1	25.4

Life expectancy at age 65 in years

We would note that there is a wide range of opinions with respect to future expectations of mortality and the underlying assumptions regarding mortality improvement reflect some subjectivity. However, most public plan actuaries are in agreement that some improvement is likely to occur. The real question is how much it will improve and how rapidly.

Reliable statistical analysis of mortality requires very large data sets. Because of the size of OSERS, there is insufficient data to perform any fully credible analysis. To improve the credibility of our analysis, we aggregated the four years of data from the prior study with the current study period for a total of eight years. Changes in mortality tend to unfold slowly so aggregating the data increased the size of the data, allowing variations due to the size of the group to average out over the study period. In addition, using eight years



SECTION 6 – MORTALITY

of data allows us to include calendar year 2020 and the potential impact of Covid-19 in our analysis without assigning too much weight to that experience. Although actual deaths in 2020 were higher than expected (56 versus 52 expected), the number of excess deaths is relatively small. Given the small data set we are working with, we do not want to exclude a full year of data.

The valuation currently uses generational mortality with separate mortality assumptions for male and female members. The RP-2014 Combined Mortality Table for Males and Females, with a one year age set forward for males and a one-year age setback for females (e.g. a female member age 65 is assumed to exhibit the mortality of a 64 year old), is used to predict the probability of death in each future year. Projection Scale MP-2016 is used to anticipate mortality improvements in future years.

In examining the results of the Experience Study, if the A/E Ratio is greater than 100% the assumptions have predicted fewer deaths than actually occurred (generally an actuarial gain) and with an A/E Ratio less than 100% the assumptions have predicted more deaths than have actually occurred (generally an actuarial loss). Since generational mortality is being used, the A/E Ratio should be around 100% as mortality improvements in future years are directly reflected in the valuation process by projecting lower mortality rates in future years.

Healthy Retiree Mortality – Males: The following table shows the exposures, actual deaths, and expected deaths during the current study period for the key retirement ages of 60 to 85, where the largest exposures are found. The actual to expected ratio (A/E ratio) under the current assumption for each year in the experience study on both a count and benefit-weighted basis is also shown. The variation from year to year is evident; however, this is not unexpected given the size of the group.

	Exposure	Actual	Expected	A/E Ratio	
				Count	Weighted
2017	1,074	19	29	66%	61%
2018	1,096	21	31	68%	49%
2019	1,117	21	33	64%	58%
2020	1,148	36	34	106%	99%
Total	4,435	97	127	76%	68%

The A/E ratio for males in the prior study, using the current assumption, was 97%. The current experience study indicates that the current assumption for male retirees is predicting far too many deaths on both a count and a benefit-weighted basis, i.e., the A/E ratio is much less than 100%. Mortality changes do not tend to unfold quickly so we are skeptical of the findings and don't want to assign too much credibility to the results. By aggregating the current study period results with the prior study period results, we will recognize the actual data for the current period without over-weighting it and possibly over adjusting the assumption. Over the combined eight-year period, the A/E ratio on a count basis was 92% and on a benefit-weighted basis it was 82%.



SECTION 6 – MORTALITY

Healthy Retiree Mortality – Females: The following chart shows the exposures, actual deaths, and expected deaths for ages 60 to 85, during the current study period. The actual to expected ratio under the current assumption for each year in the experience study on both a count and benefit-weighted basis is also shown. As was observed for males, the experience varies significantly from year to year although the size of the female group is larger than the males. Again, this variation is to be expected given the relatively small size of the group.

	Exposure	Actual	Expected	A/E Ratio	
				Count	Weighted
2017	2,683	49	45	109%	98%
2018	2,782	42	47	89%	73%
2019	2,882	38	49	78%	66%
2020	2,982	56	52	108%	93%
Total	11,329	185	193	96%	82%

The A/E ratio for females in the prior study, using the current assumption, was 100%. However, in this study period, the experience indicates that the current assumption anticipated more deaths than actually occurred for female retirees on both a count and benefit-weighted basis, i.e., the A/E ratio is less than 100%. The results on a benefit-weighted basis indicate that almost 20% less liability was released due to retiree deaths than was expected which produces actuarial losses (higher liability than expected). We aggregated the current and prior study period results to increase the credibility of the data as discussed earlier for the male group. Over the combined eight-year period, the A/E ratio on a count basis was 101% and on a benefit-weighted basis it was 92%. Given the difference in actual versus expected experience, even given the size of the group, we believe the mortality assumption for females needs to be strengthened.

In setting a new mortality assumption, we first considered the mortality assumption used for the Nebraska School Employees Retirement System, adopted by the PERB at their December, 2020 meeting. However, our analysis indicated that the Nebraska Schools mortality assumption was not a good fit for the OSERS population.

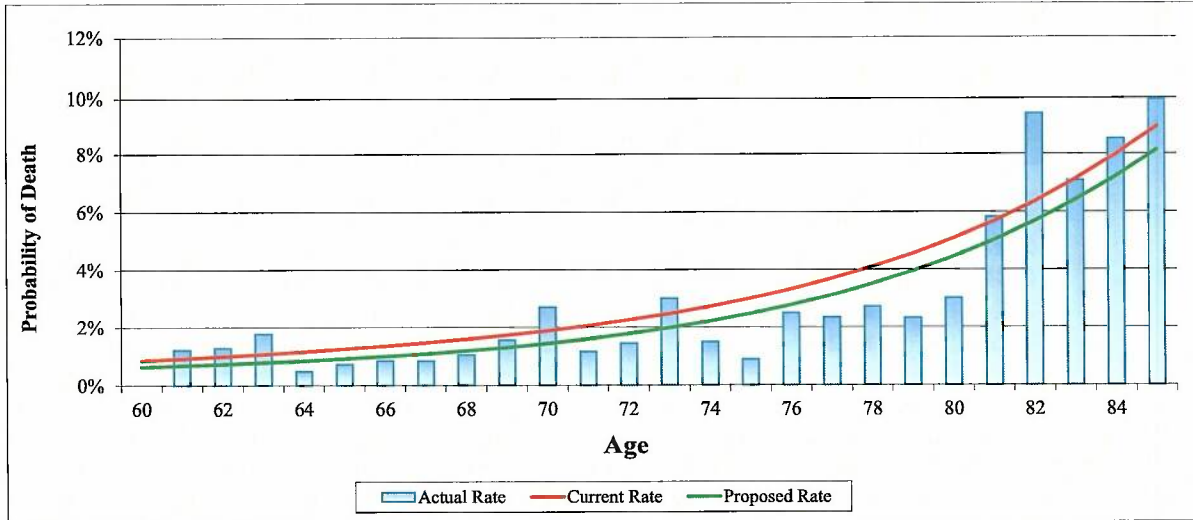
We next attempted to find a standard mortality table, with adjustments if needed, that would be a relatively good fit for the observed experience, with a focus on the key retirement ages of 60 to 85. We looked to the Pub-2010 family of tables as published by the Society of Actuaries (SOA) in January of 2019. **We found that the General Members Median Table provided a good fit to the observed data so we are recommending this assumption for both male and female retiree mortality.**



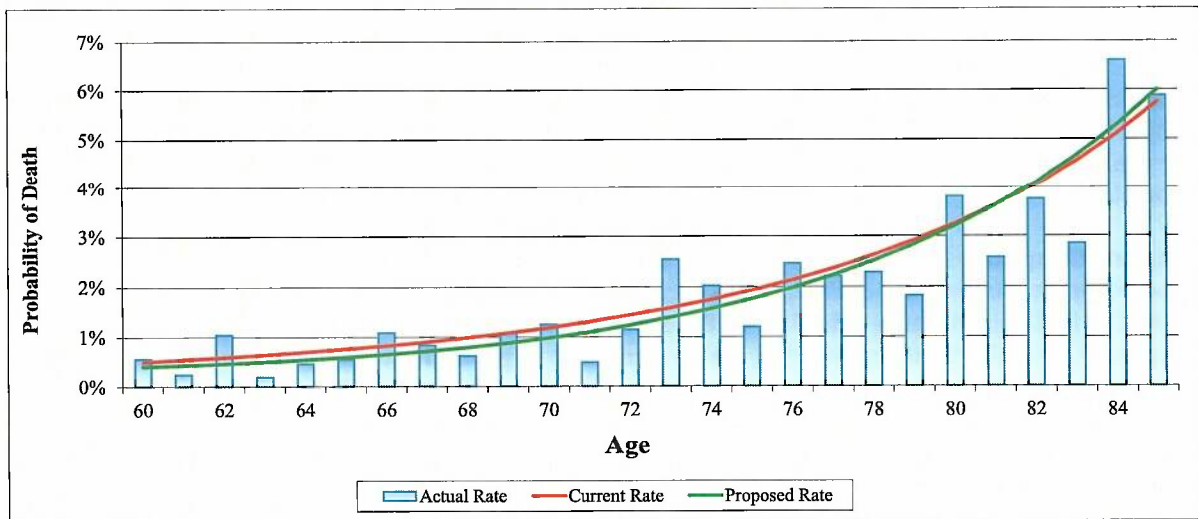
SECTION 6 – MORTALITY

Graphs of the actual and expected rates under both the current and proposed mortality assumption for males and females are shown below:

Male Mortality Experience



Female Mortality Experience



As shown above, the changes in the mortality rates in the proposed assumption (green line) are smaller for the female group than the male group.



SECTION 6 – MORTALITY

The recommended mortality assumptions are a good fit to the actual experience from ages 60 to 85 as shown below:

	A/E Ratio	
	Count Basis	Benefit-Weighted
Males	111%	100%
Females	110%	102%

Healthy Retiree Mortality- Projected Mortality Improvement

With generational mortality, once the base mortality rates are set by selecting a mortality table that fits the actual experience during the study period, future mortality improvements must be addressed by selecting a mortality improvement scale to anticipate changes in the mortality rates in future years.

The Society of Actuaries (SOA) publishes a mortality improvement scale every year (called the Scale MP-YYYY) along with a tool to permit actuaries to modify the standard projection scale if desired. When we performed the experience study for the Nebraska Public Employees Retirement System (NPERS) in 2020, we developed a customized projection scale for NPERS that generally reflects 75% of the ultimate improvement in the MP-2019 Scale published by the SOA. Based on the data available for NPERS, that projection scale was a good fit for the improvements observed in the data over the study period. Therefore, we recommend that OSERS use the NPERS mortality improvement scale in their actuarial valuation to reflect future mortality improvements. Given the unknown impact of COVID-19 on mortality in the longer term and the fact that the mortality improvement scales have consistently overstated actual mortality improvements since 2014, we believe the more modest improvement in mortality, as reflected in the NPERS Projection Scale, is justified. Experience studies are performed every four years so this assumption can be modified, if necessary, as new information unfolds in the next few years.

It should be noted that as we prepare this analysis, the world is in the midst of a pandemic. At this time, we do not believe there is sufficient data to warrant reflecting any dramatic change in the mortality assumption. It is likely the next valuation or two may have more deaths than expected, but this could be followed by a period of fewer than expected deaths if the current deaths from COVID-19 are significantly from groups who would have had higher than expected death rates in the short term. Because there are significant unknowns at this time, we believe it appropriate to utilize the data from the study period to help guide our long-term expectations. We will, of course, review the observed death rates each year as part of the valuation and recommend any changes we believe are appropriate.

We recommend the mortality assumptions be set to the Pub-2010 General Employees Median Mortality Table with generational mortality improvements anticipated using the Nebraska Public Employees Retirement System projection scale.

Beneficiaries: The mortality of beneficiaries applies to the survivors of members who receive a joint and survivor option. There are fewer members receiving benefits under the joint and survivor options which can produce more volatility in the observed mortality rates. Based on the limited data, **we recommend using the Pub-2010 General Members Median Contingent Survivor Mortality Table with generational mortality improvements anticipated using the Nebraska Public Employees Retirement System projection scale for beneficiaries.**



SECTION 6 – MORTALITY

Post-retirement Mortality for Disabled Members: The valuation assumes that disabled members, in general, will not live as long as retired members who met the regular service retirement eligibility. In addition, future life expectancies for disabled members are not expected to increase as significantly as the future life expectancies for healthy retirees.

Because of the limited number of exposures and deaths for disabled members, it makes sense to use the standard disabled table that is the companion to the annuitant mortality table. **We recommend the Pub-2010 Non-Safety Disabled Table be used without generational improvement.**

Active Members: This assumption predicts eligibility for active member death benefits prior to retirement, rather than the expected lifetime for pension payments. In smaller groups like OSERS, the mortality rates for active members are often set by using a consistent basis as is used for healthy retirees. Given the low probability of death while active, the results cannot be credible on their own without much larger numbers of employees than are in OSERS. We prefer to keep the mortality assumption for active and retired members on a consistent basis. **Therefore, we recommend the active member mortality be set to the Pub-2010 General Employees Median Mortality Table for males and females with generational mortality improvements anticipated using the Nebraska Public Employees Retirement System projection scale.**



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SECTION 7– RETIREMENT

RETIREMENT

The valuation uses several different assumptions to anticipate when retirement benefits will commence for active members. One of the most significant factors affecting retirement patterns is, not surprisingly, the provisions governing when a member is eligible to retire. Additionally, provisions regarding eligibility for special benefits, subsidies, options, or any other special features may also influence retirement patterns.

The Omaha School Employees Retirement System currently contains four separate “tiers” of benefits. Tier membership is determined by the member’s date of participation:

Benefit Tier	Membership Date
1	Prior to 7/1/2013
2	On/after 7/1/2013 and before 7/1/2016
3	On/after 7/1/2016 and prior to 7/1/2018
4	On/after 7/1/2018

A comparison of the eligibility criteria for early retirement (reduced benefits) and normal retirement (unreduced benefits) is shown in the table below. Unreduced benefits are also payable upon attainment of the Rule of 85 (age and years of service add to at least 85).

	Tier 1	Tier 2	Tier 3	Tier 4
Reduced Retirement	Age 55/10 YOS	Age 55/10 YOS	Age 60/5 YOS	Age 60/5 YOS
Unreduced Retirement	35 YOS 62 and 10 YOS 65 and 5 YOS	35 YOS 62 and 10 YOS 65 and 5 YOS	65 and 5 YOS	65 and 5 YOS
Rule of 85	Age 55	Age 55	Age 55	Age 60

Eligibility requirements for retirement changed for Tiers 3 and 4, as noted above. Because Tiers 3 and 4 were recently implemented, it will be many years before any credible retirement experience for those tiers is available. Therefore, the recommended retirement rates for those tiers are set based solely on our professional judgment.

For this discussion, the focus is on the type of retirement a member is eligible to receive. Early retirement is the term used when the amount of the accrued benefit is reduced by an early retirement factor to reflect the longer expected payment period. Unreduced retirement occurs when such a factor is not applied. Currently, there are separate retirement rates for certificated and classified members, based on early or unreduced retirement (including Rule of 85).



SECTION 7– RETIREMENT

A summary of the actual and expected retirement experience from age 55 to 75 during the study period is shown in the following table:

Retirement Experience					
	Exposures	Actual	Expected	A/E Ratio	
				Count	Weighted
Certificated					
Early retirement	1,281	86	107	80%	82%
Unreduced retirement	1,291	364	442	82%	80%
Classified					
Early retirement	1,304	49	55	89%	89%
Unreduced retirement	1,458	314	361	87%	92%

A more detailed discussion of our findings is included below.

Certificated Retirement Experience

The following table is a summary of the actual service retirements in each category for certificated members for calendar years 2017 through 2020:

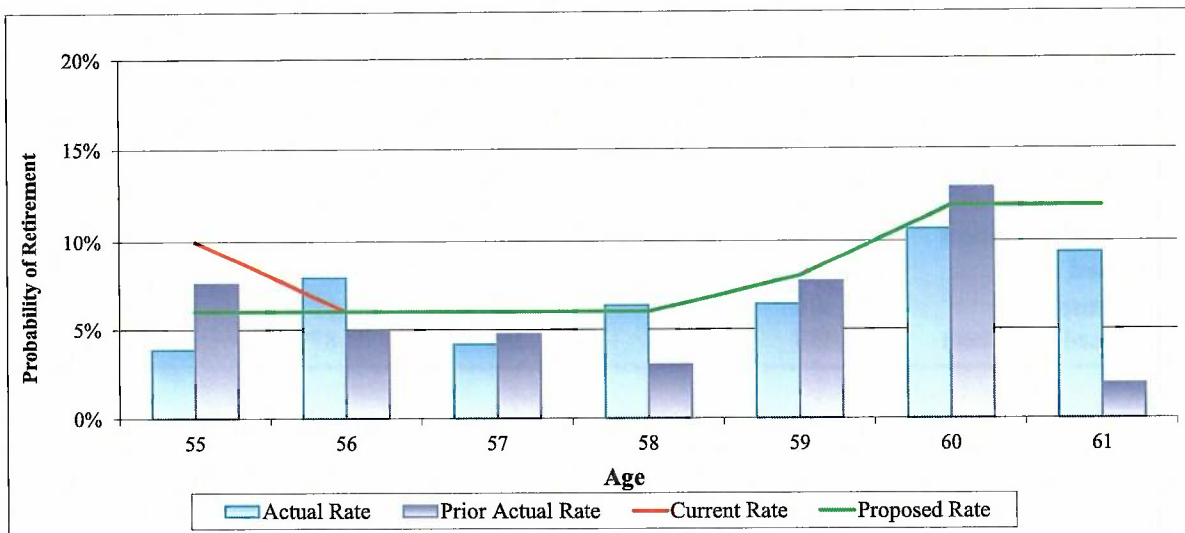
Retirements				
	Observations			
	<u>Actual</u>	<u>Expected</u>	<u>A/E Ratio Count</u>	<u>A/E Ratio Weighted</u>
Early (Reduced)	86	107	80%	82%
Select (First Eligible)	100	143	70%	63%
Ultimate	264	299	88%	88%

There were fewer retirements than expected as indicated by A/E ratios below 100%, on both a count and weighted basis. We also considered the retirement experience from the prior study period. The biggest difference in retirement patterns between the two periods was for the “select period”, when a member is first eligible for unreduced retirement benefits. Using the current assumption, the A/E ratio in the prior study was 102% while the current study showed an A/E ratio of 63%. Based on our review of the current and prior study findings, we are recommending several changes to the retirement assumptions for certificated members.



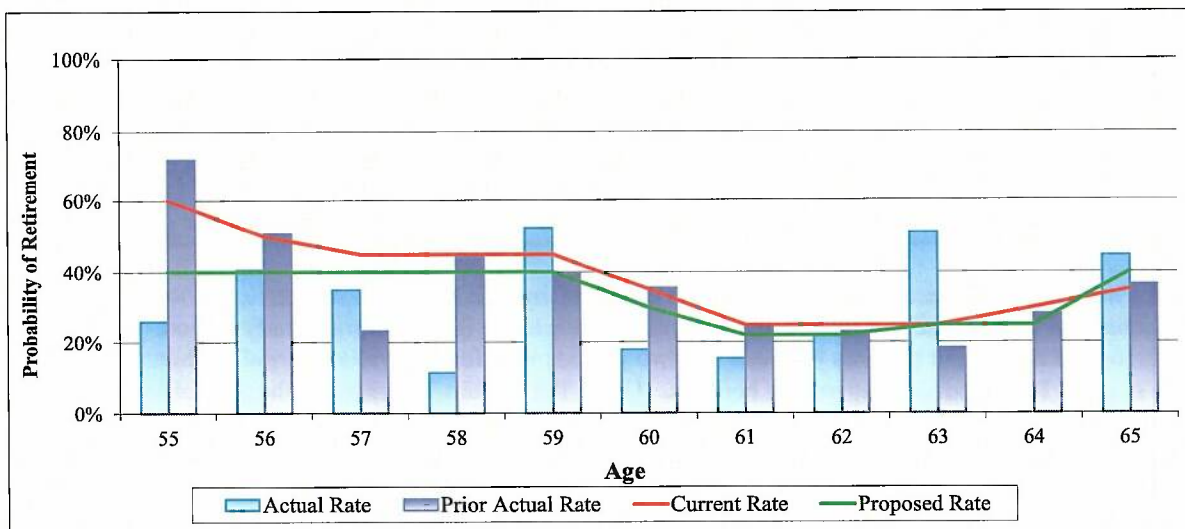
SECTION 7—RETIREMENT

Certificated Early Retirement



The current assumption is a good fit, in general. Our only recommendation is to lower the retirement rate at age 55 from 10% to 6%. The resulting A/E ratio is 91%.

Certificated First Eligible Retirement

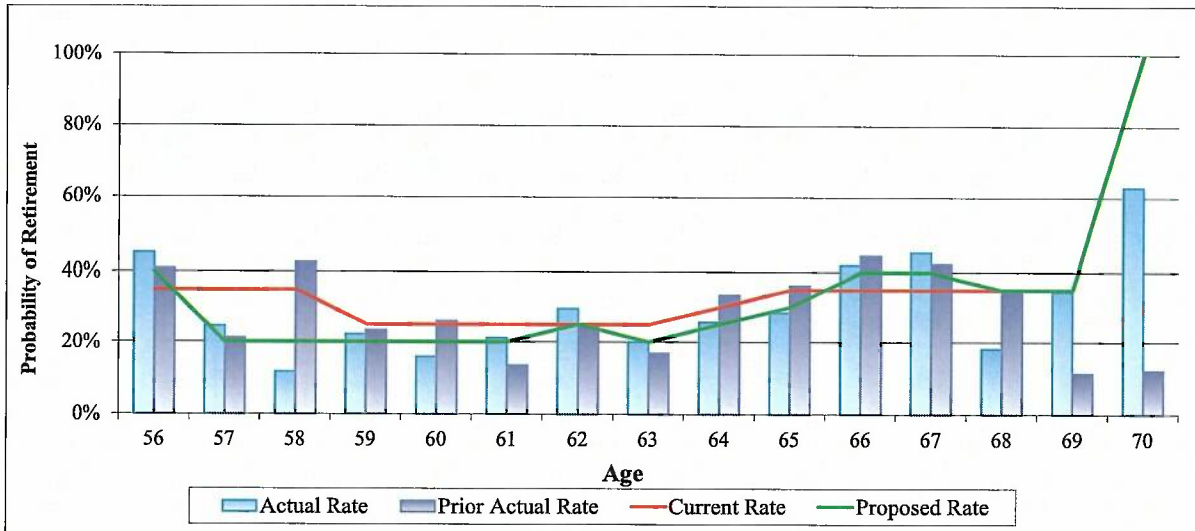


The actual retirement experience at first eligible age for unreduced retirement benefits was very different than observed in the last study, i.e., the A/E ratio was 63% indicating much lower retirement experience than was expected by the current assumption. We are hesitant to fully reflect the rates observed in the current study given the small size of the exposure. Therefore, we recommend partially reflecting the experience in the current study period while also taking the prior study period results into account. The A/E ratio using the proposed assumption is 81%.



