nyhart

City of Ocala Firefighter's Retirement Plan

Experience Study
October 1, 2019 – October 1, 2023

November 25, 2024

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I. Objectives and Process

By their nature, all actuarial work products are dependent on a number of assumptions related to future experience. The reliability of any actuarial work product is directly related to the reliability of the assumptions used in the analysis. Over time the experience of a pension plan will change due to any number of inputs. To maintain the reliability of actuarial work products, routine studies of recent experience and accompanying updates to assumptions are necessary.

When setting assumptions, it is important to understand the self-correcting nature of actuarial valuations. The use of assumptions that are known to be bias does not make the plan cheaper. Rather it will result in a series of annual losses which will accumulate over time. In the meantime, recommended contributions into the plan will have been understated and actual contributions may have been less than appropriate. Using aggressive assumptions may defer contributions but will not ultimately make the plan cheaper to maintain.

The primary objectives of this study are to measure the recent experience of the City of Ocala Firefighter's Retirement Plan, recommend, as appropriate, a new set of actuarial assumptions and methods to be used starting with the October 1, 2024, valuation, and to measure the impact on the plan's liabilities of changing to this new set of assumptions and methods. Experience studies help ensure that plan liabilities are accurately valued to minimize annual gains and losses and provide the pension board with reliable information with which to govern the pension plan and fulfill their obligations to participants.

To ensure we had a reasonable amount of information to analyze, we gathered data from valuations spanning October 1, 2018, through October 1, 2023. By utilizing data from the past 6 valuations, we measured experience for each of the 5 years individually.

Each of the demographic assumptions analyzed could potentially vary by age, service, or a combination of the two. We initially looked to see if the structure of the current tables made sense. Did termination rates really differ by age? Did pay increases follow a more predictable pattern when broken down by age, service, or both?

Once satisfied with the structure of the tables, we charted both the current assumption and the recent actual experience. Our recommended assumption blends the recent experience with both the current assumption and consideration for how things might change in the future. The resulting blended assumption at each age or service was then "smoothed" in order to iron out data anomalies.

Finally, we measured the impact on the plan's liabilities of reflecting the recommended assumptions. We also calculated potential changes to the recommended contribution rate that might result from adopting updated assumptions.

There are a few key points to note:

- **Plan provisions remained unchanged.** None of the results of this study has any impact on the actual benefits that will be paid out to participants. This study deals only with the underlying actuarial assumptions and methods and thus only affects the levels and timing of recommended contributions to the plan.
- **Only a small number of exposures were present in this study.** Since the plan did not experience large amounts of exposures or study-lives for many of the assumptions, recommendations were developed based on the combination of observable results and past studies, and not solely on the results of this study.
- **Past experience isn't necessarily indicative of future results.** Just because employees behaved a certain way in the past doesn't mean their behavior will continue unchanged. Outside factors, such as economic and societal conditions, often have a significant impact on participant behavior.

The assumptions and methods that were reviewed are as follows:

- Economic
    - Discount Rate
    - Investment & non-investment expenses
    - Annual rate of inflation
    - Annual pay increases
    - Annual payroll growth
- Demographic
    - Rates of retirement
    - Rates of withdrawal
    - Rates of disability
    - Rates of mortality
- Funding Policy
    - Asset valuation methodology
    - Amortization of unfunded liability

Data Notes

The reliability of the assumptions resulting from the experience study is predicated on two primary principles.

- Recent experience is the best predictor for future experience. It is important that any unusual events during the study period be assessed and, if we believe the events will not be recurring, that data be adjusted or ignored as appropriate. We are aware of a notable event that occurred during the study period that may require special attention.

    1. COVID Pandemic

- Availability of credible data. The more data we have the more reliable any results drawn from that data will be. As this plan is relatively small the amount of data available from which to draw conclusions is meaningful but not sufficient that we will place 100% reliance on it. For this reason, we recommend gradual shifts between the existing assumptions and actual experience. In certain cases, we will also look to assumptions prepared by third parties based on data and studies we believe reasonably represent this plan's anticipated experience.

II. Certification

This report is prepared for the primary purposes of measuring the recent experience of the City of Ocala Firefighter's Retirement Plan and recommending reasonable actuarial assumptions to be used in determining the annual funding requirements.

The information presented in this report is based on the information furnished to us by the Plan Administrator and used in our annual valuations. In our opinion, the assumptions recommended are reasonable and represent a reasonable expectation of future experience under the Plan. All calculations have been made in accordance with generally accepted actuarial principles and practice.

We believe the assumptions we are recommending are in line with historical plan experience and are reasonable expectations of future experience. Experience studies are not a precise science, and another qualified individual may recommend alternative assumptions based on the same analysis.

Except where stated otherwise, any liabilities or recommended contribution amounts included in this report are based on the same data, assumptions, methods, and plan provisions as the October 1, 2023, actuarial valuation. As such all summaries of data, assumptions, methods, plan provisions, and limitations on reliance and disclosure included in the 2023 actuarial valuation report are also incorporated into this report.

To our knowledge there have been no significant events prior to the current year's measurement date or as of the date of this report which could materially affect the results contained herein.

Neither Nyhart nor any of its employees have any relationship with the plan or its sponsor which could impair or appear to impair the objectivity of this report.

Prepared by:

Kerry Sipe, ASA, EA

Lawrence Watts, Jr., FSA, CFA, FCA, EA, MAAA

November 25, 2024
Date

III. Cost Impact of Recommendations

Actuarial assumptions are intended to be individually reasonable and in aggregate to provide for reasonable estimates of the future annual costs of the Retirement Plan. Periodic experience studies and annual gain/loss analyses are necessary to ensure such reasonableness, and refinements are suggested when the experience of the plan diverges from those assumptions. Upon review of the experience for the City of Ocala Firefighter's Retirement Plan, we have provided recommended refinements to the current actuarial assumptions being used for the Board's consideration. Details regarding each recommendation can be found later in this report.

