

Dallas Police and Fire Pension System

Actuarial Valuation and Review as of January 1, 2024



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October 8, 2024

Board of Trustees
Dallas Police and Fire Pension System
4100 Harry Hines Blvd., Suite 100
Dallas, TX 75219-3207

Dear Board of Trustees Members:

We are pleased to submit this Actuarial Valuation and Review as of January 1, 2024. It summarizes the actuarial data used in the valuation, analyzes the preceding year's experience, and establishes the funding requirements for the City's fiscal 2026; actual funding is determined by State law.

The January 1, 2023 results have been restated to reflect the rule adopted by the Board of Trustees of the Pension System on August 8, 2024, pursuant to the requirements of Section 2.025 of Article 6243a-1 of Vernon's Revised Civil Statutes. Updated funding requirements for the City's fiscal 2025 are included.

This report has been prepared in accordance with generally accepted actuarial principles and practices for the exclusive use and benefit of the Board of Trustees, based upon information provided by the staff of the Dallas Police and Fire Pension System.

Segal does not audit the data provided. The accuracy and comprehensiveness of the data is the responsibility of those supplying the data. To the extent we can, however, Segal does review the data for reasonableness and consistency. Based on our review of the data, we have no reason to doubt the substantial accuracy of the information on which we have based this report, and we have no reason to believe there are facts or circumstances that would affect the validity of these results.

The measurements shown in this actuarial valuation may not be applicable for other purposes. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements; and changes in plan provisions or applicable law.

Board of Trustees
October 8, 2024

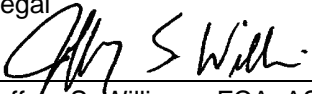
The actuarial calculations were directed under the supervision of Jeffrey S. Williams. I am a member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of my knowledge, the information supplied in this actuarial valuation is complete and accurate. The assumptions used in this actuarial valuation were selected by the Board based upon my analysis and recommendations. In my opinion, the assumptions are reasonable and take into account the experience of the Plan and reasonable expectations. In addition, in my opinion, the combined effect of these assumptions is expected to have no significant bias.

Segal makes no representation or warranty as to the future status of the Plan and does not guarantee any particular result. This document does not constitute legal, tax, accounting or investment advice or create or imply a fiduciary relationship. The Board is encouraged to discuss any issues raised in this report with the Plan's legal, tax and other advisors before taking, or refraining from taking, any action.

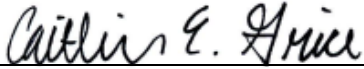
We look forward to reviewing this report at your next meeting and to answering any questions.

Sincerely,

Segal



Jeffrey S. Williams, FCA, ASA, MAAA, EA
Vice President and Consulting Actuary



Caitlin E. Grice, FCA, ASA, MAAA, EA
Vice President and Consulting Actuary

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Section 1: Actuarial Valuation Summary

Purpose and basis

This report has been prepared by Segal to present a valuation of the Dallas Police and Fire Pension System as of January 1, 2024. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits and to provide information for required disclosures under Governmental Accounting Standards Board (GASB) Statement No. 67.

The contribution requirements presented in this report are based on:

- The benefit provisions of the Pension System, as administered by the Board;
- The characteristics of covered active members, inactive members, and retired members and beneficiaries as of December 31, 2023, provided by the System's IT Department;
- The assets of the Plan as of December 31, 2023, provided by the System's Finance Department;
- Economic assumptions regarding future salary increases and investment earnings;
- Other actuarial assumptions regarding employee terminations, retirement, death, etc.;
- Article 6243a-1, as amended by House Bill 3158 (HB 3158) signed into law by the Governor of Texas on May 31, 2017;
- The rule adopted by the Board of Trustees of the Pension System on August 8, 2024, pursuant to the requirements of Section 2.025 of Article 6243a-1 of Vernon's Revised Civil Statutes; and
- Changes prescribed by the Board, effective January 1, 2023, in the actuarial valuation asset method and amortization methodology.

The majority of assumptions and methods used to value the Plan were set by the Board based on recommendations made by Segal following a five-year experience study for the period ended December 31, 2019

Certain disclosure information required by GASB Statement No. 68 as of September 30, 2024 for the City is provided in a separate report.

Section 1: Actuarial Valuation Summary

Valuation highlights

- The January 1, 2023 valuation results have been restated to reflect the changes adopted by the Board of Trustees of the Pension System on August 8, 2024, pursuant to the requirements of Section 2.025 of Article 6243a-1 of Vernon's Revised Civil Statutes. Changes include resetting the actuarial value of assets to the market value of assets as of January 1, 2023 and recalculating the actuarially determined contribution (ADC). The immediate partial COLA included in the rule was first reflected in this valuation, as of January 1, 2024, and is assumed to be effective October 1, 2025.
- Beginning with this valuation, the ADC will be reported based on the City's fiscal year beginning in the year after the valuation date. For this January 1, 2024 actuarial valuation, the ADC calculated will be payable in the City's fiscal year beginning October 1, 2025.
- Segal strongly recommends an actuarial funding method that targets 100% funding of the actuarial accrued liability. Generally, this implies payments that are ultimately at least enough to cover normal cost, interest on the unfunded actuarial accrued liability and the principal balance.
 - The rule adopted by the Board of Trustees of the Pension System on August 8, 2024, pursuant to the requirements of Section 2.025 of Article 6243a-1 of Vernon's Revised Civil Statutes, calculates the ADC based on a closed amortization period of 30 years, established as of January 1, 2023. The Board established two amortization bases of specified amounts as of January 1, 2023. The first amortization base was in the amount of \$2,250,000,000 and is to be amortized over 30 years on a level percent of pay basis. The second amortization base was in the amount of \$1,330,588,874, with a three-year step up of the amortization payment, with the outstanding balance after three years to be amortized over a 27-year period on a level percent of pay basis. Beginning on January 1, 2024, each year's experience due to actuarial gains and losses or plan, assumption, or method changes are amortized over the amortization period remaining on the initial 2023 bases. Beginning in 2033, newly established bases will be amortized over a period of 20 years.
 - The proposed contributions outlined by the City are also based on a closed amortization period of 30 years, established as of January 1, 2023. However, the maximum contributions proposed by the City are set through the Fiscal Year ending September 30, 2054 and are based on a deterministic projection as of January 1, 2023. There is no allowance in the proposal for any future increases in the UAL that may result due to experience losses, assumption changes, method changes or benefit changes. There is the potential for enormous risk associated with this proposed methodology and it is not recommended.
- The total contributions made during the year ending December 31, 2023 were insufficient to reduce the unfunded actuarial accrued liability.
- Actual City contributions made during the year ending December 31, 2023 were \$171.9 million, 68.3% of the ADC, as calculated in the original January 1, 2023 valuation. In the prior year, actual contributions were \$169.9 million, 74.3% of the prior year ADC.
- The System's normal cost (for benefits accruing each year) plus expenses is 21.67% of computation pay. Members contribute 13.50% of computation pay, and the City covers the balance. All remaining City contributions are applied to the UAL. Although it is

Section 1: Actuarial Valuation Summary

important for the System to meet its 6.50% annual rate of return assumption, the assets currently cover a relatively low percentage of the liabilities and investment returns alone cannot close the funding gap. The City's maximum contribution as outlined in their proposal is approximately 42% of pay for the Fiscal Year beginning October 1, 2024 and 45% of pay for the fiscal year beginning October 1, 2025. The City's proposed maximum contribution percentage for the fiscal year beginning October 1, 2025 is below the actuarial determined contribution percentage of 53.47%.

- The actuarial gain of \$49,417,243, or 0.93% of actuarial accrued liability, is due to an investment gain of \$25,880,799, or 0.49% of actuarial accrued liability, and a gain from sources other than investments of \$23,536,444, or 0.44% of the actuarial accrued liability prior to reflection of the plan change.
- The rate of return on the market value of assets was 13.90% for the year ending December 31, 2023. The return on the actuarial value of assets was 7.98% for the same period. This resulted in an actuarial gain when measured against the assumed rate of return of 6.50%. This actuarial investment gain decreased the ADC by 0.35% of projected pay. Given the low fixed income interest rate environment, target asset allocation and expectations of future investment returns for various asset classes, we advise the Board to continue to monitor actual and anticipated investment returns relative to the assumed long-term rate of return on investments of 6.50%.
- The actuarial value of assets is 94.65% of the market value of assets. The investment gain from the prior year has only been partially recognized in the actuarial value of assets. As the deferred gain is recognized in future years, the cost of the Plan would decrease if there are no future gains or losses.
- The following plan change is included for the first time in this valuation:
 - The Immediate Partial COLA was added, equal to the annual change in CPI-U All Items for the Dallas-Ft. Worth-Arlington, Texas area, multiplied by the funded ratio on a market value basis, limited to 1.5%. The new COLA is assumed to be 0.85% for the first five years, 1.00% for years 6 through 10, 1.25% for years 11 through 15, and 1.50% thereafter.
 - As a result of this plan change, the total normal cost increased by \$10.8 million and the actuarial accrued liability increased by \$417.0 million. The total impact was an increase in the ADC of \$38.6 million, or 7.87% of projected pay.
- The following asset method change was retroactively applied to the January 1, 2023 actuarial valuation results and is reflected for the first time in this valuation:
 - Effective January 1, 2023, the Board immediately recognized \$246.8 million in unrecognized market value losses and reset the actuarial value of assets equal to the market value of assets.

Section 1: Actuarial Valuation Summary

Changes from prior valuation

- The funded ratio (the ratio of the actuarial value of assets to actuarial accrued liability) is 32.02%, compared to the prior year funded ratio of 34.42%. This ratio is one measure of funding status, and its history is a measure of funding progress. Using the market value of assets, the funded ratio is 33.83% compared to 34.42% as of the prior valuation date. This measurement is not necessarily appropriate for assessing the sufficiency of the plan assets to cover the estimated cost of settling the Plan's benefit obligation or the need for or the amount of future contributions. As has been previously discussed with the Board, the funded percentage is still projected to decline in the near future.
- The ADC for the Fiscal year beginning October 1, 2025 is \$262.0 million. The contribution as a percentage of projected pay is 53.47%, based on a 30-year amortization of the unfunded actuarial accrued liability as of January 1, 2023.
- Pursuant to Section 2.025 of Article 6243a-1 of Vernon's Revised Civil Statutes, the Board was required to have an analysis of the Plan prepared by an independent actuary selected by the Texas Pension Review Board. As part of the analysis, the independent actuary has prepared 30 years of projected ADCs. Different assumptions and methods are used by the independent actuary than by Segal. The most notable difference is the independent actuary is subtracting the present value of UAL contributions expected to be made for the 21 months between the valuation date and the beginning of the fiscal year from the UAL, essentially treating the expected contributions as a receivable asset. Segal is not following that methodology. As a result, the ADC calculated by the independent actuary for the City's fiscal year beginning October 1, 2025 is approximately \$12.8 million, or 4.9%, less than Segal's ADC. Over the course of the projected 30-year period, Segal's cumulative projected contributions are approximately \$97.1 million, or less than 1%, less than the independent actuary's cumulative projected contributions.
- The unfunded actuarial accrued liability is \$3.9 billion, which is an increase of \$445.6 million since the prior valuation. Of the \$445.6 million increase, \$417.0 million is attributable to the plan change.

Risk

- It is important to note that this actuarial valuation is based on plan assets as of December 31, 2023. The Plan's funded status does not reflect short-term fluctuations of the market, but rather is based on the market values on the last day of the plan year. Segal is available to prepare projections of potential outcomes of market conditions and other demographic experience upon request.
- Since the actuarial valuation results are dependent on a given set of assumptions, there is a risk that emerging results may differ significantly as actual experience proves to be different from the assumptions. We have not been engaged to perform a detailed analysis of the potential range of the impact of risk relative to the Plan's future financial condition, but have included a brief discussion of some risks that may affect the Plan in Section 2. A more detailed assessment would provide the Board with a better understanding of the inherent risks and could be important for the Plan because:

Section 1: Actuarial Valuation Summary

- The Plan's assets allocation has a significant amount of investment return volatility.
- Inactive and retired participants account for most of the Plan's liabilities, leaving limited options for reducing costs in the event of adverse experience.
- Potential recent changes in the plan of benefits may result in participant choices that vary from those assumed.
- Actual contributions have been less than the ADC for several years, which may indicate additional funding challenges in the future.
- The current political and social environment could impact the turnover and retirement patterns of public safety employees, as well as the availability of new hires.
- The City is proposing to contribute amounts other than the actuarial determined contribution for the next 30 years. The City is planning to make contributions based off a 30-year deterministic projection as of January 1, 2023 that assumes no future gains or losses, with caps on the contribution amount. Deterministic projections that assume no future gains or losses, or assumption, method, or plan changes, can be useful for high-level planning, but should not be the basis for actual contribution policy, as gains and losses each year are unavoidable.

GASB

- This report constitutes an actuarial valuation for the purpose of determining the actuarially determined contribution under the Plan's funding policy and measuring the progress of that funding policy. The information contained in Section 5 provides the accounting information for Governmental Accounting Standards Board (GASB) Statements No. 67, for inclusion in the Plan's and employer's financial statements as of December 31, 2023.
- The Net Pension Liability (NPL) and Pension Expense under GASB statement No. 68 for inclusion in the plan and employer's financial statement as of September 30, 2024 will be provided separately.
- The NPL is equal to the difference between the Total Pension Liability (TPL) and the Plan's fiduciary net position (equal to the market value of assets). The NPL as of December 31, 2023 is \$3.8 billion, an increase from \$3.4 billion as of December 31, 2022.