SECTION 7- RETIREMENT

Certificated Ultimate Retirement



Given the A/E ratio with the current assumption was 88% on a liability-weighted basis, we are recommending some changes to this assumption to improve the fit of the assumption to the experience observed. The revised A/E ratio using the proposed assumption shown above is 99%.

The following table summarizes the resulting A/E ratios using the recommended assumptions:

Certificated Experience

Assumption	A/E Ratio			
	Current	Weighted	Proposed	Weighted
Early	80%	82%	88%	91%
Select	70%	63%	85%	81%
Ultimate	88%	88%	97%	99%



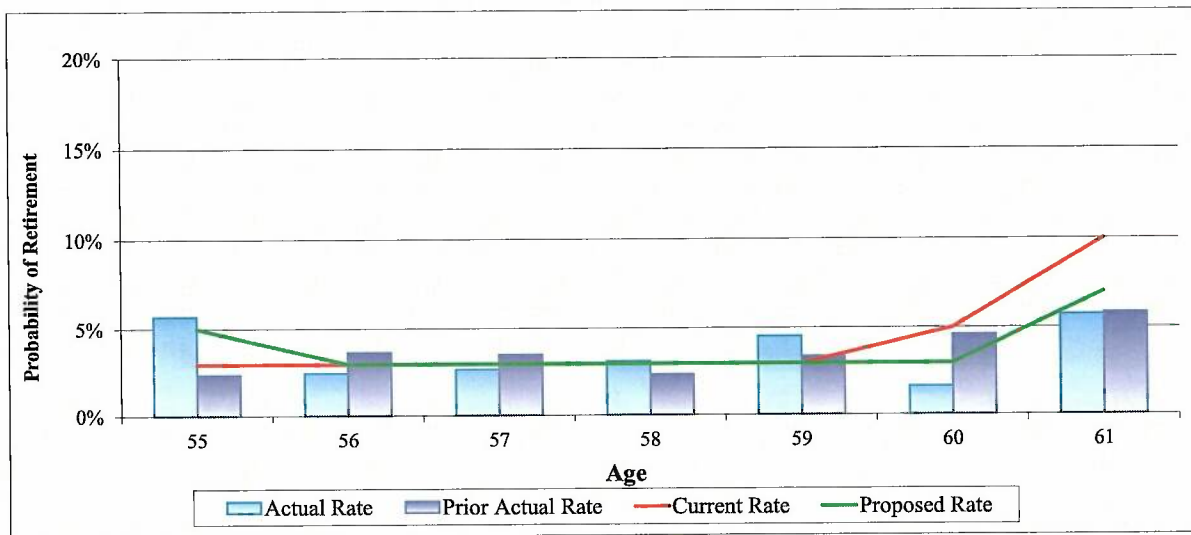
SECTION 7– RETIREMENT

Classified Retirement Experience

The following table is a summary of the actual service retirements in each category for classified members for calendar years 2017 through 2020:

Retirements				
	Observations			
			A/E Ratio	A/E Ratio
	<u>Actual</u>	<u>Expected</u>	<u>Count</u>	<u>Weighted</u>
Early (Reduced)	49	55	89%	89%
Select	55	65	85%	99%
Ultimate	289	451	64%	72%

Classified Early Retirement

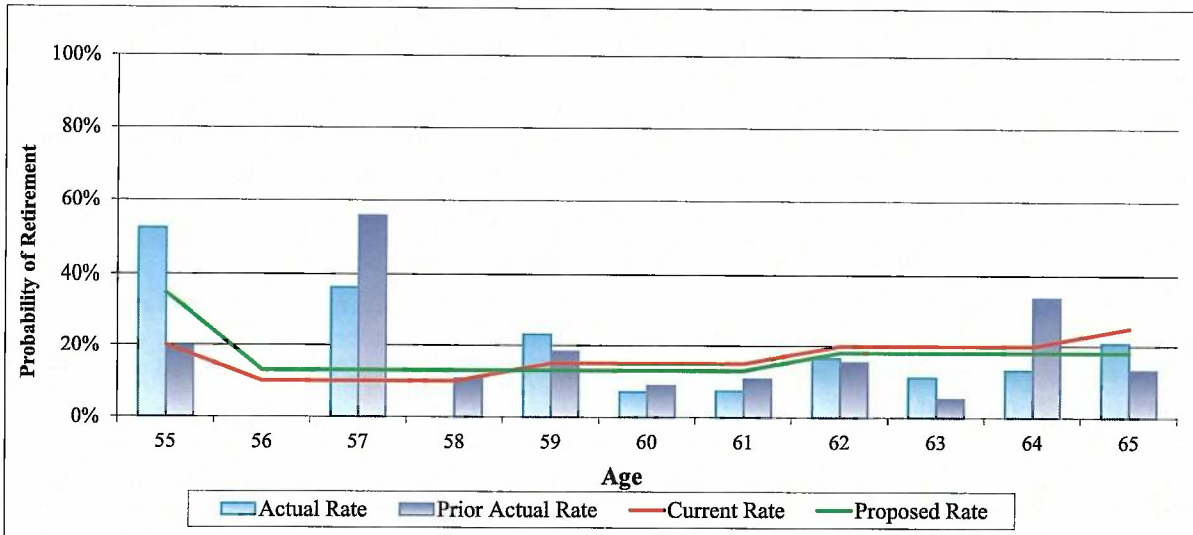


We recommend minor adjustments to the early retirement rates at ages 55, 60 and age 61. The resulting A/E ratio is 97%.



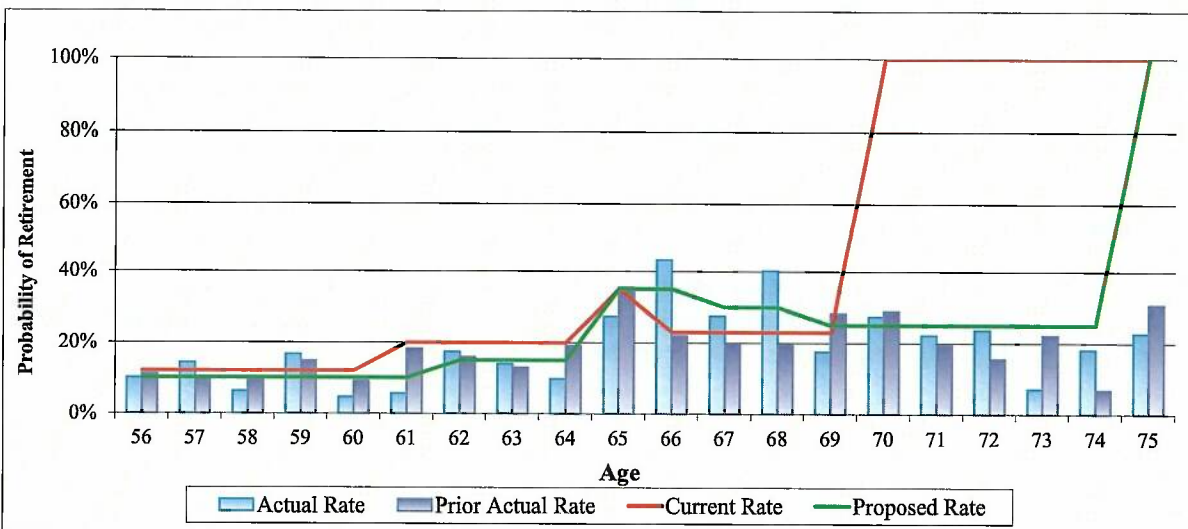
SECTION 7- RETIREMENT

Classified First Eligible Retirement



We recommend adjusting the rates to reflect the aggregate experience over the current and prior study periods, as shown in the graph above. The A/E ratio on the proposed assumption is 101% on a weighted basis.

Classified Ultimate Retirement



We recommend adjusting the rates to reflect and better fit the aggregate experience over the current and prior study periods, including extending the assumption to age 75. The A/E ratio using the proposed assumption is 97% on a weighted basis.



SECTION 7— RETIREMENT

Classified Experience

<u>Assumption</u>	<u>A/E Ratio</u>			
	<u>Current</u>	<u>Weighted</u>	<u>Proposed</u>	<u>Weighted</u>
Early	89%	89%	99%	97%
Select	85%	99%	96%	101%
Ultimate	64%	72%	90%	97%

Inactive Vested Members: The current assumption is that inactive vested members will retire at the first retirement date at which they are eligible for unreduced benefits. Due to the limited number of exposure, actual analysis was not performed. This is a reasonable expectation and **we recommend the current assumption be retained.**

Miscellaneous Assumptions

There are two minor assumptions that are used in the valuation process. For simplicity, we have included the discussion here.

Marriage Assumption

The current assumption is that 100% of members members are married. This assumption is used to value the pre-retirement death benefit which varies with marital status (which has minor cost implications). The census data provided to us for the annual valuation does not include marital status. Beneficiary information is only reported for those retirees who are receiving a joint and survivor form of payment. With data supplied in this manner, there is no fully credible way to review this assumption. However, the impact of this assumption is quite small and the use of 100% marriage assumption means the survivor provisions are valued conservatively. Although it does not have a material cost impact, **we recommend changing the assumption to 85% of the members are married.**

Age of Beneficiary

The current assumption is that males are three years older than. There is insufficient data to assess this assumption, **We believe the current assumption is a standard assumption used in actuarial valuation for pension plans so it is reasonable. We recommend it be retained.**



SECTION 7—RETIREMENT

DEFINITION OF ACTUARIAL EQUIVALENCE FOR FACTORS

Background

Given we are recommending changes to the investment return assumption and the mortality assumption in this experience study, we believe it is appropriate for the Board to consider updating the definition of actuarial equivalence for members hired on or after July 1, 2018. Reflecting the changes now will result in a smaller adjustment to the resulting benefit amounts compared to waiting until a later date when the assumption changes may be more significant. Changing them now also reduces the amount of any actuarial gains/losses resulting from members electing an optional form of payment at retirement.

For OSERS, the definition of actuarial equivalence only affects the amount of benefit received if a member elects to receive payment under an optional form of benefit. The benefit formula (Final Average Salary * Years of Service * Multiplier) determines the amount of the benefit payable under the normal form of payment, a five-years certain and life annuity. Optional forms are based on this benefit amount multiplied by an optional form factor.

The definition of “actuarial equivalence” for members hired prior to July 1, 2018 is defined in statute. State Statutes 79-978(3)(ii) sets out the definition: “For members hired before July 1, 2018, a unisex mortality table using twenty-five percent of the male mortality and seventy-five percent of the female mortality from the 1994 Group Annuity Mortality Table with a One Year Setback and using an interest rate of eight percent compounded annually.” This actuarial equivalent basis in statute for members who were hired before July 1, 2018 remains in place. However, the Board now determines the assumptions for determining actuarial equivalence for optional forms of payment for members hired after June 30, 2018.

There are three primary assumptions that create the actuarial equivalent basis for the actuarial factors:

- (1) Mortality assumption,
- (2) Interest rate (investment return assumption),
- (3) Cost of living adjustment (if the adjustment is variable).

Our recommendation for each assumption is discussed below.

Recommended Assumptions for Actuarial Equivalent Basis for Post June 30, 2018 Members

Mortality

A gender-neutral mortality assumption is needed to comply with legal requirements. In addition, the mortality tables used in the valuation are “generational” meaning that the probabilities of death decrease slightly in each future year, which would result in different life expectancies each year and a change to the actuarial equivalent factors, if used. Rather than update actuarial factors each year, it is common practice to project the mortality rates to a specific year in the future and then use that single set of mortality rates for actuarial equivalent purposes.

Our approach in this study is consistent with the last experience study. To determine the unisex blend of male and female mortality rates, the male/female split of liability for those members nearing retirement was studied. We further examined the actual election patterns for optional forms of payment by gender to determine if any adjustment was needed to reflect different utilization of joint and survivor benefits. The opposite gender blend is used for the mortality assumption of the joint annuitant.



SECTION 7– RETIREMENT

The following mortality assumption is recommended if the Board wishes to adopt new assumptions for the definition of “actuarial equivalent”:

- Valuation mortality table, projected to 2040 using the mortality projection scale, with a 25% male/75% female blend.

COLA Assumption

The statutory plan provisions include an automatic 1% COLA (not to exceed CPI). Given the price inflation assumption used for funding purposes, the full 1% COLA is assumed. While there is a provision for an additional discretionary COLA when certain funding-related criteria are met, there is no specific adjustment made to the COLA funding assumption. Therefore, we recommend using the 1% COLA assumption for the definition of actuarial equivalence.

Investment Return (Interest Rate) Assumption

For members who were hired on/after July 1, 2018 we recommend an interest rate of 7.00% be used. The optional form factors are calculated by dividing the annuity factor for the normal form of payment by the annuity factor for the optional form of payment. Because the change in the underlying actuarial assumptions impacts both annuity factors in the same direction but not by the same magnitude, the cost impact is somewhat mitigated.



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SECTION 8– TERMINATION OF EMPLOYMENT (WITHDRAWAL)

TERMINATION OF EMPLOYMENT

Not all active members on the valuation date are expected to continue working until retirement. Therefore, a termination of employment assumption is used to anticipate the probability that a member will leave covered employment at any given age. In analyzing the actual results, the number of terminations includes all members reported to have terminated employment. Some of these members subsequently receive refunds of their contributions, some return to active membership and some leave their contributions with the System until retirement and receive a monthly benefit. Explicit assumptions are made regarding the elections made by such terminated vested members. Non-vested members are assumed to elect a refund of their employee contribution account balance.

This section of the report summarizes the results of our study of terminations of employment for reasons other than death, retirement, or disability. Rates of termination can vary by both age and years of service. In general, rates of termination tend to be highest at younger ages and in the early years of employment. There may also be differences in termination patterns between males and females so gender-specific rates are studied.

The current termination of employment assumption is a service-based assumption with employees with lower years of service exhibiting higher incidences of termination than the rates for employees with more years of service. Separate male and female termination rates for classified members are used in the valuation process, but one set of rates is used for all certificated members (both male and female).

Certificated Members

A summary of the experience in the current study period for durations 1 through 25 is displayed in the following tables:

Termination Experience – All Certificated					
	Exposures	Actual	Expected	A/E Ratio	
				Count	Weighted
Calendar Year 2017	3,959	187	240	78%	89%
Calendar Year 2018	4,027	234	244	96%	102%
Calendar Year 2019	3,900	216	228	95%	124%
Calendar Year 2020	3,976	213	235	91%	114%
Total	15,862	850	947	90%	108%

As the table above illustrates, overall the current assumption is estimating the liability associated with terminations more closely than the number of terminations (liability-weighted A/E ratio is closer to 100%). Given that the current assumptions were developed using the liability-weighted experience in the prior study, this result is consistent with our expectations. Essentially, the terminations are occurring more often among members with lower salaries relative to higher salaried members.

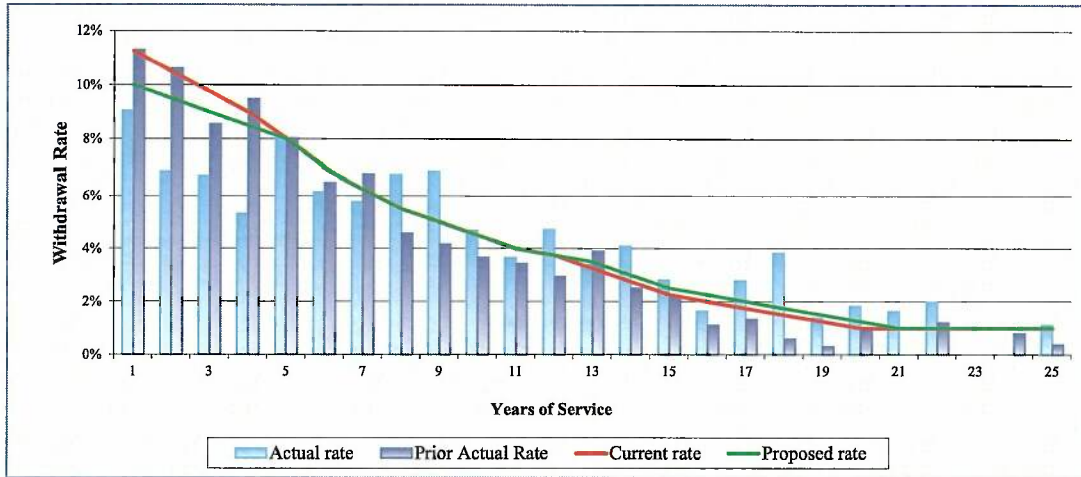
As the graph below shows, the actual experience in this study period (light blue bars) is different than observed in the prior study period (purple bars). In fact, the A/E ratio in the prior study, using the same assumption, was 87%. If the experience in the current period (A/E ratio of 108%) is aggregated with the experience in the prior period (A/E ratio of 87%), the A/E ratio is close to 100%. However, we do believe some adjustment is necessary, with largest adjustment at durations one to four. The recommended



SECTION 8– TERMINATION OF EMPLOYMENT (WITHDRAWAL)

assumption is shown in green in the graph below. The A/E ratio, using the proposed assumption, does not change dramatically (it is 106%), but the fit is better.

Termination Rates: Certificated Males and Females



We reviewed the results for the certificated group separately by male and female, as well in aggregate, and there was not a major difference between the termination patterns for males and females. We continue to recommend one assumption be used for the certificated group. For the classified group, separate assumptions are currently used based on gender and the experience again supports that approach.

Classified Members

Termination Experience – Classified Males					
	Exposures	Actual	Expected	A/E Ratio	
				Count	Weighted
Calendar Year 2017	506	26	29	89%	116%
Calendar Year 2018	526	33	31	105%	128%
Calendar Year 2019	513	31	31	101%	141%
Calendar Year 2020	512	18	32	56%	79%
Total	2,057	108	123	88%	116%

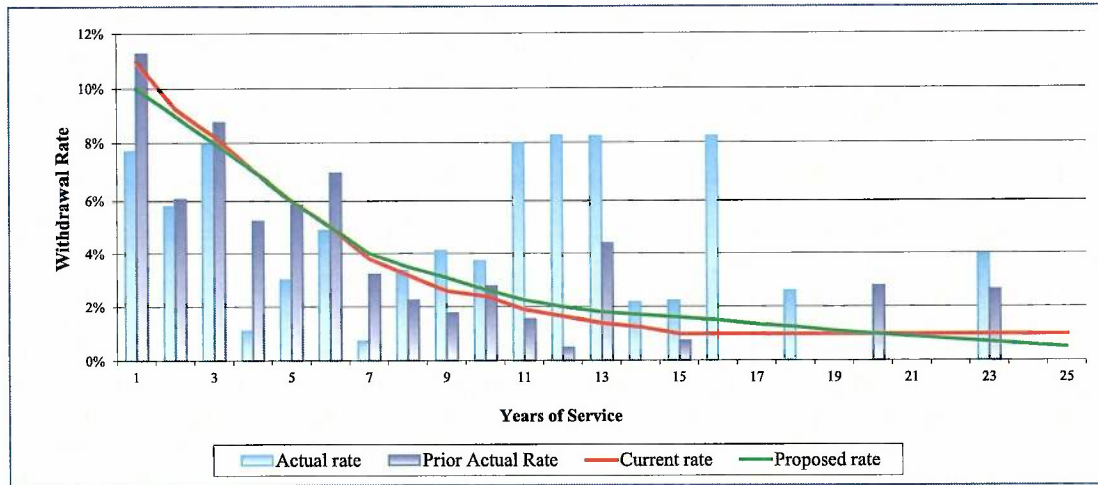
With the exception of 2020, there was more liability released from members terminating than expected. As a result, the A/E ratios were above 100%. As the graph below shows, terminations were much higher than expected at durations 9 through 16, a very different pattern from that observed in the prior study. This termination pattern is not typical and we are hesitant to rely too heavily on the data in this observation period. As a result, we are recommending a few changes to the classified Males assumption in this study, partially reflecting the results in the current study, but trying not to overadjust. When more information is available in the next experience study, additional adjustments can be made if necessary.

The current and recommended assumptions for termination of employment for classified Males is shown in the graph below. The A/E ratio, using the proposed assumption, is 111%.



SECTION 8– TERMINATION OF EMPLOYMENT (WITHDRAWAL)

Termination Rates: Classified Males



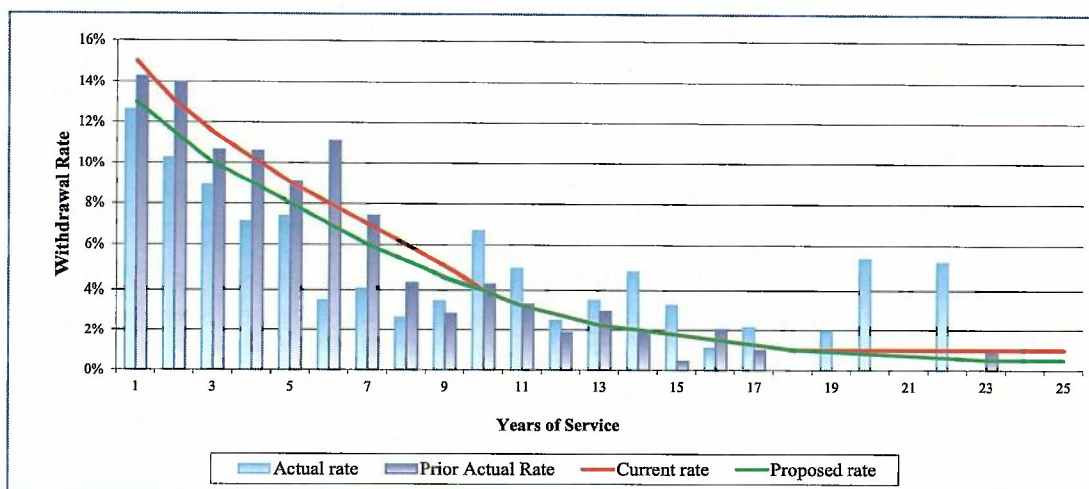
Termination Experience – Classified Females					
	Exposures	Actual	Expected	A/E Ratio	
				Count	Weighted
Calendar Year 2017	1,180	58	103	57%	56%
Calendar Year 2018	1,207	126	108	116%	118%
Calendar Year 2019	1,112	79	96	82%	84%
Calendar Year 2020	1,080	98	97	102%	102%
Total	4,579	361	404	89%	90%

The aggregate results are similar to those in the last study which reflected an A/E ratio of 91%. The biggest differences in termination rates for the two periods were for the early durations. Therefore, we recommend some adjustments to the rates for durations one through 10 and some adjustment at later durations. The current and proposed assumptions are shown in the graph below. The resulting A/E, ratio using the proposed assumption, is 100%.



