CHEIRON Classic Values, Innovative Advice

Austin Firefighters Retirement Fund

Actuarial Valuation Report as of December 31, 2023

Produced by Cheiron

July 2024

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Via Electronic Mail

July 22, 2024

Board of Trustees
Austin Firefighters Retirement Fund
4101 Parkstone Heights Drive, Suite 270
Austin, Texas 78746

Dear Trustees of the Board:

We are pleased to submit the December 31, 2023 Actuarial Valuation Report of the Austin Firefighters Retirement Fund ("Fund"). This report contains information on Fund assets, liabilities, and contributions. Financial disclosures are provided in a separate Governmental Accounting Standards Board (GASB) Statement Nos. 67 and 68 report.

In preparing our report, we relied on information, some oral and some written, supplied by the Fund's staff. This information includes, but is not limited to, Fund provisions, member data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23, Data Quality.

The actuarial assumptions reflect our understanding of the likely future experience of the Fund and represent our best estimate, in cooperation with the views of the Board of Trustees (Board), for the future experience of the Fund. These assumptions are based on the most recent experience study dated March 25, 2024 based on data through December 31, 2022. The liability and contributions developed in this report rely on future Fund experience conforming to the underlying assumptions. Future results may differ significantly from the current results presented in this report due to such factors as the following: Fund experience differing from that anticipated by the assumptions; changes in assumptions; and changes in plan provisions or applicable law. To the extent that actual Fund experience deviates from the underlying assumptions, the results will vary accordingly.

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations, including Texas pension statutes. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

This actuarial valuation report was prepared exclusively for the Austin Firefighters Retirement Fund and the Fund auditors for the purposes described herein and in preparing financial reports in accordance with applicable law and annual report requirements. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to such other users.

Sincerely,
Cheiron

Elizabeth Wiley, FSA, EA, MAAA, FCA
Consulting Actuary

Heath Merlak, FSA, EA, MAAA, FCA
Principal Consulting Actuary

FOREWORD

Cheiron is pleased to provide the annual actuarial valuation report of the **Austin Firefighters Retirement Fund (Fund)** as of December 31, 2023. The purpose of this report is to:

1) **Measure and disclose** the Fund's financial condition as of the valuation date.

2) **Report** on past and expected financial trends.

3) **Determine** the funding period required to amortize any existing Unfunded Actuarial Liability(UAL).

4) **Assess** risks to the Fund's financial condition.

An actuarial valuation establishes and analyzes Fund assets and liabilities on a consistent basis and traces the progress of both from one year to the next. It includes measurement of the Fund's investment performance and an analysis of actuarial liability gains and losses. This valuation report is organized as follows:

Section I summarizes the valuation and compares this year's results to last year's.

Section II identifies the primary risks to the Fund, including background information and an assessment of these risks.

Section III contains exhibits relating to the valuation of assets.

Section IV shows the various measures of liabilities and analyzes the experience gains and losses over the past year and the source of changes to the UAL.

Section V shows the development of the Actuarially Determined Contribution Benchmark and a Reasonable Actuarially Determined Contribution.

The appendices to this report contain a summary of the Fund's membership at the valuation date, a summary of the major provisions of the Fund, and the actuarial methods and assumptions used in developing the valuation.

SECTION I – SUMMARY

General Comments

This is the second actuarial valuation report prepared for the Fund by Cheiron. The results before December 31, 2022 in the historical trend charts are those produced by the Fund's former actuary.

Vernon's Texas Civil Statute, Article 6243e.1, sets the employer and member contributions to this Fund. An Actuarially Determined Contribution Benchmark ("ADC Benchmark") is provided in this report for comparison to the current contribution rates based on the Funding Policy adopted by the Board as of December 16, 2019. In addition, this report provides two other contribution rates to assess the fixed statutory contributions rates:

1. A tread water contribution rate: This contribution rate represents the contribution level required to cover the cost of benefits accruing during the year and interest on the Unfunded Actuarial Liability(UAL), and thus anticipated to keep the UAL at the same dollar amount if all assumptions are exactly met.
2. A reasonable actuarially determined contribution rate ("reasonable ADC"): As defined by Actuarial Standards of Practice No. 4, a reasonable actuarially determined contribution rate is provided that reflects a 20-year closed, layered amortization method effective with the December 31, 2023 actuarial valuation. In our opinion, the ADC Benchmark outlined in the Funding Policy does not meet the definition of a reasonable ADC since it uses a 30-year open amortization method, which does not fully amortize the Unfunded Actuarial Liabilitywithin a reasonable time period. Please see Section V for more details on the reasonable ADC.

The key results of the December 31, 2023 actuarial valuation are as follows:

- The Fund's funded ratio based on the Actuarial Value of Assets (AVA) decreased from 86.9% as of December 31, 2022 to 85.6% as of December 31, 2023. On a market value of assets (MVA) basis, the funded ratio decreased from 80.0% as of December 31, 2022 to 79.6% as of December 31, 2023.
- The Unfunded Actuarial Liability(UAL) on an Actuarial Value of Assets (AVA) basis [actuarial liability (AL) – AVA] increased from $183.4 million as of December 31, 2022 to $210.5 million on December 31, 2023.
- Investments earned 8.1% on a market value basis for the year ending December 31, 2023, resulting in an investment gain on the market value of assets of $9.1 million.
- Due to the smoothing of investment gains and losses, the AVA return was 6.8%, producing a loss of $5.9 million to the Fund for the year on that basis. Both returns are measured against the prior year's 7.30% expected return.
- The Fund experienced a liability gain of $6.9 million. The sources of the liability gain are listed in Table IV-3.
- The actuarial liability increased by $27.0 million due to assumption changes from the recent experience study adopted effective with the December 31, 2023 actuarial valuation.

SECTION I – SUMMARY

The tables below provide a summary of the actuarial valuation. The prior year's valuation results are shown for comparison purposes, as well as a column looking at the change in each value as a percentage of the prior year's values.

Table I-1
Austin Firefighters Retirement Fund
Summary of Principal Results

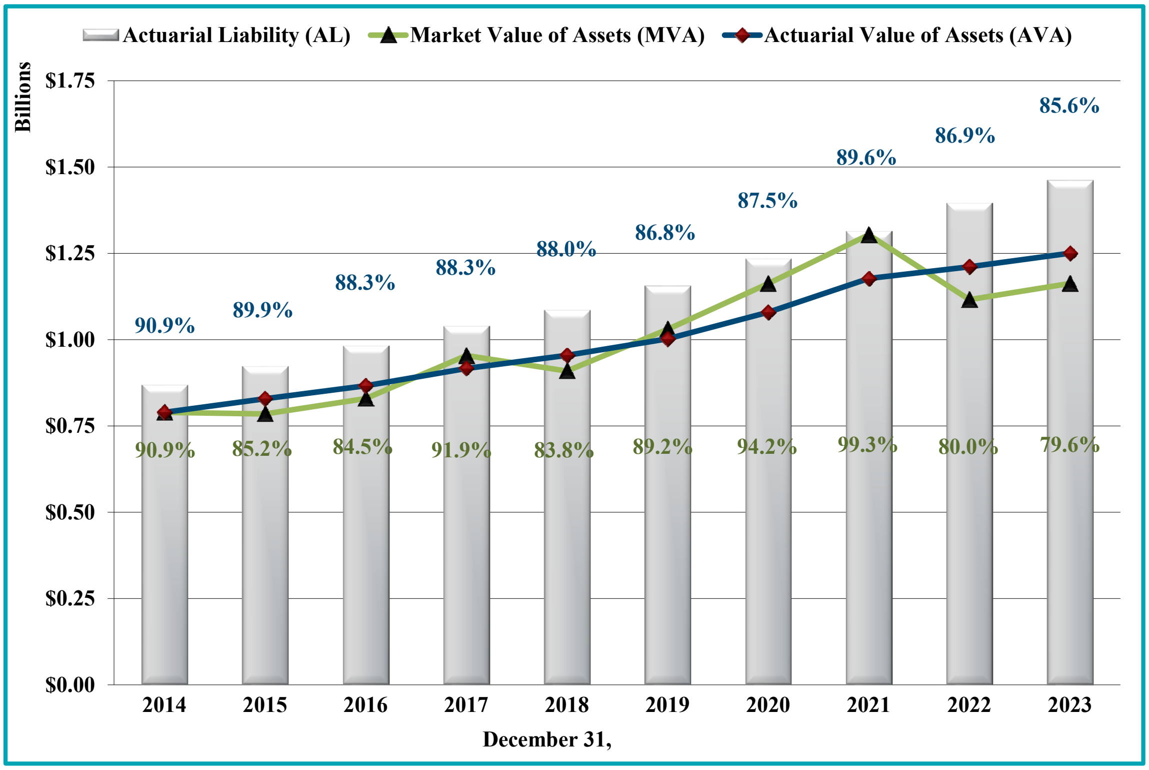
	December 31, 2023	December 31, 2022	% Change
Assets and Liabilities			
Actuarial Liability (AL)	$1,460,581,730	$1,394,695,732	4.7%
Actuarial Value of Assets (AVA)	1,250,115,476	1,211,321,297	3.2%
Unfunded Actuarial Liability (UAL)	$210,466,254	$183,374,435	14.8%
Funded Ratio (AVA basis)	85.6%	86.9%	(1.3%)
Market Value of Assets (MVA)	$1,162,694,392	$1,115,832,870	4.2%
Funded Ratio (MVA basis)	79.6%	80.0%	(0.4%)
Amortization Period	48.6	35.7	36.0%
Statutory Contribution Rates			
City Contribution Rate	22.05%	22.05%	0.0%
Member Contribution Rate	18.70%	18.70%	0.0%
Total Contribution Rate	40.75%	40.75%	0.0%
Current Normal Cost as % of Payroll	31.21%	30.73%	1.6%
Contribution Rate Remaining to Pay UAL	9.54%	10.02%	(4.8%)
City Rate Based on ADC Benchmark	23.29%	22.76%	2.3%
City Rate Surplus/(Deficit)	*(1.24%)*	*(0.71%)*	74.5%
Treadwater City Contribution Rate	26.39%	25.19%	4.8%
City Rate Surplus/(Deficit)	*(4.34%)*	*(3.14%)*	38.2%
Reasonable ADC	26.70%	N/A	
City Rate Surplus/(Deficit)	*(4.65%)*	N/A	
Participant Information			
Actives	1,246	1,199	3.9%
Service Retirees, including DROP	809	793	2.0%
Beneficiaries	171	171	0.0%
Disability Retirees	15	15	0.0%
Terminated Vested	36	35	2.9%
Total Participants	2,277	2,213	2.9%
Expected Payroll	$114,653,245	$105,372,248	8.8%

SECTION I – SUMMARY

Historical Trends

It is important to take a step back from these latest results and view them in the context of the Fund's recent history. Below, we present a series of charts displaying key factors in the valuations since 2014.

Assets and Liabilities



The bars represent the actuarial liability (AL) as measured for funding purposes in the valuations. The lines represent the Fund's assets, with the green line showing the market value of assets (MVA) that is reported in the Fund's financials and the blue line showing the smoothed Actuarial Value of Assets (AVA). The liabilities are compared to the assets to develop funding ratios for each valuation date. The ratio of the AL to the AVA is the AVA funded ratio, which are the blue percentages shown in the chart along the top of each bar. Similarly, the ratio of the AL to the MVA is the MVA funded ratio, the green percentages shown on the bars.