The following table reflects estimated impacts to the required contribution, accrued liability and funded percentage if the assumptions were to be adopted for the October 1, 2023 valuation. The impacts will vary for future valuations, but the magnitude of the changes should be relatively similar in most cases. Please note that the table below prices each recommended change individually and independent of all other changes. The impacts are not necessarily additive as the aggregate impact of adopting many assumption changes may be greater or lesser than the individual impacts: the whole can be greater than the sum of its parts. We are also suggesting a slight simplification of the amortization policy in the event of future benefit increases; this has no impact on the current contribution rate.

Proposed Change	Change in Accrued Liability	Change in Recommended Contribution
Discount Rate 6.50%	$5,511,000	$570,000
Discount Rate 6.75%	$2,691,000	$281,000
Salary Increases	$2,268,000	$842,000
Retirement Rates	$(247,000)	$(36,000)
Withdrawal Rates	$205,000	$272,000
All Changes at 6.50%	$7,700,000	$1,817,000
All Changes at 6.75%	$4,857,000	$1,478,000
All Changes at 7.00%	$2,139,000	$1,150,000

Prior Report	Accrued Liability	Recommended Contribution
10/1/2023 Valuation	$95,049,856	$3,738,243

IV. Economic Assumptions

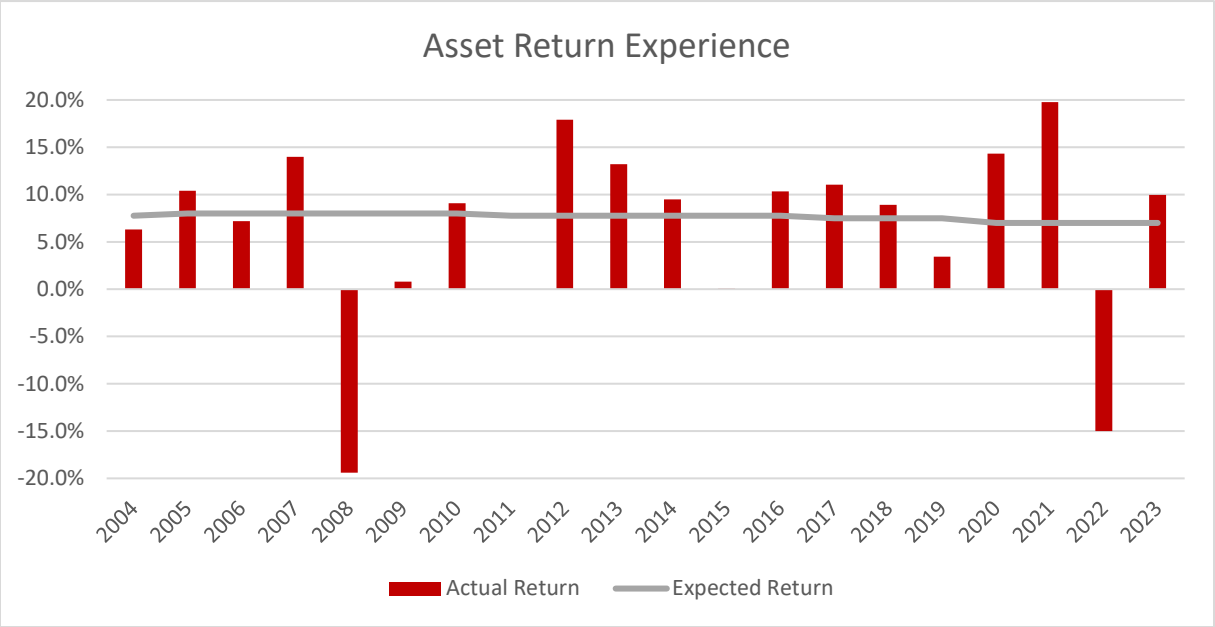
A. Investment Return

The assumption that typically has the largest impact on pension liabilities is the interest rate used to discount benefit liabilities. Actuarial Standards direct the actuary to use a multitude of sources to determine the appropriateness and level of the assumed investment return; many actuaries review the assumption historically, on a forward-looking basis, and in relation to a plan's peer groups. Note that under Florida law, the investment return assumption is to be selected by the board with recommendation from the plan's investment advisor. Our recommendations here are only for the board's consideration. Nyhart's review of the investment return assumption consists of the following:

Historical Review

The table below shows historical rates of return (net of investment expenses) of the plan assets since 2004. The 20-year average market return is 6.1%, which falls short of the current expected return of 7.0%. The market value rate of return is based on annual market values with adjustments for cash inflows and outflows.