SECTION 8- TERMINATION OF EMPLOYMENT (WITHDRAWAL)

Termination Rates: Classified Females



The A/E ratios using the recommended assumptions are summarized below. As discussed earlier, the recommended assumptions rely on the weighted analysis so the A/E ratios are closer to 100% on that basis than the count basis.

	A/E Ratio	
	Count	Weighted
Certificated	93%	106%
Classified - Males	89%	111%
Classified - Females	101%	100%

VESTED MEMBER ELECTION OF REFUND/DEFERRED BENEFIT

Some members who terminate active employment elect to receive a distribution of their member account balance. Currently, we assume that all non-vested members receive a refund of their account balance at the time of termination. In addition, we assume a certain proportion of terminating vested members also elect a distribution of their member account, thus forfeiting the right to receive a monthly benefit in the future.

Currently, separate assumptions are used for each group. For the certificated group, 20% of terminating members are assumed to take a refund and 80% are assumed to leave their employee account balance in the System and draw a monthly benefit when eligible. For the classified group, 40% are assumed to elect a refund of their employee account balance and forfeit any monthly income and 60% are assumed to leave their funds with the System. The following table shows the number of vested members who terminated and elected to leave their funds with the System.



SECTION 8– TERMINATION OF EMPLOYMENT (WITHDRAWAL)

Classified	Election of Deferred Benefit		
	<u>Actual</u>	<u>Terminations</u>	<u>Percent</u>
• Less than 11 YOS	107	164	65%
• 11 or More YOS	<u>69</u>	<u>92</u>	75%
Total	176	256	69%

There were more terminated vested members who elected to leave their contributions in the System and receive a monthly benefit at retirement eligibility than was anticipated by the current assumption for both groups. In addition, we further analyzed the data by years of service and observed a higher election of deferred benefits by members with more years of service. This seems a reasonable expectation given the general expectation that member with more years of service will have larger benefit amounts and be older.

Given the experience in this study, we are recommending the assumption for classified members be modified to assume that 65% of all terminating members with less than 11 years of service and 75% of all terminating members with 11 or more years of service will elect to leave their money in the System and later receive a monthly benefit.

Certificated	Election of Deferred Benefit		
	<u>Actual</u>	<u>Terminations</u>	<u>Percent</u>
• Less than 15 YOS	368	444	83%
• 15 or More YOS	<u>81</u>	<u>92</u>	88%
Total	449	536	84%

The pattern for certificated members did vary by years of service but not dramatically. Having said that, we believe there should be a higher probability of members leaving their contribution with the System with higher years of service. Therefore, for certificated members, we recommend assuming 80% of members who terminate with less than 15 years of service and 90% who terminated with 15 or more years of service will elect to leave their money in the System and later received a monthly benefit.



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APPENDIX A – CURRENT ASSUMPTIONS

Interest Rate: 7.50% per annum, compounded annually, net of expenses.

Mortality Rates: RP-2014 Mortality Table for males, set forward one year.
RP-2014 Mortality Table for females, set back one year.

Future mortality rates are projected on a generational basis using Scale MP-2016, which reflects the expectation that mortality rates will decline over time.

Disabled retirees use the RP-2014 Disabled Retiree Mortality Table, without generational improvement.

Disability: None assumed.

Termination of Employment: Illustrative rates of termination are as follows:
(prior to retirement eligibility)

Certificated:

Percent Terminating	
<u>Duration</u>	<u>Rate</u>
1	11.25%
5	8.00
10	4.50
15	2.25
20	1.00
25	1.00

Classified:

Percent Terminating		
<u>Duration</u>	<u>Male</u>	<u>Female</u>
1	11.00%	15.00%
5	6.00	9.00
10	2.40	4.00
15	1.00	1.75
20	1.00	1.00
25	1.00	1.00



APPENDIX A – CURRENT ASSUMPTIONS

Retirement Rates:

Early retirement rates are assumed to occur according to the schedule illustrated below:

Became members before July 1, 2016

Certificated:		Classified:	
<u>Age</u>	<u>Early</u>	<u>Age</u>	<u>Early</u>
55	10%	55	3%
56	6	56	3
57	6	57	3
58	6	58	3
59	8	59	3
60	12	60	5
61	12	61	10

Became members on or after July 1, 2016

Certificated:		Classified:	
<u>Age</u>	<u>Early</u>	<u>Age</u>	<u>Early</u>
60	12%	60	5%
61	12	61	10
62	12	62	10
63	12	63	10
64	12	64	10



APPENDIX A – CURRENT ASSUMPTIONS

Unreduced retirement rates are assumed to occur according to the schedule illustrated below:

Became members before July 1, 2018

Certificated:

<u>Age</u>	<u>1st Year Eligible</u>	<u>Ultimate</u>
55	60%	
56	50	35%
57	45	35
58	45	35
59	45	25
60	35	25
61	25	25
62	25	25
63	25	25
64	30	30
65	35	35
66	35	35
67	35	35
68	35	35
69	100	35
70	100	100

Classified:

<u>Age</u>	<u>1st Year Eligible</u>	<u>Ultimate</u>
55	20%	
56	10	12%
57	10	12
58	10	12
59	15	12
60	15	12
61	15	20
62	20	20
63	20	20
64	20	20
65	25	35
66	20	23
67	20	23
68	20	23
69	20	23
70	100	100



APPENDIX A – CURRENT ASSUMPTIONS

Members hired on or after July 1, 2018

Certificated:

7

<u>Age</u>	<u>1st Year Eligible</u>	<u>Ultimate</u>
60	65%	
61	25	25%
62	25	25
63	25	25
64	30	30
65	35	35
66	35	35
67	35	35
68	35	35
69	100	35
70	100	100

Classified:

<u>Age</u>	<u>1st Year Eligible</u>	<u>Ultimate</u>
60	40%	
61	15	20%
62	20	20
63	20	20
64	20	20
65	25	35
66	20	23
67	20	23
68	20	23
69	20	23
70	100	100

Deferred vested members are assumed to retire at first unreduced retirement age.



APPENDIX A – CURRENT ASSUMPTIONS

Salary Scale: Salaries are assumed to increase according to the schedule illustrated below:

Duration	Annual Salary Increase	
	Certificated	Classified
0	5.75%	6.25%
1	5.75	5.75
2	5.75	5.25
3	5.75	5.00
4-6	5.75	4.75
7-11	5.75	4.25
12-14	5.75	3.75
15-21	5.25	3.75
22+	4.25	3.75

Note: Salaries are assumed to increase by 2.0% for members who have not yet finalized their contract negotiations as of the valuation date.

Pre-Retirement Survivor Annuity: It is assumed that females are three years younger than males, and that all members are married.

Probability of Electing a Refund: The proportion of terminating vested members electing a refund of member contributions:
20% for Certificated members
40% for Classified members

Assumed Interest Rate Credited on Employee Contributions: 2.75% compounded annually.

Inflation (CPI): 2.75% compounded annually.

Total Payroll Growth: 3.25% compounded annually.

Decrement Timing: Middle of year

Cost of Living Adjustments: 1.5% for members hired before 7/1/2013
1.0% for members hired on or after 7/1/2013

Inactive Vested Load: A 5% load on deferred monthly benefits is included to reflect that some inactive vested members' account balances are greater than the present value of their deferred benefit.

Valuation Salary Methodology: Valuation salaries are imputed using each member's contribution amount during the prior year. For members who did not work a full year, their salaries are annualized using current salary rates.



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APPENDIX B – PROPOSED ASSUMPTIONS

Interest Rate: 7.00% per annum, compounded annually, net of investment expenses.

Mortality Rates: Active members use the Pub-2010 General Members (Median) Employee Mortality Table projected generationally using the NPERS projection scale.

Retirees use the Pub-2010 General Members (Median) Retiree Mortality Table projected generationally using the NPERS projection scale.

Beneficiaries use the Pub-2010 General Members (Median) Contingent Survivor Mortality Table projected generationally using the NPERS projection scale.

Disabled retirees use the Pub-2010 Non-Safety Disabled Retiree Mortality Table, without generational improvement.

Disability: None assumed.

Termination of Employment: Illustrative rates of termination are as follows:
(prior to retirement eligibility)

Certificated:

Percent Terminating	
<u>Duration</u>	<u>Rate</u>
1	10.00%
5	8.00
10	4.50
15	2.50
20	1.25
25	1.00
30	0.75

Classified:

Percent Terminating		
<u>Duration</u>	<u>Male</u>	<u>Female</u>
1	10.00%	13.00%
5	6.00	8.00
10	2.65	4.00
15	1.60	1.75
20	1.00	0.80
25	0.50	0.50
30	0.50	0.50



APPENDIX B – PROPOSED ASSUMPTIONS

Retirement Rates:

Early retirement rates are assumed to occur according to the schedule illustrated below:

Became members before July 1, 2016

Certificated:		Classified:	
<u>Age</u>	<u>Early</u>	<u>Age</u>	<u>Early</u>
55	6%	55	5%
56	6	56	3
57	6	57	3
58	6	58	3
59	8	59	3
60	12	60	3
61	12	61	7

Became members on or after July 1, 2016

Certificated:		Classified:	
<u>Age</u>	<u>Early</u>	<u>Age</u>	<u>Early</u>
60	12%	60	3%
61	12	61	7
62	12	62	7
63	12	63	7
64	12	64	7



APPENDIX B – PROPOSED ASSUMPTIONS

Unreduced retirement rates are assumed to occur according to the schedule illustrated below:

Became members before July 1, 2018

Certificated:

<u>Age</u>	<u>1st Year Eligible</u>	<u>Ultimate</u>
55	40%	
56	40	40%
57	40	20
58	40	20
59	40	20
60	30	20
61	22	20
62	22	25
63	25	20
64	25	25
65	40	30
66	40	40
67	40	40
68	40	35
69	100	35
70	100	100

Classified:

<u>Age</u>	<u>1st Year Eligible</u>	<u>Ultimate</u>
55	35%	
56	13	10%
57	13	10
58	13	10
59	13	10
60	13	10
61	13	10
62	18	15
63	18	15
64	18	15
65	18	35
66	18	35
67	18	30
68	18	30
69	18	25
70	100	25
71	100	25
72	100	25
73	100	25
74	100	25
75	100	100



APPENDIX B – PROPOSED ASSUMPTIONS

Members hired on or after July 1, 2018

Certificated:

<u>Age</u>	<u>1st Year Eligible</u>	<u>Ultimate</u>
60	40%	
61	22	20%
62	22	25
63	25	20
64	25	25
65	40	30
66	40	40
67	40	40
68	40	35
69	100	35
70	100	100

Classified:

<u>Age</u>	<u>1st Year Eligible</u>	<u>Ultimate</u>
60	30%	
61	13	10%
62	18	15
63	18	15
64	18	15
65	18	35
66	18	35
67	18	30
68	18	30
69	18	25
70	100	25
71	100	25
72	100	25
73	100	25
74	100	25
75	100	100

Deferred vested members are assumed to retire at first unreduced retirement age.



APPENDIX B – PROPOSED ASSUMPTIONS

Salary Scale: Salaries are assumed to increase according to the schedule illustrated below:

Duration	Annual Salary Increase	
	Certificated	Classified
0	4.95%	6.25%
1	4.95	5.10
2	4.95	4.85
3	4.95	4.60
4	4.95	4.35
5	4.95	4.25
6	4.95	4.15
7	4.95	4.05
8-9	4.95	3.85
10	4.95	4.95
11	4.95	3.85
12-14	4.95	3.35
15	5.60	5.35
16-19	4.80	3.35
20	5.10	4.85
21-23	3.90	3.35
24	4.35	3.35
25	5.85	4.85
26-29	3.10	3.10
30	3.85	4.85
31-34	3.10	2.85
35	3.85	3.35
36-39	2.85	2.85
40	3.60	3.85

Note: Salaries are assumed to increase by 2.0% for members who have not yet finalized their contract negotiations as of the valuation date.

Pre-Retirement
Survivor Annuity:

It is assumed that females are three years younger than males, and that 85% members are married.

Probability of Electing a Refund:

The proportion of terminating vested members electing a refund of member contributions:

- 20% for Certificated members with less than 15 years of service
- 10% for Certificated members with 15 or more years of service
- 35% for Classified members with less than 11 years of service
- 25% for Classified members with 11 or more years of service

Assumed Interest Rate Credited
on Employee Contributions:

2.35% compounded annually.

Inflation (CPI):

2.35% compounded annually.

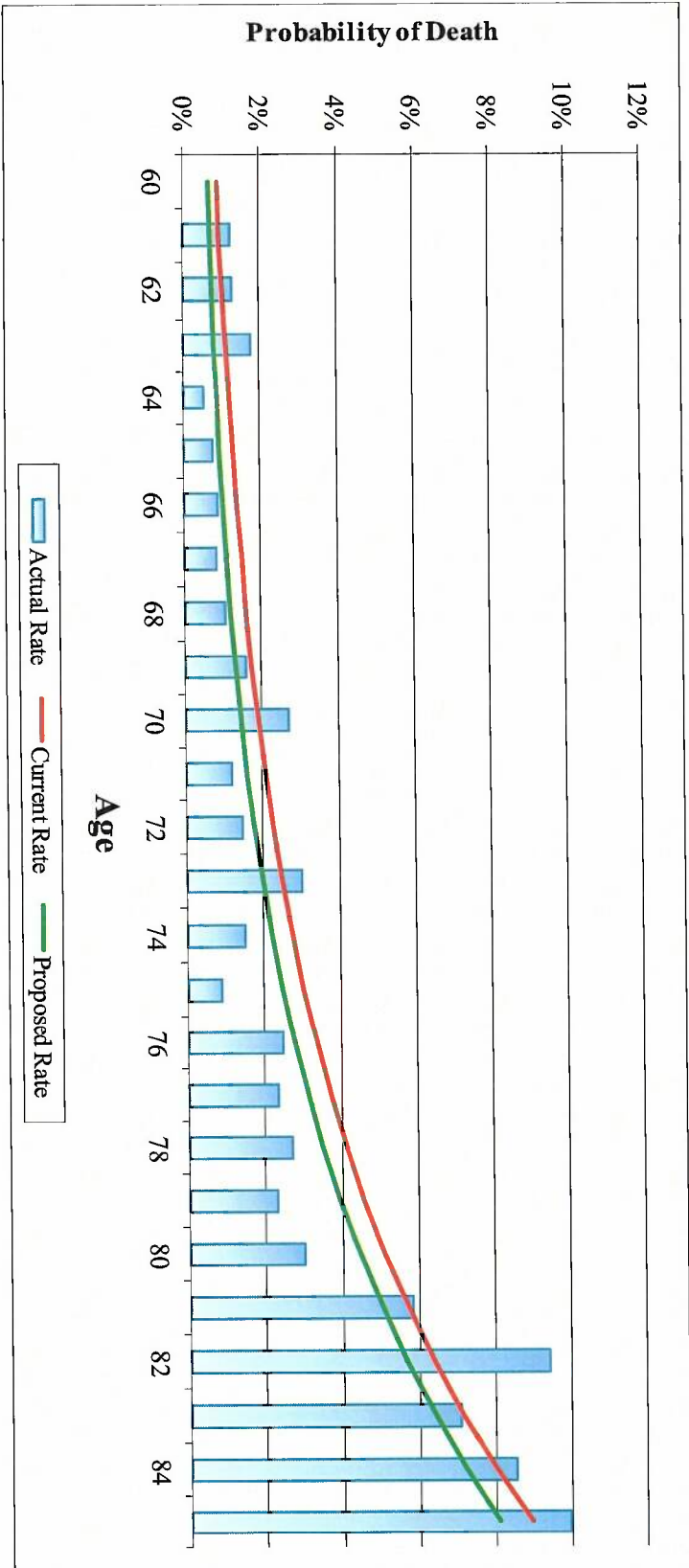


APPENDIX B – PROPOSED ASSUMPTIONS

Total Payroll Growth:	2.85% compounded annually.
Decrement Timing:	Middle of year
Cost of Living Adjustments:	1.5% for members hired before 7/1/2013 1.0% for members hired on or after 7/1/2013
Administrative Expense	0.24% of payroll
Inactive Vested Load:	A 5% load on deferred monthly benefits is included to reflect that some inactive vested members' account balances are greater than the present value of their deferred benefit.
Valuation Salary Methodology:	Valuation salaries are imputed using each member's contribution amount during the prior year. For members who did not work a full year, their salaries are annualized using current salary rates.



Omaha School Employees' Retirement System
 Experience Study 2017-2020
 Exhibit C-1
 Probability of Death - Healthy Retirees
 Males

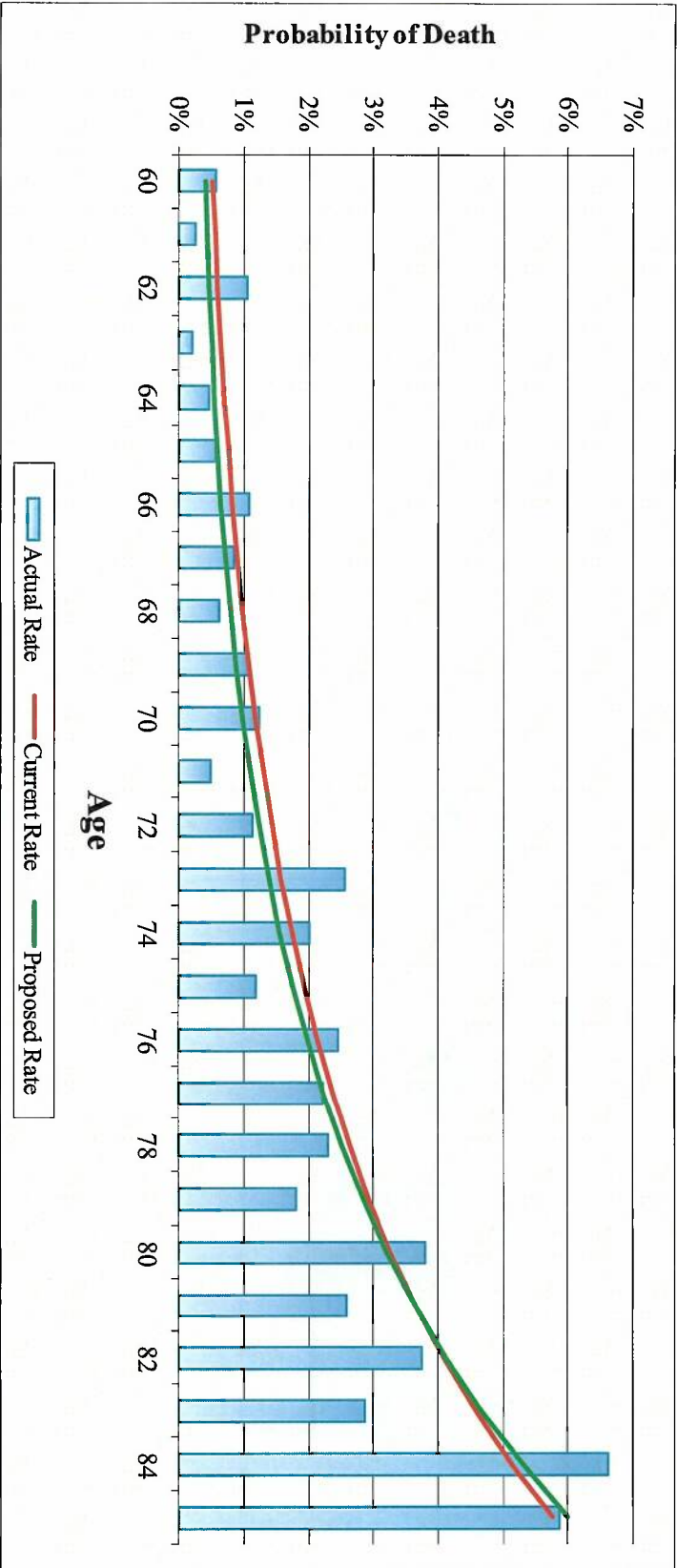


	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	431,591	526,252	431,713
Actual/Expected		82%	100%

Note: Analysis combines data from previous experience study



Omaha School Employees' Retirement System
Experience Study 2017-2020
Exhibit C-2
Probability of Death - Healthy Retirees
Females