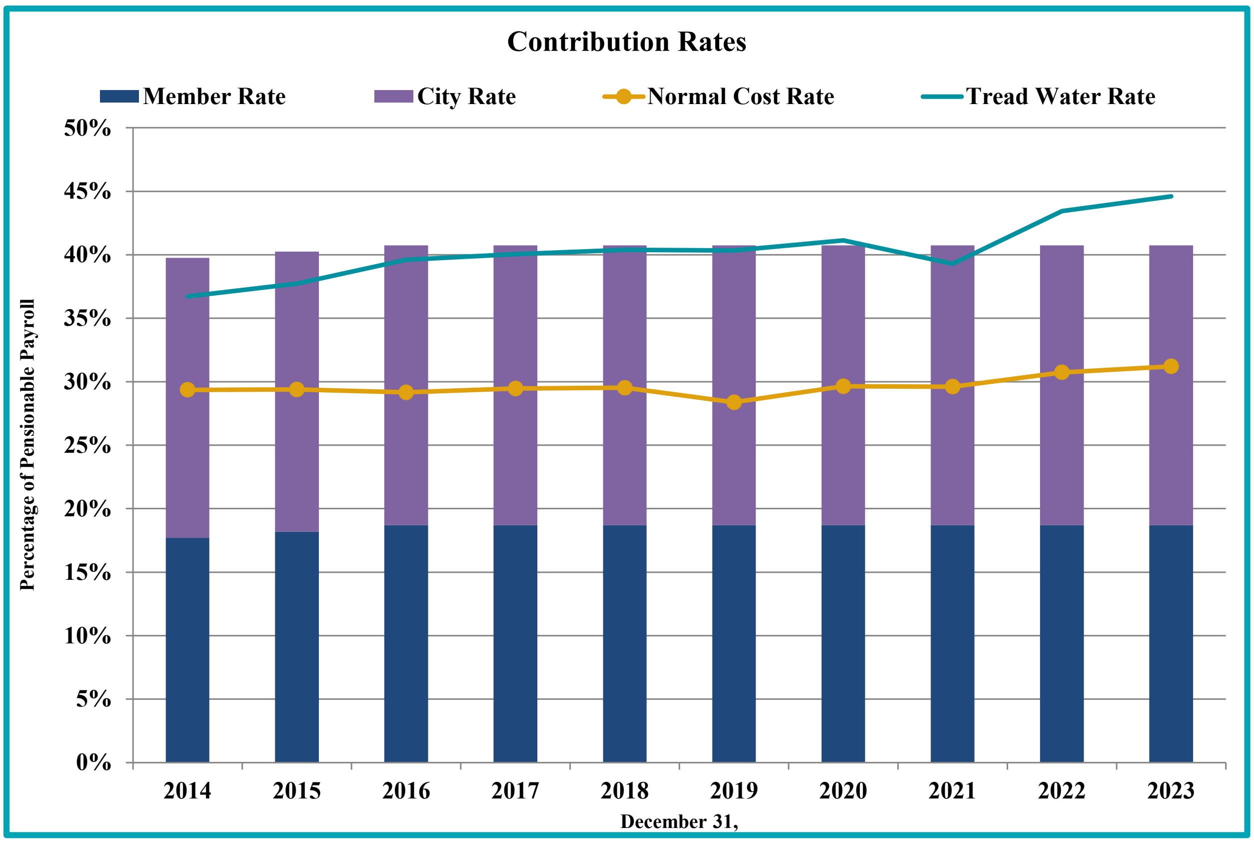
As shown, the Fund has had an AVA funded ratio of 85% or higher during this period, with the highest funded ratio in 2014 at 90.9%. The MVA funded ratio has been more variable, reflecting the market volatility, from a high of 99.3% as of 2021 to a low of the current 79.6%.

Contributions versus Tread Water

The next chart compares the fixed city and member contribution rates, shown by the bars, to the normal cost and tread water rates as of each valuation date. The normal cost rate, the orange line, is the percentage of salary needed to fund the benefits earned in a year for the active members. The tread water rate, the teal line, is that rate of payroll which, if contributed, would result in the UAL remaining the same in the following year if all experience exactly matched the assumptions. The tread water rate is equal to the normal cost rate plus interest on the UAL.

As shown below, the fixed total contributions exceed the normal cost rate for all years shown. The difference between the tops of the bars and the orange line represents the portion of contributions that are available to fund the UAL. The chart also shows that the normal cost rate has been relatively stable over this period, staying within approximately one percentage point of 30%.

The stacked bars show that the sum of the city's and members' fixed contribution rates has been greater than the tread water rate for most years over this period. However, since the 2022 asset loss began being recognized, the tread water rate has been higher than the fixed contribution rates for 2022 and 2023.

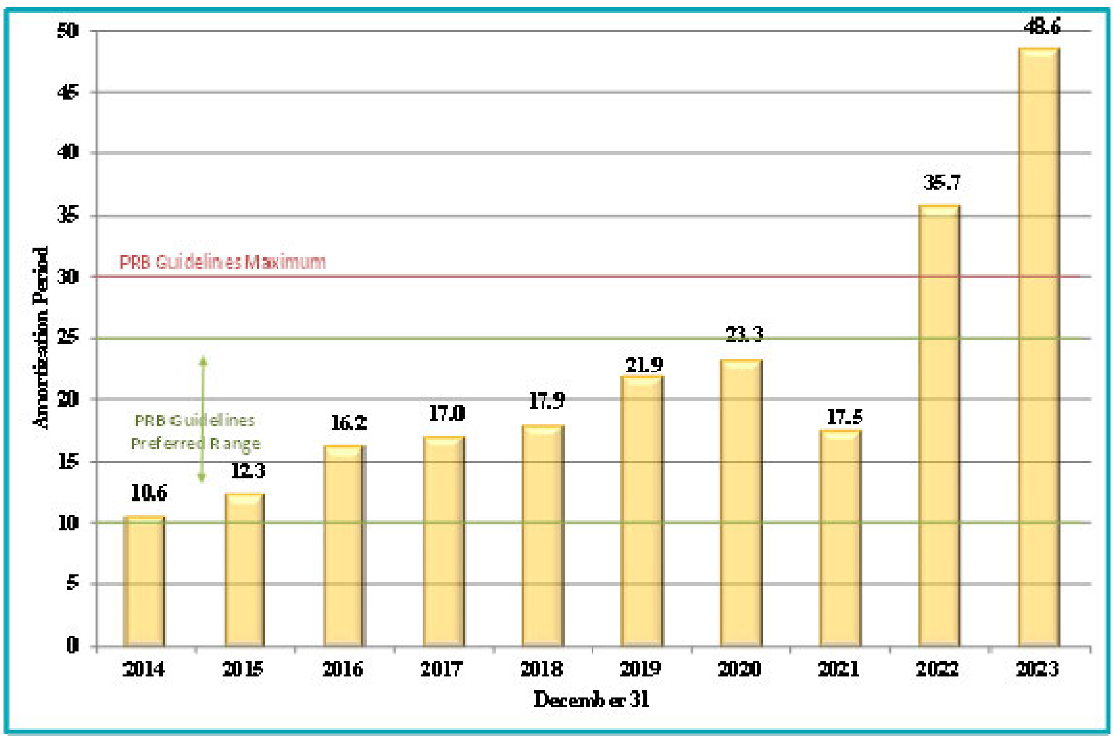


SECTION I – SUMMARY

Amortization Periods

The chart below shows the effective amortization period for funding the UAL based on the Actuarial Value of Assets as of each valuation date since the Fund began performing annual actuarial valuations in 2014. Due to leveraging, the amortization period can vary significantly from year to year.

The Pension Review Board (PRB) provides funding guidelines for public pensions in Texas, including that the contributions received by funds should be sufficient to pay the normal cost each year as well as amortize the fund's UAL over a period not to exceed 30 years and with 10-25 years being the preferred range. While the Fund's amortization period as of the current valuation of 48.6 years is greater than the guideline-recommended maximum of 30 years, this amortization period does not trigger a Funding Soundness Restoration Plan (FSRP) for the current year. Based on the legislation for FSRPs that is currently in effect, the Fund and the City of Austin would be required to formulate an FSRP if the Fund's amortization period exceeds 30 years for three consecutive annual valuations.



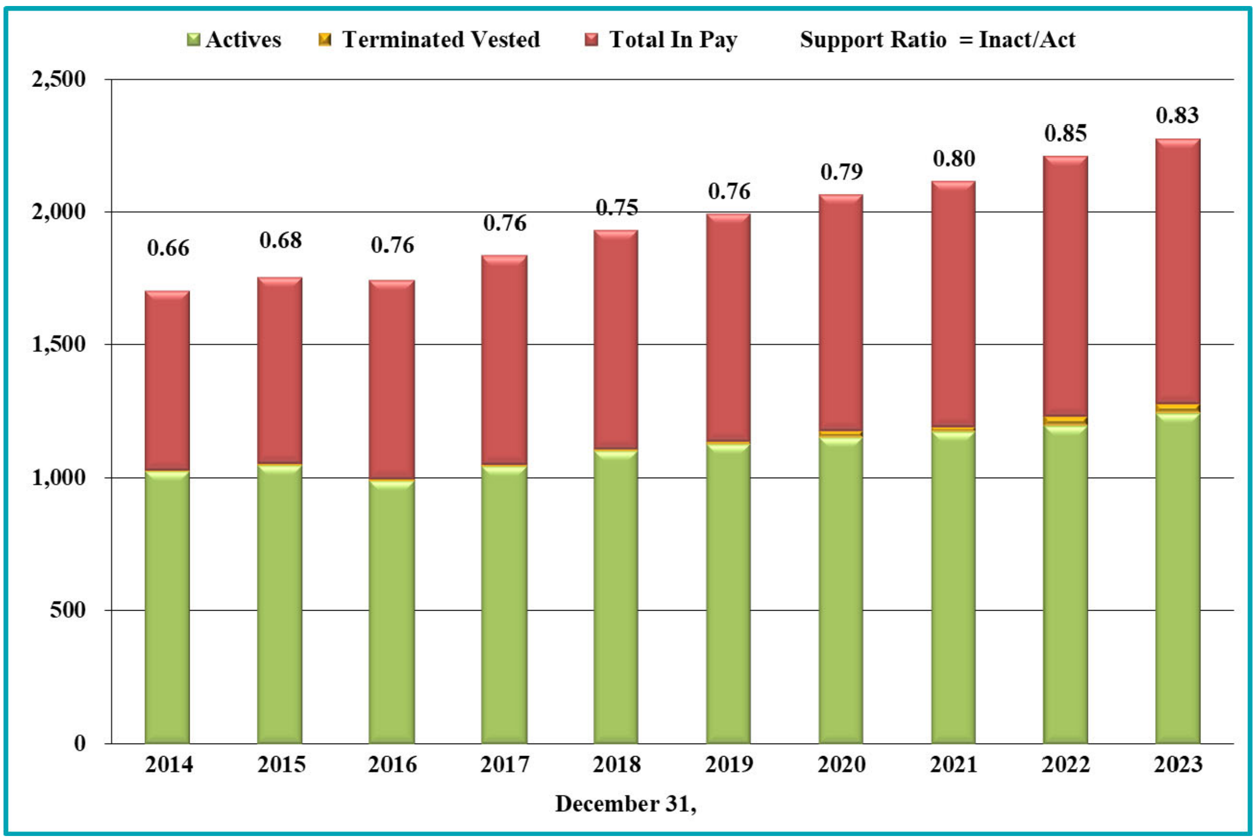
While an FSRP is not currently triggered, it is important to note that in baseline projections where all assumptions are exactly met, as shown on page 8, it is anticipated that an FSRP will be triggered with the next valuation, as of December 31, 2024, unless the Fund experiences a significant gain in the next year. Because the amortization period is calculated based on the smoothed Actuarial Value of Assets that recognizes gains over five years, the 2024 return would have to be at least 31% for the amortization period calculated as of December 31, 2024 not to exceed 30 years, assuming all other assumptions are exactly met.

SECTION I – SUMMARY

Member Trends

The following chart shows the membership counts of the Fund at successive valuations. The numbers that appear above each bar represent the ratio of the number of inactive members, those currently receiving benefits (red bars) and terminated vested members (yellow bars), to active members (green bars) as of each valuation date, referred to as the support ratio.

The number of inactives per active has generally steadily increased during the period shown. An increasing ratio is a sign of plan maturity and should continue to be monitored. As a plan becomes more mature, the assets backing the retiree benefits become large relative to the contribution base, i.e., the active member payroll. As assets grow relative to the pensionable payroll, any experience gain or loss can significantly impact the actuarial valuation results. This maturity risk is discussed further in Section II of this report.



SECTION I – SUMMARY

Projections

This baseline projection is based on the December 31, 2023 valuation, including the 7.30% rate of return assumption. It is important to note that the Fund's actual experience will not conform exactly to the assumptions every year. As a result, in addition to the baseline projection of 7.30% investment returns, we provide additional projections, or stress testing, in Section II based on varying returns in the future, as variation in this assumption is typically the most significant driver of variation in valuation results.

The projections, both the baseline in this section and the varying returns in Section II, assume there will be no future gains or losses on the liability, and that the Fund receives the statutory contribution rates (18.70% for members and 22.05% for city) each year. As such, these projections assume all valuation assumptions are exactly met, including the long-term rates of return specified and assumed for each scenario and the covered payroll increasing by 2.50% per year in all scenarios.

For each projection, there is a table of assumed asset returns and two charts showing the projected condition of the Fund based on returns equal to those shown in the table, assuming all other assumptions are exactly met.

This first chart compares the market value of assets (MVA) (blue line) and the actuarial or smoothed value of assets (AVA) (green line) to the Fund's actuarial liabilities (AL) (gray bars). In addition, at the top of each chart, we show the Fund's AVA funded ratio (ratio of AVA to AL). The years shown in the chart signify each labeled year's valuation date as of December 31.

The second chart provides the effective amortization period based on the statutory contributions of 18.70% of pay for active members and 22.05% of pay for the city. When the bars expand to 100 years, this indicates that the city and member contributions are not expected to be sufficient to pay down the UAL. This occurs when the amount of contribution available to amortize the UAL is not sufficient to cover the interest on the UAL.