Fiscal Year Ending October 30	Market Value Basis	Fiscal Year Ending October 30	Market Value Basis
2023	10.0%	2013	13.2%
2022	(15.0%)	2012	17.9%
2021	19.8%	2011	(0.1%)
2020	14.3%	2010	9.1%
2019	3.4%	2009	0.8%
2018	8.9%	2008	(19.4%)
2017	11.1%	2007	14%
2016	10.3%	2006	7.2%
2015	0.1%	2005	10.4%
2014	9.5%	2004	6.3%
	5-Year Average	5.8%	
	10-Year Average	6.8%	
	20-Year Average	6.1%	

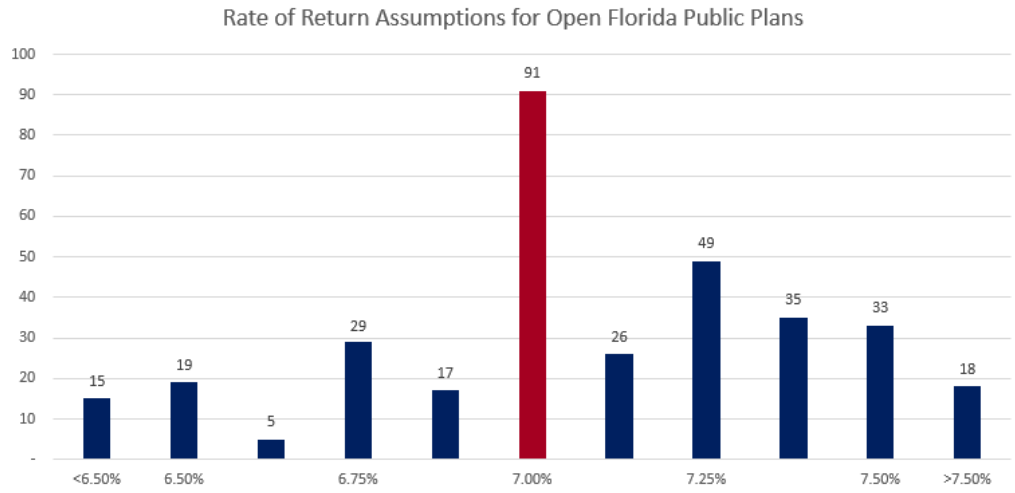


Peer Comparison

In March 2024, the National Association of State Retirement Administrators (NASRA) published an Issue Brief "Public Pension Plan Investment Return Assumptions" which summarizes trends in assumed rates of return for 131 State Pension Fund plans. Based on this survey, the average investment return assumption for Fiscal Year Ending 2023 is 6.91%. There has been a clear trend towards lowering assumed investment return rates in recent years. Since FYE 2020, 72 percent or 94 plans have reduced their assumed interest rate and all have reduced their interest rate since 2010. Local laws, regulations, plan designs, investment policies, and myriad other factors influence investment decisions and outlooks.

The State of Florida also publishes assumed rates of returns reported by public plans in their annual filings to the Department of Management Services. This landscape is slightly different from the universe surveyed by NASRA, as the plans are typically smaller, but the general distribution of assumptions is similar. In general, plans in Florida have also been lowering assumed rates of return in recent years.

Benchmarking: Rates of Return in Florida



Source: Florida Department of Management Services, rates for "Active" Florida plans with valuation dates in 2022 or later.

The average return assumption was 7.07% for this group of all open public plans in Florida, with the most common assumption being 7.00%. Based on this same dataset, but only considering Fire plans, the average return assumption was 7.10%.

In November 2022, the plan received a letter from the Department of Management Services recommending lowering the investment return assumption to the range of 5.50% - 6.50%. This was based on the plan's balance sheet asset allocation and consensus capital market outlook expectations for future inflation and real returns as of October 1, 2022.

Future Expectations

Based on the plan's 2023 actual asset allocation and our calibration of the 2024 Capital Market Assumptions published by JP Morgan, the plan's long-term forward-looking expected return would be in the neighborhood of 7.39%.

Although not an apples-to-apples comparison, average expected returns would have been generally lower from other capital markets prognosticators; the average expected return for a similar allocation based on responses to the annual Horizon Actuarial Services Survey of Capital Market Assumptions would have been less than seven percent.

Plan Investment Allocation Per IPS

	Investment	Allocation	Expected Return	Volatility		Portfolio Arithmetic Return	Long-Term Geometric Return	2023 Horizon Survey Average Return
1	US Large Cap	43.6%	8.2%	16.1%		3.60%		7.37%
2	US Small Cap	8.0%	9.2%	20.3%		0.74%		7.75%
3	EAFE	16.7%	10.6%	17.6%		1.78%		7.78%
4	Cash	4.4%	2.9%	0.6%		0.13%		0.00%
5	US Investment Grade Corporate	21.3%	6.0%	7.1%		1.29%		4.76%
6	Private Equity	1.3%	11.6%	20.0%		0.15%		10.13%
7	US REITS	4.7%	9.4%	16.0%		0.44%		6.25%
					Total	**8.12%**	**7.39%**	**6.57%**

Recommendation

The current interest rate assumption as of the October 1, 2023 valuation is 7.0%. After reviewing historical returns, market trends, and multiple sources regarding future expected returns, we believe the current discount rate assumption to be reasonable, but considering adjustment within the range 6.50% - 7.00% would be prudent.

Some forward-looking interest prognostications may support an increase in assumed returns, however, given the recent performance of the equities markets, we believe the range of 6.50 – 7.00% is more appropriate. Market-consistent measures of expected inflation and related metrics suggest elevated yields may not last.

B. Investment & Non-Investment Expenses

The current assumptions use an expected rate of return that is net of all expenses, both administrative and investment. Consequently, there is no assumption for investment expenses. Based on this current policy, there is no need for a historical analysis of the investment expenses. The plan will continue to operate using a net of expenses investment return assumption.

The current assumption for administration expenses is a one-year term cost method which is based on the expenses for the previous year. The 14-year history is provided below with an average of $94,359, which is lower than the expenses in recent years. We do not recommend any changes to this assumption.