Section 1: Actuarial Valuation Summary

Summary of key valuation results

Valuation Result	Current	Prior
	October 1, 2025	October 1, 2024
Contributions for City's fiscal year beginning		
• City's actuarially determined contribution	\$262,006,650	-- ¹
• City's ADC as a percent of projected pay	53.47%	--
• Expected City contributions based on plan adopted by the Board	\$262,006,650	\$215,098,000
Actuarial accrued liability for plan year beginning	January 1, 2024	January 1, 2023
• Retired members and beneficiaries	\$3,776,555,918	\$3,566,237,397
• Inactive vested members	33,887,507	29,125,817
• Inactive members due a refund of employee contributions	1,891,621	2,258,087
• Active members	1,907,045,237	1,651,393,512
• Total actuarial accrued liability	\$ 5,719,380,283	\$5,249,014,813
• Normal cost including administrative expenses for plan year beginning January 1	101,682,926	90,442,683
Assets for plan year beginning January 1		
• Market value of assets (MVA)	\$1,934,816,560	\$1,806,567,341
• Actuarial value of assets (AVA)	1,831,293,364	1,806,567,341
• Actuarial value of assets as a percentage of market value of assets	94.65%	100.00%
Funded status for plan year beginning January 1		
• Unfunded actuarial accrued liability on market value of assets	\$3,784,563,723	\$3,442,447,472
• Funded percentage on MVA basis	33.83%	34.42%
• Unfunded actuarial accrued liability on actuarial value of assets	\$ 3,888,086,919	\$3,442,447,472
• Funded percentage on AVA basis	32.02%	34.42%
• Effective Amortization period on an AVA basis	29	30
• Projected year of full funding	2053 ²	2105

¹ The January 1, 2023 actuarial valuation originally calculated an ADC for 2023. Ongoing, contributions will be made on the City's fiscal year basis. The City will not be contributing based on the ADC until its fiscal year beginning October 1, 2025.

² Assumes the City pay the Actuarial Determined Contribution in each fiscal year

Section 1: Actuarial Valuation Summary

Valuation Result	Current	Prior
Key assumptions		
• Net investment return	6.50%	6.50%
• Inflation rate	2.50%	2.50%
GASB information		
• Discount rate	6.50%	6.50%
• Total Pension Liability	\$ 5,724,587,066	\$5,254,660,197
• Plan Fiduciary Net Position	1,934,816,560	1,806,567,341
• Net Pension Liability	3,789,770,506	3,448,092,856
• Plan Fiduciary Net Position as a percentage of Total Pension Liability	33.80%	34.38%
Demographic data for plan year beginning January 1		
• Number of retired members and beneficiaries	5,231	5,142
• Number of DROP only beneficiaries	141	147
• Number of inactive vested members	254	252
• Number of inactive members due a refund of employee contributions	326	474
• Number of active members	5,131	5,085
• Total computation pay ¹	\$469,275,612	\$462,820,226
• Average computation pay	\$91,459	\$91,017

¹ Total computation pay is the active members' actual payroll for the preceding year, increased by the salary scale applicable for each member to account for their anticipated salary increases in the upcoming year.

Section 1: Actuarial Valuation Summary

Important information about actuarial valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare a valuation, Segal relies on a number of input items. These include:

Input Item	Description
Plan provisions	Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
Participant information	An actuarial valuation for a plan is based on data provided to the actuary by the System. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
Financial information	Part of the cost of a plan will be paid from existing assets — the balance will need to come from future contributions and investment income. The valuation is based on the asset values as of the valuation date, typically reported by the System. A snapshot as of a single date may not be an appropriate value for determining a single year's contribution requirement, especially in volatile markets. Plan sponsors often use an "actuarial value of assets" that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining the contribution requirements.
Actuarial assumptions	In preparing an actuarial valuation, Segal starts by developing a forecast of the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of participants in each year, as well as forecasts of the plan's benefits for each of those events. In addition, the benefits forecasted for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The forecasted benefits are then discounted to a present value, typically based on an estimate of the rate of return that will be achieved on the plan's assets. All of these factors are uncertain and unknowable. Thus, there will be a range of reasonable assumptions, and the results may vary materially based on which assumptions are selected within that range. That is, there is no right answer (except with hindsight). It is important for any user of an actuarial valuation to understand and accept this constraint. The actuarial model may use approximations and estimates that will have an immaterial impact on our results. In addition, the actuarial assumptions may change over time, and while this can have a significant impact on the reported results, it does not mean that the previous assumptions or results were unreasonable or wrong.

Section 1: Actuarial Valuation Summary

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

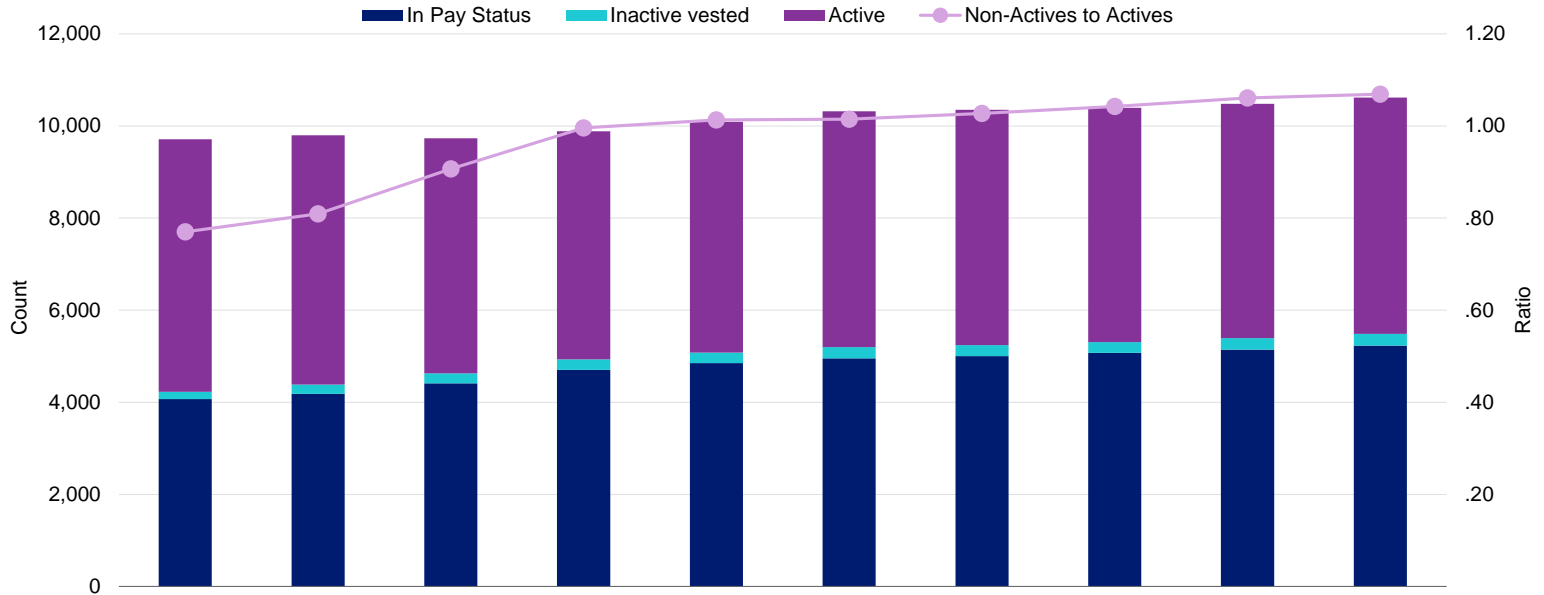
- The actuarial valuation is prepared at the request of the System. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement at a specific date — it is not a prediction of a plan's future financial condition. Accordingly, Segal did not perform an analysis of the potential range of financial measurements, except where otherwise noted.
- If the System is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice and is not acting as a fiduciary to the Pension System. The valuation is based on Segal's understanding of applicable guidance in these areas and of the Pension System's provisions, but they may be subject to alternative interpretations. The System should look to their other advisors for expertise in these areas.
- While Segal maintains extensive quality assurance procedures, an actuarial valuation involves complex computer models and numerous inputs. In the event that an inaccuracy is discovered after presentation of Segal's valuation, Segal may revise that valuation or make an appropriate adjustment in the next valuation.
- Segal's report shall be deemed to be final and accepted by the System upon delivery and review. Trustees should notify Segal immediately of any questions or concerns about the final content.

As Segal has no discretionary authority with respect to the management or assets of the Pension System, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Pension System.

Section 2: Actuarial Valuation Results

Member information

Member Population as of December 31



Legend	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
In Pay Status ¹	4,069	4,182	4,414	4,706	4,849	4,956	5,003	5,071	5,142	5,231
Inactive Vested ²	157	200	215	226	230	242	241	233	252	254
Active	5,487	5,415	5,104	4,952	5,012	5,121	5,106	5,088	5,085	5,131
Ratio	0.77	0.81	0.91	1.00	1.01	1.02	1.03	1.04	1.06	1.07

¹ Excludes beneficiaries who only have a DROP account.

² Excluding terminated participants due a refund of employee contributions.

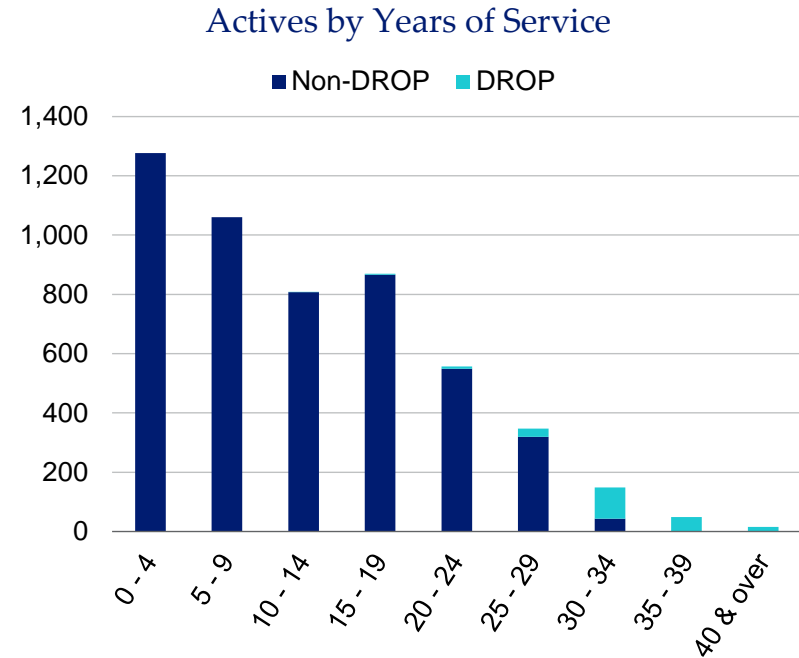
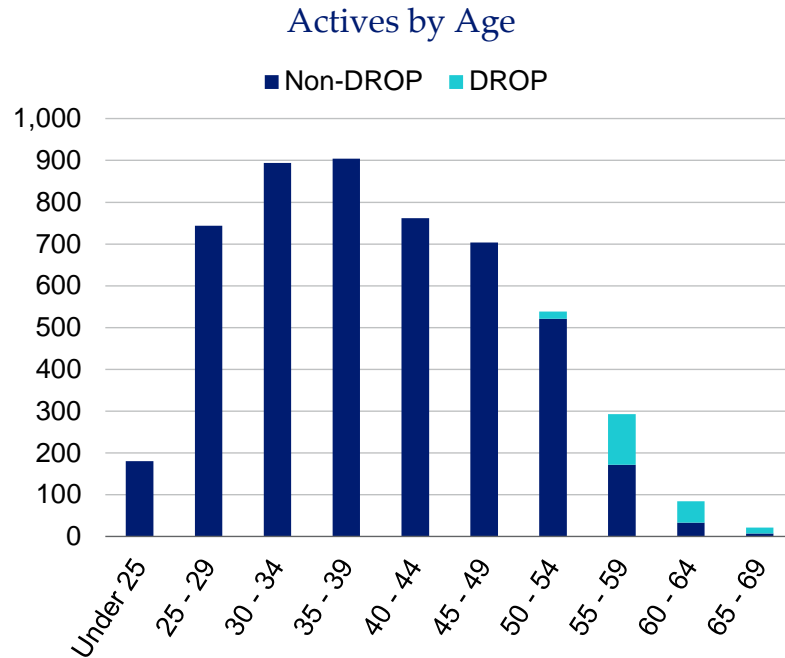
Section 2: Actuarial Valuation Results

Active members

As of December 31,	2023	2022	Change
Firefighters			
Active participants	2,107	2,011	4.8%
Average age	39.9	40.1	-0.2
Average years of service	12.1	12.4	-0.3
Average computation pay	\$91,300	\$92,065	-0.8%
Police Officers			
Active participants	3,024	3,074	-1.6%
Average age	40.2	40.1	0.1
Average years of service	13.0	12.8	0.2
Average computation pay	\$91,570	\$90,331	1.4%
Total			
Active participants	5,131	5,085	0.9%
Average age	40.1	40.1	—
Average years of service	12.6	12.6	—
Average computation pay	\$91,459	\$91,017	0.5%

Section 2: Actuarial Valuation Results

Distribution of Active Members as of December 31, 2023



The number of active participants in DROP decreased from 230 at the end of 2022 to 210 at the end of 2023.