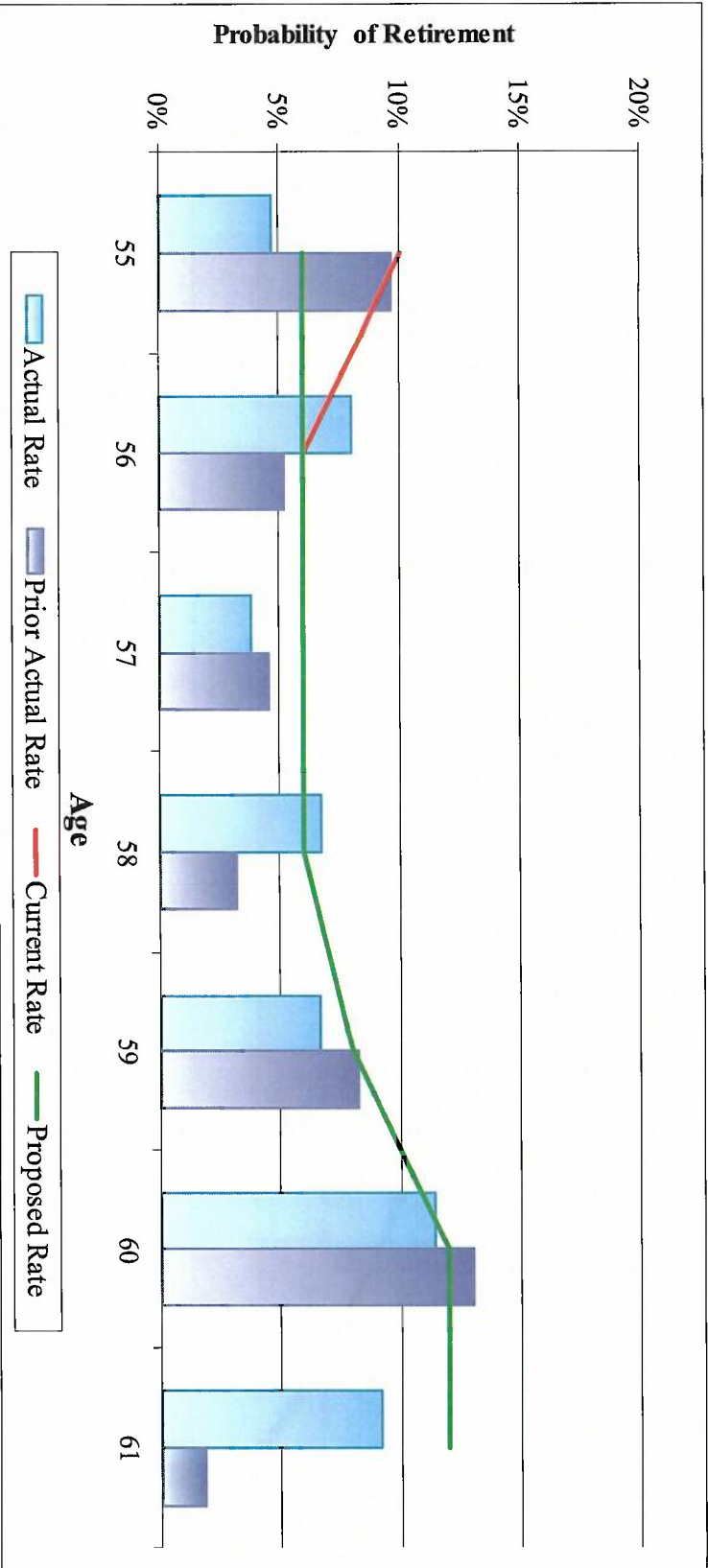


	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	577,640	629,748	568,707
Actual/Expected		92%	102%

Note: Analysis combines data from previous experience study



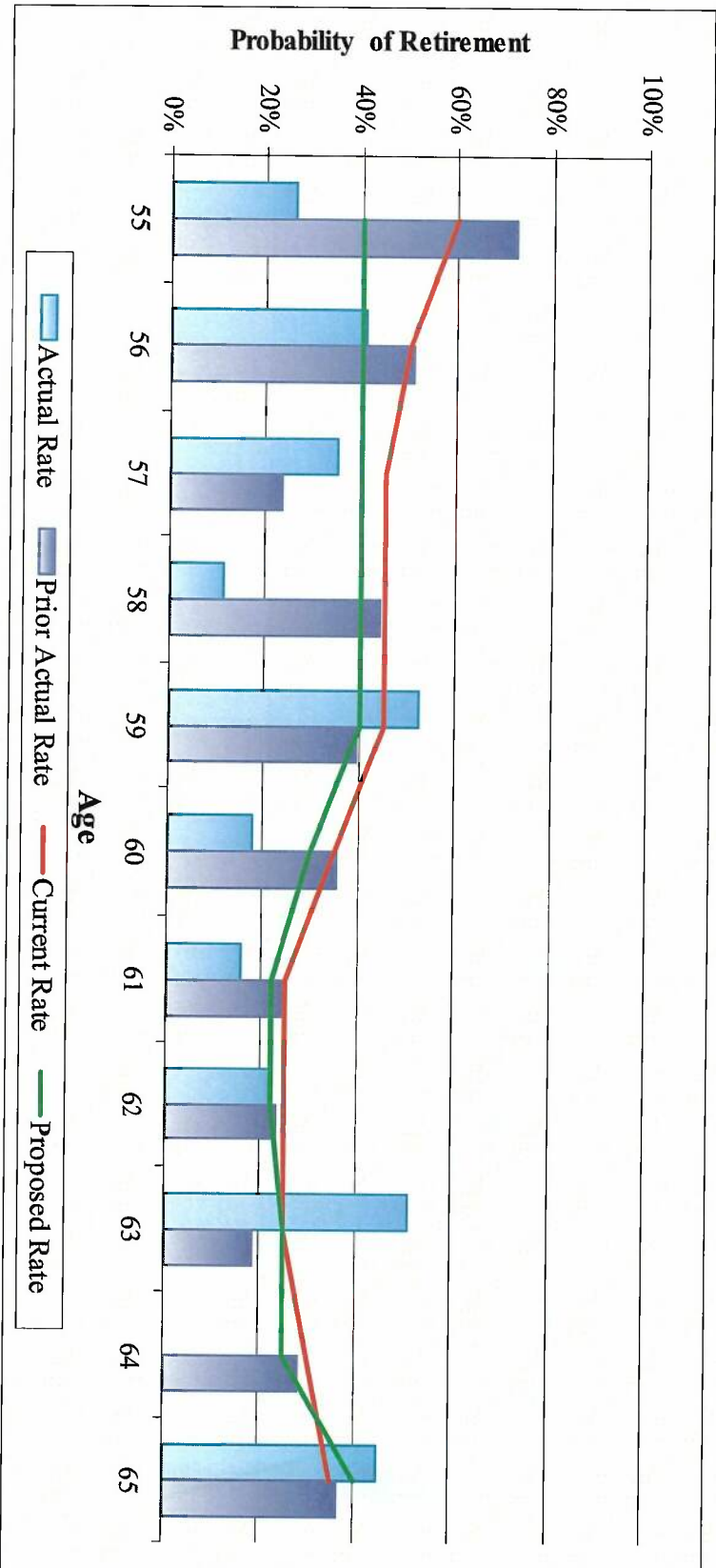
Omaha School Employees' Retirement System
 Experience Study 2017-2020
 Exhibit C-3
 Retirement Rates
 Certificated - Early



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	102	124	112
Actual/Expected		82%	91%



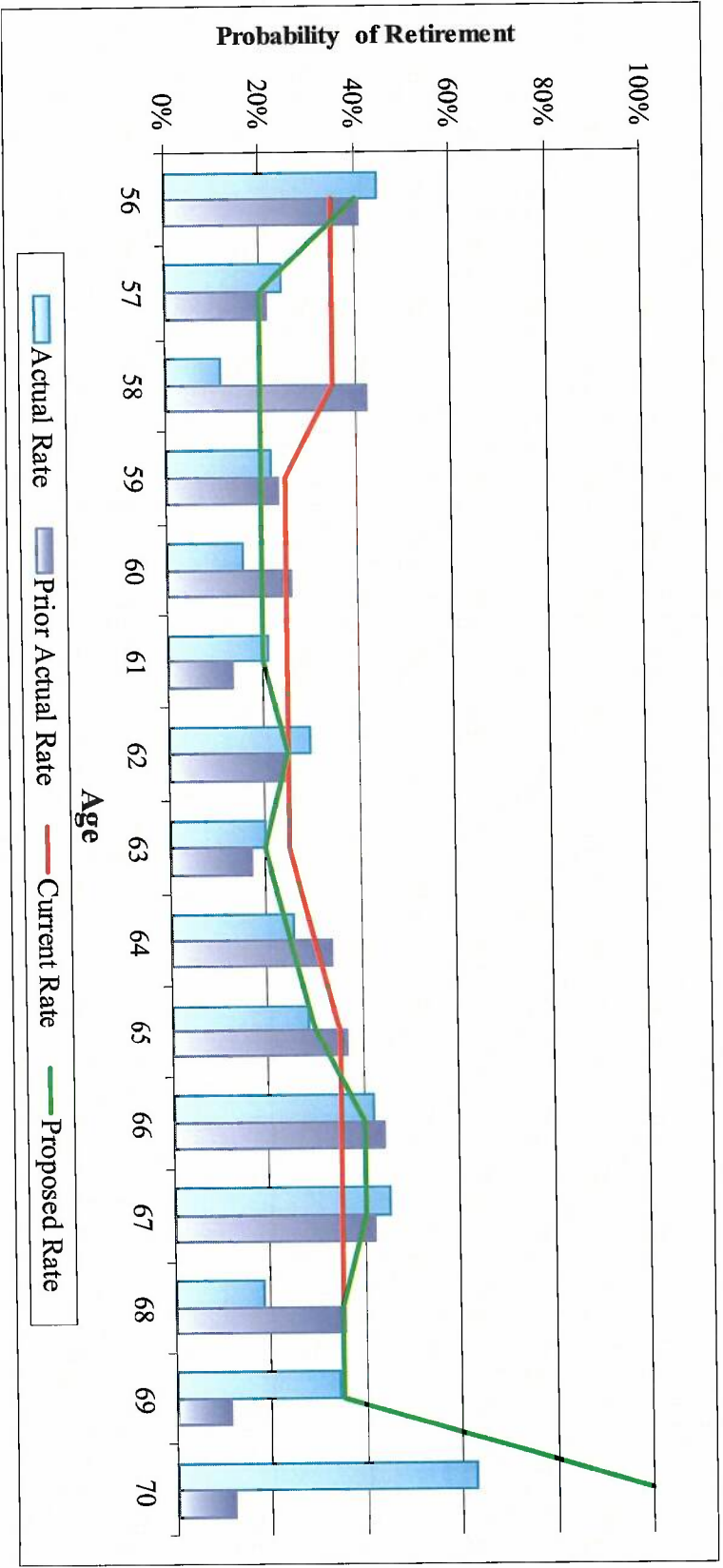
Omaha School Employees' Retirement System
 Experience Study 2017-2020
 Exhibit C-4
 Retirement Rates
 Certificated - Select



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	163	257	201
Actual/Expected		63%	81%



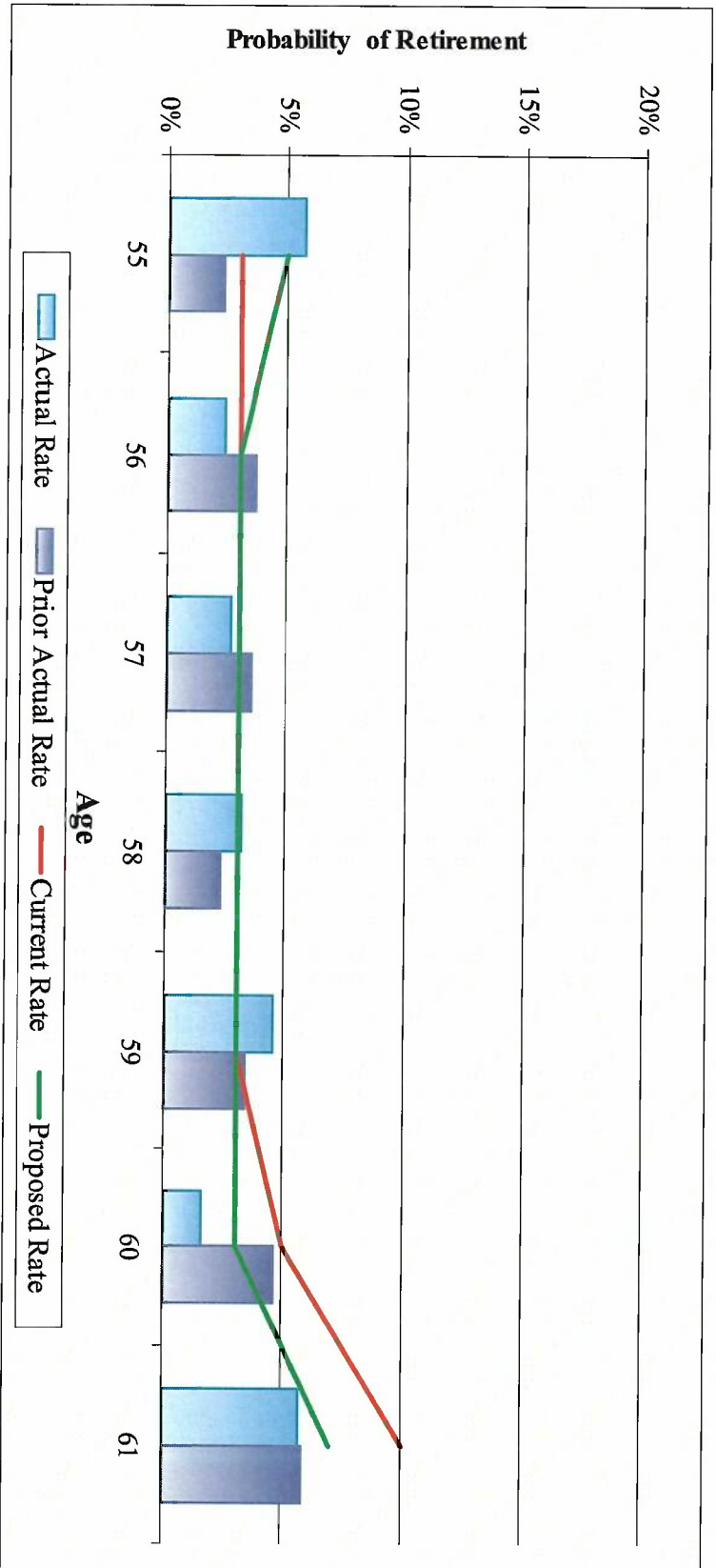
Omaha School Employees' Retirement System
 Experience Study 2017-2020
 Exhibit C-5
 Retirement Rates
 Certificated - Ultimate



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	456	518	462
Actual/Expected		88%	99%



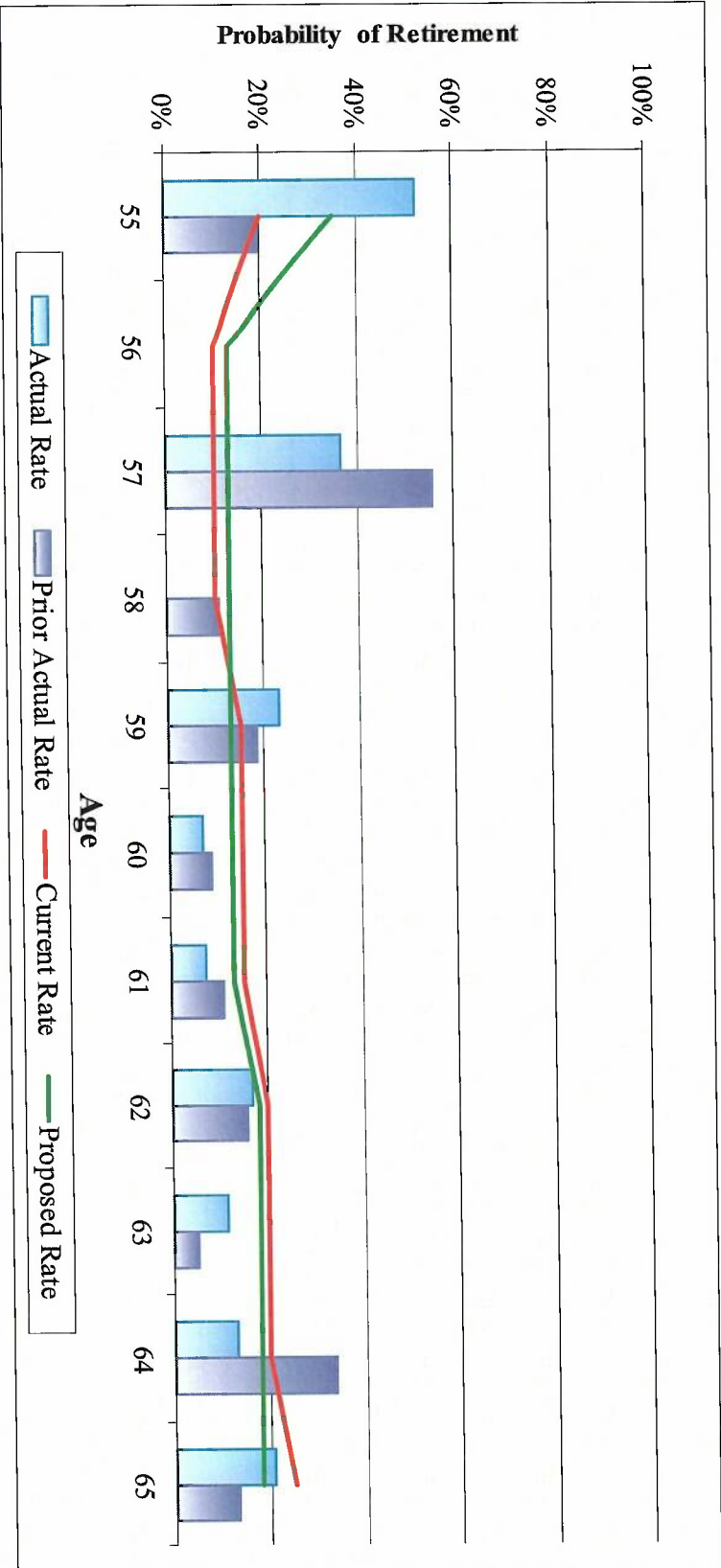
Omaha School Employees' Retirement System
 Experience Study 2017-2020
 Exhibit C-6
 Retirement Rates
 Classified - Early



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	25	28	26
Actual/Expected		89%	97%



Omaha School Employees' Retirement System
 Experience Study 2017-2020
 Exhibit C-7
 Retirement Rates
 Classified - Select



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	32	32	31
Actual/Expected		99%	101%



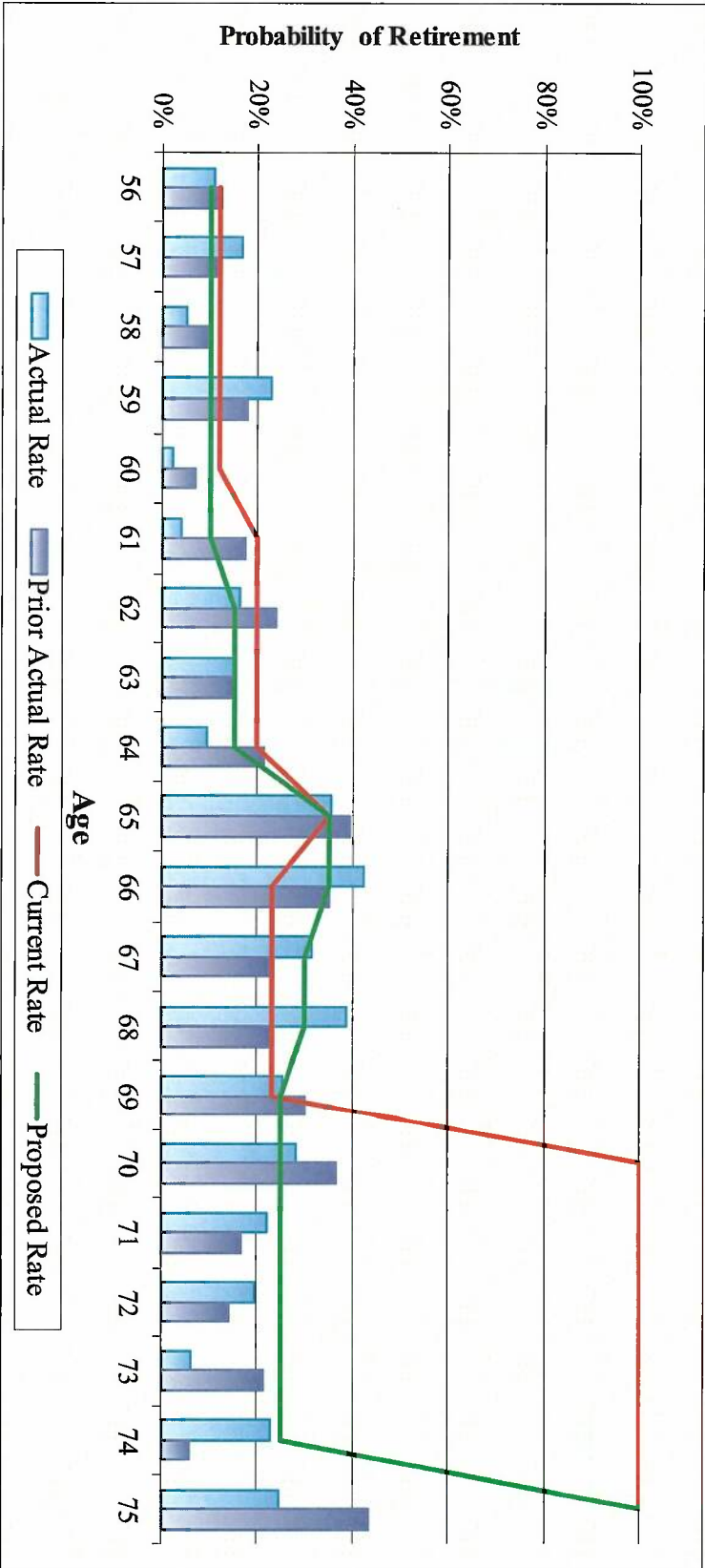
Omaha School Employees' Retirement System