The baseline chart below shows that if all actuarial assumptions, including the current 7.3% rate of investment return assumption, are exactly met, the Fund's AVA funded ratio, shown along the top of the chart, is projected to decrease from the current level of 86% to 74% by the 2043 valuation. The AVA funded ratio is expected to decrease over the 20-year projection period, and the decrease is more pronounced early in the projection period as the 2022 asset loss is fully recognized in the valuation. Similar to last year's valuation, the effective amortization period is expected to increase to 100 years in 2025. Section II explores further how these metrics can vary when returns deviate from the expected 7.3%.

SECTION I – SUMMARY

Projected Asset Returns	
2024	7.30%
2025	7.30%
2026	7.30%
2027	7.30%
2028	7.30%
2029	7.30%
2030	7.30%
2031	7.30%
2032	7.30%
2033	7.30%
2034	7.30%
2035	7.30%
2036	7.30%
2037	7.30%
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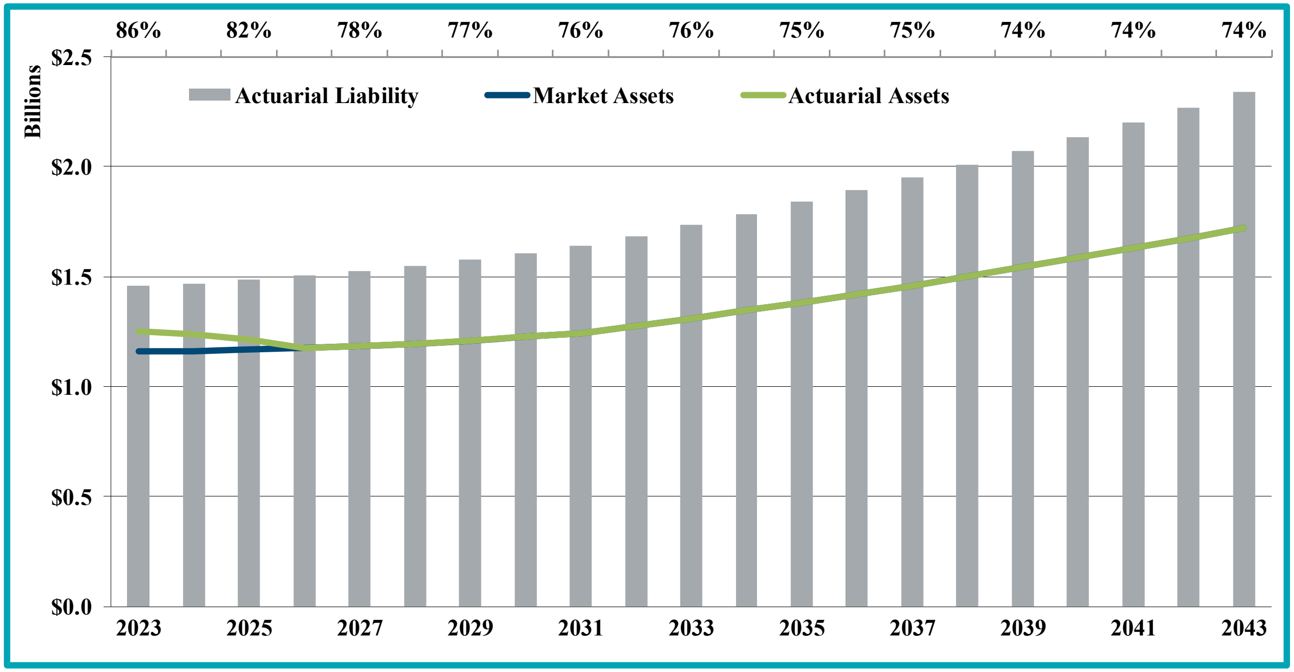
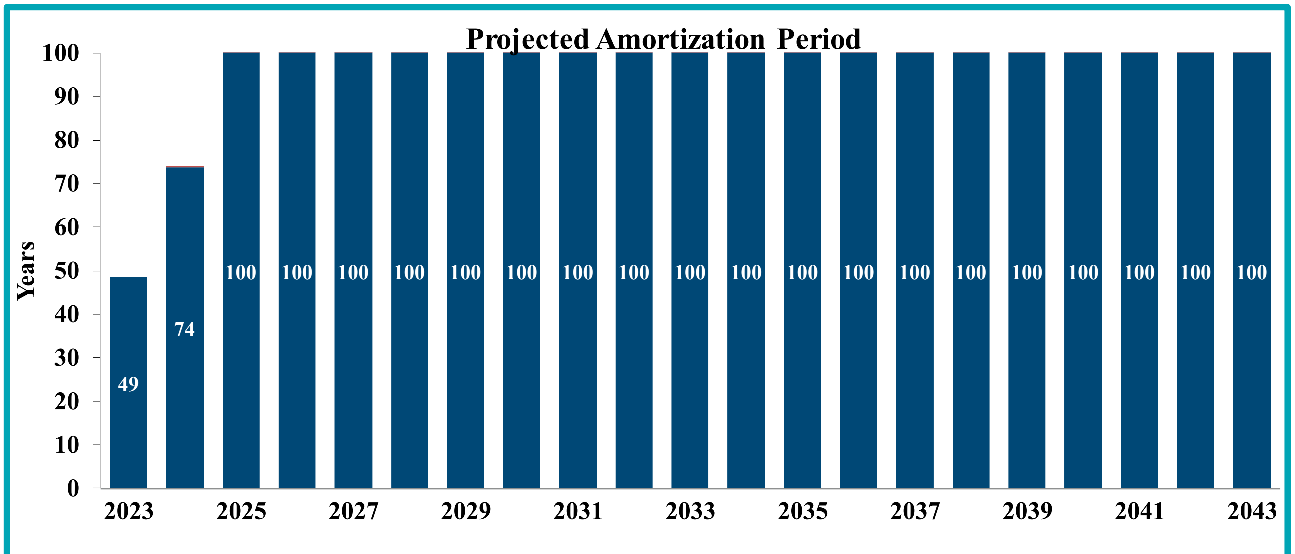
2039	7.30%
2040	7.30%
2041	7.30%
2042	7.30%
2043	7.30%





SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK

Actuarial valuations are dependent on assumptions about future economic and demographic experience. Based on actuarial standards of practice, these assumptions represent a reasonable estimate of future experience. However, actual future experience will never conform exactly to the assumptions and may differ significantly. This deviation is the risk that pension plan sponsors undertake in relying on a pension plan's actuarial valuation results.

This section of the report is intended to identify the primary drivers of these risks to the Fund, provide background information and assessments about these risks and drivers, and communicate the significance of these risks to the Fund and its sponsors.

Identification of Risks

As we have discussed with the Board, the fundamental risk to the Fund is that the contributions needed to pay the desired benefits become insufficient. While there are many factors that could lead to current contribution rates becoming insufficient, we believe the primary risks are:

- Investment risk
- Interest rate risk
- Longevity and other demographic risks
- Assumption change risk
- Plan change risk

Other risks that we have not identified may also turn out to be important.

Investment Risk is the potential for investment returns to deviate from what is expected. When actual investment returns are lower than the investment return assumption used in the actuarial valuation, the Unfunded Actuarial Liabilitywill increase from what was expected and will require higher contributions than otherwise anticipated. However, when actual returns exceed the assumption, the resulting unfunded liability measurements and actuarially determined contributions will be lower than anticipated. The Fund's asset allocation determines the potential volatility of future investment returns. The affordability of the investment risk is determined by the amount of assets invested relative to the size of the plan sponsor or other contribution base. As seen in the following historical section, this risk has been a significant driver of deviations in the actual measurements for this Fund from those expected by the prior valuations.

Interest Rate Risk is the potential for interest rates to be different than expected. For public plans, short-term fluctuations in interest rates have little or no effect, as the Fund's liability is usually measured based on the expected return on assets. Longer-term trends in interest rates, however, can have a powerful effect.

Longevity and Other Demographic Risks are the potential for mortality or other demographic experience to be different than expected. Generally, longevity and other demographic risks emerge slowly over time as the actual experience deviates from what is expected. In addition, the extensive number of assumptions related to longevity and other demographic experience often

SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK

result in offsetting factors contributing to the Fund's overall liability experience. As such, these risks are often dwarfed by other risks, particularly those due to investment returns.

Assumption Change Risk is the potential for the environment to change such that future valuation assumptions are adjusted to be different from the current assumptions. For example, declines in interest rates over time due to economic factors may result in a change in the assumed investment rates of return used in the valuations. In terms of demographic factors, a healthier workforce may result in changes in employee behavior such that retirement rates are adjusted to reflect employees working longer. In addition, mortality rates are adjusted to account for members living longer and receiving more years of their retirement benefits. Assumption change risk is an extension of the risks previously identified, but rather than capturing the risk as it is experienced, it captures the cost of recognizing a change in environment resulting in the current assumption no longer being reasonable.

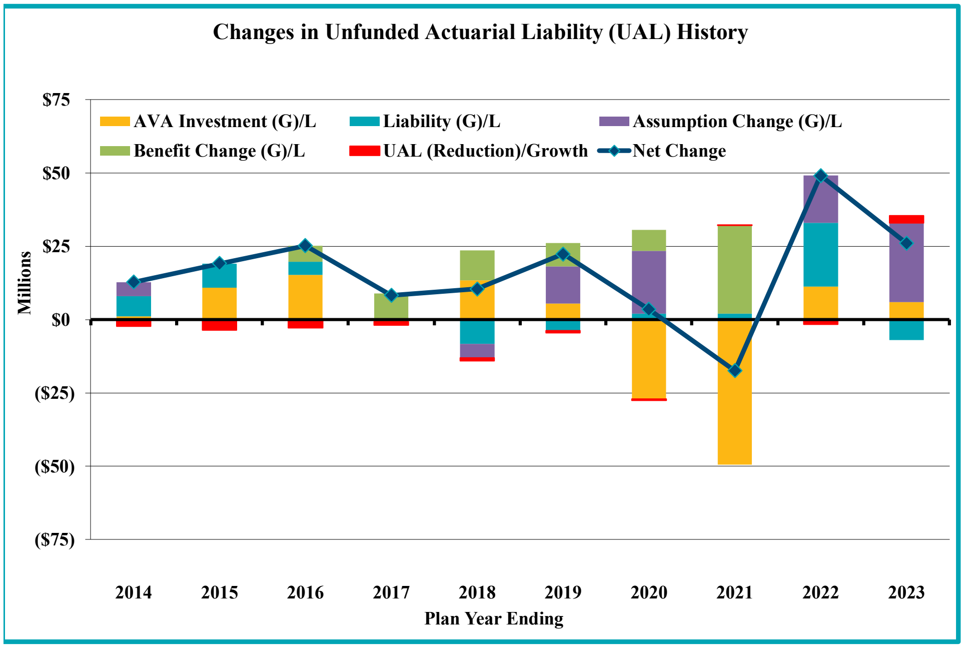
Plan Change Risk represents the possibility of legislated changes made to the statutes governing the Fund. This includes any changes to the benefits paid by the Fund or the contributions that must be paid by the city and the members to the Fund. Over the history of this Fund, these changes have included granting cost-of-living adjustments (COLAs), which increase the benefits paid to members designed to provide purchasing power protection from inflation, changes to the multipliers and minimums used to determine the amount of member benefits, and changes to the contributions that the city and members must pay. As shown in the chart that follows, plan changes, principally the granting of COLAs, have been a significant driver of liability changes for the Fund over the last ten years.

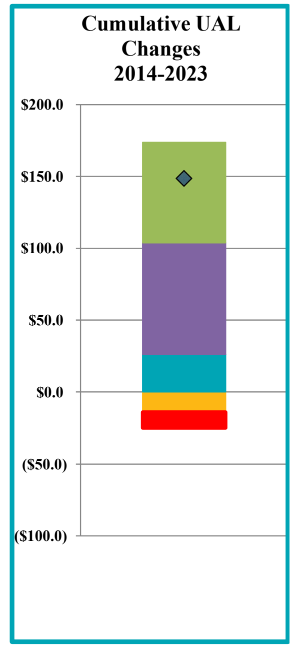
Based on the Board's communicated intent, the most likely plan changes in the future are also COLAs. It is important to note that the Fund's policies, which require the Fund to meet certain funding conditions before plan changes can be granted, provide protection from this risk. The current valuation assumption for future COLAs is that none will be granted based on the Fund's current condition and these financial stability tests

The chart below shows the components of changes in the Unfunded Actuarial Liability(UAL) for the Fund over the last ten years, including investment gains and losses on the Actuarial Value of Assets, liability gains and losses, assumption and method changes, and the paying down of the UAL. Amounts below the horizontal axis are gains or decreases to the UAL, while amounts above the axis are losses or increases to the UAL. The dark blue line shows the net UAL change.

SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK

Historical Changes in UAL 2014-2023





On a smoothed asset basis, the investment gains and losses (gold bars) from 2014 to 2023 reflect investment losses on a smoothed or AVA basis in seven of the ten years shown. However, two of these years, 2020 and 2021, had significant gains such that over the 10-year period, in aggregate, investment losses and gains decreased the UAL by approximately $14 million.

On the liability side (teal bars), the Fund has experienced a net liability experience loss that increased the UAL by approximately $26 million over this period. Assumption and method changes (purple bars) have increased the UAL by approximately $79 million over the 10-year period. The assumption changes have included lowering the discount rate from 7.75% to 7.30%, updating the mortality assumptions, and updating other demographic assumptions. The assumption changes implemented with this valuation increased liability by $27 million.

Benefit changes noted by the green bar reflect the increase in liability for COLAs granted in the last ten years. Over this period, the granted COLAs have added $70 million to the UAL.

Finally, each year, the UAL is expected to decrease/(increase) as the total contributions received by the Fund exceed/(are less than) the contributions needed to pay the normal cost for the benefits earned in the current year. In aggregate, the contributions received by the Fund in excess of normal cost have decreased the UAL by approximately $11 million over the last ten years. Most of these amounts are below the x-axis, meaning the contributions were sufficient to pay the normal cost and reduce the UAL by some amount. With the 2022 asset loss, the 2023 total fixed contributions were less than the tread water contribution, so the UAL increased for 2023. It is anticipated that the UAL paid amount for the 2024 plan year will also be above the x-axis since the actual contributions will be insufficient to amortize or pay down any portion of the existing UAL.

SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK

Plan Maturity Measures

The future financial condition of a mature pension plan is more sensitive to each of the risks identified above than a less mature plan. Before assessing each of these risks, it is important to understand the maturity of this Fund compared to other plans and how the maturity has changed over time.

Plan maturity can be measured in various ways. Still, all focus on one basic dynamic—the larger the plan is compared to the contribution or revenue base that supports it, the more sensitive the plan will be to risk. The measures below have been selected as the most important in understanding the primary risks identified for this Fund.

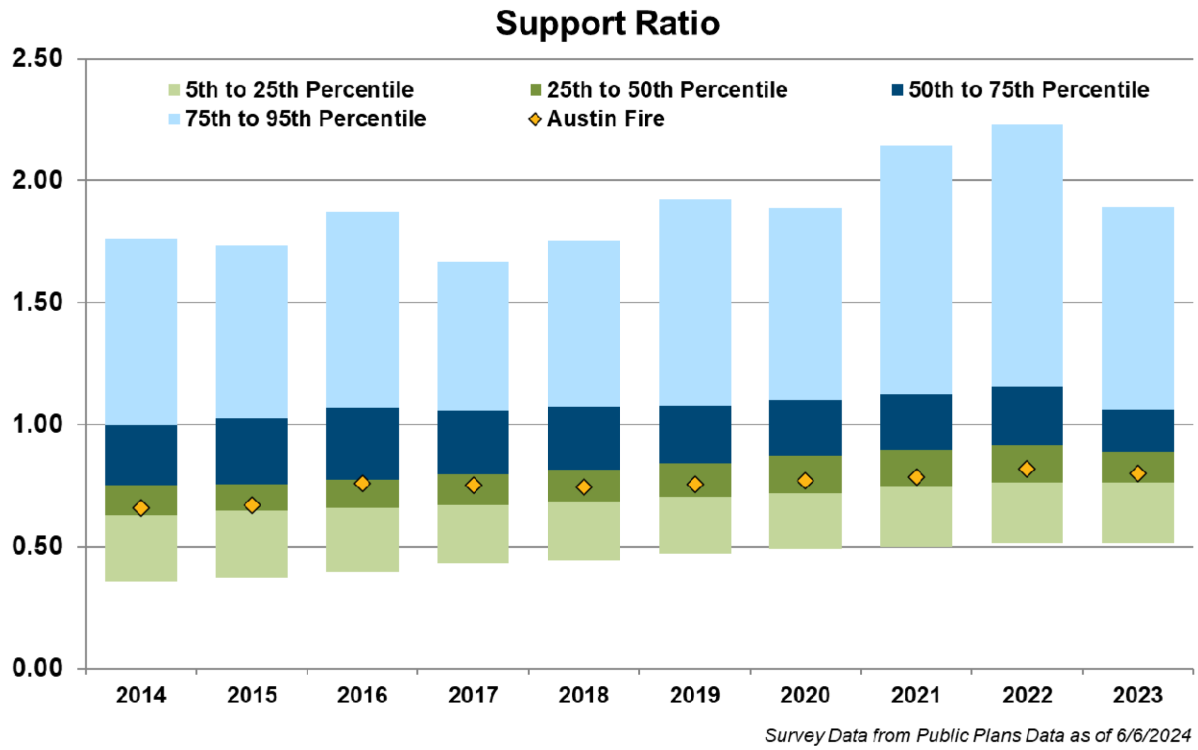
Inactives per Active (Support Ratio)

One simple measure of plan maturity is the ratio of the number of inactive members, those currently receiving benefits and terminated vested members, to the number of active members. The revenue base supporting the plan is usually proportional to the number of active members, so a relatively high number of inactives compared to actives indicates a larger plan relative to its revenue base as well.

The Boston College's Center for Retirement Research, the National Association of State Retirement Administrators (NASRA), MissionSquare, and the Government Finance Officers Association (GFOA) maintain the Public Plan Database, which contains the majority of state plans (121) and many (108) large municipal plans. It covers over 95% of the membership in public plans and over 95% of the assets held by public pension plans.

The following chart shows the support ratio for all plans in this database since 2014. The colored bars represent the central 90% of the support ratios for the plans in the database. The Austin Firefighters Retirement Fund is represented in the chart by gold diamonds.

SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK

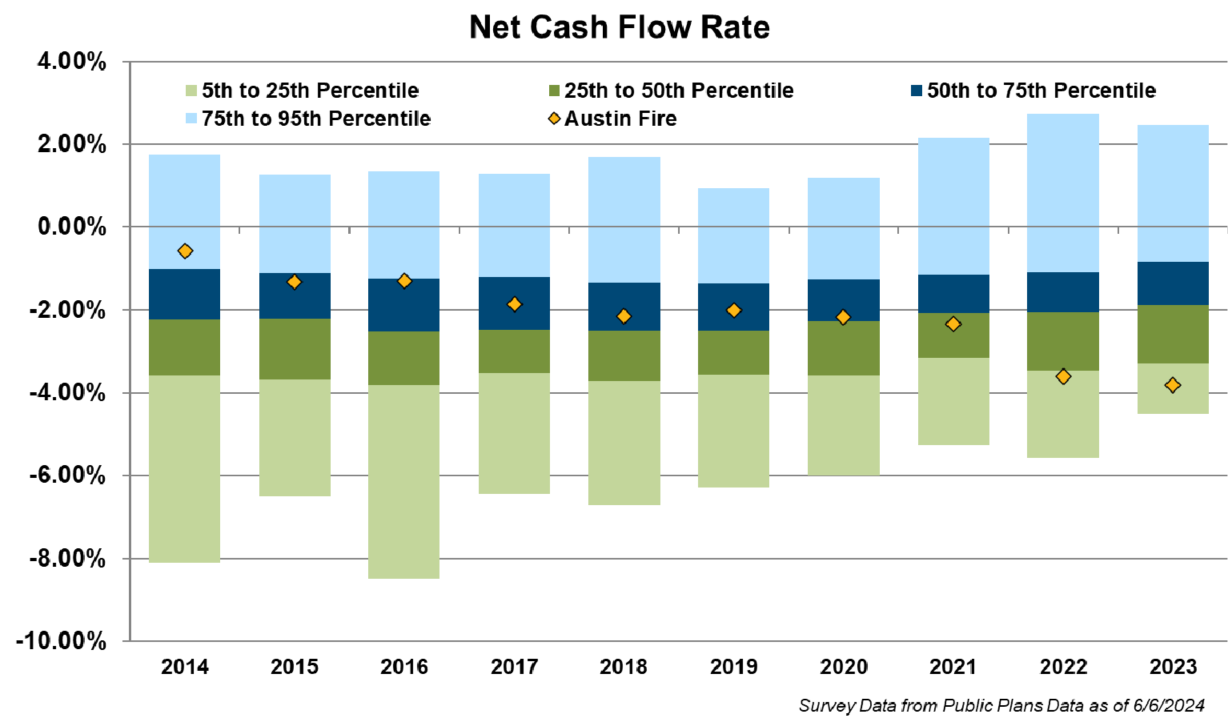


This chart shows that the Fund is not as mature as other plans in this database. The support ratios for the universe of public plans shown have increased over the period as they mature, with the Fund's support ratio increasing at a similar pace. The Fund has remained below the 50th percentile for the entire period.

SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK

Net Cash Flow

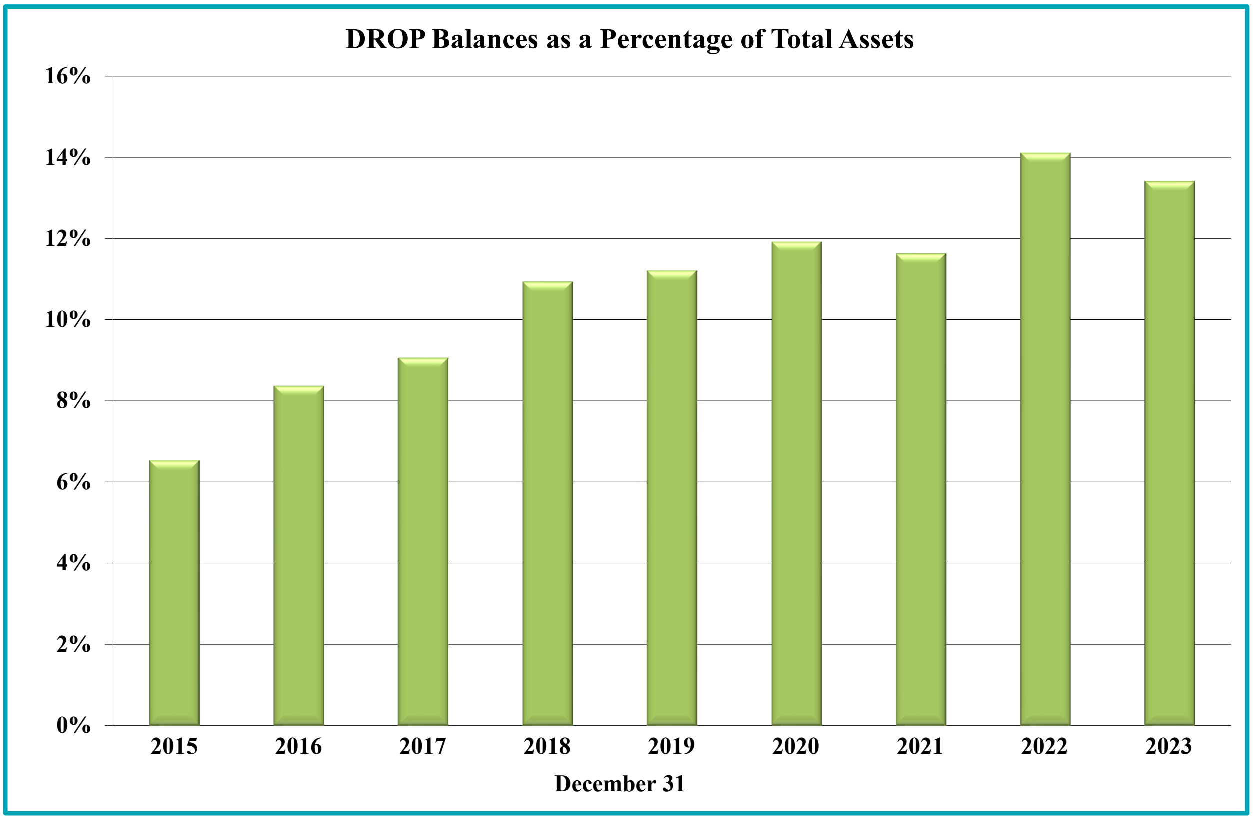
The net cash flow of the plan as a percentage of the beginning-of-year assets indicates the Fund's sensitivity to short-term investment returns. Net cash flow is equal to contributions less benefit payments and administrative expenses. Mature plans can have large amounts of benefit payments compared to contributions, particularly if they are well-funded. Investment losses in the short-term are compounded by the net withdrawal from the plan, leaving a smaller asset base to try to recover from the investment losses. Large negative cash flows can also create liquidity issues.