FYE 9/30	Administrative Expenses
2010	$55,343
2011	$135,629
2012	$84,574
2013	$52,616
2014	$67,517

FYE 9/30	Administrative Expenses
2015	$77,503
2016	$84,143
2017	$67,415
2018	$85,835
2019	$84,759

FYE 9/30	Administrative Expenses
2020	$109,725
2021	$116,404
2022	$135,218
2023	$164,346

C. Annual Rate of Inflation (CPI)

The annual rate of inflation assumption is not used directly in any of the actuarial valuation procedures. However, an implicit rate of inflation is reflected in the assumed salary growth, assumed rate of payroll growth, and expected return on assets. It is important to ensure that these assumptions are internally consistent and align with anticipated future rates of inflation.

The table below shows forward-looking annual inflation forecasts from multiple professional inflation forecasters over multiple time horizons.

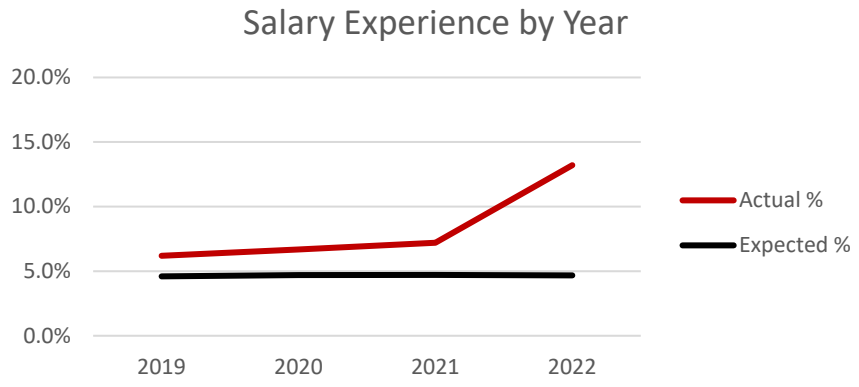
2024 Forward-looking Annual Inflation Forecasts (From Professional Experts in the Field of Forecasting Inflation)	
Congressional Budget Office: *The Budget and Economic Outlook*	
Overall Consumer Price Index (Feb 2024)	2.50%
Overall Consumer Price Index (Feb 2024; 10 Year Average)	2.20%
Federal Reserve Bank of St. Louis (May 1, 2024)	
10-Year Breakeven Inflation	2.38%
20-Year Breakeven Inflation	2.53%
30-Year Breakeven Inflation	2.35%
Federal Reserve Bank of Cleveland (May 1, 2024)	
10-Year Expectation	2.45%
20-Year Expectation	2.47%
30-Year Expectation	2.51%
U.S. Department of the Treasury (May 1, 2024)	
10-Year Breakeven Inflation	2.38%
20-Year Breakeven Inflation	2.54%
30-Year Breakeven Inflation	2.35%

Based on the above published expectations of inflation, the current inflation assumption of 2.50% remains supportable, and we do not recommend any adjustments at this time.

D. Pay Increase Assumption

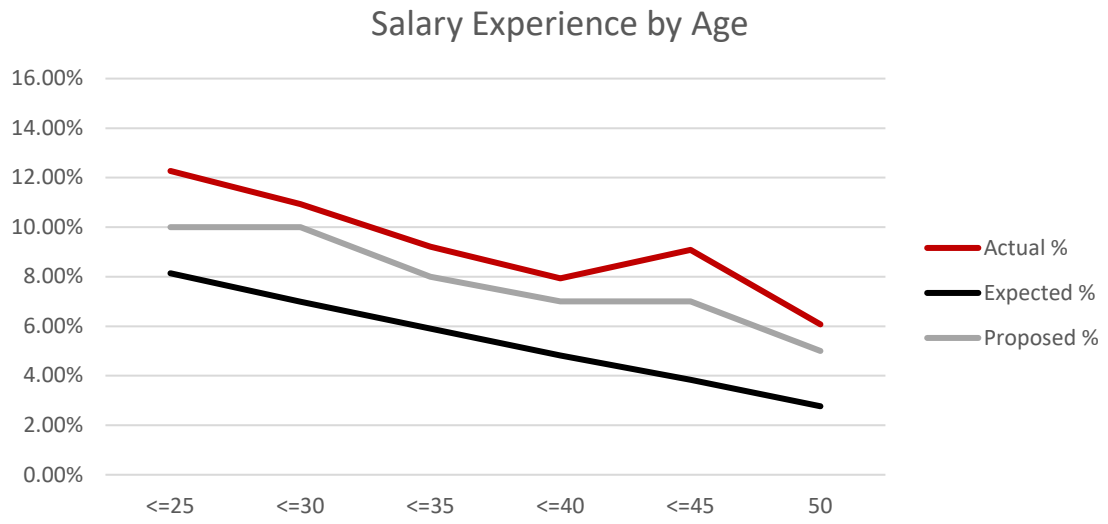
The current salary assumption consists of a baseline 2.50% inflation assumption and additional increases due to merit/seniority.

Experience during the study period was volatile, but on average, the changes in pay exceeded the expected rate of salary increases.



The period being studied includes the COVID pandemic, which we believe to be highly irregular. Including this timeframe in the study does implicitly assume a recurrence of similar future events, which may not be reasonable. The low salary increases in 2019/2020 could easily be attributed to COVID, however, the two years of large pay increases following are likely a result of recovery and attempts to make whole low salary increases coupled with salary decompression efforts and high inflation. These *may* also be linked to COVID, but are harder to attribute with certainty.

In addition, we received base pay rates for the period 10/1/2023 – 9/30/2024. Compared to the most recent year of salary provided, we can expect to see pay increases of 20% on average at most age ranges. Keeping all of those things in mind, we are recommending keeping the current age-based structure but increasing the expected increases for each age band.