Inactive members

- In this year's valuation, there were 254 inactive members with a vested right to a deferred or immediate vested benefit.
- In addition, there were 326 inactive non-vested members entitled to a return of their employee contributions.

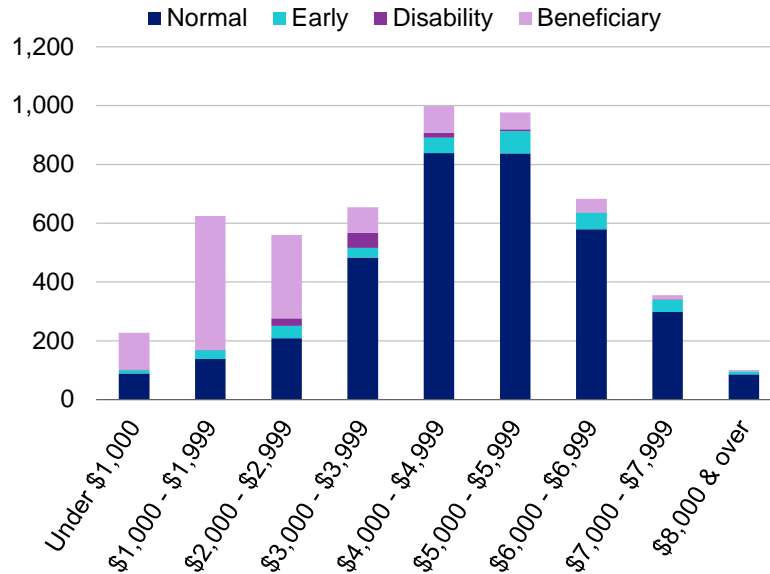
Section 2: Actuarial Valuation Results

Retired members and beneficiaries

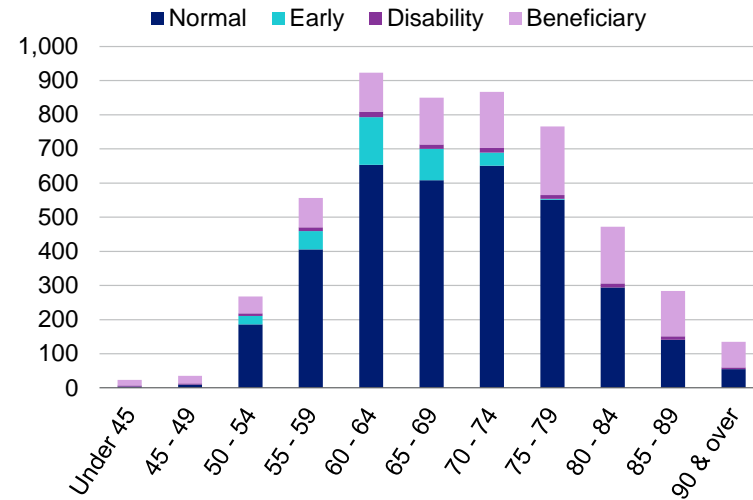
As of December 31,	2023	2022	Change
Retired participants	4,015	3,955	1.5%
Beneficiaries ¹	1,216	1,187	2.4%
Average age	69.5	69.2	0.3
Average amount	\$4,347	\$4,335	0.3%
Total monthly amount	22,740,890	22,291,338	2.0%

Distribution of Retired Members and Beneficiaries as of December 31, 2023

By Type and Monthly Amount



By Type and Age



¹ Does not include beneficiaries with annuitized DROP accounts only and no lifetime annuity (141 for 2023 and 147 for 2022).

Section 2: Actuarial Valuation Results

Historical plan population

Member Data Statistics: 2014 – 2023

Active Participants versus Retired Participants and Beneficiaries¹

Year Ended December 31	Active Members Count	Active Members Average Age	Active Members Average Service	Retired Members and Beneficiaries Count	Retired Members and Beneficiaries Average Age	Retired Members and Beneficiaries Average Monthly Amount
2014	5,487	41.2	14.2	4,069	68.8	\$3,699
2015	5,415	41.4	14.3	4,182	69.0	3,826
2016	5,104	41.4	13.0	4,414	68.7	4,102
2017	4,952	40.6	13.4	4,706	67.7	4,171
2018	5,012	40.1	12.8	4,849	68.4	4,217
2019	5,121	39.8	12.3	4,956	68.7	4,250
2020	5,106	40.0	12.6	5,003	68.9	4,273
2021	5,088	40.1	12.6	5,071	69.0	4,311
2022	5,085	40.1	12.6	5,142	69.2	4,335
2023	5,131	40.1	12.6	5,231	69.5	4,347

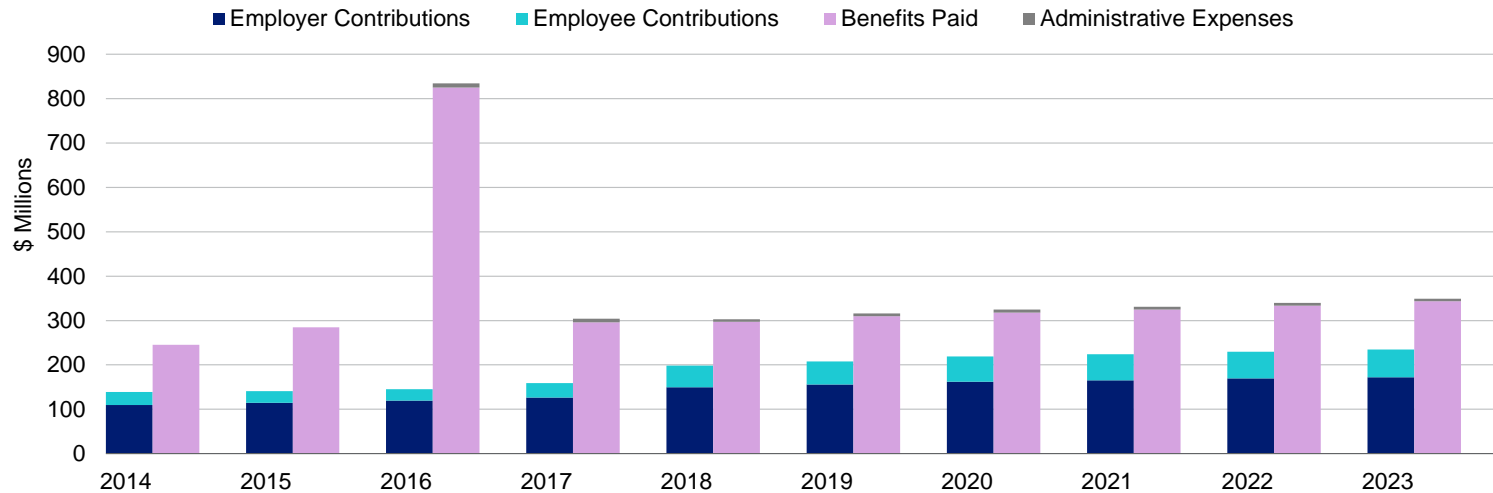
¹ Does not include DROP only beneficiaries

Section 2: Actuarial Valuation Results

Financial information

- Retirement plan funding anticipates that, over the long term, both contributions (less administrative expenses) and investment earnings (less investment fees) will be needed to cover benefit payments. Retirement plan assets change as a result of the net impact of these income and expense components.
- Benefit payments in 2016 totaled \$825.1 million, of which \$606.3 million were DROP lump-sum payments. This was a one-time event, as members reacted to pending changes in the plan provisions. DROP balances have since been annuitized, resulting in more stable projected benefit payment levels in the future.

Comparison of Contributions Made with Benefits and Expenses Paid
for Years Ended December 31



Section 2: Actuarial Valuation Results

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable. The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

Effective January 1, 2023, the Board immediately recognized \$246.8 million in unrecognized market value losses and reset the actuarial value of assets equal to the market value of assets.

Determination of Actuarial Value of Assets for Year Ended December 31, 2023

Step	Original Amount ¹	Percent Deferred ²	Unrecognized Amount ³	Amount
1. Market value of assets, December 31, 2023				\$1,934,816,560
2. Calculation of unrecognized return				
a. Year ended December 31, 2023	\$129,403,995	80%	\$103,523,196	
b. Total unrecognized return				\$103,523,196
3. Preliminary actuarial value: (1) - (2b)				1,831,293,364
4. Adjustment to be within 20% corridor				0
5. Final actuarial value of assets as of December 31, 2023: (3) + (4)				\$1,831,293,364
6. Actuarial value as a percentage of market value: (5) ÷ (1)				94.6%
7. Amount deferred for future recognition: (1) - (5)				\$103,523,196

¹ Total return minus expected return on a market value basis.

² Percent deferred applies to the current valuation year.

³ Recognition at 20% per year over five years. Deferred return as of December 31, 2023 recognized in each of the next four years:

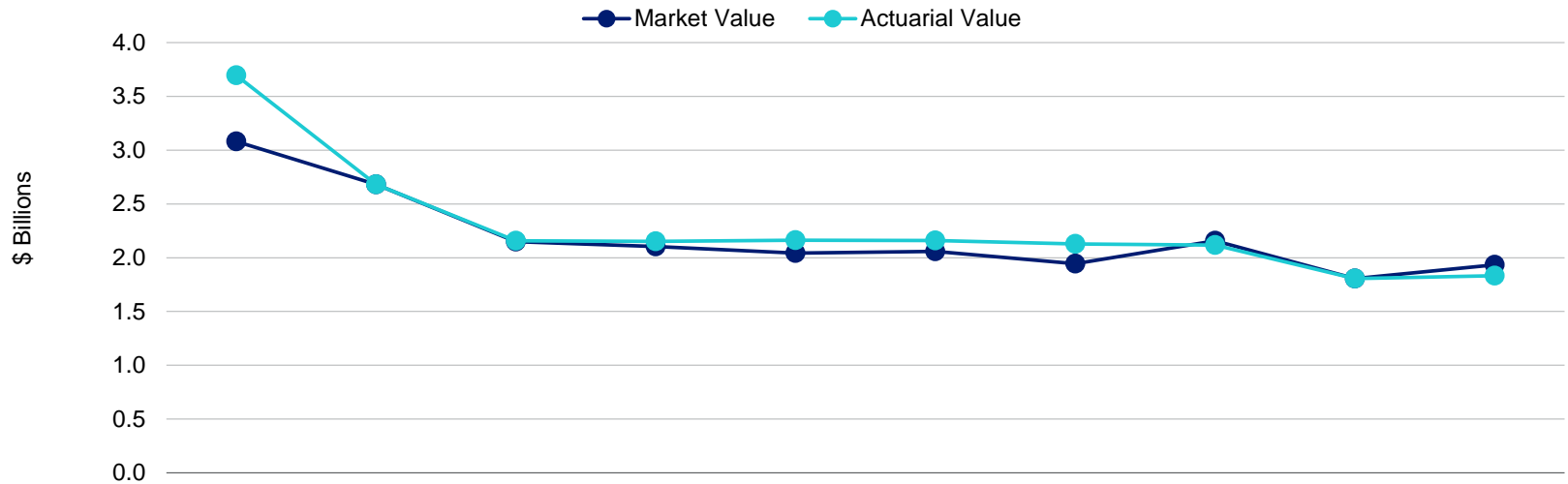
a. Amount recognized on December 31, 2024	\$25,880,799
b. Amount recognized on December 31, 2025	25,880,799
c. Amount recognized on December 31, 2026	25,880,799
d. Amount recognized on December 31, 2027	25,880,799

Section 2: Actuarial Valuation Results

Asset history for years ended December 31

- The decline in asset values from 2014 to 2015 was primarily the result of significant write-downs in the System's asset holdings. The decline from 2015 to 2016 reflects the unusually large number of DROP payments made in 2016.
- The actuarial value of assets as of December 31, 2022 was reset to the market value of assets.