Experience Study 2017-2020

Exhibit C-8

Retirement Rates

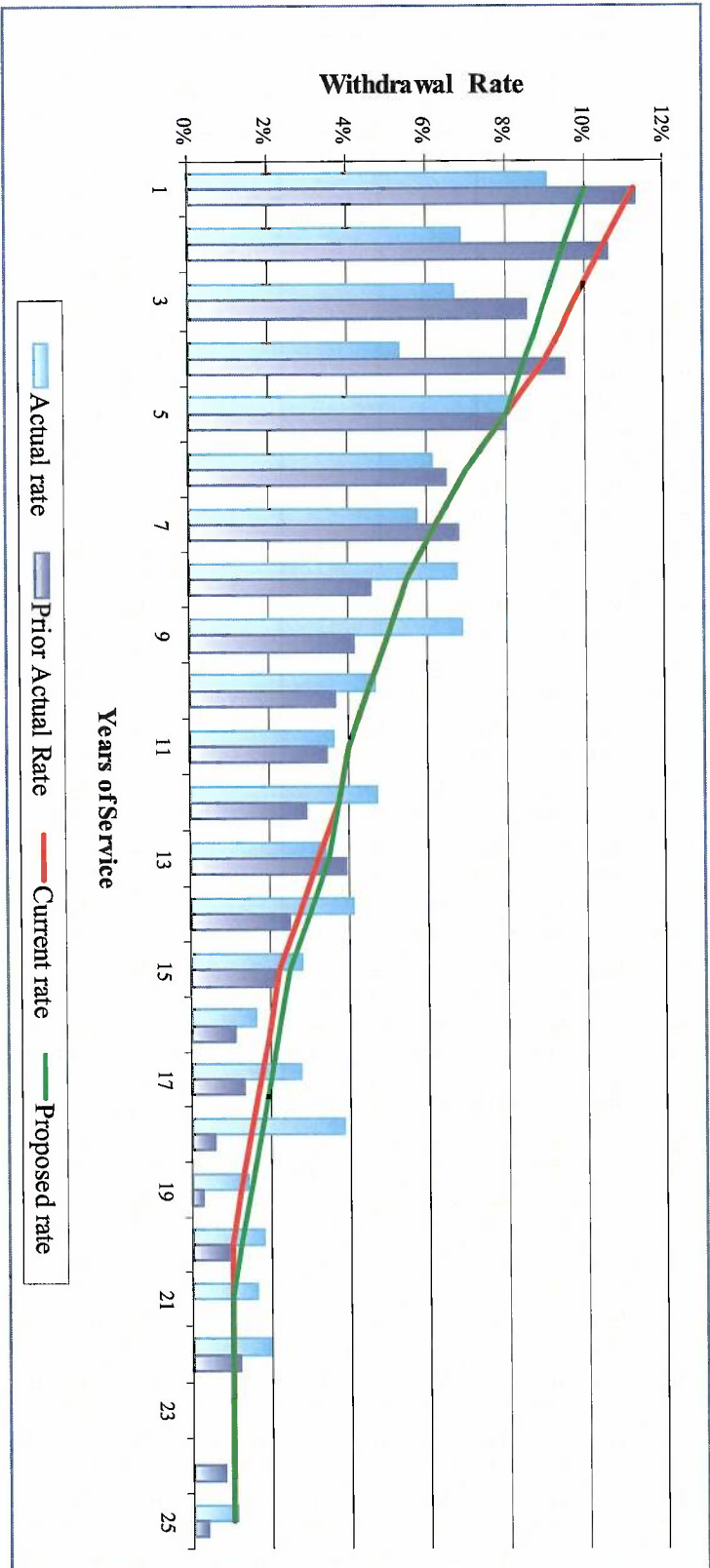
Classified - Ultimate



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	187	261	193
Actual/Expected		72%	97%



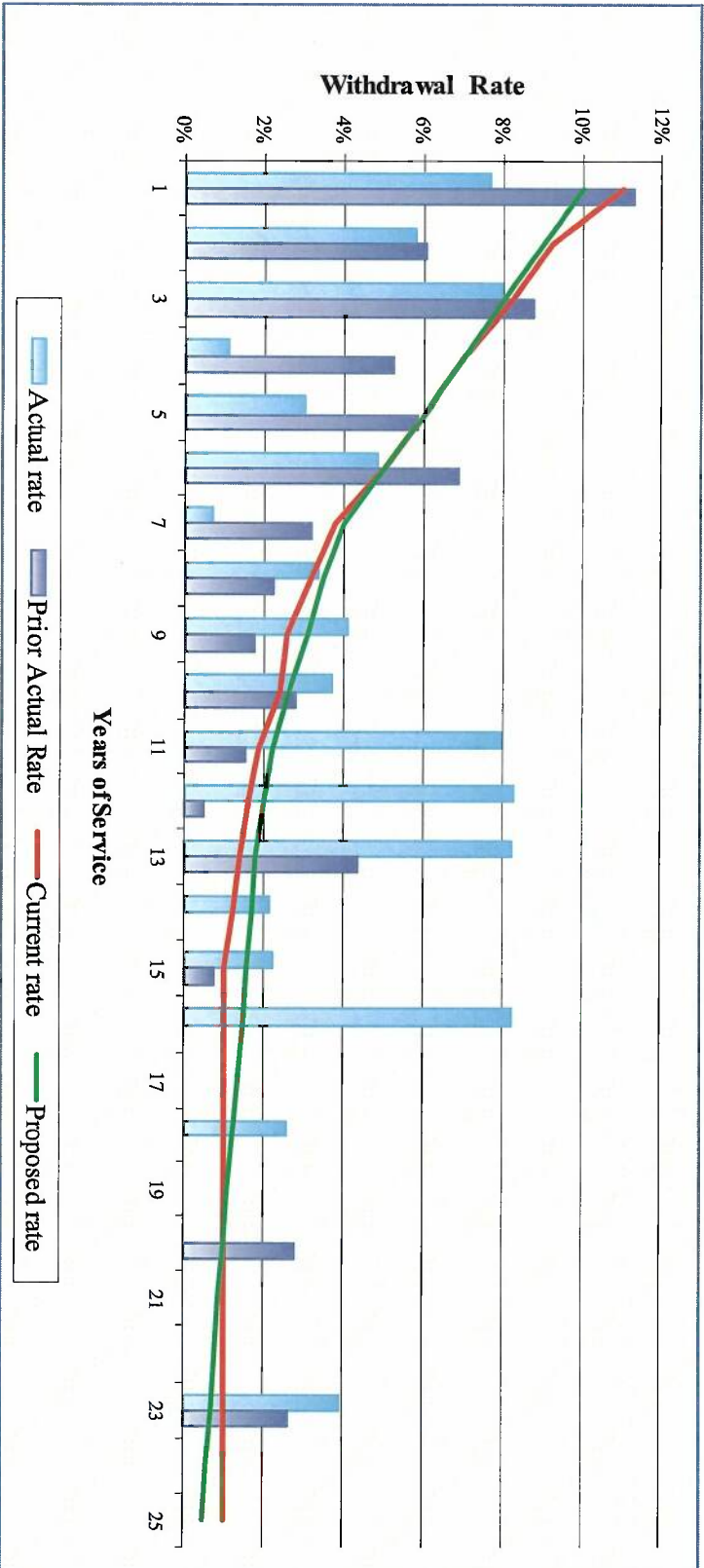
Omaha School Employees' Retirement System
 Experience Study 2017-2020
 Exhibit C-9
 Rate of Termination of Employment
 Certificated



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	305	284	289
Actual/Expected		108%	106%



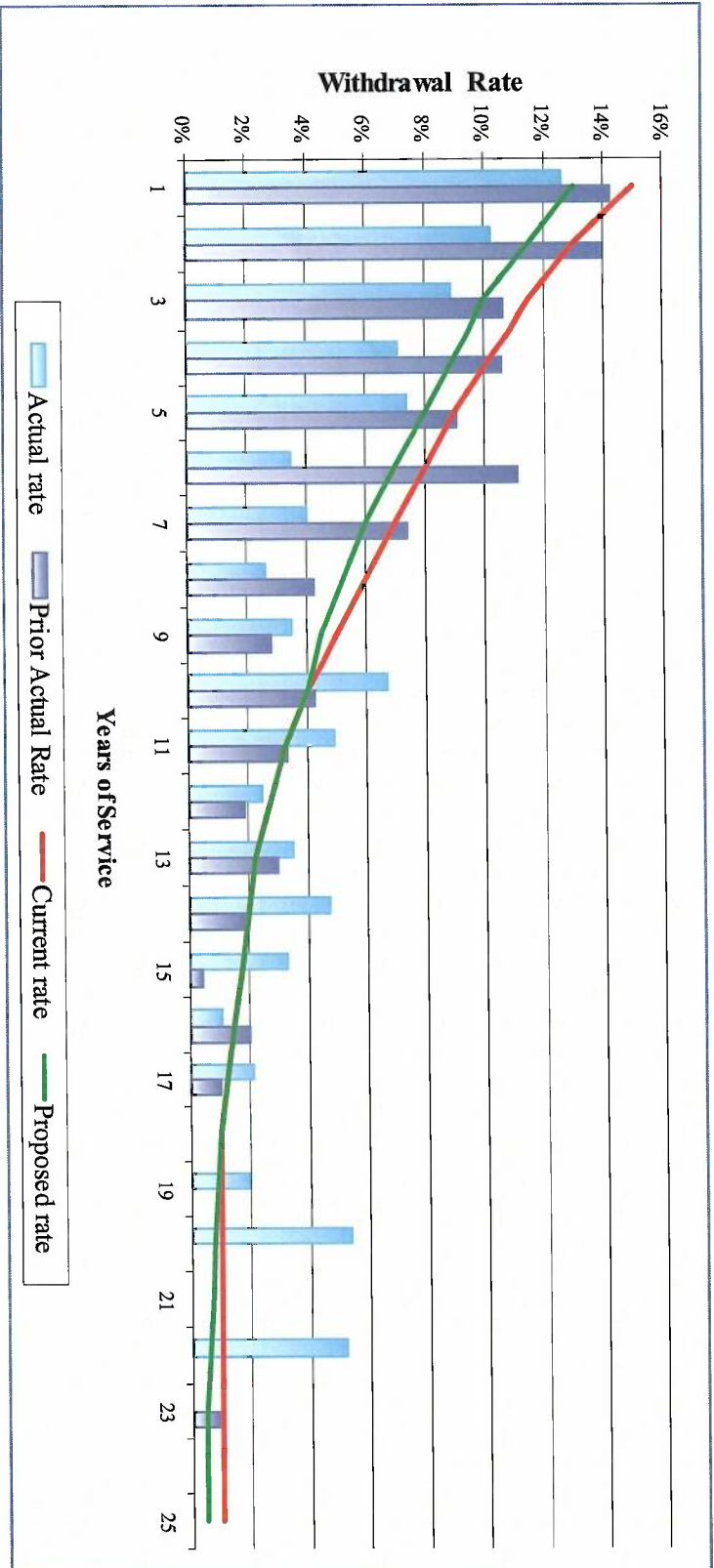
Omaha School Employees' Retirement System
 Experience Study 2017-2020
 Exhibit C-10
 Rate of Termination of Employment
 Classified - Males



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	19	16	17
Actual/Expected		116%	111%



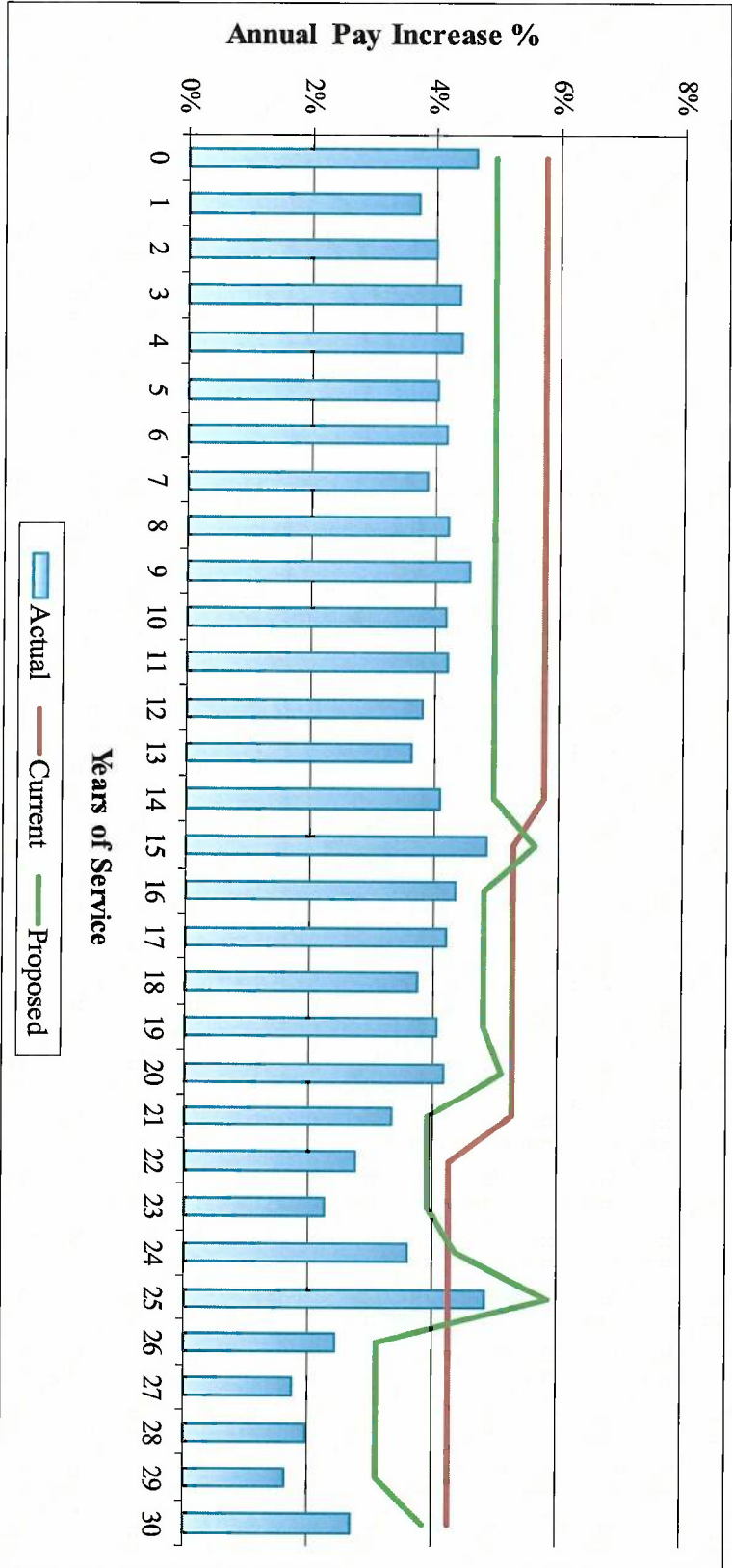
Omaha School Employees' Retirement System
 Experience Study 2017-2020
 Exhibit C-11
 Rate of Termination of Employment
 Classified - Females



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	30	34	30
Actual/Expected		90%	100%



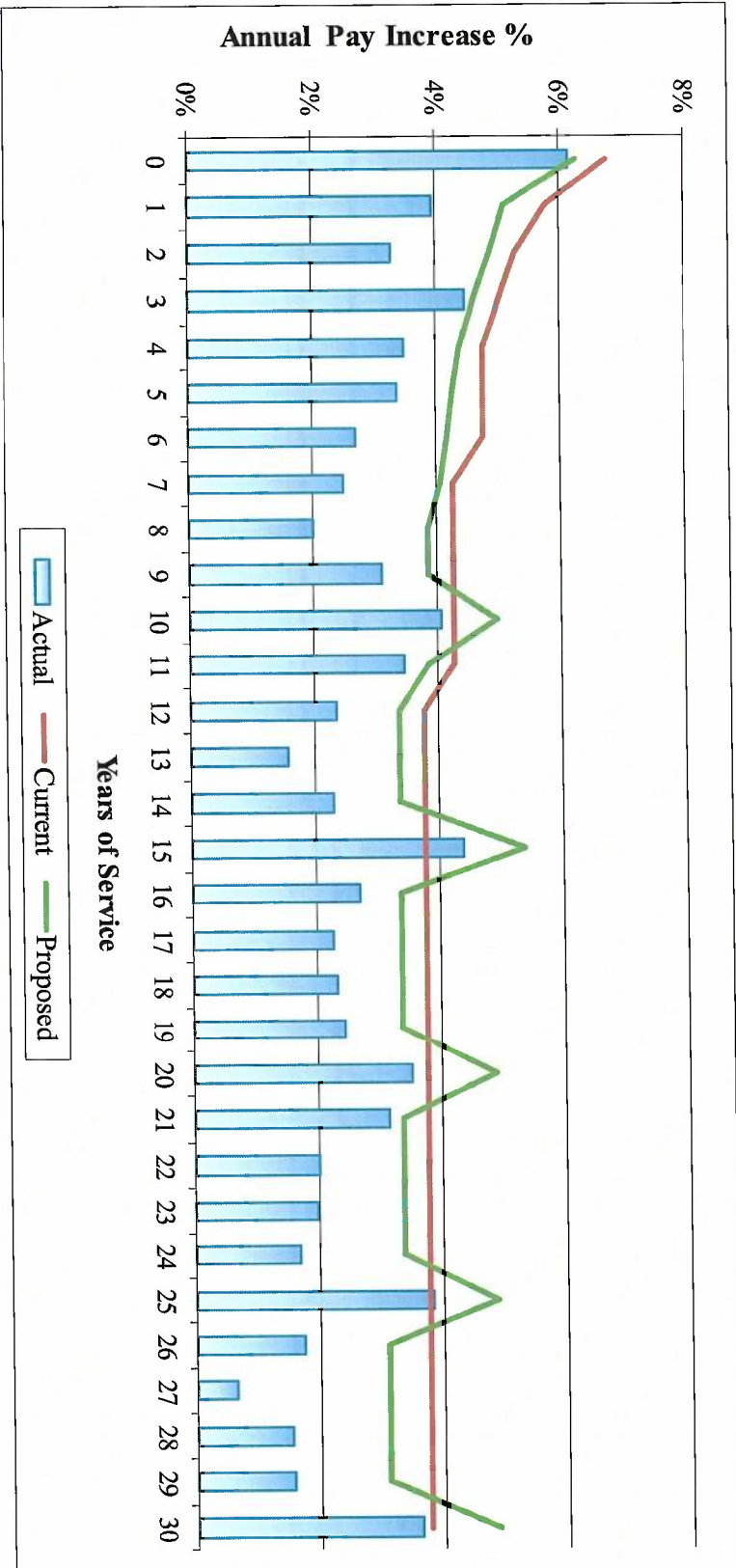
Omaha School Employees' Retirement System
 Experience Study 2017-2020
 Exhibit C-12
 Total Salary Scale
 Certificated



Average Increase	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Actual/Expected	3.89%	5.39%	4.83%
		72%	81%



Omaha School Employees' Retirement System
 Experience Study 2017-2020
 Exhibit C-13
 Total Salary Scale
 Classified



	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Average Increase	3.08%	4.40%	4.19%
Actual/Expected		70%	74%



APPENDIX C – EXHIBITS

Data Summary D-1
Probability of Death - Healthy Retirees
Males

<u>Age</u>	<u>Exposure</u>	<u>Actual Deaths</u>	<u>Actual Rate</u>	<u>Current Expected</u>	<u>Current Rate</u>	<u>Proposed Expected</u>	<u>Proposed Rate</u>
60	410,131	-	0.000%	3,538	0.863%	2,630	0.641%
61	447,102	5,431	1.215%	4,159	0.930%	3,086	0.690%
62	590,020	7,551	1.280%	5,918	1.003%	4,377	0.742%
63	717,329	12,677	1.767%	7,758	1.082%	5,703	0.795%
64	849,462	4,179	0.492%	9,910	1.167%	7,249	0.853%
65	1,021,335	7,448	0.729%	12,852	1.258%	9,382	0.919%
66	1,125,749	9,649	0.857%	15,300	1.359%	11,186	0.994%
67	1,131,577	9,468	0.837%	16,627	1.469%	12,230	1.081%
68	1,223,377	12,831	1.049%	19,483	1.593%	14,459	1.182%
69	1,222,804	19,067	1.559%	21,163	1.731%	15,894	1.300%
70	1,289,650	34,871	2.704%	24,312	1.885%	18,512	1.435%
71	1,183,087	13,732	1.161%	24,363	2.059%	18,811	1.590%
72	1,077,656	15,571	1.445%	24,310	2.256%	19,061	1.769%
73	1,004,875	30,224	3.008%	24,901	2.478%	19,810	1.971%
74	919,243	13,668	1.487%	25,076	2.728%	20,260	2.204%
75	901,204	8,021	0.890%	27,137	3.011%	22,251	2.469%
76	831,557	20,692	2.488%	27,707	3.332%	23,043	2.771%
77	725,794	16,965	2.337%	26,804	3.693%	22,606	3.115%
78	620,515	16,804	2.708%	25,470	4.105%	21,754	3.506%
79	586,485	13,551	2.311%	26,797	4.569%	23,164	3.950%
80	523,904	15,812	3.018%	26,696	5.096%	23,338	4.455%
81	457,263	26,648	5.828%	26,029	5.692%	22,990	5.028%
82	411,559	38,853	9.440%	26,209	6.368%	23,364	5.677%
83	351,456	24,881	7.079%	25,065	7.132%	22,513	6.406%
84	311,719	26,577	8.526%	24,914	7.992%	22,501	7.218%
85	265,237	26,419	9.961%	23,755	8.956%	21,541	8.121%
	20,200,091	431,591	2.137%	526,252	2.605%	431,713	2.137%



APPENDIX C – EXHIBITS

Data Summary D-2
Probability of Death - Healthy Retirees
Females

<u>Age</u>	<u>Exposure</u>	<u>Actual Deaths</u>	<u>Actual Rate</u>	<u>Current Expected</u>	<u>Current Rate</u>	<u>Proposed Expected</u>	<u>Proposed Rate</u>
60	1,214,013	6,811	0.561%	6,144	0.506%	4,920	0.405%
61	1,454,772	3,510	0.241%	7,968	0.548%	6,297	0.433%
62	1,674,869	17,389	1.038%	9,945	0.594%	7,773	0.464%
63	1,945,310	3,845	0.198%	12,528	0.644%	9,750	0.501%
64	2,167,665	10,025	0.462%	15,148	0.699%	11,758	0.542%
65	2,305,548	12,658	0.549%	17,516	0.760%	13,623	0.591%
66	2,637,520	28,489	1.080%	21,792	0.826%	17,054	0.647%
67	2,698,667	22,428	0.831%	24,307	0.901%	19,180	0.711%
68	2,666,474	16,455	0.617%	26,225	0.984%	20,962	0.786%
69	2,599,463	27,938	1.075%	27,987	1.077%	22,713	0.874%
70	2,455,616	30,462	1.241%	28,995	1.181%	23,935	0.975%
71	2,178,573	10,677	0.490%	28,291	1.299%	23,782	1.092%
72	2,016,070	22,889	1.135%	28,832	1.430%	24,715	1.226%
73	1,774,156	45,084	2.541%	27,987	1.577%	24,467	1.379%
74	1,456,882	29,369	2.016%	25,380	1.742%	22,628	1.553%
75	1,392,004	16,509	1.186%	26,819	1.927%	24,370	1.751%
76	1,312,630	32,287	2.460%	28,005	2.133%	25,901	1.973%
77	1,193,787	26,402	2.212%	28,224	2.364%	26,571	2.226%
78	1,085,325	24,761	2.281%	28,498	2.626%	27,263	2.512%
79	987,979	17,905	1.812%	28,862	2.921%	28,023	2.836%
80	867,747	33,034	3.807%	28,254	3.256%	27,830	3.207%
81	853,292	21,954	2.573%	31,033	3.637%	30,969	3.629%
82	759,479	28,461	3.747%	30,909	4.070%	31,223	4.111%
83	657,956	18,759	2.851%	30,010	4.561%	30,659	4.660%
84	593,979	39,237	6.606%	30,409	5.120%	31,399	5.286%
85	515,790	30,303	5.875%	29,682	5.755%	30,941	5.999%
	41,465,565	577,640	1.393%	629,748	1.519%	568,707	1.372%