Age	Expected Salary Increase	Actual Salary Increase	Proposed Salary Increase
<=25	8.00%	12.27%	10.00%
<=30	6.60%	10.93%	10.00%
<=35	5.60%	9.21%	8.00%
<=40	4.60%	7.93%	7.00%
<=45	3.60%	9.09%	7.00%
50	2.50%	6.07%	5.00%

These changes to the salary assumptions result in an estimated $0.85 million increase to the 2023 recommended contribution, or 7.4% of payroll. Calculated liabilities are expected to be roughly $2.3 million larger under these assumptions.

E. Annual Payroll Growth

Historical payroll growth was also studied in order to comply with Florida Statute §112.64, which prescribes how the unfunded liability under the plan may be amortized. The table below shows the result of our analysis:

Fiscal Year Ending September 30	Payroll Growth	10-Year Average
2010	(4.10%)	-
2011	4.80%	-
2012	(3.40%)	-
2013	(8.20%)	-
2014	(1.30%)	-
2015	3.10%	1.87%
2016	12.70%	2.72%
2017	(6.10%)	1.49%
2018	11.20%	0.91%
2019	(3.80%)	0.49%
2020	1.39%	1.04%
2021	2.71%	0.83%
2022	4.03%	1.57%
2023	12.26%	3.62%

The current amortization method is to amortize all unfunded liabilities on an increasing payroll basis of 2.50%, as limited by the 10-year average payroll growth. Based on the recent 10-year averages, and the recent expectations on inflation, we recommend no change to the current assumption. This assumption does not directly impact the calculated liabilities, but it does impact the required contribution rate.

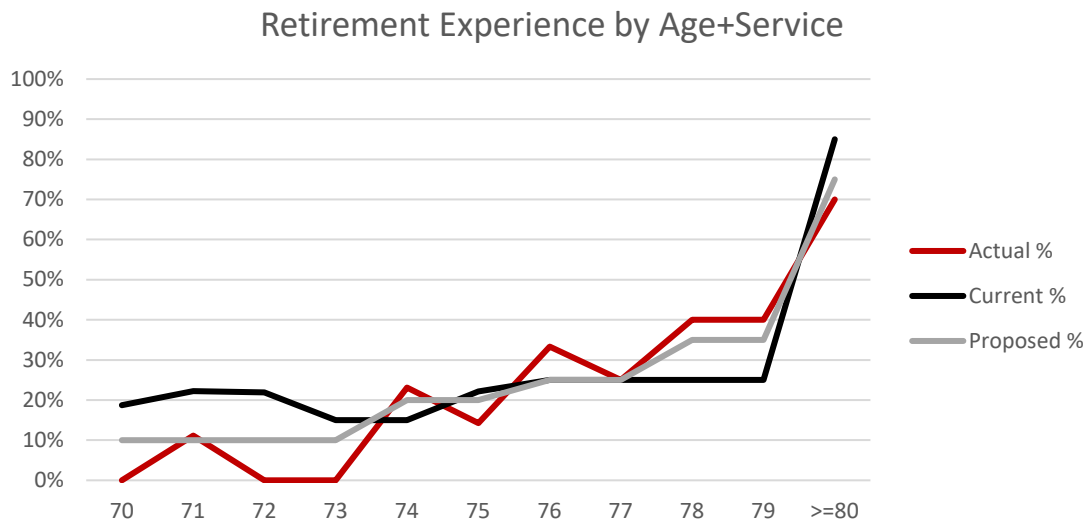
V. Demographic Assumptions

A. Rates of Retirement

The retirement assumption measures how likely it is that a person will retire when eligible for benefits under the plan; probability of terminating employment prior to retirement is a different assumption, withdrawal, covered in the next section. The plan's current assumed rates of retirement are based on age and service. We examined the actual rates of retirement between 2018 and 2023 based on eligibility.

- Normal Retirement: Age 55 and 10 years of credited service, Rule of 70, or 25 years of credited service.
- Early Retirement: Age 50 and 10 years of credited service.

Actual retirement experience by age and service over the last five years is shown below:



There were 25 actual retirements during the study period, out of a total of 89 exposures (number of those eligible to retire). 20 of the 25 opted to enter the DROP.

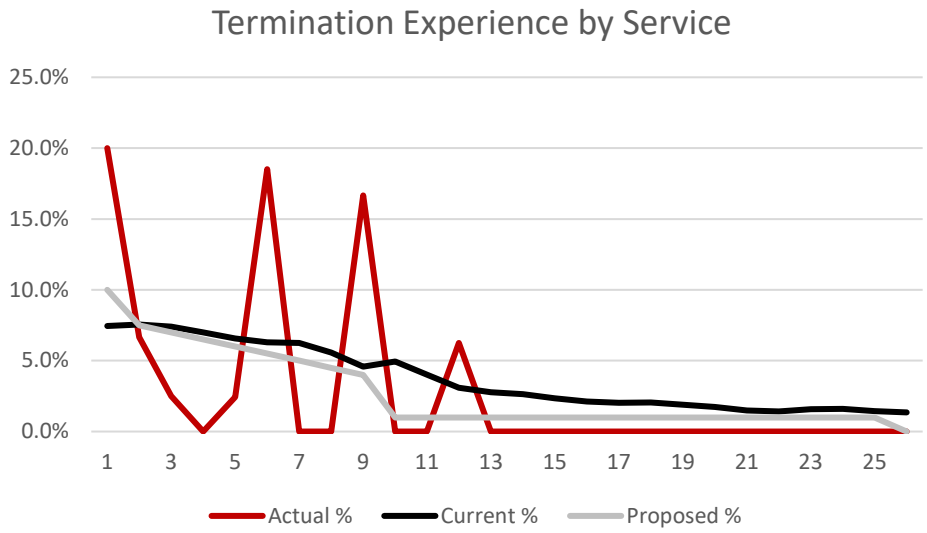
Age + Service	Expected	Actual	Proposed
70	11%	43%	10%
71	22%	11%	10%
72	22%	0%	10%
73	15%	0%	10%
74	15%	23%	20%
75	22%	14%	20%
76	25%	33%	25%
77	25%	25%	25%
78	25%	40%	35%
79	25%	40%	35%
>=80	100%	70%	100%

The impact on annual cost of the proposed changes to the retirement rates, would have been an estimated decrease of approximately $36,000 to the required contribution, or 0.4% of payroll, based on the 2023 valuation. The calculated accrued liability would have been roughly $0.25 million lower.