Market Value of Assets vs Actuarial Value of Assets



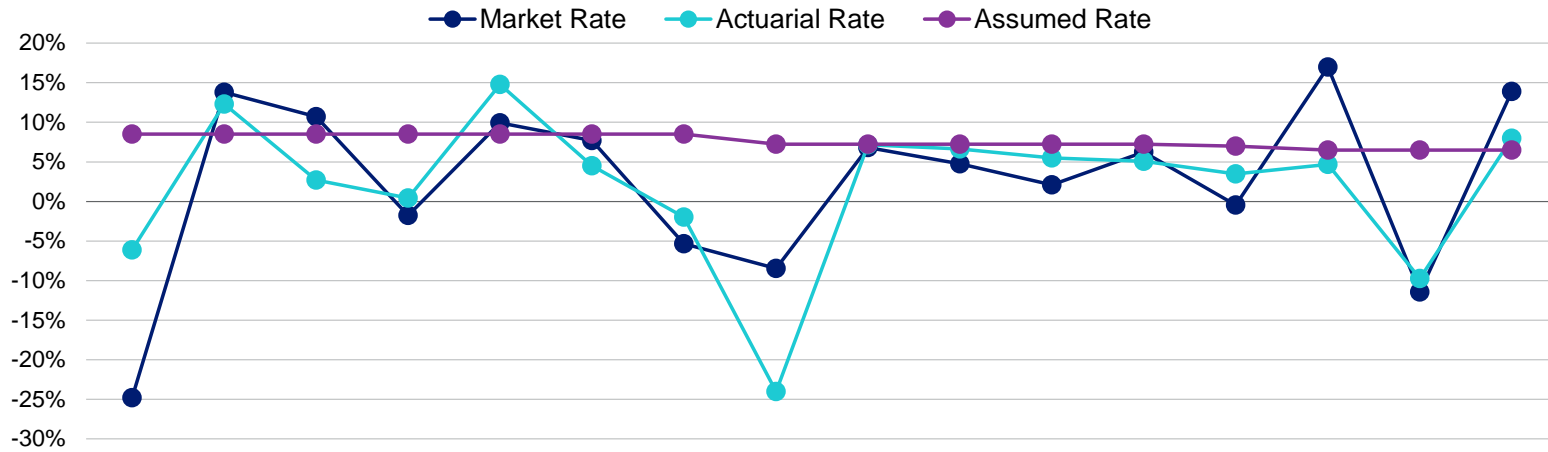
Legend	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
■ Market value ¹	\$3.08	\$2.68	\$2.15	\$2.10	\$2.04	\$2.06	\$1.94	\$2.16	\$1.81	\$1.93
■ Actuarial value ¹	3.70	2.68	2.16	2.15	2.16	2.16	2.13	2.12	1.81	1.83
Ratio	1.20	1.00	1.00	1.02	1.06	1.05	1.09	0.98	1.00	0.95

¹ In \$ billions

Section 2: Actuarial Valuation Results

Historical investment returns

Market and Actuarial Rates of Return versus Assumed Rate for Years Ended December 31



Legend	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
■ Market rate ¹	-24.80%	13.78%	10.72%	-1.78%	9.92%	7.70%	-5.35%	-8.47%	6.82%	4.74%	2.09%	6.25%	-0.45%	16.99%	-11.46%	13.90%
■ Actuarial rate ²	-6.14%	12.29%	2.69%	0.43%	14.79%	4.52%	-1.98%	-24.03%	7.16%	6.63%	5.48%	5.05%	3.46%	4.68%	-9.75%	7.98%
■ Assumed rate	8.50%	8.50%	8.50%	8.50%	8.50%	8.50%	8.50%	7.25%	7.25%	7.25%	7.25%	7.25%	7.00%	6.50%	6.50%	6.50%

Average Rates of Return	Market Value	Actuarial Value
Most recent five-year average return:	4.51%	-0.31%
Most recent ten-year average return:	1.37%	-4.54%
Most recent 15-year average return:	3.88%	0.12%
16-year average return:	1.49%	-0.36%

¹ Returns for 2014 and 2015 include significant write-downs in the System's assets

² Includes a change in asset method for plan years 2012, 2015 and 2023

Section 2: Actuarial Valuation Results

Actuarial experience

Assumptions should consider experience and should be based on reasonable expectations for the future.

Each year actual experience is compared to that projected by the assumptions. Differences are reflected in the actuarial valuation.

Assumptions are not changed if experience is believed to be a short-term development that will not continue over the long term. On the other hand, if experience is expected to continue, assumptions are changed.

Actuarial Experience for Year Ended December 31, 2023

Assumption	Amount
1. Net gain from investments ¹	\$25,880,799
2. Gain from administrative expenses	1,058,564
3. Net gain from other experience	22,477,880
4. Net experience gain: 1 + 2 + 3	\$49,417,243

¹ Details on next page

Section 2: Actuarial Valuation Results

Investment experience

Actuarial planning is long term. The obligations of a pension plan are expected to continue for the lifetime of all its participants.

The assumed long-term rate of return of 6.50% considers past experience, the asset allocation policy of the Board and future expectations.

Investment Experience *Year Ended December 31, 2023 vs. Year Ended December 31, 2022*

Investment	YE 2023 Market Value	YE 2023 Actuarial Value ¹	YE 2022 Market Value	YE 2022 Actuarial Value
1. Net investment income	\$243,098,278	\$139,575,082	-\$240,891,386	-\$201,029,387
2. Average value of assets	1,749,142,812	1,749,142,812	2,102,649,579	2,062,787,580
3. Rate of return: 1 ÷ 2	13.90%	7.98%	-11.46%	-9.75%
4. Assumed rate of return	6.50%	6.50%	6.50%	6.50%
5. Expected investment income: 2 x 4	\$113,694,283	\$113,694,283	\$136,672,223	\$134,081,193
6. Net investment gain/(loss): 1 – 5	\$129,403,995	\$25,880,799	-\$377,563,609	-\$335,110,580

¹ Reflects change in asset method to reset AVA to MVA as of January 1, 2023

Section 2: Actuarial Valuation Results

Non-investment experience

Administrative expenses

Administrative expenses for the year ended December 31, 2023 totaled \$5,974,248, as compared to the assumption of \$7,000,000. This resulted in an experience gain of \$1,058,564 for the year, including an adjustment for interest.

Other experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- Mortality experience (more or fewer than expected deaths)
- The extent of turnover among members
- Retirement experience (earlier or later than projected)
- The number of disability retirements (more or fewer than projected)
- Salary increases (greater or smaller than projected)

The net gain from this other experience for the year ended December 31, 2023 amounted to \$22,477,880, which is 0.4% of the actuarial accrued liability.

Actuarial assumptions

- As part of the plan changes adopted by the Board on August 8, 2024, a partial COLA, payable while the Plan is under 70% funded on a market value basis, has been added effective October 1, 2025. The partial COLA is equal to the annual change in CPI-U All Items in the Dallas-Ft. Worth-Arlington, Texas area multiplied times the funded ratio on a market value basis, provided the adjustment not exceed 1.50%. The new COLA is assumed to be 0.85% for the first five years, 1.00% for years 6 through 10, 1.25% for years 11 through 15, and 1.50% thereafter.

Section 2: Actuarial Valuation Results

Plan provisions

- Effective August 8, 2024, the Board adopted a rule pursuant to the requirements of Section 2.025 of Article 6243a-1 of Vernon's Revised Civil Statutes, which included the following plan change:
 - An immediate Partial COLA was added for before the Plan is 70% funded, equal to the annual change in CPI-U All Items for the Dallas-Ft. Worth-Arlington, Texas area multiplied by the funded ratio on a market value basis, limited to 1.50% annually.
 - This change increased the actuarial accrued liability by 7.86% and increased the total normal cost by 12.89%.

Section 2: Actuarial Valuation Results

Unfunded actuarial accrued liability

Development of Unfunded Actuarial Accrued Liability for Year Ended December 31, 2023

Unfunded Actuarial Accrued Liability	Amount
1. Unfunded actuarial accrued liability at beginning of year	\$3,442,447,472
2. Total normal cost at beginning of year, including administrative expense assumption	90,442,683
3. Total contributions	-234,470,902
4. Interest on 1, 2 & 3	222,097,810
5. Expected unfunded actuarial accrued liability	3,520,517,063
6. Changes due to:	
a. Net experience gain	-\$49,417,243
b. Plan provisions	<u>416,987,099</u>
c. Total changes	367,569,856
7. Unfunded actuarial accrued liability at end of year	\$3,888,086,919

Section 2: Actuarial Valuation Results

Actuarially determined contribution

The actuarially determined contribution (ADC) is equal to the city normal cost payment and a payment on the unfunded actuarial accrued liability (UAL). As of January 1, 2024, the ADC is \$262,006,650, or 53.47% of projected pay.

Pursuant to the requirements of Section 2.025 of Article 6243a-1 of Vernon's Revised Civil Statutes, the Board set the funding policy used to calculate the ADC based on a closed amortization period of 30 years, established as of January 1, 2023. For valuation dates from January 1, 2024 through January 1, 2033, changes in the UAL will be amortized over the remaining period of the 2023 bases. For valuation dates beginning January 1, 2033, changes in the UAL will be amortized over 20-year periods. As of January 1, 2024, there are 29 years remaining on this schedule. The current funding policy is intended to result in predictable contributions that eliminate the UAL within 29 years, thereby providing benefit security to plan participants while balancing the needs of current and future contributors to the plan.

Actuarially Determined Contribution

Contribution	2024 Amount	2024 Percent of Projected Pay
1. Total normal cost	\$ 94,899,904	19.37%
2. Administrative expenses	6,783,022	1.38%
3. Expected member contributions	-63,352,208	-12.93%
4. Employer normal cost: (1) + (2) + (3)	38,330,718	7.82%
5. Actuarial accrued liability	5,719,380,283	
6. Actuarial value of assets	1,831,293,364	
7. Unfunded actuarial accrued liability: (5) - (6)	3,888,086,919	
8. Employer normal cost projected to October 1, 2025 and 2024	40,023,376	8.17%
9. Payment on projected unfunded actuarial accrued liability	213,861,897	43.65%
10. Adjustment for timing ¹	8,121,377	1.66%
11. Actuarially determined contribution: (8) + (9) + (10)	\$ 262,006,650	53.47%
12. Projected computation pay ²	489,998,498	

¹ Actuarially determined contributions are assumed to be paid at the middle of the year.

² Total computation pay, or valuation pay, is the active members' actual payroll for the preceding year, increased by the salary scale applicable for each member to account for their anticipated salary increases in the upcoming year, projected 21 months with the payroll growth assumption to the beginning of the fiscal year.

Section 2: Actuarial Valuation Results

The proposed contributions outlined by the City are based on a closed amortization period of 30 years, established as of January 1, 2023. However, the maximum contributions, based on a deterministic projection calculated as of January 1, 2023, are set in the City's proposal through the Fiscal Year ending September 30, 2054. There is no allowance in the proposal for any future increases in the unfunded actuarial accrued liability (UAL) that may result due to experience losses, assumption changes, method changes or benefit changes.

The City's proposed contributions are designed to reduce the volatility of the contribution amount by setting a maximum UAL payment through the Fiscal Year ending September 30, 2054, based on the initial 30-year amortization of the UAL as of January 1, 2023. If the ADC were determined by the City's proposed methodology, the 2024 ADC would decrease to approximately \$219.12 million, and the UAL would not be projected to be paid off in 29 years.

Section 2: Actuarial Valuation Results

Schedule of funding progress through December 31, 2023

Actuarial Valuation Date of January 1	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b) – (a)	Funded Ratio (a) / (b)	Computation Pay (c)	UAAL as a Percentage of Computation Pay [(b) – (a)] / (c)
2015	\$3,695,273,876	\$5,792,216,025	\$2,096,942,149	63.80%	\$383,006,330	547.50%
2016	2,680,124,303	5,947,173,998	3,267,049,695	45.07%	365,210,426	894.57%
2017	2,157,799,730	4,367,180,454	2,209,380,724	49.41%	357,414,472	618.16%
2018	2,151,039,343	4,505,437,185	2,354,397,842	47.74%	346,036,690	680.39%
2019	2,161,899,662	4,494,822,504	2,332,922,842	48.10%	363,117,415	642.47%
2020	2,160,125,611	4,723,972,480	2,563,846,869	45.73%	396,954,743	645.88%
2021	2,127,834,406	5,115,966,592	2,988,132,186	41.59%	427,440,530	699.08%
2022	2,117,978,431	5,158,782,340	3,040,803,909	41.06%	436,971,384	695.88%
2023	1,806,567,341	5,249,014,813	3,442,447,472	34.42%	462,820,226	743.80%
2024	1,831,293,364	5,719,380,283	3,888,086,919	32.02%	469,275,612	828.53%

Section 2: Actuarial Valuation Results

History of employer contributions

History of Employer Contributions: 2016 – 2023

Actuarially Determined Employer Contribution (ADC) versus Actual Employer Contribution (AEC)

Year Ended	ADC Amount	ADC Percentage of Covered Compensation	AEC Amount	AEC Percentage of Covered Compensation	Percent Contributed
December 31, 2016	\$261,859,079	71.70%	\$119,423,106	32.70%	45.61%
December 31, 2017	168,865,484	47.25%	126,318,005	35.34%	74.80%
December 31, 2018	157,100,128	45.40%	149,356,565	43.16%	95.07%
December 31, 2019	152,084,297	41.88%	155,721,087	42.88%	102.39%
December 31, 2020	185,428,764	46.71%	161,950,183	40.80%	87.34%
December 31, 2021	221,285,746	51.77%	165,541,265	38.73%	74.81%
December 31, 2022	228,530,758	52.30%	169,911,420	38.88%	74.35%
December 31, 2023	251,606,424 ¹	54.36%	171,960,839	37.15%	68.35%

¹ Based on the original January 1, 2023 actuarial valuation, prior to the change in reporting the ADC based on the City's fiscal year.

Section 2: Actuarial Valuation Results

Low-Default-Risk Obligation Measure (LDROM)

In December 2021, the Actuarial Standards Board issued a revision of Actuarial Standard of Practice No. 4 (ASOP 4) *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*. One of the revisions to ASOP 4 requires the disclosure of a Low-Default-Risk Obligation Measure (LDROM) when performing a funding valuation. The LDROM presented in this report is calculated using the same methodology and assumptions used to determine the Actuarial Accrued Liability (AAL) used for funding, except for the discount rate. The LDROM is required to be calculated using “a discount rate...derived from low-default-risk fixed income securities whose cash flows are reasonably consistent with the pattern of benefits expected to be paid in the future.”