The chart above shows the distribution of net cash flow as a percent of assets, again with the bars showing the 5th to 95th percentile for the plans in the Public Plans Database. The gold diamonds show the Fund's experience for this metric, allowing comparison to the other plans. Up until 2020, the Fund was generally consistently above the 50th percentile. However, in 2021, the Fund's cash flow as a percent of assets decreased, putting the Fund in the 25th to 50th percentile. The decrease in this percentage is primarily due to the Fund maturing and the timing of the measurement. The Fund uses a measurement date of December 31, so the 2023 calendar returns are fully reflected. In contrast, most of the universe uses measurement dates during the calendar year, thus only reflecting a portion of the 2023 calendar year returns in the 2023 fiscal year returns.

Additionally, as DROP payments increase relative to the size of the Fund, this will likely create additional volatility in this measurement from year to year. The chart below shows the percentage of assets attributable to DROP balances since this information was first reported with the 2015 valuation.

SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK



This graph is provided because the Fund's assets must be invested considering the liquidity needed to pay out DROP accounts to members. This is a specific risk applicable to this Fund due to the structure of the benefits provided.

Actuarial Standards of Practice No. 4 – Disclosures

Low Default Risk Obligation Measure (LDROM)

The Fund invests in a diversified portfolio to maximize investment returns at a reasonable level of risk. The lowest risk portfolio for a pension plan would be composed entirely of low-default-risk fixed income securities whose cash flows match the benefit cash flows of the Fund. Such a portfolio, however, would have a lower expected rate of return than the diversified portfolio. The Low-Default-Risk Obligation Measure (LDROM) represents the funding liability if the Fund invested its assets in such a portfolio. As of December 31, 2023, we estimate that such a portfolio based on the FTSE Pension Liability Index would have an expected return of 4.81% compared to the Fund's discount rate of 7.30%, and the LDROM would be $1,865,295,217 compared to the Actuarial Liability of $1,460,581,730. The $404,713,487 difference represents the expected savings from bearing the risk of investing in the diversified portfolio. Alternatively, it also represents the cost of eliminating the investment risk.

If the Fund were to invest in the LDROM portfolio, the reported funded status would decrease, and employer contributions would need to increase. Benefit security for Fund members relies on a combination of the assets in the Fund, the investment returns generated from those assets, and the promise of future contributions. If the Fund were to invest in the LDROM portfolio, it would not change the amount of assets currently in the Fund, but it would reduce expected future investment returns and decrease the Fund's funded ratio. However, the variability of future investment returns would narrow significantly.

Implications of Contribution Allocation Procedure on Funded Status

Based on the December 31, 2023 actuarial valuation (and assuming all actuarial assumptions are met) and the statutory contributions of 18.7% for members and 22.05% for the city, it is expected that:

- The Unfunded Actuarial Liability will increase from $210 million as of December 31, 2023 to $619 million as of December 31, 2043,
- The unfunded actuarial accrued liabilities will never be fully amortized, and
- The Fund's funded status will decrease gradually from 86% as of December 31, 2023 to 74% as of December 31, 2043.

Deterministic Scenarios/Stress Testing

We developed several hypothetical scenarios to illustrate how deviations from the assumed investment returns may impact future funded ratios and amortization periods. The scenarios presented are illustrative and intentionally balanced between positive and negative scenarios. They are intended to illustrate the importance of both the return itself and the timing of such returns.

The charts on the following pages show the projections under each of these theoretical scenarios:

Scenario	Description
A	Asset returns that are 1% higher than the expected return of 7.3% annually
B	Asset returns that are 1% lower than the expected return of 7.3% annually
C	Asset return for 2024 that is 10% higher than the expected return of 7.3% and then equal to the expected 7.3% for each year thereafter
D	Asset return for 2024 that is 10% lower than the expected return of 7.3% and then equal to the expected 7.3% for each year thereafter

The following table shows a few selected points in the projected results under these scenarios compared to the baseline scenario presented in the prior section.

Scenario	2033 Funded Ratio	2043 Funded Ratio	Year Amortization Period is less than 30
Baseline (7.3%)	76%	74%	After 2043
A (8.3%)	84%	97%	2036
B (6.3%)	68%	54%	After 2043
C (+10% in 2024)	88%	92%	2029
D (-10% in 2024)	63%	55%	After 2043

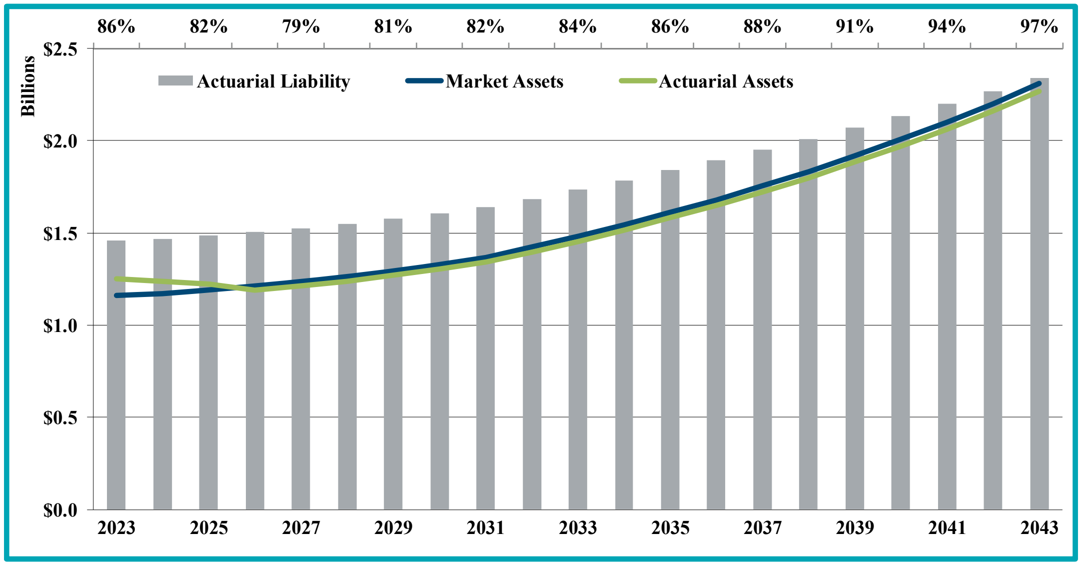
The following pages provide the individual scenario projection charts in the same format as those included for the baseline scenario in the prior section. The top projection chart compares the market value of assets (MVA) (gold line) and the actuarial or smoothed value of assets (AVA) (blue line) to the Fund's actuarial liabilities (AL) (gray bars). In addition, at the top of each chart, we show the Fund's AVA funded ratio (ratio of AVA to AL). The second chart provides the effective amortization period based on the statutory contributions of 18.70% of pay for members and 22.05% of pay for the city. All assumptions are assumed to be exactly met, including the asset returns specified for each scenario.

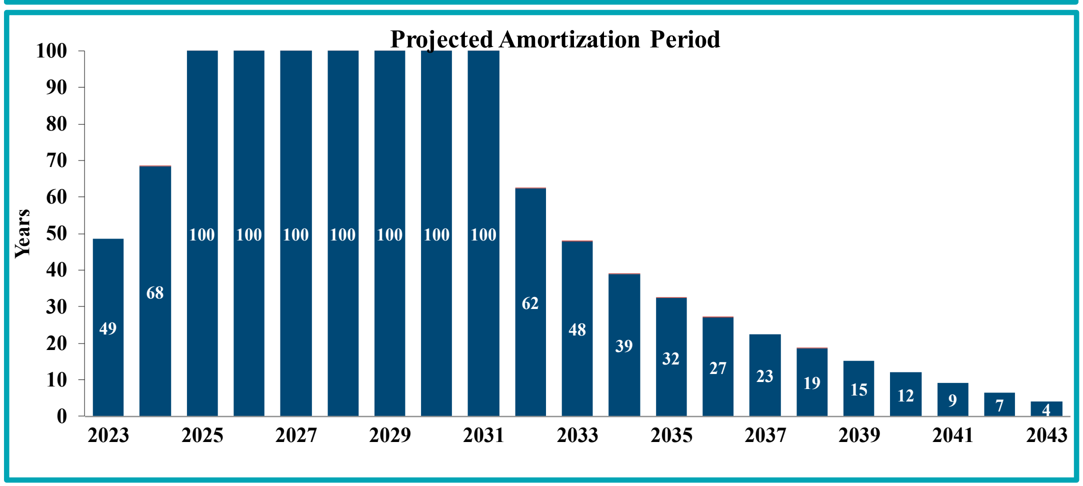
In addition to showing the variability of valuation results with different returns, these scenarios highlight how volatile the amortization period metric is to returns.

SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK

Fund Earns 8.3% for Each Year Over the Projection Period

Projected Asset Returns	
2024	8.30%
2025	8.30%
2026	8.30%
2027	8.30%
2028	8.30%
2029	8.30%
2030	8.30%
2031	8.30%
2032	8.30%
2033	8.30%
2034	8.30%
2035	8.30%
2036	8.30%
2037	8.30%
2038	8.30%
2039	8.30%
2040	8.30%
2041	8.30%
2042	8.30%
2043	8.30%



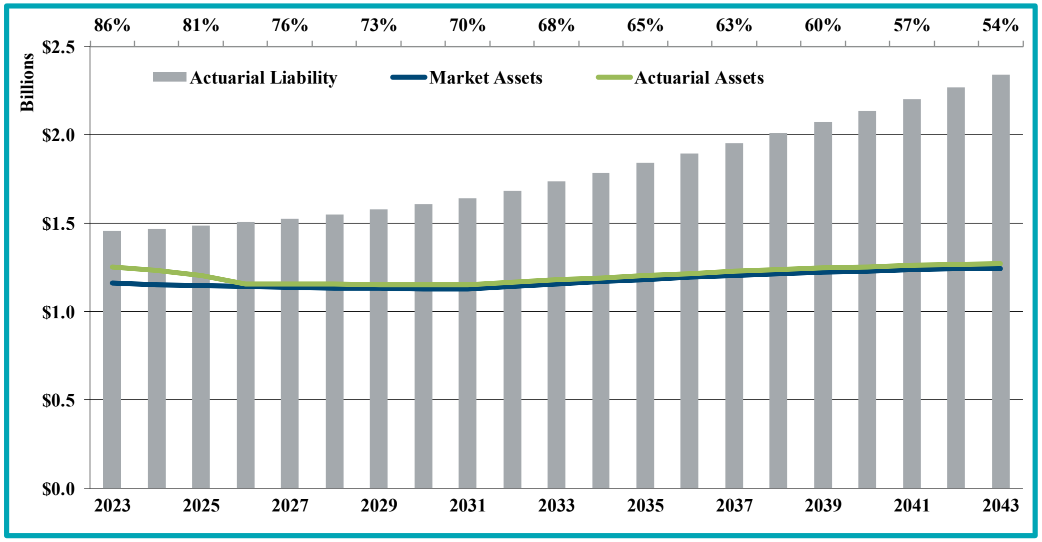


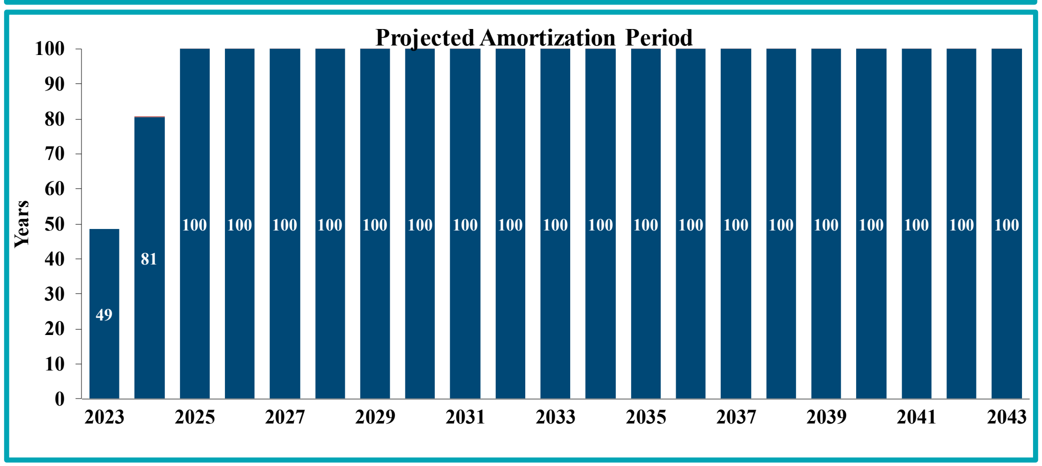
Under this scenario, the Fund will reach 97% funding by the end of the projection period. In 2036, the amortization period is expected to be below 30 years.

SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK

Fund Earns 6.3% for Each Year Over the Projection

Projected Asset Returns	
2024	6.30%
2025	6.30%
2026	6.30%
2027	6.30%
2028	6.30%
2029	6.30%
2030	6.30%
2031	6.30%
2032	6.30%
2033	6.30%
2034	6.30%
2035	6.30%
2036	6.30%
2037	6.30%
2038	6.30%
2039	6.30%
2040	6.30%
2041	6.30%
2042	6.30%
2043	6.30%





In this reduced investment earning scenario, the AVA funded ratio is expected to be 54% at the end of the 20-year period, and the amortization period will exceed 30 years throughout the projection period.

SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK

Fund Earns 17.3% for 2024 (10% above the expected return), then 7.3% per year each year thereafter

Projected Asset Returns	
2024	17.30%
2025	7.30%
2026	7.30%
2027	7.30%
2028	7.30%
2029	7.30%
2030	7.30%
2031	7.30%
2032	7.30%
2033	7.30%
2034	7.30%
2035	7.30%
2036	7.30%
2037	7.30%
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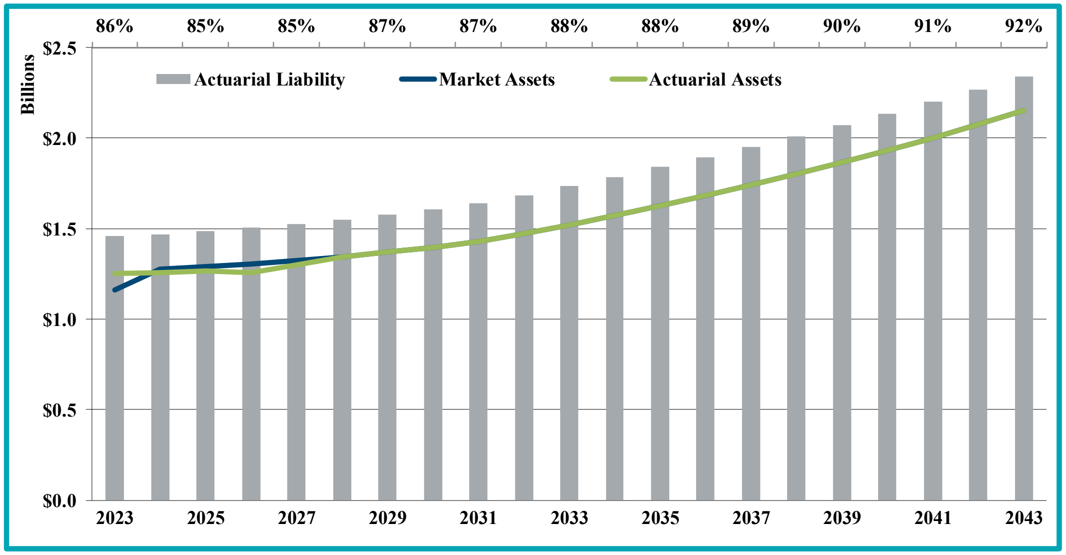
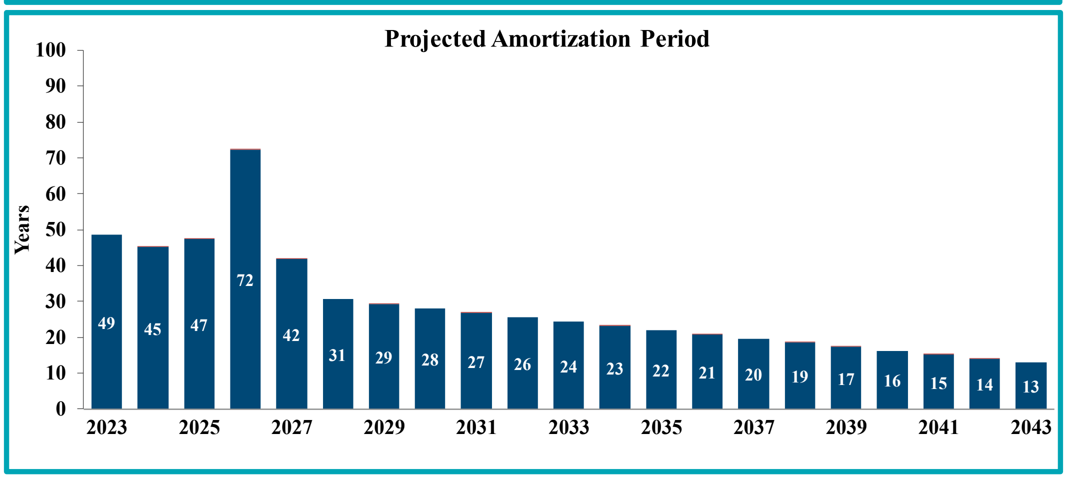
2039	7.30%
2040	7.30%
2041	7.30%
2042	7.30%
2043	7.30%



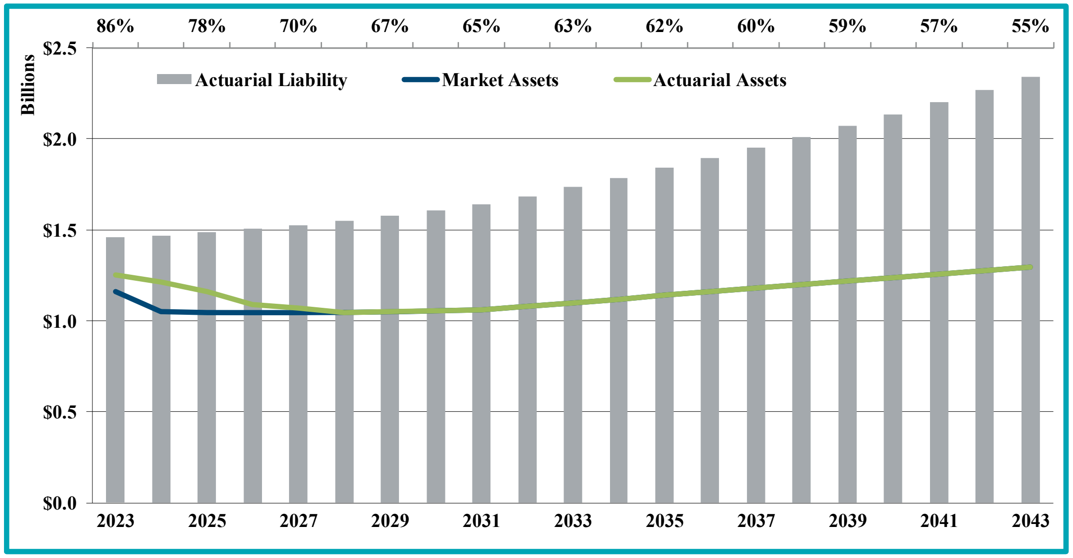


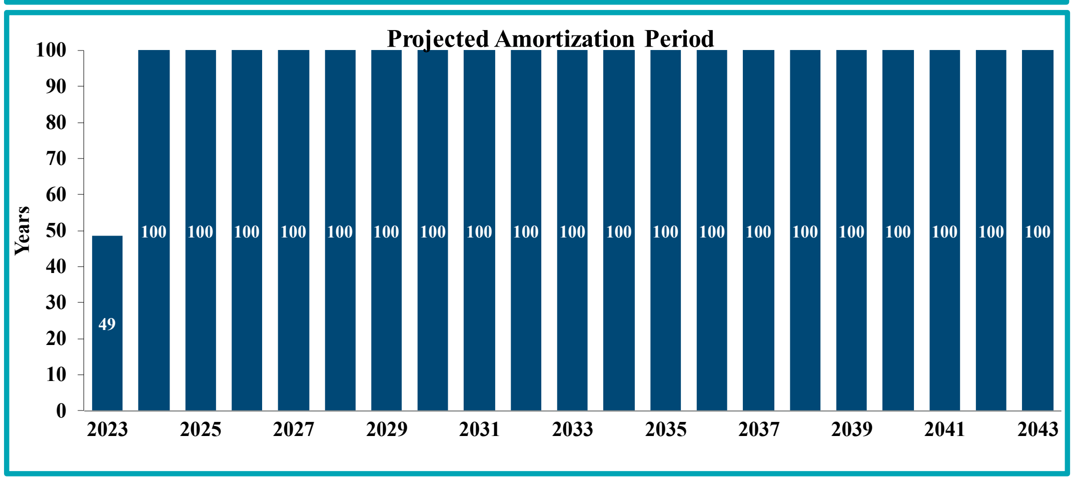
Under this scenario, the AVA funded ratio is expected to be 92% at the end of the 20-year period, and the amortization period is expected to be lower than 30 years beginning in 2029 and then gradually decline.

SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK

Fund Earns -2.7% for 2024 (10% below the expected return), then 7.3% per year each year thereafter

Projected Asset Returns	
2024	-2.70%
2025	7.30%
2026	7.30%
2027	7.30%
2028	7.30%
2029	7.30%
2030	7.30%
2031	7.30%
2032	7.30%
2033	7.30%
2034	7.30%
2035	7.30%
2036	7.30%
2037	7.30%
2038	7.30%
2039	7.30%
2040	7.30%
2041	7.30%
2042	7.30%
2043	7.30%





Under this scenario, the AVA funded ratio is expected to be 55% at the end of the 20-year period, and the amortization period will exceed 30 years throughout the projection period.

SECTION III – ASSETS

Assets play a key role in the Fund's financial operation and in the decisions that the Board of Trustees may make regarding future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact benefit levels, employer contributions, and the ultimate security of members' benefits.

In this section, we present detailed information on the Fund's assets, including:

- Disclosure of the Fund's assets as of December 31, 2023
- Statement of the changes in market values during the year
- Development of the Actuarial Value of Assets
- A comparison of the year's investment performance to the return assumption

Disclosure

The market values of assets represent "snap-shot" or "cash-out" values, which provide the principal basis for measuring financial performance from one year to the next. However, market values can fluctuate widely with corresponding swings in the marketplace. As a result, smoothed market values are usually used when reviewing a plan's financial condition,

The Actuarial Value of Assets is based on market values that have smoothed in investment gains and losses. Current methods employed by this Fund set the actuarial value equal to the market value, adjusted for a five-year phase-in of investment experience gains and losses.

SECTION III – ASSETS

The assets below are based upon audited financial data furnished by the Fund's staff. The components of the market value of assets as of the current and immediately prior valuation year, as well as the change in these categories and the total market value of assets during the valuation year ending December 31, 2023 is summarized below.

Table III-1
Statement of Market Value of Assets as of December 31,

	2023	2022	% Change
Assets			
Cash & Short-Term Investments	$ 9,926,468	$ 7,245,787	37.00%
Receivables	253,269	164,116	54.32%
Fixed Income	331,716,446	310,744,525	6.75%
Domestic Equities	254,473,069	219,699,040	15.83%
International Equities	237,993,931	209,977,146	13.34%
Real Estate	91,280,409	112,168,625	(18.62%)
Natural Resources	33,647,743	33,428,837	0.65%
Private Equities	203,403,057	222,733,907	(8.68%)
Total Assets	**$ 1,162,694,392**	**$ 1,116,161,983**	4.17%
Liabilities			
Securities Purchased and Other Investment Liabilities	$ 0	$ 0	0.00%
Accrued Expenses and Other Liabilities	0	329,113	(100.00%)
Total Liabilities	**$ 0**	**$ 329,113**	(100.00%)
Market Value of Assets	**$ 1,162,694,392**	**$ 1,115,832,870**	**104.20%**

Numbers may not add due to rounding

SECTION III – ASSETS

The chart below shows the calculation of the investment gain/loss. On a market value basis, the Fund earned a 8.13% return during 2023, a total investment gain of $89.0 million, resulting in a net Fund asset gain on a market value of assets basis of $9.1 million. On an Actuarial Value of Assets basis, the Fund had a lower return for the year of 6.80%, which is below the 7.30% return assumed in the prior year's valuation, producing a loss of $6.0 million to the Fund on that basis.

Table III-2
Changes in Value of Assets

		Market Value of Assets		Actuarial Value of Assets
1. **Value of Assets - December 31, 2022**	**$**	**1,115,832,870**	**$**	**1,211,321,297**
2. Calculation of Net Cash Flow				
(a) Member Contributions	$	20,317,995	$	20,317,995
(b) Employer Contributions		23,957,850		23,957,850
(c) Benefit Payments and Refunds		(86,436,099)		(86,436,099)
(d) **Net Cash Flow**	**$**	**(42,160,254)**	**$**	**(42,160,254)**
3. **Value of Assets - December 31, 2023**	**$**	**1,162,694,392**	**$**	**1,250,115,476**
4. Net Investment Income [3. - 1. - 2.(d)]	$	89,021,776	$	80,954,433
5. Average Value of Assets [1. + 1/2 x 2.(d)]	$	1,094,752,743	$	1,190,241,170
6. Rate of Return [4. / 5.]		8.13%		6.80%
7. Assumed Rate of Return		7.30%		7.30%
8. Expected Net Investment Income	$	79,944,054	$	86,914,709
9. Investment Gain/(Loss) [4. - 8.]	$	9,077,722	$	(5,960,276)

SECTION III – ASSETS

The next table shows how the Actuarial Value of Assets is developed. The Actuarial Value of Assets represents a "smoothed" value developed by the actuary to reduce or eliminate erratic results that could develop from short-term fluctuations in the market value of assets.