B. Rates of Withdrawal

The withdrawal assumption, also called the termination assumption, refers to the likelihood that a person will stop accruing service prior to retirement. This could be due to finding another job, leaving the workforce, termination, or various other reasons.

The current withdrawal assumption varies by a participant's age. Participants are fully vested after 10 years of credited service. Service seems to be a better predictor for terminations than age, so our recommendation is a service-based assumption.



Out of 521 exposures, there were 17 actual withdrawals observed during the study period. Only one was vested. The other 16 received a refund of employee contributions.

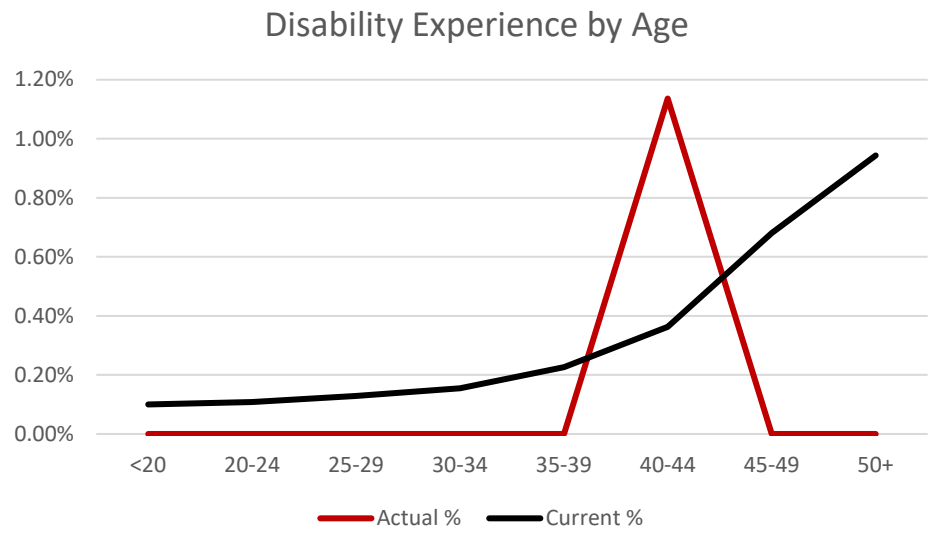
Age	Current
<30	8.0%
<35	5.5%
<40	2.7%
<45	1.9%
<50	1.2%
<55	0.5%
>=55	0.0%

Service	Actual	Proposed
<1	20.0%	10.0%
1	6.7%	7.5%
2	2.5%	7.0%
3	0.0%	6.5%
4	2.4%	6.0%
5	18.5%	5.5%
6	0.0%	5.0%
7	0.0%	4.5%
8	16.7%	4.0%
9	0.0%	1.0%
10-24	0.4%	0.5%
25+	0.0%	0.0%

The impact on annual cost of the proposed refinements to the withdrawal rates would have been an estimated increase of approximately $272,000 to the required contribution, or 2.7% of payroll, based on the 2023 valuation. The calculated accrued liability would have been roughly $0.2 million higher.

C. Rates of Disability

Based on 2018-2023 experience, only 1 individual was designated as becoming disabled versus the expectation of 2.2. Because there is very little experience to analyze and the results are not significantly different than the current assumption, we don't recommend any changes to the assumed rates of disability.



Senate Bill 426, which was signed into law in May of 2019, adds certain cancer diagnoses to the list of presumed line-of-duty disabilities and provides for certain benefits for firefighters who meet the eligibility criteria. In light of this relatively new legislation, we will continue to monitor the plan's disability experience going forward to determine if this new law has any significant impact on the plan or its experience.

D. Rates of Mortality

In order to perform an actual experience study on mortality, an extremely large number of exposures is required. Since the amount of data is not available for the Retirement System, it is standard actuarial practice to rely on national tables created by organizations like the Society of Actuaries. The key to the mortality assumption is to continually update this assumption as new studies are released. We believe reflecting future mortality improvements is prudent and should help avoid large impacts to plan costs as new studies are released.

Florida Statute §112.63 mandates the use of the mortality tables utilized in either of the two most recently published valuation reports of the Florida Retirement System (FRS).

The mortality assumption used in the October 1, 2023 valuation is the same as the assumption used in the July 1, 2023 FRS valuation: Pub-2010 base table projected generationally with MP-2018 improvement scale. This assumption was selected after the most recent experience study covering the period July 1, 2013 – June 30, 2018. Although the final report has not been published as of the time of writing, we understand that during the recent FRS Assumptions conference (October 2024), new mortality assumptions were adopted as a result of the FRS experience study and are likely to be included in the July 1, 2024 FRS actuarial valuation report.

Fortunately, the mortality tables currently used and those being considered by FRS are reasonable and meet the goals suggested above. Since the plan is currently using the tables prescribed by law and utilized by FRS, we recommend making no change to the mortality assumptions, though we do recommend adoption of the updated FRS mortality tables following their publication to remain in compliance with state law.