The LDROM is a calculation assuming a plan’s assets are invested in an all-bond portfolio, generally lowering expected long-term investment returns. The discount rate selected and used for this purpose is the Bond Buyer General Obligation 20-year Municipal Bond Index Rate, published at the end of each week. The last published rate in December of the measurement period, by The Bond Buyer (www.bondbuyer.com), is 3.26% for use effective December 31, 2023. This is the rate used to determine the discount rate for valuing reported public pension plan liabilities in accordance with Governmental Accounting Standards when plan assets are projected to be insufficient to make projected benefit payments, and the 20-year period reasonably approximates the duration of plan liabilities. The LDROM is not used to determine a plan’s funded status or Actuarially Determined Contribution. The plan’s expected return on assets, currently 6.50%, is used for these calculations.

As of December 31, 2023, the LDROM for the system is \$8,829,581,257. The difference between the plan’s AAL of \$5,828,317,826 and the LDROM can be thought of as the increase in the AAL if the entire portfolio were invested in low-default-risk securities. Alternatively, this difference could also be viewed as representing the expected savings from investing in the plan’s diversified portfolio compared to investing only in low-default-risk securities.

ASOP 4 requires commentary to help the intended user understand the significance of the LDROM with respect to the funded status of the plan, plan contributions, and the security of participant benefits. In general, if plan assets were invested exclusively in low-default-risk securities, the funded status would be lower and the Actuarially Determined Contribution would be higher. While investing in a portfolio with low-default-risk securities may be more likely to reduce investment volatility and the volatility of employer contributions, it also may be more likely to result in higher employer contributions or lower benefits.

Section 2: Actuarial Valuation Results

Risk

The actuarial valuation results are dependent on a single set of assumptions; however, there is a risk that emerging results may differ significantly as actual experience proves to be different from the current assumptions.

We have not been engaged to perform a detailed analysis of the potential range of the impact of risk relative to the Plan's future financial condition but have included a brief discussion of some risks that may affect the Plan.

- Economic and Other Related Risks. Potential implications for the Plan due to the following economic effects (that were not reflected as of the valuation date) include:
 - Volatile financial markets and investment returns lower than assumed
 - High inflationary environment impacting salary increases and COLAs

- Investment Risk (the risk that returns will be different than expected)

The System has experienced some of the challenges associated with investment risk and has had to write down the value of its assets significantly in recent years. Recognized market returns have been well below the long-term assumptions as the System rebalances the investment portfolio and are expected to continue to be below average in the short-term.

The market value rate of return over the last 16 years has ranged from a low of -24.80% to a high of 16.99%.

- Longevity Risk (the risk that mortality experience will be different than expected)

The actuarial valuation includes an expectation of future improvement in life expectancy. Emerging plan experience that does not match these expectations will result in either an increase or decrease in the actuarially determined contribution.

- Contribution Risk (the risk that actual contributions will be different from actuarially determined contribution)

Plan contributions are set by statute. Periodic projections comparing expected statutory contributions with the actuarially determined contributions may be developed to determine if the statutory amounts are sufficient to fund the Plan and to ensure the payment of promised benefits.

The proposed contributions outlined by the City set maximum contributions, which may be less than the actuarially determined contributions, through the Fiscal Year ending September 30, 2054 based on a 30-year deterministic projection that assumes no future gains or losses. This includes a maximum payment on the unfunded actuarially accrued liability based on the January 1, 2023 valuation. This methodology contains no allowance for future adverse experience and if future experience does not match the assumptions used to set the contributions, the unfunded actuarial accrued liability will not be paid off within 30 years. Deterministic projections that assume no future gains or losses, or assumption, method, or plan changes, can be useful for high-level planning, but should not be the basis for actual contribution policy, as gains and losses each year are unavoidable.

Section 2: Actuarial Valuation Results

- Demographic Risk (the risk that participant experience will be different than assumed)

Examples of this risk include:

- Actual retirements occurring earlier or later than assumed. The value of retirement plan benefits is sensitive to the rate of benefit accruals and any early retirement subsidies that apply.
- More or less active participant turnover than assumed.
- There are external factors including legislative or financial reporting changes that could impact the Plan's funding and disclosure requirements. While we do not assume any changes in such external factors, it is important to understand that they could have significant consequences for the Plan.
- Actual Experience Over the Last Ten Years

Past experience can help demonstrate the sensitivity of key results to the Plan's actual experience. Since 2015:

- The non-investment gain(loss) for a year has ranged from a loss of \$66.4 million to a gain of \$59.2 million.

Plan Year Ended	Market Value Investment Gain/(Loss)	All Other Gains and (Losses)
2015	-\$472,849,609	\$59,238,981
2016	-9,954,337	-53,565,950
2017	-52,151,589	-51,705,978
2018	-105,891,055	59,106,115
2019	-19,852,697	-13,622,672
2020	-149,294,320	-66,430,137
2021	198,197,350	31,267,441
2022	-377,563,609	45,173,646
2023	129,403,995	23,536,444

- The funded percentage on the actuarial value of assets has ranged from a low of 31.4% to a high of 63.8%.

Maturity Measures

- As pension plans mature, the cash needed to fulfill benefit obligations will increase over time. Therefore, cash flow projections and analysis should be performed to assure that the Plan's asset allocation is aligned to meet emerging pension liabilities.
- Currently the Plan has a non-active to active participant ratio of 1.07.

Section 2: Actuarial Valuation Results

- For the prior year, benefits paid and administrative expenses were \$114.8 million more than contributions received. Plans with high levels of negative cash flows may have a need for a larger allocation to income generating assets, which can create a drag on investment return.

Detailed Risk Assessment

- A more detailed assessment of the risks would provide the Board with a better understanding of the risks inherent in the Plan. This assessment may include scenario testing, sensitivity testing, stress testing, and stochastic modeling.
- A detailed risk assessment could be important for the Plan because:
 - The Plan's asset allocation has potential for a significant amount of investment return volatility.
 - Inactive and retired participants account for most of the Plan's liabilities, leaving limited options for reducing plan costs in the event of adverse experience.
 - Potential changes in the covered population may result in participant choices that vary from those assumed.
 - Actual contributions have been less than the actuarially determined contribution for several years, which may indicate additional funding challenges in the future.
 - The current political and social environment could impact the turnover and retirement patterns of public safety employees, as well as the availability of new hires.
 - The City is proposing to contribute amounts other than the actuarial determined contribution for the next 30 years. The City is planning to make contributions based off a 30-year deterministic projection that assumes no future gains or losses, with caps on the contribution amount. Deterministic projections that assume no future gains or losses, or assumption, method, or plan changes, can be useful for high-level planning, but should not be the basis for actual contribution policy, as gains and losses each year are inevitable.

Section 2: Actuarial Valuation Results

GFOA funded liability by type

The Actuarial Accrued Liability represents the present value of benefits earned, calculated using the Plan's actuarial cost method. The Actuarial Value of Assets reflects the financial resources available to liquidate the liability. The portion of the liability covered by assets reflects the extent to which accumulated plan assets are sufficient to pay future benefits, and is shown for liabilities associated with employee contributions, pensioner liabilities, and other liabilities. The Government Finance Officers Association (GFOA) recommends that the funding policy aim to achieve a funded ratio of 100 percent.

GFOA Funded Liability by Type as of December 31

Type	2024	2023
Actuarial accrued liability (AAL)		
Active member contributions	\$443,981,246	\$410,982,253
Retirees and beneficiaries	3,776,555,918	3,566,237,397
Inactive vested members	33,887,507	29,125,817
Active and inactive non-vested members (employer-financed)	1,464,955,612	1,242,669,346
Total	\$5,719,380,283	\$5,249,014,813
Actuarial value of assets	1,831,293,364	1,806,567,341
Cumulative portion of AAL covered		
Active member contributions	100.00%	100.00%
Retirees and beneficiaries	36.73%	39.13%
Active and inactive members (employer-financed)	0.00%	0.00%

Section 2: Actuarial Valuation Results

Actuarial balance sheet

An overview of the Plan's funding is given by an Actuarial Balance Sheet. In this approach, first the amount and timing of all future payments that will be made by the Plan for current members is determined. Then these payments are discounted at the valuation interest rate to the date of the valuation, thereby determining the present value, referred to as the "liability" of the Plan.

Second, this liability is compared to the assets. The "assets" for this purpose include the net amount of assets already accumulated by the Plan, the present value of future member contributions, the present value of future employer normal cost contributions, and the present value of future employer amortization payments for the unfunded actuarial accrued liability.

Actuarial Balance Sheet

Description	Year Ended December 31, 2023	Year Ended December 31, 2022
Liabilities		
Present value of benefits for retired members and beneficiaries (non-DROP)	\$2,963,093,752	\$2,720,594,387
Present value of benefit for retired members and beneficiaries (DROP)	813,462,166	845,643,010
Present value of benefits for inactive vested members	35,779,128	31,383,904
Present value of benefits for active members	2,868,019,347	2,490,609,201
Total liabilities	\$6,680,354,393	\$6,088,230,502
Current and future assets		
Total valuation value of assets	\$1,831,293,364	\$1,806,567,341
Present value of future contributions by members	648,816,018	636,975,115
Present value of future employer contributions for:		
• Entry age cost	312,158,092	202,240,574
• Unfunded actuarial accrued liability	3,888,086,919	3,442,447,472
Total of current and future assets	\$6,680,354,393	\$6,088,230,502

Section 2: Actuarial Valuation Results

Volatility ratios

Retirement plans are subject to volatility in the level of required contributions. This volatility tends to increase as retirement plans become more mature.

The Asset Volatility Ratio (AVR), which is equal to the market value of assets divided by total computation pay, provides an indication of the potential contribution volatility for any given level of investment volatility. A higher AVR indicates that the plan is subject to a greater level of contribution volatility. This is a current measurement since it is based on the current level of assets.

The current AVR is about 4.1. This means that a 1% asset gain or loss (relative to the assumed investment return) translates to about 4.1% of one-year's computation pay. Since actuarial gains and losses are amortized over 5 years, there would be a 0.8% of computation pay decrease/(increase) in the required contribution for each 1% asset gain or loss.

The Liability Volatility Ratio (LVR), which is equal to the Actuarial Accrued Liability divided by computation pay, provides an indication of the longer-term potential for contribution volatility for any given level of investment volatility. This is because, over an extended period of time, the plan's assets should track the plan's liabilities. For example, if a plan is 50% funded on a market value basis, the liability volatility ratio would be double the asset volatility ratio and the plan sponsor should expect contribution volatility to increase over time as the plan becomes better funded.

The LVR also indicates how volatile contributions will be in response to changes in the Actuarial Accrued Liability due to actual experience or to changes in actuarial assumptions. The current LVR is about 12.2. This is about 298% higher than the AVR. Therefore, we would expect that contribution volatility will increase over the long term.

Section 2: Actuarial Valuation Results

Volatility Ratios for Years Ended 2014 - 2023

Year Ended December 31	Asset Volatility Risk	Liability Volatility Risk
2014	8.0	15.1
2015	7.3	16.3
2016	6.0	12.2
2017	6.1	13.0
2018	5.6	12.4
2019	5.2	11.9
2020	4.5	12.0
2021	4.9	11.8
2022	3.9	11.3
2023	4.1	12.2

Section 3: Supplemental Information

Exhibit A: Table of plan demographics

Category	Year Ended December 31, 2023	Year Ended December 31, 2022	Change From Prior Year
Active members in valuation:			
• Number	5,131	5,085	0.9%
• Average age	40.1	40.1	0.0
• Average years of service	12.6	12.6	0.0
• Average computation pay	\$91,459	\$91,017	0.5%
• Account balances	443,981,246	410,982,253	8.0%
• Total active vested members	3,854	3,732	3.3%
Active members in valuation (excluding DROP):			
• Number	4,921	4,855	1.4%
• Average age	39.2	39.2	0.0
• Average years of service	11.7	11.7	0.0
• Average computation pay	\$91,050	\$90,558	0.5%
Active members in valuation (DROP only):			
• Number	210	230	-8.7%
• Average age	59.6	58.9	0.7
• Average years of service	33.4	32.7	0.7
• Average computation pay	\$101,046	\$100,710	0.3%
• DROP Account balances	88,453,699	96,505,872	-8.3%
Inactive vested members:			
• Number	254	252	0.8%
• Average age	42.2	42.1	0.1
• Average monthly benefit	\$1,315	\$1,316	-0.1%

Section 3: Supplemental Information

Category	Year Ended December 31, 2023	Year Ended December 31, 2022	Change From Prior Year
Inactive nonvested members due a refund:			
• Number	326	474	-31.2%
• Accumulated contribution balance	\$1,891,621	\$2,258,087	-16.2%
Retired members:			
• Number in pay status	3,910	3,845	1.7%
• Average age	68.4	68.1	0.3
• Average monthly benefit	\$4,935	\$4,935	0.0%
Disabled members:			
• Number in pay status	105	110	-4.5%
• Average age	69.5	68.8	0.7
• Average monthly benefit	\$3,562	\$3,575	-0.4%
Beneficiaries:			
• Number in pay status	1,216	1,187	2.4%
• Average age ¹	72.9	72.9	0.0
• Average monthly benefit	\$2,525	\$2,462	2.6%
Beneficiaries with DROP only:	141	147	-4.1%