The Fund's Actuarial Value of Assets is based on the market value of assets adjusted by a five-year smoothing of gains and losses on a market value basis. Additional details regarding this methodology are included in Appendix C of the report.

Table III-3

Development of Actuarial Value of Assets

	Original Gain/(Loss)	Deferred Portion
Defer 0% of 2019 Gain	$ 71,447,637	$ 0
Defer 20% of 2020 Gain	79,891,968	15,978,394
Defer 40% of 2021 Gain	87,212,015	34,884,806
Defer 60% of 2022 Loss	(242,577,437)	(145,546,462)
Defer 80% of 2023 Gain	9,077,722	7,262,178
Total Deferred Gain/(Loss) for AVA Calculation		$ (87,421,084)
Market Value of Assets at December 31, 2023		$ 1,162,694,392
Total Unrecognized Gain/(Loss)		(87,421,084)
Actuarial Value of Assets at December 31, 2023		$ 1,250,115,476
Actuarial Value as a Percent of Market Value		107.5%

SECTION III – ASSETS

The final table in this section summarizes the annual returns on both a market and Actuarial Value of Assets value for the last ten years and provides averages over the last five and ten years for these two metrics.

Table III-4
Historic Investment Return

Year Ending December 31,	Market Value	Actuarial Value
2023	8.1%	6.8%
2022	-11.6%	6.3%
2021	14.9%	12.0%
2020	15.4%	10.2%
2019	15.7%	7.1%
2018	-2.7%	6.2%
2017	17.1%	7.8%
2016	7.0%	5.8%
2015	0.7%	6.3%
2014	5.5%	7.6%
Average Returns		
Last 5 years:	8.0%	8.5%
Last 10 years:	6.6%	7.6%

SECTION IV – LIABILITIES AND EXPERIENCE GAINS/(LOSSES)

In this section, we provide detailed information related to the Fund's liability measurements, including:

- Disclosure of the Fund's liabilities,
- Development of the experience gains and losses from liabilities; and
- Detailed development of the sources of the liability gains and losses during the year.

The table that follows presents the present value of future benefits and the actuarial liabilities by membership status for the current and immediately preceding valuations. It also includes the normal cost for both valuations, as a dollar amount and as a percentage of the total pensionable payroll.

Table IV-1
Present Value of Future Benefits (PVFB) Detail and Liability Allocations

	December 31, 2023	December 31, 2022
Present Value of Future Benefits (PVFB)		
Active Member Benefits	$ 929,544,905	$ 885,237,218
Service Retirees, including DROP	809,962,511	795,346,099
Beneficiaries	55,478,855	55,477,984
Disability Retirees	7,371,979	7,256,265
Terminated Vested	4,240,326	5,039,375
Total Present Value of Future Benefits	**$ 1,806,598,576**	**$ 1,748,356,941**
Actuarial Liability		
Active Member Benefits	$ 583,528,059	$ 531,576,009
Service Retirees, including DROP	809,962,511	795,346,099
Beneficiaries	55,478,855	55,477,984
Disability Retirees	7,371,979	7,256,265
Terminated Vested	4,240,326	5,039,375
Total Actuarial Liability (AL)	**$ 1,460,581,730**	**$ 1,394,695,732**
	$ 877,053,671	**$ 863,119,723**
Total Normal Cost, middle of year	$ 34,350,082	$ 32,382,154
Total Normal Cost as a % of Expected Payroll	29.96%	30.73%
Administration Expenses	1.25%	0.00%
Total Normal Cost Plus Admin. Expenses as a % of Expected Payroll	**31.21%**	**30.73%**
Expected Payroll	**$ 114,653,245**	**$ 105,372,248**

SECTION IV – LIABILITIES AND EXPERIENCE GAINS/(LOSSES)

The table below presents the changes in actuarial liability during the plan year. In general, the actuarial liability of any retirement Fund is expected to change at each subsequent valuation for various reasons. In each valuation, we report on those elements of the change in the liabilities that are of particular significance, potentially affecting the long-term financial outlook of the Fund. The first table summarizes the expected and actual liability as of December 31, 2023. The second table provides more details on the year's liability (gain)/loss.

Table IV-2
Changes in Actuarial Liability

Actuarial Liability as of December 31, 2022	$	1,394,695,732
Normal Cost		31,261,216
Benefit Payments		(86,436,099)
Interest		100,995,507
Assumption Changes		26,988,435
Benefit Changes		0
Expected Actuarial Liability as of December 31, 2022	$	1,467,504,791
Actual Actuarial Liability as of December 31, 2023	$	1,460,581,730
Actuarial Liability (Gain)/Loss	$	(6,923,061)

Table IV-3
Actuarial Liability (Gain)/Loss by Source as of December 31, 2023

Salary/Service Increase	$	(5,383,478)
Retirement		2,397,382
Termination		271,895
Disability		189,793
Retiree Mortality		(808,689)
DROP Balances		(3,515,955)
Data Updates		329,153
Other Experience		(403,162)
Experience (Gain)/Loss	$	(6,923,061)

SECTION V – ACTUARIALLY DETERMINED CONTRIBUTION BENCHMARK

Actuarially Determined Contribution Benchmark ("ADC Benchmark")

Since the city and members each contribute to the Fund at a fixed rate as outlined in Vernon's Texas Civil Statute, Article 6243e.1, the Board developed an Actuarially Determined Contribution (ADC) benchmark for comparative purposes in the Fund's Funding Policy dated December 16, 2019. This ADC benchmark is developed using the actuarial assumptions and methods identical to those disclosed in this report, except as follows:

Amortization Period—The ADC benchmark is the contribution rate that, if in effect as of the valuation date, would amortize the UAL as of the valuation date in 30 years. Note that while the Fund's Funding Policy only specifies this 30-year open amortization period benchmark, a similar benchmark based on amortizing the UAL as of the valuation date fully over 20 years is provided for informational purposes.

Payroll Growth Assumption—The ADC benchmark will be calculated using a payroll growth assumption of the lesser of 3.0% and the Austin Fire Department's average payroll growth over the last ten (10) years. This assumption is specified in the Fund's Funding Policy. Since the 10-year average as of December 31, 2023 is 3.02%, a payroll growth assumption of 3.0% is used for this valuation's ADC Benchmark calculations.

Reasonable Actuarially Determined Contribution ("Reasonable ADC")

Actuarial Standards of Practice No. 4 (ASOP 4) requires the actuary to calculate and disclose a reasonable actuarially determined contribution. In our opinion, the ADC Benchmark described above does not meet the ASOP 4 definition of a reasonable actuarially determined contribution because it uses a 30-year open amortization method that does not fully amortize the Unfunded Actuarial Liability within a reasonable time period.

The "Reasonable ADC" provided in this report reflects all the same assumptions and methods as the "ADC Benchmark" with two differences:

(1) Assumes a payroll growth of 2.5% per year as adopted in the recent experience study, and
(2) Utilizes a 20-year closed, layered amortization method beginning with the December 31, 2023 actuarial valuation.

The chart on the next page shows the "ADC Benchmark" and the "Reasonable ADC" results.

SECTION V – ACTUARIALLY DETERMINED CONTRIBUTION BENCHMARK

Table V-1
Development of Actuarially Determined Contribution Benchmark and Reasonable Actuarially Determined Contribution

For Plan Year Beginning 12/31 of:	2023	2022
Valuation Results		
Actuarial Liability	$ 1,460,581,730	$ 1,394,695,732
Actuarial Value of Assets	1,250,115,476	1,211,321,297
Unfunded Actuarial Liability (UAL)	$ 210,466,254	$ 183,374,435
Total Normal Cost[1]	$ 35,783,248	$ 32,382,154
Expected Payroll	$ 114,653,245	$ 105,372,248
Member Contribution Rate	18.70%	18.70%
Current City Contribution Rate	22.05%	22.05%
Total Statutory Contribution Rate	40.75%	40.75%
ADC Benchmark		
Normal Cost Rate[1]	31.21%	30.73%
Amortization of UAL Rate	10.78%	10.73%
Total Cost Rate	41.99%	41.46%
City Contribution Rate Based on ADC Benchmark	23.29%	22.76%
City Rate Surplus/(Deficit)	*(1.24%)*	*(0.71%)*
Reasonable ADC		
Normal Cost Rate[1]	31.21%	N/A
Amortization of UAL Rate	14.19%	N/A
Total Cost Rate	45.40%	N/A
City Contribution Rate Based on Reasonable ADC	26.70%	N/A
City Rate Surplus/(Deficit)	*(4.65%)*	*N/A*

[1] Middle of the year and includes 1.25% of payroll for administration expenses effective December 31, 2023.

If determined to amortize the UAL fully over 20 years instead of the 30 years specified in the Fund's Funding Policy, the city contribution rate based on the "ADC Benchmark" as of December 31, 2023 would be 26.15%, producing a (4.10%) deficit relative to the current 22.05% statutory city contribution rate.

APPENDIX A – FUND MEMBERSHIP

The data for this valuation was provided electronically in Excel format by the Fund's office. Cheiron did not audit any of the data, but we did perform an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23, Data Quality. The data for active and inactive members is as of December 31, 2023.

The following pages contain a summary of the data provided:

- Member status reconciliation from December 31, 2022 to December 31, 2023
- Active member statistics, including age, service, and salary
- Age and service distribution for active members as of December 31, 2023
- Inactive member statistics, including age and average benefit amounts
- DROP statistics and DROP balance reconciliation

APPENDIX A – FUND MEMBERSHIP

Table A-1
Member Status Reconciliation

	Actives	Term Vested Or Awaiting Refund	Retirees	Disability Retirees	Beneficiaries and Alt Payees	Total
1. December 31, 2022 Valuation	**1,199**	**35**	**793**	**15**	**171**	**2,213**
2. Additions						
a. New Entrants	80	2				82
b. DROP Balance Only[1]					4	4
c. Total	80	2	-	-	4	86
3. Reductions						
a. Benefits Expired						-
b. Refunds	(2)	(2)				(4)
c. Deaths with no Beneficiaries					(13)	(13)
d. Total	(2)	(2)	-	-	(13)	(17)
4. Changes in Status						
a. Surviving Spouse						-
b. Disabled	(1)			1		-
c. Non Vested Termination	(3)	3				-
d. Retired	(27)		27			-
e. Terminated Vested	(1)	1				-
f. Disabled						-
g. Death with Beneficiaries			(9)	(1)	10	-
h. Rehire	1	(1)				-
i. Data Corrections		(2)	(2)		(1)	(5)
j. Total	(31)	1	16	-	9	(5)
5. December 31, 2023 Valuation	**1,246**	**36**	**809**	**15**	**171**	**2,277**

[1] Alternate Payees with DROP balance only.

APPENDIX A – FUND MEMBERSHIP

Table A-2 Active Members Statistics			
	December 31, 2023	December 31, 2022	% Change
Active Members in Valuation			
Count			
Total	1,246	1,199	3.92%
Average Current Age			
Total	41.1	41.2	-0.17%
Average Service			
Total	11.9	11.9	0.00%
Average Reported Pay			
Total	$85,943	$87,220	-1.46%

APPENDIX A – FUND MEMBERSHIP

AGE/SERVICE DISTRIBUTION OF ACTIVE MEMBERS
ACTIVE MEMBERS AS OF DECEMBER 31, 2023

COUNTS BY AGE/SERVICE

	Service										
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	Total
Under 25	18	20	0	0	0	0	0	0	0	0	38
25 to 29	31	61	14	0	0	0	0	0	0	0	106
30 to 34	24	103	72	10	0	0	0	0	0	0	209
35 to 39	7	83	93	53	7	0	0	0	0	0	243
41 to 44	0	7	65	86	43	14	0	0	0	0	215
45 to 49	0	0	4	53	48	71	8	0	0	0	184
50 to 54	0	0	0	6	39	69	44	2	0	0	160
55 to 59	0	0	0	0	5	19	43	14	0	0	81
60 to 64	0	0	0	0	0	2	5	2	1	0	10
65 to 69	0	0	0	0	0	0	0	0	0	0	0
70 & up	0	0	0	0	0	0	0	0	0	0	0
Total	80	274	248	208	142	175	100	18	1	0	1,246

Average Age = 41.1 Average Service = 11.9

APPENDIX A – FUND MEMBERSHIP

Table A-3 Inactive Member Statistics	December 31, 2023	December 31, 2022	% Change
Vested Terminated Members and Awaiting Refund			
Count			
Total	36	35	2.86%
Average Current Age			
Total	39.1	39.4	-0.79%
Retirees, including DROP Members			
Count			
Total	809	793	2.02%
Average Current Age			
Total	66.0	65.7	0.52%
Average Monthly Benefit			
Total	$6,004	$5,956	0.81%
Disability Retirees			
Count			
Total	15	15	0.00%
Average Current Age			
Total	64.5	67.1	-3.82%
Average Monthly Benefit			
Total	$3,820	$3,825	-0.14%
Beneficiaries and Alternate Payees			
Count			
Total	171	171	0.00%
Average Current Age			
Total	68.7	68.1	0.93%
Average Monthly Benefit			
Total	$2,940	$2,825	4.09%

APPENDIX A – FUND MEMBERSHIP

Table A-4
DROP Statistics and DROP Balance Reconciliation

	December 31, 2023	December 31, 2022	% Change
Number of DROP	330	331	-0.30%
Total DROP Balance	$155,823,975	$157,393,946	-1.00%
As a % of Trust Assets	13.40%	14.10%	-5.00%
Average DROP Balance	$472,194	$475,510	-0.70%

Reconciliation of DROP Balances	
12/31/2022 Balance	$157,393,946
Deposits	13,480,289
Interest	7,747,328
Withdrawals	(22,807,057)
Data Updates	9,469
12/31/2023 Balance	$155,823,975

APPENDIX B – SUMMARY OF PLAN PROVISIONS

1. Membership Requirement

All commissioned civil service and Texas state-certified firefighters with at least six months of service employed by the City of Austin fire department.