VI. Other Assumptions

A. Deferred Retirement Option Plan (DROP)

DROP Participation

Our valuation treats Forward DROP participants like regular retirees; the monthly payment made to the hypothetical DROP account is released from the liability like a benefit payment made to an actual retiree. Therefore, we don't have an explicit assumption for DROP participation.

We are not recommending making any changes to the treatment of DROP participants for the valuation. However, we plan to study DROP participation and retirement decisions in the upcoming impact statement extending the DROP period to 6, 7, or 8 years. From the perspective of the valuation, extending the DROP period would potentially result in earlier assumed retirements.

In addition, the BAC-DROP option will need to be considered. For the first time in many years, participants are considering the BAC-DROP option, and one has affirmatively elected. Since this is a new development, we recommend evaluating the popularity in the next experience study. At that point, we will have several years of experience to consider when determining if further refinements should be made to our assumptions.

DROP Interest Rate

While participants are in the DROP, a notional account is established for each member. This account is credited with interest as follows:

Component A member accounts earn interest at a fixed rate of 100 basis points less than the current assumed investment return. Beginning October 1, 2021, this interest rate changes with each change in the valuation investment return rate.

The DROP interest rate for Component B shall be a sliding scale with a minimum of 1% and a maximum of 3%, based on a 10-year average of annual plan returns, as calculated by the plan's actuary.

The DROP treatment is written into the Ordinance, and we recommend no changes at this time. We include this section as another point to consider when selecting the valuation interest assumption.

B. COLA Valuation

Each year, Nyhart prepares a separate valuation for the COLA Fund. The COLA plan design will be analyzed as part of the upcoming impact statements; we include this section to address the current assumptions that are tied to the valuation.

- The COLA Fund is comingled with the pension fund assets and is credited with the same market rate of investment return as the pension fund, net of investment expenses. The wording of the ordinance suggests that the 10-year average investment earnings on the COLA Fund in excess of 7% shall be applied to reduce the UAAL of the pension fund until the pension fund reaches a funded ratio of 90%; the COLA fund has not yet existed for 10 years as of October 1, 2023, but this date is approaching. The Board will need to issue guidance regarding application of this language.

  If the investment return assumption for the valuation is lowered, we would suggest considering potential adjustment of the hurdle rate for reducing the UAAL to the same rate. That said, this rate may have been set during historical collective bargaining, so the Board may not have the authority to adjust without the involvement of the City and the Fire union.

- The interest rate used in determining the present value of existing COLA benefits is currently set to 7%.

  Historically, the COLA Fund's liabilities were valued with a rate lower than the valuation's assumed interest rate for conservatism. At minimum, we would recommend changing this rate along with the valuation interest rate; that is: if the Board decides to lower the funding discount rate for the main pension plan for valuation purposes, then it should also lower the discount rate utilized to value the COLA Fund.

- The calculation of assets available for the COLA Fund includes the present value of future employee contributions and the present value of future state contributions. These are currently based on an interest rate of 7% and payroll growth assumption of 1.5%.

  If the current COLA design remains in place, we are not recommending any changes to the current assumptions; the 1.5% payroll growth assumption is slightly more conservative than the base 2.5% used for funding purposes. However, this was set intentionally, and this rate is not limited to the 10-year-average as is the payroll growth assumption used for amortization purposes in funding the main fund.

VII. Funding Policy

The plan's current funding policy requires the determination equal to the sum of

- Normal Cost,
- Non-Investment expenses,
- Amortization of Unfunded Accrued Liability
- Applicable Interest

Normal Cost

The Normal Cost is determined under the Individual Entry Age Normal cost method. This method is designed to produce a Normal Cost pattern that is a level percent of compensation over the career of plan participants. This cost method is commonly used among non-ERISA pension plans and is required for use under GASB accounting standards.

The Total Normal Cost is offset by the Expected Participant Contributions to be made during the plan year.

This funding method is reasonable, and we do not recommend a change be made at this time.

Non-Investment Expenses

As discussed above, there is an administrative expense load added to the contribution. This has been equal to the prior year's actual administrative expenses. We do not recommend a change be made at this time.

Amortization

The amortization policy is to establish individual amortization bases each year and amortize over the following periods:

- Unfunded liability as of October 1, 2001: 25 years
- Benefit improvements for actives: 25 years
- Benefit improvements for inactives: 15 years
- Actuarial gains/losses: 20 years
- Changes in actuarial assumptions: 20 years

In practice, there have not been benefit improvements, so every base (with the exception of the 2001 "fresh start") has been amortized over a 20 year period since 2001. For simplicity's sake, we recommend making an official change to recognize all new bases over a 20-year period moving forward. This will not impact any of the liability calculations and would only potentially impact future contribution calculations if benefit improvements were to be made in the future.

Each amortization period is on an increasing payroll basis of 2.50% (limited by the 10-year average payroll growth). We do not recommend any change to this portion of the amortization policy.

Interest

Interest is applied to the plan's recommended contribution at the Plan's assumed interest rate from the valuation date to the end of the plan year to reflect the anticipated timing of contributions into the plan. Said another way: the calculated contribution is calculated for the **following** plan year, and the contribution is adjusted for interest assuming that the recommended contribution is deposited at the **beginning** of that following plan year. We do not recommend any changes to the interest calculation.

Asset Valuation Method

To reduce volatility in recommended contributions due to year-to-year volatility in asset returns, the plan has adopted a method of smoothing asset gains and losses gradually over time. If the selected smoothing methodology and assumed asset returns are unbiased an asset smoothing method should not impact the long run costs to maintain the plan but can significantly reduce short term contribution volatility.