APPENDIX C – EXHIBITS

Data Summary D-3
Retirement Rates
Certificated - Early
(Liability Weighted)

<u>Age</u>	<u>Exposure</u>	<u>Actual Retirements</u>	<u>Actual Rate</u>	<u>Current Expected</u>	<u>Current Rate</u>	<u>Proposed Expected</u>	<u>Proposed Rate</u>
55	309	14	4.661%	30.9	10.000%	18.5	6.000%
56	253	20	8.030%	15.2	6.000%	15.2	6.000%
57	217	8	3.828%	13.0	6.000%	13.0	6.000%
58	197	13	6.725%	11.8	6.000%	11.8	6.000%
59	190	13	6.619%	15.2	8.000%	15.2	8.000%
60	171	20	11.405%	20.6	12.000%	20.6	12.000%
61	144	13	9.178%	17.3	12.000%	17.3	12.000%
	1,482	102	6.859%	124.0	8.369%	111.7	7.536%



APPENDIX C – EXHIBITS

Data Summary D-4
Retirement Rates
Certificated - Select
(Liability Weighted)

<u>Age</u>	<u>Exposure</u>	<u>Actual</u> <u>Retirements</u>	<u>Actual</u> <u>Rate</u>	<u>Current</u> <u>Expected</u>	<u>Current</u> <u>Rate</u>	<u>Proposed</u> <u>Expected</u>	<u>Proposed</u> <u>Rate</u>
55	188	49	26.032%	113.0	60.000%	75.3	40.000%
56	78	32	40.621%	39.2	50.000%	31.3	40.000%
57	40	14	34.844%	18.2	45.000%	16.2	40.000%
58	32	4	11.305%	14.3	45.000%	12.7	40.000%
59	31	16	52.242%	14.1	45.000%	12.5	40.000%
60	34	6	17.807%	12.0	35.000%	10.3	30.000%
61	20	3	15.355%	5.1	25.000%	4.5	22.000%
62	143	31	21.965%	35.7	25.000%	31.4	22.000%
63	3	2	50.929%	0.8	25.000%	0.8	25.000%
64	1	–	0.000%	0.4	30.000%	0.3	25.000%
65	13	6	44.556%	4.6	35.000%	5.3	40.000%
	586	163	27.849%	257.4	43.965%	200.7	34.282%



APPENDIX C – EXHIBITS

Data Summary D-5
Retirement Rates
Certificated - Ultimate
(Liability Weighted)

<u>Age</u>	<u>Exposure</u>	<u>Actual Retirements</u>	<u>Actual Rate</u>	<u>Current Expected</u>	<u>Current Rate</u>	<u>Proposed Expected</u>	<u>Proposed Rate</u>
56	123	55	44.697%	43.1	35.000%	49.2	40.000%
57	134	33	24.508%	46.9	35.000%	26.8	20.000%
58	102	12	11.617%	35.6	35.000%	20.3	20.000%
59	90	20	22.166%	22.5	25.000%	18.0	20.000%
60	83	13	15.927%	20.7	25.000%	16.6	20.000%
61	98	21	21.105%	24.6	25.000%	19.7	20.000%
62	98	29	29.522%	24.4	25.000%	24.4	25.000%
63	194	39	20.010%	48.6	25.000%	38.9	20.000%
64	168	43	25.599%	50.5	30.000%	42.1	25.000%
65	153	43	28.368%	53.5	35.000%	45.8	30.000%
66	145	61	41.758%	50.8	35.000%	58.0	40.000%
67	102	46	44.936%	35.6	35.000%	40.6	40.000%
68	55	10	18.229%	19.1	35.000%	19.1	35.000%
69	46	16	34.399%	16.0	35.000%	16.0	35.000%
70	26	16	62.818%	26.1	100.000%	26.1	100.000%
	1,616	456	28.217%	517.9	32.045%	461.7	28.569%



APPENDIX C – EXHIBITS

Data Summary D-6
Retirement Rates
Classified - Early
(Liability Weighted)

<u>Age</u>	<u>Exposure</u>	<u>Actual Retirements</u>	<u>Actual Rate</u>	<u>Current Expected</u>	<u>Current Rate</u>	<u>Proposed Expected</u>	<u>Proposed Rate</u>
55	101	6	5.685%	3.0	3.000%	5.1	5.000%
56	91	2	2.399%	2.7	3.000%	2.7	3.000%
57	107	3	2.680%	3.2	3.000%	3.2	3.000%
58	112	4	3.145%	3.4	3.000%	3.4	3.000%
59	109	5	4.522%	3.3	3.000%	3.3	3.000%
60	93	1	1.581%	4.6	5.000%	2.8	3.000%
61	82	5	5.722%	8.2	10.000%	5.7	7.000%
	695	25	3.656%	28.4	4.090%	26.1	3.761%



APPENDIX C – EXHIBITS

Data Summary D-7
Retirement Rates
Classified - Select
(Liability Weighted)

<u>Age</u>	<u>Exposure</u>	<u>Actual Retirements</u>	<u>Actual Rate</u>	<u>Current Expected</u>	<u>Current Rate</u>	<u>Proposed Expected</u>	<u>Proposed Rate</u>
55	14	7	52.172%	2.7	20.000%	4.8	35.000%
56	9	0	0.000%	0.9	10.000%	1.1	13.000%
57	7	3	36.565%	0.7	10.000%	0.9	13.000%
58	6	0	0.000%	0.6	10.000%	0.8	13.000%
59	12	3	23.099%	1.8	15.000%	1.5	13.000%
60	18	1	7.004%	2.7	15.000%	2.3	13.000%
61	11	1	7.302%	1.7	15.000%	1.5	13.000%
62	85	14	16.524%	17.0	20.000%	15.3	18.000%
63	4	0	11.140%	0.8	20.000%	0.7	18.000%
64	2	0	13.143%	0.3	20.000%	0.3	18.000%
65	11	2	20.739%	2.6	25.000%	1.9	18.000%
	178	32	17.710%	31.9	17.915%	31.2	17.537%



APPENDIX C – EXHIBITS

Data Summary D-8
Retirement Rates
Classified - Ultimate
(Liability Weighted)

<u>Age</u>	<u>Exposure</u>	<u>Actual Retirements</u>	<u>Actual Rate</u>	<u>Current Expected</u>	<u>Current Rate</u>	<u>Proposed Expected</u>	<u>Proposed Rate</u>
56	17	2	10.842%	2.0	12.000%	1.7	10.000%
57	24	4	16.575%	2.9	12.000%	2.4	10.000%
58	26	1	4.911%	3.1	12.000%	2.6	10.000%
59	30	7	22.714%	3.6	12.000%	3.0	10.000%
60	28	1	2.318%	3.4	12.000%	2.8	10.000%
61	42	2	3.954%	8.4	20.000%	4.2	10.000%
62	56	9	16.325%	11.3	20.000%	8.4	15.000%
63	130	20	15.272%	26.0	20.000%	19.5	15.000%
64	119	11	9.310%	23.7	20.000%	17.8	15.000%
65	106	37	35.213%	37.2	35.000%	37.2	35.000%
66	80	34	42.270%	18.5	23.000%	28.1	35.000%
67	52	16	31.240%	11.9	23.000%	15.6	30.000%
68	41	16	38.548%	9.5	23.000%	12.4	30.000%
69	30	8	25.413%	7.0	23.000%	7.6	25.000%
70	24	7	28.281%	24.1	100.000%	6.0	25.000%
71	20	4	22.029%	19.6	100.000%	4.9	25.000%
72	17	3	19.533%	17.4	100.000%	4.4	25.000%
73	12	1	6.084%	11.8	100.000%	3.0	25.000%
74	10	2	22.560%	10.5	100.000%	2.6	25.000%
75	9	2	24.619%	9.1	100.000%	9.1	100.000%
	874	187	21.437%	261.0	29.853%	193.3	22.109%



APPENDIX C – EXHIBITS

Data Summary D-9
Rate of Termination of Employment
Certificated
(Liability Weighted)

<u>Duration</u>	<u>Exposure</u>	<u>Actual Terminations</u>	<u>Actual Rate</u>	<u>Current Expected</u>	<u>Current Rate</u>	<u>Proposed Expected</u>	<u>Proposed Rate</u>
1	63	6	9.062%	7.1	11.250%	6.3	10.000%
2	126	9	6.878%	13.2	10.500%	11.9	9.500%
3	186	13	6.737%	18.1	9.750%	16.8	9.000%
4	223	12	5.312%	20.1	9.000%	19.0	8.500%
5	262	21	8.123%	20.9	8.000%	20.9	8.000%
6	249	15	6.151%	17.4	7.000%	17.4	7.000%
7	248	14	5.765%	15.5	6.250%	15.5	6.250%
8	270	18	6.774%	14.8	5.500%	14.8	5.500%
9	289	20	6.892%	14.4	5.000%	14.4	5.000%
10	328	15	4.684%	14.8	4.500%	14.8	4.500%
11	395	14	3.644%	15.8	4.000%	15.8	4.000%
12	466	22	4.710%	17.5	3.750%	17.5	3.750%
13	472	16	3.398%	15.3	3.250%	16.5	3.500%
14	491	20	4.088%	13.5	2.750%	14.7	3.000%
15	471	13	2.807%	10.6	2.250%	11.8	2.500%
16	450	7	1.644%	9.0	2.000%	10.1	2.250%
17	485	13	2.780%	8.5	1.750%	9.7	2.000%
18	538	21	3.829%	8.1	1.500%	9.4	1.750%
19	539	7	1.392%	6.7	1.250%	8.1	1.500%
20	510	9	1.821%	5.1	1.000%	6.4	1.250%
21	472	8	1.640%	4.7	1.000%	4.7	1.000%
22	374	7	1.978%	3.7	1.000%	3.7	1.000%
23	315	0	0.000%	3.2	1.000%	3.2	1.000%
24	303	0	0.000%	3.0	1.000%	3.0	1.000%
25	279	3	1.112%	2.8	1.000%	2.8	1.000%
	8,803	305	3.468%	283.9	3.225%	289.3	3.286%



APPENDIX C – EXHIBITS

Data Summary D-10
Rate of Termination of Employment
Classified - Males
(Liability Weighted)

<u>Duration</u>	<u>Exposure</u>	<u>Actual Terminations</u>	<u>Actual Rate</u>	<u>Current Expected</u>	<u>Current Rate</u>	<u>Proposed Expected</u>	<u>Proposed Rate</u>
1	7	1	7.695%	0.8	11.000%	0.7	10.000%
2	18	1	5.788%	1.7	9.250%	1.6	9.000%
3	23	2	7.969%	1.9	8.250%	1.8	8.000%
4	27	0	1.112%	1.9	7.000%	1.9	7.000%
5	29	1	3.019%	1.7	6.000%	1.7	6.000%
6	27	1	4.864%	1.4	5.000%	1.4	5.000%
7	26	0	0.724%	1.0	3.800%	1.1	4.000%
8	29	1	3.368%	0.9	3.200%	1.0	3.500%
9	24	1	4.098%	0.6	2.600%	0.7	3.100%
10	16	1	3.715%	0.4	2.400%	0.4	2.650%
11	17	1	7.990%	0.3	1.900%	0.4	2.250%
12	23	2	8.270%	0.4	1.650%	0.5	2.000%
13	26	2	8.242%	0.4	1.400%	0.5	1.800%
14	26	1	2.162%	0.3	1.250%	0.4	1.700%
15	29	1	2.225%	0.3	1.000%	0.5	1.600%
16	25	2	8.235%	0.3	1.000%	0.4	1.500%
17	25	0	0.000%	0.3	1.000%	0.3	1.350%
18	19	0	2.596%	0.2	1.000%	0.2	1.250%
19	24	0	0.000%	0.2	1.000%	0.3	1.100%
20	25	0	0.000%	0.3	1.000%	0.3	1.000%
21	22	0	0.000%	0.2	1.000%	0.2	0.900%
22	20	0	0.000%	0.2	1.000%	0.2	0.800%
23	18	1	3.936%	0.2	1.000%	0.1	0.700%
24	16	0	0.000%	0.2	1.000%	0.1	0.600%
25	8	0	0.000%	0.1	1.000%	0.0	0.500%
	549	19	3.375%	15.9	2.903%	16.7	3.034%



APPENDIX C – EXHIBITS

Data Summary D-11
Rate of Termination of Employment
Classified - Females
(Liability Weighted)

<u>Duration</u>	<u>Exposure</u>	<u>Actual Terminations</u>	<u>Actual Rate</u>	<u>Current Expected</u>	<u>Current Rate</u>	<u>Proposed Expected</u>	<u>Proposed Rate</u>
1	12	2	12.598%	1.9	15.000%	1.6	13.000%
2	26	3	10.260%	3.4	13.000%	3.0	11.500%
3	32	3	8.887%	3.7	11.500%	3.2	10.000%
4	37	3	7.099%	3.8	10.250%	3.3	9.000%
5	36	3	7.371%	3.2	9.000%	2.8	8.000%
6	35	1	3.520%	2.8	8.000%	2.4	7.000%
7	37	2	4.051%	2.6	7.000%	2.2	6.000%
8	38	1	2.630%	2.3	6.000%	2.0	5.250%
9	43	2	3.488%	2.2	5.000%	1.9	4.500%
10	37	2	6.680%	1.5	4.000%	1.5	4.000%
11	37	2	4.892%	1.2	3.250%	1.2	3.250%
12	34	1	2.480%	0.9	2.750%	0.9	2.750%
13	34	1	3.533%	0.8	2.250%	0.8	2.250%
14	30	1	4.751%	0.6	2.000%	0.6	2.000%
15	32	1	3.285%	0.6	1.750%	0.6	1.750%
16	31	0	1.092%	0.5	1.500%	0.5	1.500%
17	33	1	2.124%	0.4	1.250%	0.4	1.250%
18	29	0	0.000%	0.3	1.000%	0.3	1.000%
19	28	1	1.950%	0.3	1.000%	0.3	0.900%
20	25	1	5.359%	0.3	1.000%	0.2	0.800%
21	19	0	0.000%	0.2	1.000%	0.1	0.700%
22	16	1	5.186%	0.2	1.000%	0.1	0.600%
23	12	0	0.000%	0.1	1.000%	0.1	0.500%
24	8	0	0.000%	0.1	1.000%	0.0	0.500%
25	4	0	0.000%	0.0	1.000%	0.0	0.500%
	706	30	4.277%	33.7	4.767%	30.2	4.274%



APPENDIX C – EXHIBITS

Data Summary D-12
Total Salary Scale
Certificated

Duration	Initial Salary (Millions)	Subsequent Salary (Millions)	Actual Rate	Current Expected (Millions)	Current Rate	Proposed Expected (Millions)	Proposed Rate
0	7.6	8.0	4.63%	8.0	5.75%	8.0	4.95%
1	52.7	54.6	3.69%	55.7	5.75%	55.3	4.95%
2	54.8	57.0	3.97%	58.0	5.75%	57.5	4.95%
3	53.2	55.6	4.37%	56.3	5.75%	55.9	4.95%
4	50.3	52.6	4.39%	53.2	5.75%	52.8	4.95%
5	46.8	48.7	4.02%	49.5	5.75%	49.1	4.95%
6	38.2	39.8	4.16%	40.4	5.75%	40.1	4.95%
7	33.0	34.2	3.85%	34.9	5.75%	34.6	4.95%
8	31.5	32.8	4.20%	33.3	5.75%	33.0	4.95%
9	30.6	32.0	4.53%	32.4	5.75%	32.2	4.95%
10	34.6	36.1	4.17%	36.6	5.75%	36.4	4.95%
11	38.9	40.5	4.19%	41.1	5.75%	40.8	4.95%
12	42.2	43.8	3.78%	44.6	5.75%	44.3	4.95%
13	40.9	42.4	3.59%	43.3	5.75%	43.0	4.95%
14	39.8	41.4	4.09%	42.1	5.75%	41.8	4.95%
15	36.6	38.4	4.83%	38.5	5.25%	38.7	5.60%
16	34.0	35.5	4.34%	35.8	5.25%	35.6	4.80%
17	35.3	36.8	4.19%	37.2	5.25%	37.0	4.80%
18	36.7	38.0	3.72%	38.6	5.25%	38.4	4.80%
19	34.9	36.3	4.04%	36.7	5.25%	36.5	4.80%
20	31.7	33.0	4.15%	33.4	5.25%	33.3	5.10%
21	28.6	29.6	3.31%	30.1	5.25%	29.7	3.90%
22	22.4	23.0	2.73%	23.4	4.25%	23.3	3.90%
23	18.4	18.8	2.24%	19.2	4.25%	19.1	3.90%
24	17.2	17.8	3.59%	17.9	4.25%	18.0	4.35%
25	16.3	17.0	4.82%	16.9	4.25%	17.2	5.85%
26	15.1	15.5	2.41%	15.8	4.25%	15.6	3.10%
27	13.4	13.7	1.72%	14.0	4.25%	13.9	3.10%
28	12.1	12.3	1.97%	12.6	4.25%	12.5	3.10%
29	10.6	10.8	1.61%	11.1	4.25%	11.0	3.10%
30	8.8	9.1	2.68%	9.2	4.25%	9.2	3.85%
	967.3	1,005.0	3.89%	1,019.7	5.39%	1,013.5	4.83%



APPENDIX C – EXHIBITS

Data Summary D-13
Total Salary Scale
Classified

Duration	Initial Salary (Millions)	Subsequent Salary (Millions)	Actual Rate	Current Expected (Millions)	Current Rate	Proposed Expected (Millions)	Proposed Rate
0	7.8	8.3	6.13%	8.3	6.75%	8.3	6.25%
1	15.1	15.7	3.93%	16.0	5.75%	15.9	5.10%
2	17.9	18.5	3.27%	18.8	5.25%	18.7	4.85%
3	15.4	16.1	4.45%	16.1	5.00%	16.1	4.60%
4	14.0	14.5	3.46%	14.7	4.75%	14.6	4.35%
5	12.3	12.8	3.34%	12.9	4.75%	12.9	4.25%
6	10.1	10.4	2.70%	10.6	4.75%	10.6	4.15%
7	9.0	9.2	2.49%	9.3	4.25%	9.3	4.05%
8	8.3	8.5	1.99%	8.7	4.25%	8.6	3.85%
9	8.7	9.0	3.08%	9.1	4.25%	9.0	3.85%
10	8.8	9.2	4.05%	9.2	4.25%	9.3	4.95%
11	8.9	9.2	3.43%	9.3	4.25%	9.2	3.85%
12	9.3	9.5	2.33%	9.7	3.75%	9.6	3.35%
13	9.0	9.2	1.55%	9.4	3.75%	9.3	3.35%
14	8.0	8.2	2.27%	8.3	3.75%	8.3	3.35%
15	7.8	8.2	4.36%	8.1	3.75%	8.2	5.35%
16	7.0	7.2	2.69%	7.3	3.75%	7.3	3.35%
17	7.3	7.5	2.26%	7.6	3.75%	7.6	3.35%
18	6.9	7.1	2.31%	7.2	3.75%	7.2	3.35%
19	6.8	6.9	2.41%	7.0	3.75%	7.0	3.35%
20	6.5	6.7	3.51%	6.7	3.75%	6.8	4.85%
21	5.4	5.6	3.11%	5.6	3.75%	5.6	3.35%
22	4.9	5.0	1.99%	5.1	3.75%	5.1	3.35%
23	4.2	4.2	1.96%	4.3	3.75%	4.3	3.35%
24	3.3	3.4	1.66%	3.5	3.75%	3.5	3.35%
25	2.6	2.7	3.82%	2.7	3.75%	2.7	4.85%
26	3.2	3.3	1.72%	3.4	3.75%	3.3	3.10%
27	2.5	2.5	0.61%	2.6	3.75%	2.5	3.10%
28	2.1	2.2	1.51%	2.2	3.75%	2.2	3.10%
29	1.7	1.7	1.56%	1.8	3.75%	1.8	3.10%
30	1.3	1.3	3.61%	1.3	3.75%	1.3	4.85%
	236.3	243.6	3.08%	246.8	4.40%	246.2	4.19%

Appendix G

November 22, 2022 Hearing Transcript

Transcript Prepared by Clerk of the Legislature Transcribers Office
Nebraska Retirement Systems Committee November 22, 2022
Rough Draft
LR295

KOLTERMAN: Well, Senator Lindstrom, we're just getting started.

LINDSTROM: OK.

KOLTERMAN: Welcome to the Retirement System-- Systems Committee hearing. My name is Mark Kolterman. I'm the senator representing District 24: Seward, York, Polk, and a bit of Butler County, and I serve as Chair of this committee. The committee will take up the hearing this afternoon and it's, it's really to just evaluate the underfunded political subdivisions, the defined benefit plans. So today I would ask that you please silence your cell phones, if you're going to be speaking, that you move to the front of the room and be ready to go. And then we just have people testifying that have been asked to testify. Bring your blue sheets if you're planning to testify and when you get up here, please spell your name for the record. If you have copies, I'd encourage you to bring copies. We need eight copies, even though there's only three of us here right now. So with that, I'd like to introduce my legal counsel on the left, Kate Allen, and my committee clerk, Senate-- or senator-- [INAUDIBLE]. Katie Quintero is my committee clerk and we have my assistant committee chairman, Brett Lindstrom, has called in. And I believe people will be coming and going. I think Senator Clements said he would be back and that just leaves you. What's your name, sir? **McDONNELL:** Mike McDonnell, LD5, south Omaha.