¹ Exclude child beneficiaries

Section 3: Supplemental Information

Exhibit B: Members in active service as of December 31, 2023 by age, years of service, and average pay¹

Age	Total	Years of Service									
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over	
Under 25	180	180	—	—	—	—	—	—	—	—	—
	\$66,454	\$66,454	—	—	—	—	—	—	—	—	—
25-29	744	573	171	—	—	—	—	—	—	—	—
	73,582	70,627	\$83,485	—	—	—	—	—	—	—	—
30 - 34	894	352	447	94	1	—	—	—	—	—	—
	82,381	72,177	87,003	\$98,412	\$100,924	—	—	—	—	—	—
35 - 39	904	115	288	345	156	—	—	—	—	—	—
	93,244	72,636	87,626	99,800	104,310	—	—	—	—	—	—
40 - 44	762	37	105	217	342	61	—	—	—	—	—
	98,249	75,568	89,278	97,924	102,761	\$103,301	—	—	—	—	—
45 - 49	704	15	29	104	224	268	64	—	—	—	—
	102,669	73,598	90,837	98,780	102,114	106,855	\$105,581	—	—	—	—
50 - 54	538	4	13	36	98	167	182	38	—	—	—
	103,691	49,449	94,362	96,546	101,655	105,944	106,990	\$98,910	—	—	—
55 - 59	293	—	3	10	31	43	86	92	28	—	—
	102,403	—	95,065	100,405	100,466	103,916	100,141	105,149	\$101,643	—	—
60 - 64	84	—	3	1	15	16	13	15	20	1	—
	104,916	—	96,518	94,533	97,764	106,417	105,055	105,287	109,523	\$124,221	—
65 - 69	21	1	1	1	3	2	2	3	1	7	—
	98,037	57,768	102,502	95,012	93,335	94,486	102,815	99,063	111,362	102,905	—
70 & over	7	—	—	—	—	—	—	—	—	—	7
	117,408	—	—	—	—	—	—	—	—	—	117,408
Total	5,131	1,277	1,060	808	870	557	347	148	49	15	—
	\$91,459	\$70,749	\$87,090	\$98,853	\$102,545	\$105,908	\$104,936	\$103,438	\$105,058	\$111,094	—

¹ Compensation is annualized for those hired during the prior plan year

Section 3: Supplemental Information

Police members in active service as of December 31, 2023 by age, years of service, and average pay¹

Age	Total	Years of Service								
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	100	100	—	—	—	—	—	—	—	—
	\$66,379	\$66,379	—	—	—	—	—	—	—	—
25-29	460	361	99	—	—	—	—	—	—	—
	74,574	72,073	\$83,693	—	—	—	—	—	—	—
30 - 34	522	199	251	72	—	—	—	—	—	—
	83,759	74,028	87,523	\$97,535	—	—	—	—	—	—
35 - 39	502	68	124	209	101	—	—	—	—	—
	94,069	74,358	88,560	99,193	\$103,500	—	—	—	—	—
40 - 44	445	24	46	107	223	45	—	—	—	—
	98,467	74,377	90,151	97,780	102,327	\$102,323	—	—	—	—
45 - 49	413	10	17	57	131	156	42	—	—	—
	101,381	76,879	90,520	99,757	101,065	103,960	\$105,216	—	—	—
50 - 54	330	2	9	32	70	85	113	19	—	—
	101,932	40,708	93,071	96,668	102,050	102,526	105,844	\$95,076	—	—
55 - 59	184	—	1	10	21	24	51	65	12	—
	101,263	—	96,273	100,405	99,002	105,045	98,855	102,179	\$104,052	—
60 - 64	50	—	—	1	8	10	9	10	12	—
	104,009	—	—	94,533	98,035	104,620	104,434	107,167	105,322	—
65 - 69	13	—	—	1	2	2	2	3	1	2
	99,996	—	—	95,012	92,725	94,486	102,815	99,063	111,362	\$108,169
70 & over	5	—	—	—	—	—	—	—	—	5
	112,326	—	—	—	—	—	—	—	—	112,326
Total	3,024	764	547	489	556	322	217	97	25	7
	\$91,570	\$72,094	\$87,486	\$98,547	\$101,986	\$103,395	\$103,994	\$101,206	\$104,954	\$111,138

¹ Compensation is annualized for those hired during the prior plan year

Section 3: Supplemental Information

Fire members in active service as of December 31, 2023 by age, years of service, and average pay¹

Age	Total	Years of Service								
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	80	80	—	—	—	—	—	—	—	—
	\$66,548	\$66,548	—	—	—	—	—	—	—	—
25-29	284	212	72	—	—	—	—	—	—	—
	71,975	68,164	\$83,198	—	—	—	—	—	—	—
30 - 34	372	153	196	22	1	—	—	—	—	—
	80,446	69,769	86,337	\$101,281	\$100,924	—	—	—	—	—
35 - 39	402	47	164	136	55	—	—	—	—	—
	92,215	70,145	86,921	100,733	105,798	—	—	—	—	—
40 - 44	317	13	59	110	119	16	—	—	—	—
	97,942	77,765	88,598	98,063	103,575	\$106,050	—	—	—	—
45 - 49	291	5	12	47	93	112	22	—	—	—
	104,498	67,035	91,285	97,595	103,591	110,886	\$106,276	—	—	—
50 - 54	208	2	4	4	28	82	69	19	—	—
	106,482	58,190	97,267	95,576	100,668	109,486	108,867	\$102,744	—	—
55 - 59	109	—	2	—	10	19	35	27	16	—
	104,327	—	94,461	—	103,540	102,490	102,015	112,300	\$99,837	—
60 - 64	34	—	3	—	7	6	4	5	8	1
	106,249	—	96,518	—	97,453	109,411	106,453	101,527	115,824	\$124,221
65 - 69	8	1	1	—	1	—	—	—	—	5
	94,853	57,768	102,502	—	94,556	—	—	—	—	100,799
70 & over	2	—	—	—	—	—	—	—	—	2
	130,114	—	—	—	—	—	—	—	—	130,114
Total	2,107	513	513	319	314	235	130	51	24	8
	\$91,300	\$68,745	\$86,667	\$99,323	\$103,535	\$109,352	\$106,510	\$107,684	\$105,166	\$111,056

¹ Compensation is annualized for those hired during the prior plan year

Section 3: Supplemental Information

Exhibit C: Reconciliation of member data

	Active Members	Inactive Vested Members ¹	Disableds	Retired Members	Beneficiaries ²	Total
Number as of January 1, 2023	5,085	252	110	3,845	1,187	10,479
New members	342	N/A	N/A	N/A	N/A	342
Terminations — with vested rights	-33	33	N/A	N/A	N/A	0
Terminations — without vested rights	-43	0	N/A	N/A	N/A	-43
Retirements	-124	-18	N/A	142	N/A	0
New disabilities	0	0	0	N/A	N/A	0
Died with beneficiary	0	0	0	0	81	81
Died without beneficiary	-8	-1	-5	-77	-44	-135
Lump sum cash-outs	-113	-10	0	0	0	-123
Rehire	25	-2	N/A	0	N/A	23
Certain period expired	N/A	N/A	0	0	-8	-8
Data adjustments	0	0	0	0	0	0
Number as of January 1, 2024	5,131	254	105	3,910	1,216	10,616

¹ Excludes non-vested terminated members due a refund of contributions

² Excludes beneficiaries with DROP only

Section 3: Supplemental Information

Exhibit D: Summary statement of income and expenses on a market value basis

Year Ended December 31, 2023 versus Year Ended December 31, 2022

Item	Income and Expenses	Assets as of YE 2023	Income and Expenses	Assets as of YE 2022
Net assets at market value at the beginning of the year		\$1,806,567,341		\$2,157,840,430
Contribution and other income:				
• City contributions	\$171,960,839		\$169,911,420	
• Member contributions	62,510,063		59,706,574	
• Total contribution income		\$234,470,902		\$229,617,994
Investment income:				
• Investment income	\$249,561,564		-\$232,248,041	
• Less investment fees	-6,463,286		-8,643,345	
• Net investment income		\$243,098,278		-\$240,891,386
• Total income available for benefits		\$477,569,180		-\$11,273,392
Less benefit payments and administrative expenses:				
• Administrative expenses	-\$5,974,248		-\$6,361,999	
• Benefit Payments	-338,035,629		-329,187,721	
• Refunds	-5,310,084		-4,449,977	
• Net benefit payments and administrative expenses		-\$349,319,961		-\$339,999,697
Change in market value of assets		\$128,249,219		-\$351,273,089
Net assets at market value at the end of the year		\$1,934,816,560		\$1,806,567,341

Section 3: Supplemental Information

Exhibit E: Summary statement of plan assets

Year Ended December 31, 2023 versus Year Ended December 31, 2022

Item	Investments	Assets as of YE 2023	Investments	Assets as of YE 2022
Cash and accounts receivable:				
• Cash equivalents		\$62,268,524		\$74,996,415
• Total accounts receivable		15,262,594		11,897,407
Capital assets		11,339,331		11,499,772
Investments:				
• Short-term investments	\$16,809,984		\$14,753,672	
• Fixed income securities	362,092,006		318,424,211	
• Equity securities	985,512,002		819,431,503	
• Real assets	275,723,992		344,739,510	
• Private equity	216,632,700		217,177,506	
• Total investments at market value		\$1,856,770,684		\$1,714,526,402
Total assets		\$1,945,641,133		\$1,812,919,996
Accounts payable				
• Total accounts payable		-\$10,824,573		-\$6,352,655
Net assets at market value		\$1,934,816,560		\$1,806,567,341
Net assets at actuarial value		\$1,831,293,364		\$1,806,567,341

Section 3: Supplemental Information

Exhibit F: Development of the fund through December 31, 2023

Year Ended December 31	City Contributions	Employee Contributions	Net Investment Return ¹	Admin. Expenses ²	Benefit Payments	Market Value of Assets at Year-End	Actuarial Value of Assets at Year-End	Actuarial Value as a Percent of Market Value
2014	\$109,791,512	\$28,969,429	-\$176,940,296	\$0	\$245,176,251	\$3,079,394,897	\$3,695,273,876	120.0%
2015	114,885,723	25,676,327	-254,829,470	0	285,003,174	2,680,124,303	2,680,124,303	100.0%
2016	119,423,106	25,518,317	159,355,111	9,492,445	825,092,132	2,149,836,260	2,157,799,730	100.4%
2017	126,318,005	32,977,425	98,457,176	8,089,584	296,153,811	2,103,345,471	2,151,039,343	102.3%
2018	149,356,565	49,332,262	42,822,297	5,861,410	297,081,055	2,041,914,130	2,161,899,662	105.9%
2019	155,721,087	52,268,293	124,259,607	6,445,251	309,860,549	2,057,857,317	2,160,125,611	105.0%
2020	161,950,183	57,305,399	-8,927,336	6,534,350	317,950,620	1,943,700,593	2,127,834,406	109.5%
2021	165,541,265	58,559,980	321,062,889	6,390,829	324,633,468	2,157,840,430	2,117,978,431	98.2%
2022	169,911,420	59,706,574	-240,891,386	6,361,999	333,637,698	1,806,567,341	1,806,567,341	100.0%
2023	171,960,839	62,510,063	243,098,278	5,974,248	343,345,713	1,934,816,560	1,831,293,364	94.6%

¹ On a market basis, net of investment fees

² Expenses were subtracted from net investment return prior to 2016

Section 3: Supplemental Information

Exhibit G: Table of amortization bases

Type	Date Established	Initial Period	Initial Amount	Annual Payment ¹	Years Remaining	Outstanding Balance
Initial base layer	01/01/2023	30	\$2,250,000,000	\$126,845,270	29	\$2,264,454,672
Initial graded layer ²	01/01/2023	30	1,330,588,874	51,590,850	29	1,389,605,023
Actuarial gain	01/01/2024	29	-49,417,243	-2,768,147	29	-49,417,243
Plan amendment	01/01/2024	29	416,987,099	23,357,871	29	416,987,099
Reconciliation base ³	01/01/2024	29	-133,542,632	-7,480,499	29	-133,542,632
Total				\$191,545,345		\$3,888,086,919

¹ Level percentage of payroll

² Annual payment based on year two of three-year step-up methodology.

³ Base to reconcile differences between the January 1, 2023 unfunded actuarial accrued liability and the prescribed 2023 bases and the three-year step-up methodology

Section 4: Actuarial Valuation Basis

Exhibit H: Actuarial assumptions, methods and models

Rationale for assumptions

The information and analysis used by the Board in selecting each assumption that has a significant effect on this actuarial valuation is shown in the Experience Study Report for the five-year period ended December 31, 2019, with subsequent changes related to updated capital market assumptions, retirement rates, and the salary scale.

Net investment return

6.50%.

The net investment return assumption was chosen by the System’s Board of Trustees, with input from the actuary. This assumption is a long-term estimate derived from historical data, current and recent market expectations, and professional judgment. As part of the analysis, a building block approach was used that reflects inflation expectations and anticipated risk premiums for each of the portfolio’s asset classes, as well as the System’s target asset allocation.