The current smoothing method recognizes the gains or losses on the market value over a period of 5 years (20% per year is phased-in). The resulting smoothed value is constrained to be within 20% of the plan's market value of assets as of the valuation date. This method was selected first for the October 1, 2019 valuation with a fresh-start methodology. We do not recommend any changes to the current asset valuation method.

Contribution Smoothing

To reduce volatility in recommended contributions due to adoption of new assumptions or plan changes, some plans utilize a contribution smoothing approach. One common method is to utilize a blend of the funding policy's recommended contribution under prior assumptions versus the recommend contribution with updated assumptions. While Nyhart

generally believes that best practice is to immediately fund based on the funding policy utilizing updated assumptions, we believe it is reasonable practice to implement such a blended contribution to mitigate budget volatility, as long as the blending period is reasonably limited. The Board has moved to utilize such a direct rate smoothing approach in the past when changing assumptions.

- Direct rate smoothing option for consideration: the change in return assumption is recognized immediately in the liability at 10/1/2024, but the impact to the Recommended Contribution is phased in over three years. A similar method was used in conjunction with lowering the assumed discount rate from 7.50% to 7.00% beginning 10/1/2019.

VIII. Appendix

Pay Increase Data

Age Range	2019/20	2020/21	2021/22	2022/23
0-25	25.1%	19.3%	39.0%	32.9%
26-30	16.2%	9.8%	13.3%	20.3%
31-35	7.2%	11.4%	6.3%	12.7%
36-40	4.0%	10.0%	4.2%	13.8%
41-45	6.9%	6.0%	7.9%	15.4%
>45	5.0%	1.2%	7.2%	10.7%
Grand Total	8.4%	7.3%	9.5%	15.3%

Service Range	2019/20	2020/21	2021/22	2022/23
0-5	19.1%	13.0%	19.2%	24.4%
6-10	7.5%	9.6%	5.7%	12.1%
11-15	4.6%	9.3%	5.5%	10.6%
16-20	7.8%	5.5%	6.2%	14.8%
21-25	3.1%	0.3%	7.5%	12.2%
>25	2.0%	1.6%	6.8%	11.3%
Grand Total	8.4%	7.3%	9.5%	15.3%

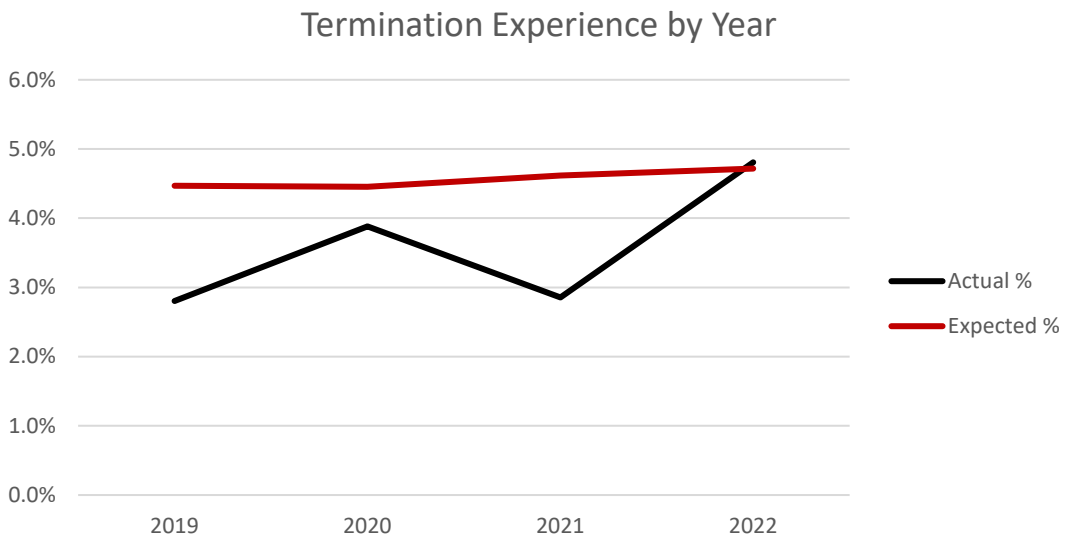
Retirement Data

Retirement Experience by Year				
	Exposures	Actual	Expected	A/E
2019	16	5	5.4	0.926
2020	18	4	4.3	0.941
2021	17	4	4.3	0.930
2022	18	3	4.9	0.619
Total	69	16	18.8	0.851

Retirement Experience by Age + Service				
Age + Service	Exposures	Actual	Expected	A/E
<70	1	2	0.00	
70	7	3	0.75	4.000
71	9	1	2.00	0.500
72	13	0	2.85	0.000
73	6	0	0.90	0.000
74	13	3	1.95	1.538
75	7	1	1.55	0.645
76	9	3	2.25	1.333
77	4	1	1.00	1.000
78	5	2	1.25	1.600
79	5	2	1.25	1.600
>=80	10	7	8.50	0.824
Total	89	25	24.25	1.031

Termination Data

Termination Experience by Year				
Year	Exposures	Actual	Expected	A/E
2019	107	3	4.8	0.627
2020	103	4	4.6	0.872
2021	105	3	4.8	0.619
2022	104	5	4.9	1.019
Total	419	15	19.1	0.784



Termination Experience by Age				
Year	Exposures	Actual	Expected	A/E
<30	132	7	10.6	0.663
30-34	74	4	4.3	0.925
35-39	77	1	2.1	0.487
40-44	73	0	1.5	0.000
45-49	55	2	0.7	2.924
50-54	8	1	0.1	20.000
>=55	0	0	0.0	N/A
Total	419	15	19.1	0.784