KOLTERMAN: So we're going to ask that-- I want you to hear this. So the first people that will testify will be OPS and then we're going to move to the Omaha civilian, Omaha Police and Fire, Douglas County, OPPD and Metro Area Transit. I, I-- if you're last, you're not last, but it shouldn't take all that long this afternoon. To open the hearing, though, before Dr. Logan speaks, I'd like to give you a little bit of background as to actually why we're here and why we have this hearing on a, on an annual basis. And I know this is going to sound boring to some of you, but for those listening outside-- and I, and I do think that we have people that listen to this on occasion-- just a little bit of background. In 2013, the Omaha police and fire plan was funded at 45 percent and the city of Omaha civilian plan was funded at 54 percent. The actuary noted in the evaluation reports for each of these plans that the city of Omaha had been paying less than the actuarially required contributions, or the ARCs, for a number of years. And I'm going to give you some quotes from the actuary at that time about the city of Omaha civilian and police and fire evaluation reports. And I quote, the contributions to the city of Omaha employees retirement system have been less than the full actuarial contribution

rate for the last ten years. Given the current scheduled contribution rates, the contribution shortfall is expected to increase, the funded status is expected decline, and the system assets are expected to be exhausted in about 20 years, even if all actuarial assumptions are met. That came from the 2013 civilian valuation report. And from the police and fire valuation report, they said if the current scheduled contribution rates and benefit provisions remain unchanged, the plan is projected to run out of money in about 20 years. If the trust fund runs out of money and it-- and if all promised benefits continue to be paid, the plan would revert to pay-as-you-go system at that time. Since there will be no trust fund assets to supplement the monthly benefits paid to the retired members, contributions would need to be increased equal to the annual benefits paid to the retired members at that time. In 2013, in addition to those two plans, there were six additional other political subdivisions with defined benefit plans funded less than 80 percent. That was the Douglas County Retirement Plan, it was at 61 percent. The Eastern Health Agency for Nebraska was funded at 64 percent. Lincoln Fire and Police were funded-- was funded at 66 percent. Omaha Public Power District was funded at 72 percent. The Metro Area Transit hourly was funded at 73 percent. The Omaha School Employees Retirement, OSERS, was funded at 73 percent. So as a consequence to all of this, in 2014, Senator Heath Mello, with the help of Jeremy Nordquist, both senators from Omaha at the time, introduced LB759, which provided oversight for the Nebraska Retirement Systems Committee of political subdivisions with unfund-- underfunded, defined benefit plans. In Senator Mello's bill introduction, he stated the following: the state does actually have the fiscal oversight responsibility to make sure local entities, if they're not meeting their obligations, to explain why they're not meeting their obligations. And if they need substantial policy changes to be made to meet those obligations, that they should be bringing those proposals forward and/or advocating and working with the Legislature to make sure these plans become solvent, remain solvent in the future. So in 19-- or 2014, LB759 was enacted and codified in Nebraska Revised Statute 13-2402 and it requires any governing body/governing entity that offers a defined benefit plan, which was open to new employees on January of 2004, to file a report with the Nebraska Retirement Systems Committee if most recent actuary evaluation reports indicate that the contribution does not equal the actuarial requirement for funding, and that the funded ratio of the plan is less than 80 percent. The report must include at a minimum, analysis of the future benefit changes, contribution changes or other proposed corrective action to improve the plan's funding conditions. So our process beginning in 2014 has

been the following: we send letters in September to all political subdivisions with defined benefit plans, and we've asked them to confirm their funding status of their plans. If the plan was funded below 80 percent, the political subdivision, subdivision was asked to complete the reporting form created by the-- our committee. The reporting form was created to ensure that the committee received all necessary data in the consistent categories of information reported by each political subdivision. In addition to actuarial data reporting, information would include: a narrative of the circumstances that led to the underfunding of the plan; a description of corrective actions implemented: to improve the funding status of the plan, including benefit changes, increase contribution rates and/or employee contributions; a description of any changes in the actuarial methods and/or assumptions since the previous actuary valuation report; and a description of recent and ongoing negotiations with bargaining groups that may impact the plan's funding status. Each political subdivision has been instructed to return the completed form, along with its most recent valuation report and experience study, and informed of a public hearing date to present the report to this committee. We held that first hearing for the underfunded plan reports and presentations in 2014 and since that point in time, we've had a hearing every year since. For a, for a number of years, eight political subdivisions were-- had underfunded plans. This year, there, there are six political subdivisions. We've had two plans that have improved above 80 percent and I believe we've worked with them closely over the last six years, and I think it's paid off. Lincoln Fire and Police has improved to over 80 percent and the Eastern Nebraska Health Agency were not required to report this year either because they are over 80 percent. This year, as I indicated, we have six that will still be reporting: Douglas County is at 73.9 percent; Metro Transit hourly is at 71.5 percent; the Omaha civilian employees is at 53.7 percent; Omaha Police and Fire is 57.5 percent; Omaha Public Power District is 75.5 percent; and OSERS is at 63 percent. In conclusion, I'd just like to say that the six that are here have all been willing to at least listen to our concerns. Our goal is not to be the big bully on the block, but our goal is to see that the people that have pensions promised to them get those promises fulfilled. And if we can't get these plans over 80 percent, we have less likelihood that they will be fulfilled long term, which causes us to take a, take a hard look at what, what they're offering. So again, it's not our intent to be the big bully on the block, but it is our intent to work with the six organizations just like we have with the eight. And, and I will tell you that our-- by and large, we've had a tremendous relationship with

all people involved. And it's very nice to have you all come and try and improve your plans for the people that are working for you because these are promises that have been made to these people in good faith. And if we can't live up to those promises, we're not acting in the best interest of our constituents and our employees that-- and all-- and most of this money that gets paid into these pension plans comes right back to the people of the state of Nebraska because the amounts of money they get paid out on a, on a monthly basis in this state are astronomical. And so-- and by and large, most of that money stays right in the state of Nebraska's economy. So with that, that's just a little bit of background. I felt was important to-- for you to understand why we do what we do here and look forward to hearing from the people today. So with that, I would ask Dr. Cheryl Logan to come forward or a representative from OPS to speak on what they've done this past year. Welcome.

CHERYL LOGAN: Good afternoon. Good to see you again. Senator Kolterman, members of the Retirement Systems Committee, my name is Cheryl Logan, C-h-e-r-y-l L-o-g-a-n. I am the superintendent of the Omaha Public Schools. We are a large-- the largest school district in Nebraska, educating more than 52,000 students. I want to share my testimony by thanking the members and staff of this committee. In my time as superintendent, I have had the opportunity to work with all of you as we continue to do everything that we can to solidify the Omaha Schools Employees Retirement System. As you know, this has been a transformational year for OSERS. I want to thank each of you publicly for your support of OSERS and your efforts to ensure the passage of LB147, which will transfer the management of OSERS to the Public Employee Retirement Board. The board of education and I are incredibly grateful for Senator Kolterman's leadership and commitment to getting the pivotal legislation passed. Since the passage of LB147, the board of education has worked closely with the OSERS trustees to effectuate a smooth transition of operating responsibility back to the board of education. The board of education has adopted a new set of operating rules and regulations for OSERS. These rules and regulations largely mirror those of NPERS, which we believe should facilitate transition of management to the PERB in 2024. The compliance audit called for in LB147 is essentially complete and you have-- you will be receiving or have received that report thus far. Following the PERB's review of the compliance audit, we will work with the PERB to determine next steps, including the possible submission of an IRS determination letter. We will also continue to work closely with the PERB as the preparation for the transition of management really starts to ramp up in 2023. I

am pleased to report that the district was once again able to budget for and contribute to OSERS an amount in excess of the actuarially required contribution. The district made an ARC payment of \$29.5 million in August, which included \$7.7 million in excess of what was actuarially required. This is the fourth consecutive year that the board of education has transferred, transferred more funds to the plan than was actuarially required. That said, and to be completely transparent, we anticipate that it will be more difficult for the district to contribute amounts in excess of what is actuarially required. At this time last year, the plan actuary, Cavanaugh Macdonald, was working to finalize the five-year actuarially-- actuarial experience study. We shared with you then that we anticipated that there would be changes to the current actuarial assumptions. That anticipated change came to fruition and we noted that the assumed rate of return is being gradually reduced from 7.5 percent to 7 percent by 2025. Obviously, the reduction in the actuarial assumption, when coupled by the lower rates of return we are seeing in the current climate, will likely result in a potentially significant increase in the actuarially required contribution. We all understand that each decision the district makes affects every employee in our workforce and every student in our care. Our commitment to sound financial management and fiscal prudence is essential to our ability to manage both our responsibility to educate students and our duties to OSERS. As the transfer of management of OSERS to the PERB continues, we will keep this committee apprized of the transition progress. I would like to take a moment of personal privilege to thank Senator Kolterman for his service. I would also like to acknowledge the work behind the scenes of committee counsel, Kate Allen. We owe you both a debt of gratitude for helping us make the progress we have today. Thank you both and good luck with whatever you have planned next. To the rest of the committee, thank you for the opportunity to speak with you today. I would be happy to answer any questions you might have.

KOLTERMAN: Thank you, Dr. Logan. Are there any questions? Senator Lindstrom, do you have any questions?

LINDSTROM: No questions.

KOLTERMAN: Thank you. Just a general comment and just, just needs to be on the record, you arrived five years ago.

CHERYL LOGAN: I did.

KOLTERMAN: I think I was one of the early people that met you at a, at a function in Omaha and you told me we needed to get together. And I would tell the people of this state and the people in Omaha that you've lived up to your word every, every inch of the way along since I first met you. We talked about the challenges that face Omaha Public Schools when it comes to their pension plan. And you asked if we could do the investments and we did that. You asked if we could take over the management and we are in the process of doing that. Those transitions have gone very easy and very well simply because of the leadership that you've shown and the people that you have working for you. I hear nothing but good reviews from NPERS that there's a great working relationship as well as your people. And the reports that we received from both your-- the people that you hired to do this transition, the audit people, it's been nothing but positive. And I really wanted to thank you for making-- since you've arrived, you've made more than you needed to make in contributions for your ARC every year. And that's exactly why this legislation was passed back in 2014, to show improvement. The only concern that I have and you have the same concern is you're only 63 percent funded. But at the same time, that's an obligation that you will continue to have and I know you'll work towards completing that. So with that, I would like to thank you on behalf of our committee and myself. So unless there's any other questions, thank you very much.

CHERYL LOGAN: Thank you very much. I appreciate it.

KOLTERMAN: Have a good Thanksgiving.

CHERYL LOGAN: Happy Thanksgiving.

KOLTERMAN: Yeah. OK. Bernard in den Bosch, Omaha civilian plan.

BERNARD in den BOSCH: Good afternoon, Senator, Senator Kolterman, Senator McDonnell, Senator Lindstrom--

KOLTERMAN: Welcome, Bernard.

BERNARD in den BOSCH: --and Ms. Allen. I wish I could say that I-- I think I've been at this particular meeting and every one that you've had. So my name, Bernard in den Bosch. First name is spelled B-e-r-n-a-r-d. Last name is three words. First word is i-n, second word is d-e-n, and third word is B-o-s-c-h, and I am a deputy city attorney with the city of Omaha, who represents both pension systems and works

obviously with the administration on issues related to it. We're in year two of having a new system actuary. I actually envisioned having the actuary with us just in the event that you had any actuarial questions, but due to COVID travel restrictions, Milliman's representatives are not able to attend, to attend. I'll do-- I do want to address the experience study. We did have an experience study that was approved in October and that was for a period of 2016 to 2020 and it didn't result in a significant number of assumption changes. Probably the most significant economic change was a reduction in the cash balance interest crediting rate from 6 to 5.25. The other significant adjustment was the change in the mortality assumption, which had a significant effect, and I'll talk about that momentarily on, on the funded status. This is the second experience study that we've-- and the, the board adopted the experience study and the results of that experience study were actually used in the actuarial report effective January 1, 2022. So the report that I sent you in October did include the new assumptions that were recommended in the experience study. As is the case for this, as was-- as in the last experience study, the effect of the experience study, albeit it necessary obviously to change those assumption, does have an effect on the funded ratio. The most significant was the last experience study recommended a reduction in the rate of return from 8 percent to 7.5 percent. And with those particular changes and-- that obviously had an effect on the long-term expectation or at least the curve to get to being funded at 100 percent. In fact, for example, in looking at the experience study, if one views those assumption changes for 2021, the funded ratio for 2021 would have changed from 53.25 percent to 51.63 percent, so about a percent and a half. We found relative to the experience study before that it was more like a 3 or 4 percent because of the change in the return of, return of investment assumption. Fortunately, in 2021, we had a return of over-- of approximately 18 percent. And obviously sitting here next year, I can only anticipate that it will not be 18 percent, obviously. The net assets of the system on an actuarial basis are \$274 million as of January 1, 2022, and the market value was over-- was \$304 million, with an actuarial funded ratio of 53.7 percent. Now, the significant thing is there is at least-- I'm sorry, I muted. There is at least some hope in that because the, the investment return and the mar-- and the system fund amount are smoothed over a five-year period, which obviously has a tendency to take away some of the peaks and valleys, and, and will hopefully help in the report that we would anticipate next year. And of course, it's never fun to come to one of these and have the lowest funded percentage of all the systems you look at. That being said,

it's that we're roughly the same funded percentage as we were in 2014. I think the story is significantly better than that, particularly when you take into account the assumption changes. And as a result, in 2015, the civilian-- all the civilian bargaining groups implemented changes in benefits. We moved to a cash balance plan for new hires. Current bene-- current employees had a reduction in benefits in the future, retirement ages were raised and the years in order to qualify for a pension were increased. At the time that those changes were made, Cavanaugh Macdonald predict-- projected that we would be fully funded in 2048. I'm happy to say this year, as we're seven years into that-- those particular changes, the current report is that it will be fully funded in 2040. So there's been an eight-year-- eight years have been taken off that amount. Now obviously, that has some of-- some part to do with good returns in some of the years. But even if you go back and look at our-- at the return, there was a year four years ago where we had a negative return, but because of the smoothing in the system, it ended up being about a 5.8 percent return for the system. So it's certainly not pleasant to be here with the funded ratio. And I know you'll, you'll probably ask me about ARC and we did not make ARC coverage, our numbers. Whereas seven, eight years ago, we were 15 or 20 percent-- 15, 20 points below ARC, we've been in-- anywhere in the, in the neighborhood of either meeting it or one to-- or 2.5 percent short or 2.5 short of, sorry, over the past couple of years. And frankly, again, those are somewhat affected by the changes of assumptions that we have made. So the bad news is the funding percentage. I think the good news is with the economic changes in assumptions, we're in a better place moving forward. Have a changes, assumptions that not only one, but frankly both actuaries that we've eval-- work with our plan are comfortable with. We've withstood some changes to mortality assumptions on two different case, cases. And the biggest thing that's occurred is we-- good or bad, our transition to the cash balance plan was every person hired after March 1, 2015, would be hired in the cash balance plan. As we sit here today, seven and a half years after that, we are at 46.5 percent of our employees are in the cash balance plan, 53.5 percent of our employees are still in the legacy plan. The good news for us is the normal cost of the cash balance plan is quite a bit lower than what it is for the legacy plan. And the result is-- obviously the big, the big difficulty of this particular plan is funding the unfunded actuary contributions. The normal cost for the current employees is, is actually under 10.5-- 10 point-- under 11 percent and it's going down, whereas contributions are in excess of 28 percent or approximately 28 percent when you include the city and the employees' contributions. So as far as where

we are with our bargaining groups, all our bargaining groups in the civilian sector have bargaining agreements through 2025. Most recent round of negotiations, the only change was we did lower the years necessary to invest in the cash balance plan from ten years to five years. We found that the ten-year period made it prohibitive to hire people, particularly people that were in the middle of their careers, in 40s and 50s, found it difficult to come to the city if it was going to have to be ten years of work prior to the time that they would be able to take advantage of the pension system, particularly when the pension-- the, the employee contribution to the pension system was in excess of 10 percent. That was-- actually, the price of that was actuarially determined and that's obviously made a part of this particular rate and the, and the projections therein. So, as I said, the, the percentage is not where we would like to be. I think the, the work of this committee and frankly, the work that had to be done-- you know, as you read in the-- in your preliminary remarks, this system, absent some change, was going to be out of cash in 20 years, meaning that nobody was going to get assisted-- nobody was going to get funded. That is no longer the case. The funded ratio may appear to be the same, but if, if you look at the projections, that's not, that's not what the case is. We're in a far better place moving forward. And hopefully, notwithstanding what the investment return is for, for 2022, we're in a, in a place where we're going to continue those contributions. The normal cost for the existing pensions is decreasing-- is continuing to increase and hopefully we can get to the, the ARC. I will bring up one thing because I suspect if I don't, Senator Kolterman, you will. When I was before this committee last year, there was some discussion about the charter convention and there was in fact a charter convention that met last summer. You had asked and I did submit to that charter convention a request that they consider changing the language. And I think it's 6.07 of the charter that requires substantially equal contributions by the city and the employees. That was presented to them. I provided them a memo that they received prior to the-- at the start of the charter convention and I did discuss it with them in a meeting and they have-- they met in committees and decided to bring forward what they wanted to bring forward and then the city council brought a subset of those forward for a vote. Unfortunately, the charter convention did not make that recommendation, which I don't know that I can answer for them, so to speak. The reality is, and I don't know if they're unfair, is, you know, significant changes are made. There's-- we're seeing some positive. I know it's, it's very slow. That's very difficult for most for people to, to understand, but we are seeing those positive

changes. So that is not the only mechanism by which charter changes can be brought. City council can make a-- adopt an ordinance at any point in time to put it on, on a ballot. And, you know, I, I, I certainly can indicate that that's what this committee would like to have done, but obviously, other people can make similar requests. I'm-- I have some ability to make a suggestion. I don't have an ability to make anybody do anything necessarily. So I figured I would address that prospectively because I figured if I didn't, then I probably will still be addressing it, but in any event. And, and then I'll say as I, as I conclude my remarks, I do-- and again, I'll say it this time, but I won't-- try not to be duplicative. I thank you, Senator Kolterman. I appreciate-- and, and, and Ms. Allen as well for your time. I know that your time on the committee is, is coming to an end. I appreciate-- as a public servant myself, I appreciate when I see other public servants who care about their job, who work hard and do things in a appropriate and professional manner. Even though I've been in front of this committee on many times in a position where it was not a pleasant place to sit, I've felt I've always been treated appropriately, professionally, and I, and I very much respect that and I appreciate that. And, and I know that when you-- when we have had the tough questions, it's nothing more than your concern for, for what you're seeing for other citizens. So I thank you.

KOLTERMAN: Thank you, Bernard. Any-- do you have a question, Senator McDonnell?

McDONNELL: Thank you, Bernard, for being here. Thanks for your 23 years of service to the citizens of Omaha. **BERNARD in den**

BOSCH: Twenty-six and half. **McDONNELL:** Twenty-six and a half, which is--

BERNARD in den BOSCH: I'm old.

McDONNELL: I've haven't been paying attention, but thank you. You've done a great job for the city of Omaha. Do you think if this committee wanted to have the-- that meeting with the Omaha City Council, talk about the charter, talk about-- I know they're in the process right now and just finished the convention-- that that's something that they'd be willing to sit with us as a city council and have that, that discussion going forward?

BERNARD in den BOSCH: Yeah, I think so and I think the mayor would as well. The reality is they-- the charter convention made a number of recommendations. They only moved forward a small portion of those so there, there's just as many recommendations that didn't get moved forward. And the expectation is that they're going to bring those forward in the next year or two is my-- is at least what they've relayed to us. So absolutely and I'm happy to help coordinate that, whether it's with-- obviously if it's a full city council, it would have to be a public meeting. We could break it into smaller groups or maybe with the finance group or one, one or more of those groups and absolutely willing to facilitate that and I have no doubt that they would certainly meet with you.

McDONNELL: Thank you.

KOLTERMAN: Any other questions? Senator Lindstrom, do you have any questions?

LINDSTROM: No questions. Thank you.

KOLTERMAN: I appreciate you being here, Bernard. We've had, as you said, a pretty good relationship and we've met privately in the past, along with the mayor. I'd be redundant if I didn't express my concerns. While your funded ratio did increase slightly, be-- you had a good rate of return last year at 12.9 percent. Do you know-- do you have any indication where you're, where you're at right now or approximately how it's trending this year? Because we don't have '22 yet.

BERNARD in den BOSCH: We're, we're, we're not-- you know, I think-- what I would say about this particular group is it's a relatively conservative investment strategy. The last I heard was, you know, it was not-- it was less than 10 percent--

KOLTERMAN: Yeah.

BERNARD in den BOSCH: --and less than negative 10 percent because I mean, I think there's some concerns that you're going to see some systems that have negative returns that are consistent with what we saw in 2008, you know, close to 20 or 20. But my-- what I'm-- the last I've had any discussion, that was not the case, though I do know that the third quarter in particular was incredibly volatile.

KOLTERMAN: Right. Well, the concern that I have-- and I'm just-- I mean, I've always been blatantly honest with you. The percentage of the ARCs that you pay, the actuarially required contributions over the last five years has continually declined. In 2016, you paid 106.81 percent, but then in 2010-- 2017, you paid 91.2 percent of the ARC. In 2018, you paid 86.8 percent and in 2019, you paid 87.4 and last year you paid 88.24 percent of the ARC. We don't have this year's yet. And your unfunded actuarial liability actually decreased slightly from \$230 to \$229 million. But, but my concern is-- and this is exactly what we saw with the Omaha Public Schools plan, they weren't making their ARC payments. And that, that's what's-- I mean, if you go back to 2014, that's what Cavanaugh Macdonald had indicated, that you, you were going to run out of money if you didn't make those ARC payments. And that's, that's just the minimum amount that you should be making. The other thing that we've heard for the-- at least since I've chaired this committee the last seven years is that you couldn't put more money in than an equal amount to what the, the employees were putting in because of your charter. And so every year, I think if you look at the record, on the record every year, I've asked you to go back and take a look at the charter or at least have some discussion. When that came up this year, I asked my staff and I talked to my committee. I said, are you hearing anything about the charter? Because I was under the impression the charter was something that could only be addressed every so often. Now I hear that you can do it-- **BERNARD in den BOSCH:** Though historically, the charter-- **KOLTERMAN:** --more often-- at any time you wanted to.

BERNARD in den BOSCH: Historically, the council has never done it under the charter conventions, but you can.

KOLTERMAN: The reason I have the concerns about this is, number one, the people that are in the pension plan deserve to know that their plan is going to be funded. And to ask the-- I believe right now-- I'm not sure I have that in front of me. I think I do-- your employees are-- what percentage are the employees actually putting in?

BERNARD in den BOSCH: About 10, 10.2 percent.