Salary increases rate (%)

Year	Officers	Corporals, Drivers & Senior Officers	Sergeants, Lieutenants, Captains, Majors, Deputy Chiefs, Assistant Chiefs & Chiefs
2023	7.25%	6.75%	6.25%
2024+	3.00%	3.00%	2.50%

The salary scale assumption is based on the City’s pay plan, along with analysis completed in conjunction with an Experience Study Report for the five-year period ended December 31, 2019 and the 2019 and 2023 Meet and Confer Agreements

Payroll growth

2.50%, used to amortize the unfunded actuarial accrued liability as a level percentage of payroll.

Section 4: Actuarial Valuation Basis

Cost-of-living adjustments

Beginning October 1, 2025, 0.85% on original benefit for first five years, 1.00% for years six through 10, 1.25% for years 11 through 15 and 1.5% thereafter.

Administrative expenses

\$7,000,000 per year, payable monthly (equivalent to \$6,783,022 at the beginning of the year), or 1% of computation pay, if greater

Mortality rates

Healthy pre-retirement: Pub-2010 Public Safety Employee Amount-Weighted Mortality Table, set forward five years for males, projected generationally using Scale MP-2019

Healthy annuitants and dependent spouses: Pub-2010 Public Safety Retiree Amount-Weighted Mortality Table, set back one year for females, projected generationally using Scale MP-2019

Healthy contingent beneficiaries: Pub-2010 Public Safety Contingent Survivor Amount-Weighted Mortality Table, set back one year for females, projected generationally using Scale MP-2019

Disabled annuitants: Pub-2010 Public Safety Disabled Retiree Amount-Weighted Mortality Table, set forward four years for males and females, projected generationally using Scale MP-2019

The tables above, with adjustments as shown and projected to the measurement date, reasonably reflect the mortality experience of the System as of the measurement date. The mortality tables are then generationally projected using Scale MP-2019 to anticipate future mortality improvement.

Section 4: Actuarial Valuation Basis

Annuitant mortality rates (%)¹

Age	Healthy Male	Healthy Female	Disabled Male	Disabled Female
55	0.306	0.231	0.670	0.643
60	0.508	0.399	1.078	0.976
65	0.881	0.690	1.732	1.481
70	1.568	1.191	2.893	2.248
75	2.826	2.057	5.057	3.552
80	5.103	3.552	8.308	6.134
85	9.135	6.134	14.238	10.592
90	15.860	10.592	22.306	17.403

Mortality and disability rates (%) before retirement

Age	Mortality Male ¹	Mortality Female ¹	Disability Male ²	Disability Female ²
20	0.037	0.016	0.010	0.010
25	0.041	0.020	0.015	0.015
30	0.047	0.027	0.020	0.020
35	0.059	0.036	0.025	0.025
40	0.082	0.049	0.030	0.030
45	0.120	0.067	0.035	0.035
50	0.175	0.091	0.040	0.040
55	0.264	0.123	--	--
60	0.410	0.168	--	--

¹ Mortality rates shown for base table.

² 100% of disabilities are assumed to be service related

Section 4: Actuarial Valuation Basis

Withdrawal rates (%) before retirement

Years of Service	Police	Fire
0	20.0	10.0
1	5.5	5.5
2	5.5	5.5
3	5.5	5.5
4	5.5	5.5
5	5.5	5.5
6	3.5	5.5
7	3.5	1.0
8	3.5	1.0
9	3.5	1.0
10	3.5	1.0
11-14	2.0	1.0
15-24	1.0	1.0
25 & over	0.0	0.0

Section 4: Actuarial Valuation Basis

Retirement rates (%)

DROP Active Members

Age	Police	Fire
Under 50	1.00	0.75
50	10.00	0.75
51	15.00	0.75
52-53	15.00	10.00
54	25.00	10.00
55-57	25.00	15.00
58-62	30.00	40.00
63	40.00	50.00
64	50.00	50.00
65 & over	100.00	100.00

75% retirement rate after ten years in DROP.

Section 4: Actuarial Valuation Basis

Non-DROP Active Members

Age	Member hired prior to March 1, 2011 with at least 20 years of service as of September 1, 2017	Member hired prior to March 1, 2011 with less than 20 years of service as of September 1, 2017 & Members hired on or after March 1, 2011
Under 50	1.0	1.0
50-51	8.0	2.0
52	10.0	2.0
53	15.0	2.0
54	20.0	2.0
55	35.0	2.0
56-57	40.0	2.0
58-60	75.0	25.0
61	75.0	50.0
62	100.0	100.0

100% retirement rate once benefit multiplier hits 90% maximum

Weighted average retirement age

Age 58, determined as follows: The weighted average retirement age for each participant is calculated as the sum of the product of each potential current or future retirement age times the probability of surviving from current age to that age and then retiring at that age, assuming no other decrements. The overall weighted retirement age is the average of the individual retirement ages based on all the active members included in the January 1, 2024 actuarial valuation

Retirement rates for inactive vested participants

Terminated vested members who terminated prior to September 1, 2017 are assumed to retire at age 50

Terminated vested members who terminated on or after September 1, 2017 are assumed to retire at age 58

75% of members who terminated prior to age 40 are assumed to take a lump sum cash out at age 40

Section 4: Actuarial Valuation Basis

DROP utilization

No members are assumed to elect to enter DROP

Interest on DROP accounts

2.75% on account balances as of September 1, 2017, payable upon retirement

0.00% on account balances accrued after September 1, 2017

DROP payment period

Based on expected lifetime as of the later of September 1, 2017 or retirement date. Expected lifetime determined based on an 85% male/15% female blend of the current healthy annuitant mortality tables.

DROP annuitization interest

2.75%. Based on United States Department of Commerce Daily Treasury Yield Curve Rates for durations between 5 and 30 years.

Actuarial equivalence

Actuarial equivalence for optional forms of benefit payments are based on an 85% male/15% female blend of the current healthy annuitant mortality tables, along with an interest rate of 6.50%

Unknown data for members

Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.

Family composition

75% of members are assumed to be married. Females are assumed to be three years younger than males. The youngest child is assumed to be ten years old

Benefit election

Married participants are assumed to receive the Joint and Survivor annuity form of payment and non-married participants are assumed to receive a Life Only annuity.

Section 4: Actuarial Valuation Basis

Actuarial value of assets

Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a five-year period, further adjusted, if necessary, to be within 20% of the market value

Actuarial cost method

Entry Age Actuarial Cost Method. Entry Age is the age at the time the member commenced employment. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis, with Normal Cost determined using the plan of benefits applicable to each participant. Actuarial Liability is allocated by salary.

Amortization methodology

. The Board adopted a methodology that established two amortization bases of specified amounts as of January 1, 2023. The first amortization base was in the amount of \$2,250,000,000 and is to be amortized over 30 years on a level percent of pay basis. The second amortization base was in the amount of \$1,330,588,874, with a three-year step up of the amortization payment, with the outstanding balance after three years to be amortized over a 27-year period on a level percent of pay basis. Beginning on January 1, 2024, each year's experience due to actuarial gains and losses or plan, assumption, or method changes are amortized over the amortization period remaining on the initial 2023 bases. Beginning in 2033, newly established bases will be set at a period of 20 years.

Models

Segal valuation results are based on proprietary actuarial modeling software. The actuarial valuation models generate a comprehensive set of liability and cost calculations that are presented to meet regulatory, legislative and client requirements. Deterministic cost projections are based on a proprietary forecasting model. Our Actuarial Technology and Systems unit, comprised of both actuaries and programmers, is responsible for the initial development and maintenance of these models. The models have a modular structure that allows for a high degree of accuracy, flexibility and user control. The client team programs the assumptions and the plan provisions, validates the models, and reviews test lives and results, under the supervision of the responsible actuary.

The blended discount rate used for calculating total pension liability for GASB is based on a model developed by our Actuarial Technology and Systems unit, comprised of both actuaries and programmers. The model allows the client team, under the supervision of the responsible actuary, control over the entry of future expected contribution income, benefit payments and administrative expenses. The projection of fiduciary net position and the discounting of benefits is part of the model.

Section 4: Actuarial Valuation Basis

Justification for change in actuarial assumptions

As part of the plan changes adopted by the Board on August 8, 2024, a partial COLA, payable while the Plan is under 70% funded on a market value basis, has been added effective October 1, 2025. The partial COLA is equal to the funded ratio on a market value basis multiplied by the annual percentage change in CPI-U All Items in the Dallas-Ft. Worth-Arlington, Texas area, provided the adjustment does not exceed 1.50%. The new COLA is assumed to be 0.85% for the first five years, 1.00% for years 6 through 10, 1.25% for years 11 through 15, and 1.50% thereafter.

Section 4: Actuarial Valuation Basis

Exhibit I: Summary of plan provisions

This exhibit summarizes the major provisions of the Plan included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

Plan year

January 1 through December 31

Plan status

Ongoing

Members whose participation began before March 1, 2011

Normal retirement

Benefit earned prior to September 1, 2017:

Age Requirement: 50

Service Requirement: 5

Amount: Greater of 3.0% of Average Computation Pay times years of Pension Service (maximum 96.0%) and \$2,200 per month. The \$2,200 per month minimum benefit is prorated if the Member retires with less than 20 years of service.

Average Computation Pay: 36 consecutive months that reflect the highest civil service rank held by a member, plus Educational Incentive Pay, Longevity Pay and City Service Incentive Pay

Benefit earned beginning September 1, 2017:

Age Requirement: 58

Service Requirement: 5

Amount: Greater of 2.5% of Average Computation Pay times years of Pension Service (maximum 90.0%) and \$2,200 per month. The \$2,200 per month minimum benefit is prorated if the Member retires with less than 20 years of service.

Average Computation Pay: 60 consecutive months that reflect the highest civil service rank held by a member, plus Educational Incentive Pay, Longevity Pay and City Service Incentive Pay

Section 4: Actuarial Valuation Basis

20 and out reduced retirement

If eligible as of September 1, 2017:

Age Requirement: None

Service Requirement: 20 years

Amount: 20 & Out Multiplier times 36-month (Table 1 Benefit) or 60-month (Table 2 Benefit) Average Computation Pay times years of Pension Service

**Benefit Accrued Before September 1, 2017
20 & Out Table 1**

Age	Multiplier
45 & under	2.00%
46	2.25%
47	2.50%
48	2.75%
49	2.75%
50 & above	3.00%

**Benefit Accrued Beginning September 1, 2017
20 & Out Table 2**

Age	Multiplier
53 & under	2.00%
54	2.10%
55	2.20%
56	2.30%
57	2.40%
58 & above	2.50%

If not eligible as of September 1, 2017:

Age Requirement: None

Service Requirement: 20 years

Amount: 20 & Out Multiplier times 60-month Average Computation Pay times years of Pension Service

20 & Out Table 2

Age	Multiplier
53 & under	2.00%
54	2.10%
55	2.20%
56	2.30%
57	2.40%
58 & above	2.50%

Section 4: Actuarial Valuation Basis

Early retirement

If at least age 45 as of September 1, 2017 and less than age 50:

Age Requirement: 45

Service Requirement: 5

Amount: Normal pension accrued prior to September 1, 2017 plus the benefit accrued based on the 20 & Out Table 2 for service beginning September 1, 2017, reduced by 2/3 of 1% for each whole month by which the benefit commencement date precedes age 50

Non-service connected disability

Eligibility: Injury or illness (lasting more than 90 days) not related to or incurred while in the performance of the member's job, preventing the member from performing their departmental duties.

Amount: 3% of Average Computation Pay for service earned prior to September 1, 2017 and the applicable benefit multiplier from 20 & Out Table 2 times Average Computation Pay for service earned beginning September 1, 2017

Service connected disability

Eligibility: Injury or illness (lasting more than 90 days) obtained while on duty in the performance of the member's job.

Amount: 3% of Average Computation Pay for service earned prior to September 1, 2017 and the applicable benefit multiplier from 20 & Out Table 2 times Average Computation Pay for service earned beginning September 1, 2017; if the member has less than 20 years of service, the benefit will be calculated as if they had 20 years at the time of disability

Benefit supplement

Age Requirement: 55

Service Requirement: 20 years, waived if member is receiving a service-connected disability

Amount: 3% of the total monthly benefit (including any applicable COLA's) payable to the Member when the Member attains age 55. The benefit supplement shall not be less than \$75 per month.

Beginning September 1, 2017, only those annuitants and their survivors already receiving the supplement will be eligible to maintain their current supplement, which will not change ongoing; no additional retirees will be eligible for the supplement.

Section 4: Actuarial Valuation Basis

Members whose participation began on or after March 1, 2011

Normal retirement

Age Requirement: 58

Service Requirement: 5

Amount: 2.5% of Average Computation Pay for each year of Pension Service, maximum 90%. The minimum monthly benefit is \$110 times the number of years of Pension Service at retirement, but not greater than \$2,200.

Average Computation Pay: 60 consecutive months that reflects the highest civil service rank held by a member plus Educational Incentive Pay plus Longevity Pay plus City Service Incentive Pay

20 and out reduced retirement

Age Requirement: None

Service Requirement: 20 years

Amount: 20 & Out Multiplier times Average Computation Pay times years of Pension Service

20 & Out Table 2	
Age	Multiplier
53 & under	2.00%
54	2.10%
55	2.20%
56	2.30%
57	2.40%
58 & above	2.50%

Early retirement

Age Requirement: 53

Service Requirement: 5

Amount: Normal pension accrued, reduced by 2/3 of 1% for each whole month by which the benefit commencement date precedes the normal retirement date

Section 4: Actuarial Valuation Basis

Non-service-connected disability

Eligibility: Injury or illness (lasting more than 90 days) not related to or incurred while in the performance of the member's job, preventing the member from performing their departmental duties.