2. Salary

Salary (compensation) means base pay and longevity pay. No other forms of pay are included within the pensionable salaries.

3. Average Monthly Compensation

The average of the member's compensation for the 36 months of highest compensation.

4. Service Credit

One month of service credit is earned for each month the member makes the required contribution to the Fund.

5. Contributions

Members:	18.70% of Salary
City of Austin:	22.05% of Salary

6. Normal Retirement

Eligibility:	Age 50 with 10 years of service or 25 years of service regardless of age.
Amount:	3.3% of average monthly compensation for each year of service with a minimum of $2,000 per month.
Normal Form of Payment:	Life Annuity with 75% continued to the Surviving Spouse (or designated beneficiary if the participant is unmarried).

7. Early Retirement

Eligibility:	Age 45 with 10 years of service or 20 years of service regardless of age.
Amount:	3.3% of average monthly compensation for each year of service.

8. Disability Retirement

Eligibility:	Upon approval of disability by the Board of Trustees.
Amount:	3.3% of average monthly compensation for each year of service (but not less than 20 years).

APPENDIX B – SUMMARY OF PLAN PROVISIONS

9. Death while an Active Employee

Eligibility: Termination of employment due to death

Amount: The surviving spouse or designated beneficiary will receive 75% of the member's accrued benefit based on the greater of their service at death or 20 years of service.

Each dependent child of a surviving spouse will receive 15% of the Member's accrued benefit but not less than 9.9% of Average Monthly Compensation with a reduction if there are more than five surviving dependent children.

10. Deferred Retirement

Eligibility: Ten years of service. Must also elect to leave their member contributions in the Fund.

Amount: The accrued benefit is payable at Normal Retirement eligibility, with such eligibility determined as if the member had remained employed.

11. Non-Vested Termination

Eligibility: Less than ten years of service.

Amount: A lump sum of member contributions with accumulated interest.

12. Deferred Retirement Option Plan (DROP)

Under this program, a member eligible for service retirement may elect to continue in active service as a firefighter but have the fund begin crediting "payments" to a deferred retirement option plan (DROP) account. The monthly "payments" would be an amount equal to what the member's monthly annuity would have been if the member had retired as of that eligible DROP date. Any eligible cost-of-living adjustments (COLAS) would be applied to the monthly annuity during this DROP period. During the DROP period, the member would have all their pension contributions and applicable annual interest of 5% compounded monthly credited to their account. When the member retires, by terminating their active service in the fire department, an accumulated lump sum balance may be available to be distributed (all or part) to the member from the DROP account.

In lieu of electing to participate in the DROP before actual retirement, a member who is eligible for normal service retirement may elect to terminate active service as a firefighter and establish the DROP account at termination. Under this "RETRO or BACK DROP," the firefighter's DROP account reflects the accrual from the actual termination date back to a date on or after the date they become eligible for normal service retirement.

APPENDIX B – SUMMARY OF PLAN PROVISIONS

The maximum period under which a firefighter can participate in a DROP is seven years. A firefighter may elect to establish a DROP account after reaching normal or early service retirement eligibility. Twelve total withdrawals are allowed while the retiree's DROP account balance remains in the pension plan, with a maximum of four withdrawals in any year. These limits on withdrawals can be altered by board policy as long as such change is determined to be feasible. The withdrawals can either be in the form of a distribution to the retiree (provided the retiree reaches age 50 before retiring) or a rollover into a qualified IRA. The entire DROP balance must be withdrawn from the fund by April 1st of the calendar year following the year the retiree reaches age 70½.

13. Cost of Living Adjustments (COLA)

When deemed affordable, eligible pension recipients are entitled to annual cost-of-living adjustments (COLA). COLAs are approved only when the fund's actuary has advised the Board that such adjustment would not impair the fund's financial stability based on the COLA Adjustment Policy approved by the Board. The COLAs are to be based on the annual percentage increase in the Consumer Price Index (CPI-U).

Members who retire under Early Retirement are only eligible for COLAs once they would have reached Normal Service Retirement eligibility had they continued their employment. The COLAs provided over the last ten years are as follows:

Effective Date	COLA
12/31/2023	0.00%
12/31/2022	0.00%
12/31/2021	5.40%
12/31/2020	1.40%
12/31/2019	1.70%
12/31/2018	2.30%
12/31/2017	2.20%
12/31/2016	1.50%
12/31/2015	0.00%
12/31/2014	1.30%

14. Changes Since Last Valuation

None.

APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

1. Rate of Investment Return

7.30%, net of investment expenses only

2. Price Inflation

2.5% per year

3. Rates of Salary Increase

Salary increases are split into a wage inflation assumption of 2.50% and a merit scale based on service, shown below.

Years of Service	Merit Increase
0	7.00%
1	7.00%
2	6.50%
3	1.50%
4	0.50%
5	4.50%
6-7	1.00%
8	4.50%
9	0.50%
10	1.00%
11	3.50%
12	1.50%
13	1.00%
14	3.50%
15-16	1.00%
17	3.50%
18-19	1.00%
20	3.50%
21	0.50%
22+	0.00%

For fiscal 2024 and 2025, the salary increase assumption reflects additional base increases of 5.7% and 1.5%, respectively, based on the latest agreement between the City of Austin and Austin Firefighters Association Local 975.

4. Aggregate Payroll Growth

2.50% per year

APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

5. Disability

Age	Rate
Under 30	0.013%
30-39	0.040%
40-49	0.067%
50+	0.033%

6. Mortality Rates

Active and Vested Terminated Lives:
PubS(A)-2010 Mortality Table for Employees.

Retiree Lives:
PubS(A)-2010 Mortality Table for Healthy Retirees.

Contingent Survivor Lives:
PubS(A)-2010 Mortality Table for Contingent Survivors.

Disabled Lives:
PubS(A)-2010 Mortality Table for Disabled Retirees.

Generational mortality improvements are projected from 2010 using Scale MP-2021.

7. Withdrawal

Withdrawal rates are based on department and service, as shown below.

Years of Service	Rate
0-4	1.50%
5-14	0.75%
15+	0.00%

8. Retirement Rates

Age	Rate
Under 43	0.00%
43-48	3.00%
49-51	4.00%
52-53	7.00%
54	12.00%
55-57	20.00%
58-60	35.00%
61-62	50.00%
63+	100.00%

APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

9. DROP Election

Members are assumed to elect either normal retirement or DROP, with the DROP period maximizing the present value of their retirement benefits, including reflecting the impact of previously granted COLAs the member would be eligible for during the assumed DROP period.

10. Existing DROP Balances

Members with existing DROP balances are assumed to withdraw their balances over the next eight years, but no later than age 70 ½.

11. Future Cost-of-Living Adjustment Assumption

0% for future years. COLAs are subject to financial stability requirements, and based on current valuation results, they are not anticipated to be granted for at least the next twenty years.

12. Active Payment Form Assumption

Life annuity with 75% continued to the surviving spouse (or designated beneficiary).

13. Percent Married

100% of actives are assumed to be married.

14. Beneficiary Age

A Male participant is assumed to be three years older than his beneficiary.

A Female participant is assumed to be one year younger than her beneficiary.

15. Dependent Children

50% of active members are assumed to have dependent children, and the youngest child is assumed to be one year old.

16. Administrative Expenses

Administrative expenses of 1.25% of payroll are added to the normal cost.

17. Technical and Miscellaneous Assumptions

Decrement timing: Beginning of year

Terminated vested members: All terminated vested members are assumed married and assumed to retire at normal retirement eligibility.

The limits in IRC sections 415(b) and 401(a)(17) are assumed to increase 2.5% per year.

APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

18. Low-Default-Risk Obligation Measure (LDROM) Discount Rate

The discount rate for LDROM is based on the FTSE yield curve as of December 31, 2023 and the Fund's expected future benefit cash flows.

19. Disclosures regarding Models Used

In accordance with Actuarial Standard of Practice (ASOP) No. 56 *Modeling*, the following disclosures are made related to the valuation software:

A. Valuation Software
Cheiron utilizes ProVal, an actuarial valuation software leased from Winklevoss Technologies (WinTech), to calculate liabilities and project benefit payments. We have relied on WinTech as the developer of ProVal. We have a basic understanding of ProVal and have used ProVal in accordance with its original intended purpose. We have not identified any material inconsistencies in the assumptions or output of ProVal that would affect this valuation. We have reviewed the underlying workings of this model to the degree feasible and consistent with ASOP No. 56 and believe them to be appropriate for the purposes of the valuation.

B. Projections
Projections in this report were developed using P-Scan, our proprietary tool for the intended purpose of developing projections. The projections shown in this report cover multiple individual scenarios and the variables are not necessarily correlated. We are not aware of any material inconsistencies, unreasonable output resulting from aggregation of assumptions, material limitations or known weaknesses that would affect the projections shown in this report.

   The projections are based on the same census data and financial information as of December 31, 2023 as disclosed in this actuarial valuation. The projections assume continuation of the plan provisions, actuarial assumptions in effect as of December 31, 2023, and active membership remains at current levels. They do not reflect the impact of any changes in benefits or actuarial assumptions that may be adopted after December 31, 2023.

   The projections assume that all future assumptions are met except where specifically indicated. Future outcomes become increasingly uncertain over time; therefore, general trends and not absolute values should be considered when reviewing these projections. Further, for the purpose of these projections, we have only reflected the impact of new entrants entering the Fund in aggregate and have not developed individual liabilities or detailed profiles related to these potential new entrants. We feel this is appropriate for the purpose of these projections, but if they were to be used for other purposes, this may not be appropriate, and alternative projections may need to be developed.

APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

20. Changes since Last Valuation

Demographic and economic assumptions were changed from the prior valuation to reflect the experience study completed by Cheiron to be effective for the December 31, 2023 actuarial valuation and adopted by the Board at the March 25, 2024 meeting.

21. Rationale for Assumptions

The actuarial assumptions were chosen by the Board of Trustees, upon the recommendation of the actuaries, based on an experience study issued by Cheiron on March 25, 2024, based on data through December 31, 2022, and adopted by the Board at the March 25, 2024 meeting.

B. Actuarial Methods

1. Funding Method

Liabilities and contributions shown in this report are computed using the entry age normal funding method. Under this funding method, a normal cost rate is determined as a level percentage of pay for each active member. The normal cost rate times payroll equals the total normal cost for each member. The normal cost plus member contributions will pay for projected benefits at retirement for each active Fund member.

The actuarial liability is that portion of the present value of future benefits that will not be paid by either future employer normal cost contributions or member contributions. The difference between this liability and the assets accumulated as of the same date is referred to as the Unfunded Actuarial Liability (UAL).

2. Asset Valuation Method

The actuarial value has been calculated by taking the market value of assets less 80% of the investment gain (loss) during the preceding year, less 60% of the investment gain (loss) during the second preceding year, less 40% of the investment gain (loss) during the third preceding year, and less 20% of the investment gain (loss) in the fourth preceding year.

The investment gain (loss) is calculated by taking the difference between the expected market value of assets based on an investment return assumption and the actual market value of assets.

3. Amortization Method

State Statute sets the city contribution rate that is actually paid. Therefore, this method is only applicable for AFRF as it relates to contribution amounts calculated in the valuation to support evaluating the adequacy of the statutory contributions.

For the Actuarially Determined Contribution (ADC) Benchmark, the amortization method is an open 30-year level percentage of pensionable pay amortization based on a payroll growth assumption of 3.00% per the Board's Funding Policy.

For the Reasonable ADC, the amortization method is a 20-year closed, layered amortization as a level percentage of pay, assuming 2.5% aggregate payroll growth, beginning with the December 31, 2023 actuarial valuation.

4. Changes since Last Valuation

None.

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