KOLTERMAN: Yeah and so if you ask them to put-- and, and you're matching that-- if you--

BERNARD in den BOSCH: And we're-- actually, the city puts in about 18 percent.

KOLTERMAN: OK, but you-- you're at-- they, they can't put more than 10 percent in. It's rank and file. So if you change the charter, it will give you the opportunity to do so. And now I'm going to go back to what happened in 2010. You passed some sort of an ordinance allowing extra charges on restaurant tax or some sort of a occupation tax. It's my understanding that was designed to be used to help take care of the pension plans that were in dire straits already back in 2010. There's a disconnect here somewhere. I, I don't understand what it's all about. I mean, what do you do with the excess money that's coming from that, that restaurant tax? Does that go into the general fund?

BERNARD in den BOSCH: I think-- the restaurant tax, I think, certainly was in part to pay the difference, the increased contributions for the police and fire pension system was at least the discussion at the time. But it goes into the general fund. There are-- there have been increased contributions for both, but, but there's no question that the restaurant tax revenue has exceeded the amount--
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KOLTERMAN: So--

BERNARD in den BOSCH: --that's being--

KOLTERMAN: So if the restaurant tax was put into place to take care of pension problems or at least part of it, where, where do we go-- and you're not willing to look at making a-- the only people who can make additional contributions in here is the city of Omaha. I mean, you're already asking the employees to take a big burden here. So it's almost like everything we've asked over the last seven years has fallen on deaf ears. It doesn't make any sense to me. I think the people in-- the citizens of Omaha need to understand what's going on here. I think it's a blatant disrespect to the employees as well as the citizens of Omaha. And I'm sorry if I'm kind of upset about this, but I like to think that if you listen, work with us, we're willing to work with you. But I don't see any cooperation whatsoever from the city of Omaha. So with that, I don't know what to ask unless you have an answer for that.

BERNARD in den BOSCH: I, I don't, I don't-- and all I can say is what

I think I've already said. And I, and I appreciate what you're saying. I think there is a concern. The, the ARC, at least in my view, has gone up and down a little bit, but we still haven't met it. There's no question since we made the assumption changes in, in 2018, we have not met the ARC. We actually met the ARC for the couple of years before that. When we changed the rate of return, we have not and I-- that's absolutely true.

KOLTERMAN: You know, with Omaha Public Schools, we put in statute that they had to make their ARC payments. I don't know if we have the right to do that to you or not. I think we probably have some sort of ability to help you in that regard, but. **BERNARD in den BOSCH:** I don't know that.

KOLTERMAN: I mean, we can't do it-- I mean, we're here-- you are here today because your plan continues to be underfunded.

BERNARD in den BOSCH: We are.

KOLTERMAN: And city, city of Lincoln worked with us. They're over 80 percent. Omaha Public Schools, they're-- granted, they're not at 80 percent, but they're going in the right direction. I don't know what more to say--

BERNARD in den BOSCH: No.

KOLTERMAN: --but you don't have to listen to me much longer because--

BERNARD in den BOSCH: No, I-- and I--

KOLTERMAN: --this is my last hearing.

BERNARD in den BOSCH: And I'm not-- I get it. I understand.

KOLTERMAN: All right. Any other questions? All right, you want to talk about the Omaha Police and Fire now?

BERNARD in den BOSCH: Do I have to? [LAUGHTER]

KOLTERMAN: I won't say any more about that.

BERNARD in den BOSCH: Senator Kolterman, Senator McDonnell, Ms. Allen, and Senator Lindstrom remotely, my name is Bernard in den Bosch, deputy city attorney. My name is spelled-- first name is Bernard, B-e-r-n-a-r-d. Last name is three words. First word is i-n, second word is d-e-n, and cap-- and the third is B-o-s-c-h. I-- obviously again, we're in year two of our-- Milliman is our actuary. Again, I'd have them here to answer questions, but they're unable to travel. You did receive the actuarial report as of January 1, 2022, as well as an experience study for the period of 2016 to 2020. Those-- that experience report was accepted and the changes were made rela-- pursuant to that experience study in the October report, which is with the effective date of January 1, 2022. So the point is that there's no lag between the assumption changes that were made and you actually see them in the report that we provided to you. The return, the return for 2021 for the police and fire system was 22.15 percent and the changes that were recommended by the experience study were actually relatively minimal. The only economic change was there was a decrease in the pay-- anticipated pay increases for firefighters from years 4 through 16 of their career from about 0.75 to 1.5. The significant change, much like it was for the civilian system, was the updating of the mortality table and then there's a few other slight modifications. Much like it was with the civilian system, that-- those changes in assumptions ate up to, to the extent-- probably approximately 3 percent increase in the funded ratio of the system. The funded ratio of the system, notwithstanding those changes, did increase from 55.1 to 57.5, an increase from 44 percent as you indicated during your preliminary remarks. The net assets of the system were actuarially determined to be about \$936 million. The real assets of the-- the market value of the system, as of January 1, 2022, was over \$1 million. The good thing for that is, at least for purposes of the actuarial report, as we move forward to next year, anticipating that our returns will not be good, those, those-- the rates as well as the market value are smoothed. And because of the good returns for the past couple of years, that will provide some insulation for the losses that we anticipate seeing during calendar year 2023. There is no question that the system did not meet its ARC, but notwithstanding the changes in assumption, the deficit decreased from 2.649 to 1.62 percent. Again, I know we've, we've discussed that in some regards and it has been-- no question, it's been difficult to make the ARC since the assumption changes went into effect in 2017 that decreased the return of investment of the system from 8 percent to 7.75 percent in this particular case. And, and as you've seen in the report, we're now in the tenth year since the significant pension changes were made. The

Omaha Police Department police officers, subject to the collective bargaining agreement with the police officers, made changes in October of 2020. Changes were made relative to the fire bargaining group effective in January of 2013, at that point. Currently the projection indicates that the system will be fully funded in 2042. Last-- the last projection that we had was 2046 and quite frankly, at the time that the pension changes were made, it was anticipated it would be fully funded in 2046. So much like many of the other things, they're-- obviously the systems are somewhat similar. They're-- they do have different investment portfolios, different investment policies. There is at least some change here as regard to the two significant bargaining groups in this particular plan are the police bargaining group and the fire sworn bargaining group. The police-- the city does have a collective bargaining agreement with the police bargaining group through 2025, but the bargaining agreement with the fire bargaining group ends at the end of 2023. In the event that as we get to next year and we see some increased issues with funding status, we do have the ability to negotiate changes with the fire group. In regards to the pension changes in 2010 to-- and 2013, I'll just talk a little bit about those. Those were significant. Not only did current employees take a reduction in benefits from in-- including increasing years of service to retire, increasing age of retirement, as well as doing some things to minimize the ability of people working overtime in the last year of their career, despite their pensions through something called the career overtime average-- and then any new hires after that period of time no longer have a pension that's-- it's based on their base salary. The period of time to reach that pension is longer, as is the-- and the maximum you can receive is lower. The contribution, ultimately that resulted in increases between 13.5 and 14 percent and the contributions the city was making from roughly-- to roughly 33 percent and 34 percent, depending on the system. And the actuarial value of the reduction in benefits for the members of the system were, were 14 percent or so. So again, I know--- I kind of-- I know what you're interested in. I know that when it comes to the ARC, that's obviously an area of concern. When it comes to many of the other factors, what we're actually seeing in this pension system is exactly what was projected when the pension reform started occurring in 2010 through 20-- and 2013. That pension reform was a-- based on a citi-- a group of citizens and city officials known as the Bates Commission made a number of recommendations and changes. And notwithstanding the fact that I know there's concern about not meeting the ARC, if you look at the projections that went in place 10, 11 years ago, we are right on the projections to be fully funded. And the

problem is, is the biggest liability is the unfunded actuarial liability for those employees who are currently receiving their pensions. And as you indicate, it's difficult to make employees to pay-- ask the employees to-- current employees to pay more because of what the normal cost is for their pension. But again, the difficulty is, is whether we, we love it or not or like it or not, even with the-- some of the changes in the economic assumptions that we've made, we're still-- on the graph, we're, we're exactly where it-- if you talked to Cavanaugh Macdonald ten years ago, where do you want to be in ten years? We're exactly where they told us we wanted to be and we should be. And that's maybe little comfort when you're talking about the ARC, but at least when you look at the overall picture, that's, that is the reality. So again, I'm happy to answer any questions and I won't repeat-- I'd even say the kind things that I said about even after the last time, but I won't repeat them for purposes of, of time.

KOLTERMAN: First of all, I hope you don't take it personally--

BERNARD in den BOSCH: I do not.

KOLTERMAN: --because I'm not--

BERNARD in den BOSCH: I do not.

KOLTERMAN: --intending to shoot the messenger.

BERNARD in den BOSCH: I do not.

KOLTERMAN: I just hope that the people in Omaha might hear what we're talking about and give some serious consideration to our concerns. One last thing that I would ask, you guys-- do you, do you borrow any money, the city of Omaha? Do you do any bonding?

BERNARD in den BOSCH: The city certainly does bonding.

KOLTERMAN: Yeah.

BERNARD in den BOSCH: No question.

KOLTERMAN: Has, has the bonding agents had any concerns over your problems with your pension?

BERNARD in den BOSCH: So we've, we've-- probably ten years ago, 12 years ago, that-- our bond rating went from AAA to AA-plus, I think it

was. There-- I certainly had that-- as I understand it, that's been discussed in the bonding rating meetings that occur each year, but the rating has not been lowered since that initial determination that was made. So I think it's fair to say it's, it's obviously one of the things that's talked about and discussed and, and certainly there are concerns about it. I think, again, notwithstanding some of the discussion of ARC, if, if-- where we are with both systems is exactly where the fix that was put in place said we should be. Now, I appreciate one or two bad years of, of investment returns, you know, obvi-- can obviously have a huge effect. The-- where we-- it took us years to overcome 2008 and, and we hope that-- you hope you don't have that and you hope you've done some things to prevent it. But so yes, do they-- does it come up in concern? It has not resulted in, in anything negative since the initial change was made 10, 12 years ago.

KOLTERMAN: But they have, they haven't done anything to increase your bond rating either, have they?

BERNARD in den BOSCH: No. Correct, we're at the, we're at the second tier that you can.

KOLTERMAN: And, and when-- the lesser your bond rating is, the higher interest rate is, is that correct?

BERNARD in den BOSCH: Correct.

KOLTERMAN: So you're paying more because, because of concerns that they have about some aspect of your finances and I, I have to think that this is a major contributor to that.

BERNARD in den BOSCH: And I think so far, our interest-- we're still, as I said, the second-highest level bonding that, bonding rate that you can have, our interest rates are still low. But, but there's no question-- **KOLTERMAN:** Yeah.

BERNARD in den BOSCH: --20 years ago, we had-- we were even at a higher level than we would have taken it--

KOLTERMAN: The other, the other-- the only other thing that I would say is, while you have, you have an assumed rate, you moved from 8 percent down to 7.75 percent. What we're seeing from a national perspective is moving even into the 7, 6.5 percent arena. I know that would make this look even worse.

BERNARD in den BOSCH: True.

KOLTERMAN: I know you don't want to do that, but that's something that-- the assumed rates, to think that we're going to get 7.75 to 8 percent is somewhat difficult in these times. And I'm not asking you to lower that any more because it would just make it look worse--

BERNARD in den BOSCH: Well--

KOLTERMAN: --but the reality is that's a concern that I have.

BERNARD in den BOSCH: It's certainly a concern. I would say that the city's-- the investment-- the systems investment advisors didn't think the last reduction was necessary. They certainly don't think it needs to be more and probably more importantly, I think with some of the increase in actuarial-- actuaries' responsibilities to look at the risk and volatility in the market, both of the, the-- both system actuaries have looked at that and have indicated that they're comfortable with where we are, but I do appreciate that, that--

KOLTERMAN: I'm just--

BERNARD in den BOSCH: --that may change--

KOLTERMAN: Yeah.

BERNARD in den BOSCH: --because things, things have certainly changed in that regard.

KOLTERMAN: I'm just telling you what we're seeing on a national--

BERNARD in den BOSCH: Sure.

KOLTERMAN: --basis from a trend in public retirement plans. And, and I know ours have all gone down to 7.5 or that or moving towards 7.

BERNARD in den BOSCH: And they certainly tell-- I mean, we've had that discussion and there's no question that the police and fire retirement system probably has-- they're more active. They, they get in and out of things more frequently.

KOLTERMAN: Right.

BERNARD in den BOSCH: There's probably a little more volatility in their returns and I think you see that in the actuarial report that this year indicates that's the case.

KOLTERMAN: Bernard, I don't have any other questions. Senator Lindstrom, do you have any questions?

LINDSTROM: No questions.

KOLTERMAN: All right.

BERNARD in den BOSCH: Thank you.

KOLTERMAN: Good luck. Thank you.

BERNARD in den BOSCH: Yep, thank you. I appreciate your concerns and good luck to you in the future, sir. And good luck, Ms. Allen, as well.

KATE ALLEN: Thank you.

KOLTERMAN: Thank you. OK. Joe Lorenz. Joe. Welcome, Joe. I won't, I won't be as hard on you.

JOE LORENZ: Good afternoon. Good to see you. My name is Joe Lorenz, L-o-r-e-n-z, and I am the Douglas County Finance Director. I think I've been here every year for-- since you've been having this and one thing I want to thank you for is I think every year, I've followed the city of Omaha and it's made my life easier. Sorry, I couldn't resist.
[LAUGHTER]

KOLTERMAN: You're going in the right direction. Would you spell your name, please?

JOE LORENZ: L-o-r-e-n-z. But let me take you-- give you the update on the Douglas County pension-- defined benefit pension plan and take you through some key benchmarks. As of January 1, our funding status was up to 73.9 percent, which over the course of the last year, went up three points, but over the course of the last three years has been up

8.3 points. Our assumed rate of return is 7.5 percent. I know you were just having that discussion. But if you look at our three-year, five-year and ten-year results, we've been able to beat that 7.5 percent

over that period. So given that we've been able to do that on a fairly consistent basis, I think we're comfortable at the 7.5. Our-- both on our market return and our actuarial return, we've had double-digit returns over the past three years. So we've-- our member and employer contribution rate has been consistent at 8.5 percent each for a total of 17 percent. Our ARC is running about \$26 million a year and we've been able to contribute that at about 100 percent just about every year. This year, the expected amount is a little lower, but I'm confident that the actual amount will be higher. And one of the reasons is that we used some of our ARPA money to pay premium pay to our employees and that's increased their payroll by at least 5 percent, so. Just some other highlights: the accrued liability, the plan as of January 1 was \$150.4 million, which was lower by \$9.2 million than a year ago. We have a plan with a little over 4,000 participants, but 55 percent of them are active, which is still a healthy ratio for a mature plan. I won't go into a lot of detail about why we're here because we've talked about it in previous years, other than saying that in 1997, they did some enhancements to the plan, which included the Rule of 75, increasing the benefit formula from 1.5 to 2 percent of pay. In 1996, we were 97.8 percent funded. By 2010, we were 57.8 percent funded. We lost 40 points of funding in that time. So in 2011, we made some changes. That was one of the-- the year-- I came on board for the-- with the county 11 years ago. So we got rid of Rule of 75, we lowered the accrual from 2 percent of pay to 1.5 percent of pay and we also changed the maximum retirement income-- all this for new employees-- from 60 percent of a participant's final average to 45 percent. And the result was since that time, in these past 12 years, our funding level is up 16.1 percentage points. So I always tell this committee that turning our pension around is like turning around an aircraft carrier. I think we've got to be turned around and we're going in the right direction. There's going to be periods we hit choppy water like this year with, with the market results, but I think overall, we have very positive trends. We're very committed to go-- getting above 80 percent. And as an example of that is a little over a year ago, our corrections guards wanted to upgrade their early retirement benefits to be similar to our sheriff's employees. So we told them that could only happen if it didn't have a negative impact on the plan. So we worked with the actuaries and we negotiated an agreement with the union where those employees would contribute an extra 2 percent of their salary to get that early retirement benefit without the county having to match that contribution. Our actuary is Hub/SilverStone and they have estimated now that by 2027, the plan would be 81.8 percent funded. So I think we're really starting to get

within pretty close to being able to over-- be over 80 percent. And like I say, not-- depends what the market does, but I'm pretty confident that we'll do that within the next few years and not have to come down here.

KOLTERMAN: Well, the good thing is you don't have to put up with me anymore.

JOE LORENZ: Yeah, we're going to miss you.

KOLTERMAN: You're welcome back next year, huh? No, I-- all kidding aside, you-- as we-- and we keep track of all this, believe me. Since 2018, you've gone from 68 to 74 percent funded. We saw similar results with city of-- the city of Lincoln. I think you're going in the right direction. That's, that's all we can ask, that you continue to-- yeah, these things-- you're right, these things don't turn around overnight.

JOE LORENZ: And, you know, we don't chase yield. We don't really invest in alternative investments. I mean, I was shocked this weekend when I read some articles and they said some pension funds were in cryptos. I mean, to me, that's just mind blowing. But, you know, we would certainly never consider anything like that.

KOLTERMAN: You don't have to go very far to find out public pension plans that invested in alternative investments.

JOE LORENZ: Yeah, and we don't do that.

KOLTERMAN: Right. All right. Well, hey, thank you.

JOE LORENZ: OK. Thank you.

KOLTERMAN: Senator Lindstrom, did you have any questions? I forgot to ask.

LINDSTROM: No questions.

KOLTERMAN: Thanks. OK. Next, we have John Thurber and Jeff Bishop for OPPD.

JOHN THURBER: Thank you, Senator Kolterman. I'm John Thurber, T-h-u-r-b-e-r, with Omaha Public Power District, the director of our treasury and financial operations area. I'm sorry Mr. Bishop was not able to join us. He's, he's actually out of town today and so he sends

his apologies to the committee for not being able to attend. Hopefully I have good news to share on Omaha Public Power District. As you noted earlier, we did increase our funded rate from 72 to 75.5 percent and we did that-- it was kind of remarkable. We did that with also decreasing our discount rate from 7 percent to 6.5. And the district did that-- every five years or so, we go through what we call an asset liability study where we look at our investments and the liabilities. And we have an investment consultant and actuary that kind of looks at what our returns should be with our investment policy in place. And they thought it was prudent to reduce it from 7 to 6.5 percent. We think it's a conservative move and so that was great to do that. The big, the big thing that the district did last year was we contributed an additional \$95 million to our pension plan beyond the almost \$56 million that that our ARC payment was in 2021. Of course, the district has always made 100 percent of its ARC payment ever since the pension has been in existence so that additional contribution really did support the increase in the funded ratio. And the district does save funds when, when it has excess earnings in the reserve to help support additional contributions into the retirement plan. And so our intention would be, if financially prudent to do so in the future, to continue to do that. So we're looking forward to joining those two that dropped off of the committee's reporting requirement in the future. And we'll see where, we'll see where this leads, but looking forward to continuing to increase our funding ratio.

KOLTERMAN: Appreciate you are moving in the right direction. Thank you.

JOHN THURBER: You bet.

KOLTERMAN: Thanks for your willingness to come down and testify.

JOHN THURBER: You bet.

KOLTERMAN: All right. Senator Lindstrom, do you have any questions?

LINDSTROM: Good on my end.

JOHN THURBER: Thank you, Senator Kolterman. Thank you.

KOLTERMAN: OK and finally, not last but not least, Bill Clingman from Metro Area Transit.

WILLIAM CLINGMAN: Afternoon.

KOLTERMAN: Welcome.

WILLIAM CLINGMAN: Thank you. Chairman Kolterman and members of the Retirement Systems Committee, my name is William Clingman or Bill Clingman. That's C-l-i-n-g-m-a-n for the last name and I am the finance director for the Regional Metropolitan Transit Authority of Omaha, or Metro. I also wanted to apologize on behalf of our CEO Lauren since she is unable to make it today. She had a prior commitment so she couldn't make it. Metro is the public transit provider for the Omaha metropolitan area. We provide fixed, paratransit and express services. Metro also provides services to the cities of Council Bluffs, Bellevue, La Vista, Papillion and Ralston by virtue of our agreed-upon service contracts with those municipalities. Thank you for the opportunity to address the committee regarding Metro's hourly employee pension plan and the corrective actions that we have taken to improve the funding status of the plan. I'm happy to report that over the last several years, we have continually and consistently increased both employer and employee contribution rates, lowered our assumed rate of return and improved the overall funding status of the plan. Since 2016, we have increased the employee contribution from 6 percent to 7.75 percent, increased the employer contribution from 6.5 percent to 7.75 percent, as well as changed the normal retirement age from 65 to the age when the employer reaches full retirement for the purposes of receiving Social Security benefits. We eliminated our early retirement option and changed the benefit factor percentage used in the calculation of the monthly benefit for employees hired after January 1, 2018. We are currently in negotiations for a new union agreement to go into effect on January 1, 2023, and we anticipate that employee and employer contribution rates have a modest increase, with the goal of continuing to improve the overall funding status of the plan. In addition, two one-time lump-sum contributions have been made to the plan in the last five years. The first was for the period of January 1, 2016, and ending in August 31, 2017, in an amount equal to 1 percent of the total wages of active plan participants, making the effective employer contribution rate 7.5 percent from July 1, 2016 to 2019. A second one-time lump-sum contribution was made at the end of 2020 in the amount of \$350,000. The amount represents the estimated difference in calculated employer contributions compared to the anticipated contribution attributed to the reduction in working hours due to COVID. This one-time lump-sum contribution increased actual contribution to 11.1 percent of payroll

of 2020. Additionally, in our 2021 actuarial valuation report, we had reduced our assumed rate of return from 6.5 percent to 6.25 percent. In 2022, we maintain this rate of 6.25 percent. We will continue to analyze this rate in the coming years to ensure it continues to be an achievable rate. These assumptions were viewed and adopted by Metro's pension committee and board of directors. We have 182 active members in our plan, 200 members in pay status and 56 terminated members as of January 1, 2022. The funding status of the plan is 71.5 percent, which is an improvement over our 2021 funding status of 68.5 percent. So thank you for giving me the opportunity to address the committee and I'd be happy to answer any questions you may have.

KOLTERMAN: Senator Lindstrom, do you have any questions?

LINDSTROM: No questions.

KOLTERMAN: Thank you. You're going in the right direction. Keep doing what you're doing. **WILLIAM CLINGMAN:** Will do. Thank you.

KOLTERMAN: With that, I would close the hearing. Thank you for all attending, all of you that are left.