Amount: The Member's accrued benefit, but not less than a pro-rated minimum benefit

Service-connected disability

Eligibility: Injury or illness (lasting more than 90 days) obtained while on duty in the performance of the member's job.

Amount: The greater of 50% of Average Computation Pay and the Member's accrued benefit; if the member has less than 20 years of service, the benefit will be calculated as if they had 20 years of service at the time of disability.

All members

Termination benefit

With less than five years of pension service: Upon request, the member's contributions will be returned without interest.

With at least five years of pension service: The member may either withdraw contributions or leave contributions in the Plan and receive a monthly benefit to commence no earlier than the member's earliest eligibility for retirement benefits. Retirement benefit is equal to the accrued benefit as of the date of termination.

Pre-retirement death benefits

While in active service, duty-related deaths: The greater of 100% of the Member's accrued benefit or a benefit based on 20 years of service. The benefit may not exceed 90% of Average Computation Pay.

While in active service, off-duty deaths: The greater of 50% of the Member's accrued benefit or a benefit based on 20 years of service. The benefit may not exceed 45% of Average Computation Pay.

After leaving active service, with fewer than five years: A lump sum benefit equal to the return of member contributions without interest.

After leaving active service, with at least five years: 50% of the Member's accrued benefit, with no early retirement reduction, or a refund of member contributions

Section 4: Actuarial Valuation Basis

Post retirement death benefit

50% or 100% of the pension the Member was receiving at the time of their death, depending on the form of joint and survivor annuity chosen; if there are no qualifying survivors, no further benefits will be paid.

Qualified surviving children benefit

50% of the pension the Member was receiving at the time of their death, divided equally among the children, paid until the youngest child is 19 years old or for life if the child becomes disabled prior to age 23, unless the death is in the line of duty and there is not a Qualified Surviving Spouse, in which case the children share 100% of the pension the Member was receiving at the time of their death

Minimum survivor benefit

\$1,100 per month, not to exceed the actual amount the Member was receiving upon their death. If there are no Qualified Surviving Children, the minimum benefit to a spouse who is a Qualified Survivor shall be \$1,200 per month. If the Member had less than 20 years of Pension Service, the minimum benefit will be prorated based on actual years of Pension Service.

Special survivor benefit

Eligibility: Upon leaving active service or joining DROP: a) the Member was at least 55 years old with at least 20 years of pension service, or b) the sum of the Member's age plus Pension Service was at least 78; and

Has no Qualified Surviving Children or disabled children currently eligible for survivor benefits; and

Whose Qualified Surviving Spouse is at least 55 years old. The Qualified Surviving Spouse does not have to be 55 years old at the time of the Member's death.

Amount: Once all the eligibility conditions are met, the amount the Qualified Surviving Spouse will receive increases from 50% of the Member's pension benefit to a percentage of the Member's pension benefit based on the Member's applicable benefit multiplier times the number of years of Pension Service the Member worked,

Survivor benefit if no qualified surviving spouse or qualified surviving children

A lump sum that is the actuarial equivalent of 120 monthly payments of the greater of: 50% of the Member's pension benefit at the time of their death, or a benefit based on 20 years of the Member's service.

Section 4: Actuarial Valuation Basis

DROP

Eligibility: Members in active service who are retirement eligible may elect to enter the Deferred Retirement Option Plan (DROP).

Distribution: The DROP account balance will be paid over the expected future lifetime of annuitants.

Interest: Based on United States Department of Commerce Daily Treasury Yield Curve Rates for durations between 5 and 30 years; interest rate is based on the expected lifetime of the members at the time they retire. Interest is only paid on DROP account balances as of September 1, 2017.

Maximum years of crediting: Once an active member reaches 10 years in DROP they will no longer have their pension benefit credited to their DROP account.

Cost of living adjustments (COLAs)

Before the plan is 70% funded, an immediate partial COLA equal to the annual change in CPI-U All Items for the Dallas-Ft. Worth-Arlington, Texas area multiplied by the funded ratio on a market value basis, limited to 1.50%, effective October 1, 2025.

After the plan is 70% funded, the Board may grant an ad hoc COLA based on the actual market return over the prior five years less 5%, not to exceed 4% of the base benefit, if, after granting a COLA, the funded ratio on a market value of assets basis is no less than 70%.

Member contributions

13.5% of computation pay for all members

City contributions

The proposed City contributions for Fiscal Years ending September 30, 2025 through 2054 are based on 30-year closed amortization amount with five-year step-up for the unfunded actuarial accrued liability, and administrative expenses as well as set normal cost ranges as a percentage of pay, determined based on projections as of January 1, 2023 calculated by a third-party. New amortization layers will be established for changes in the unfunded liability over the later of a closed 20-year period or January 1, 2053, but will not be greater than the amounts established based on the initial amortization schedule.

Forms of benefits

50% or 100% Joint and Survivor Pension

Section 4: Actuarial Valuation Basis

Changes in Plan Provisions

The following plan provision was changed on August 8, 2024 and is reflected in this valuation:

Before the plan is 70% funded, an immediate partial COLA equal to the annual change in CPI-U All Items for the Dallas-Ft. Worth-Arlington, Texas area multiplied by the funded ratio on a market value basis, limited to 1.50%, effective October 1, 2025.

Section 5: GASB Information

Exhibit J: Net Pension Liability

Components of the Net Pension Liability	Current	Prior
Measurement date and reporting date for the Plan under GASB 67	December 31, 2023	December 31, 2022
Total Pension Liability	\$5,724,587,066	\$5,254,660,197
Plan Fiduciary Net Position	1,934,816,560	1,806,567,341
Net Pension Liability	3,789,770,506	3,448,092,856
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	33.80%	34.38%

Actuarial assumptions. The Total Pension Liability (TPL) as of December 31, 2023, which was determined based on the results of an actuarial valuation as of January 1, 2024, used the following actuarial assumptions, applied to all periods included in the measurement:

Assumption Type	Assumption
Wage inflation	2.50%
Salary increases	4.00%
Net investment rate of return	6.50%, net pension plan investment expense, including inflation

Other assumptions used to determine the total pension liability are based on results of an experience study for the period January 1, 2015 through December 31, 2019 and are detailed in Section 4, Exhibit H.

Section 5: GASB Information

Determination of discount rate and investment rates of return

The long-term expected rate of return on pension plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage, adding expected inflation. The target allocation (approved by the Board) and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before investment expenses, used in the derivation of the long-term expected investment rate of return assumption are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return ¹
Global Equity	55.00%	6.80%
Emerging Market Equity	5.00%	8.00%
Private Equity	5.00%	9.90%
Short-Term Investment Grade Bonds	6.00%	1.25%
Investment Grade Bonds	4.00%	1.80%
High Yield Bonds	4.00%	3.60%
Bank Loans	4.00%	3.20%
Emerging Markets Debt	4.00%	3.70%
Real Estate	5.00%	3.40%
Natural Resources	5.00%	4.85%
Cash	3.00%	1.00%
Total	100.00%	

Discount rate. The discount rates used to measure the Total Pension Liability (TPL) was 6.50%. Based on changes adopted by the Board, which includes the City's payment of the actuarial determined contribution, the System's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the TPL.

¹ The real rates of return are provided by Segal Marco Advisors and are net of inflation.

Section 5: GASB Information

Actuarial cost method: In accordance with GASB 67, the TPL for active members is valued as the total present value of benefits once they enter the DROP. For the funding valuation, the liability for these members accumulates from their entry age until they are assumed to leave active service.

Discount rate sensitivity

Sensitivity of the Net Pension Liability to changes in the discount rate. The following presents the Net Pension Liability (NPL) of the Plan's Short Name as of January 1, 2024, calculated using the discount rate of 6.50%, as well as what the System's NPL would be if it were calculated using a discount rate that is 1-percentage-point lower (5.50%) or 1-percentage-point higher (7.50%) than the current rate.

Item	1% Decrease (5.50%)	Current Discount Rate (6.50%)	1% Increase (7.50%)
Net Pension Liability	\$ 4,533,890,851	\$3,789,770,506	\$ 3,179,132,503

Section 5: GASB Information

Exhibit K: Schedule of changes in Net Pension Liability

Components of the Net Pension Liability	Current	Prior
Reporting and Measurement Dates		
Measurement date and reporting date for the Plan under GASB 67	December 31, 2023	December 31, 2022
Total Pension Liability		
Service cost	\$80,051,163	\$71,625,266
Interest	335,597,503	329,454,977
Change of benefit terms	417,331,644	0
Differences between expected and actual experience	-19,7070,728	-42,455,842
Changes of assumptions	0	65,941,802
Benefit payments, including refunds of member contributions	-343,345,713	-333,637,698
Net change in Total Pension Liability	\$ 469,926,869	\$90,928,505
Total Pension Liability — beginning	5,254,660,197	5,163,731,692
Total Pension Liability — ending	\$ 5,724,587,066	\$5,254,660,197
Plan Fiduciary Net Position		
Contributions — employer	\$171,960,839	\$169,911,420
Contributions — employee	62,510,063	59,706,574
Net investment income	243,098,278	-240,891,386
Benefit payments, including refunds of member contributions	-343,345,713	-333,637,698
Administrative expense	-5,974,248	-6,361,999
Other	0	0
Net change in Plan Fiduciary Net Position	\$128,249,219	-\$351,273,089
Plan Fiduciary Net Position — beginning	1,806,567,341	2,157,840,430
Plan Fiduciary Net Position — ending	\$1,934,816,560	\$1,806,567,341

Section 5: GASB Information

Components of the Net Pension Liability	Current	Prior
Net Pension Liability		
Net Pension Liability – ending	\$ 3,789,770,506	\$3,448,092,856
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	33.80%	34.38%
Covered payroll ¹	\$469,275,612	\$462,820,226
Plan Net Pension Liability as percentage of covered payroll	807.58%	745.02%

Notes to Schedule:

- **Benefit changes:** The benefit change in 2023 is the addition of the immediate partial COLA effective October 1, 2025.
- **Change of Assumptions:** The assumption changes in 2022 are updates to the salary scale for the 2023 Meet and Confer agreement and lowering DROP Active retirement rates for participants in DROP for ten years from 100% to 75%.

¹ Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of the retirement benefits are included.

Section 5: GASB Information

Exhibit L: Schedule of employer contributions

Year Ended December 31	Actuarially Determined Contributions	Contributions in Relation to the Actuarially Determined Contributions ¹	Contribution Deficiency (Excess)	Covered Payroll	Contributions as a Percentage of Covered Payroll
2016	\$261,859,079	\$119,345,000	\$142,514,079	\$365,210,426	32.68%
2017	168,865,484	126,318,005	42,547,479	357,414,472	35.34%
2018	157,100,128	149,356,565	7,743,563	346,036,690	43.16%
2019	152,084,297	155,721,087	-3,636,790	363,117,415	42.88%
2020	185,428,764	161,950,183	23,478,581	396,954,743	40.80%
2021	221,285,746	165,541,265	55,744,481	427,440,530	38.73%
2022	228,530,758	169,911,420	58,619,338	436,971,384	38.88%
2023	251,606,424 ²	171,960,839	79,645,585	462,820,226	37.15%

See accompanying notes to this schedule on next page.

¹ The City's contributions are based on statutory rates set by State law and not actuarially determined contributions.

² Based on the original January 1, 2023 actuarial valuation, prior to the change in reporting the ADC based on the City's fiscal year.

Section 5: GASB Information

Methods and assumptions used to determine contribution rates for the year ended December 31, 2023:

These are not the same assumptions used in the January 1, 2024 actuarial valuation or for the Total Pension Liability as measured as of December 31, 2023 and are prior to the changes adopted by the Board on August 8, 2024.

Valuation date

Actuarially determined contribution is calculated using a January 1, 2023 valuation date as of the beginning of the fiscal year in which contributions are reported

Actuarial cost method

Entry age

Amortization method

25-year level percent of payroll for UAL as of January 1, 2020, 20-year level percent of payroll for changes to the UAL thereafter, using 2.50% annual increases.

Remaining amortization period

82 years as of January 1, 2023

Asset valuation method

Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the actuarial value, and is recognized over a five-year period, further adjusted, if necessary, to be within 20% of the market value.

Investment rate of return

6.50%, including inflation, net of pension plan investment expense

Section 5: GASB Information

Inflation rate

2.50%

Projected salary increases

Inflation plus merit increases; varying by group and year

Retirement rates

Group-specific rates based on age

Mortality:

Pre-retirement: Pub-2010 Public Safety Employee Amount-Weighted Mortality Table, set forward five years for males, projected generationally using Scale MP-2019

Healthy annuitant: Pub- 2010 Public safety Retiree Amount-Weighted Mortality Table, set back one year for females, projected generationally using Scale MP-2019

Healthy contingent beneficiaries: Pub-2010 Public Safety Contingent Survivor Amount-Weighted Mortality Table, set back one year for females, projected generationally using Scale MP-2019.

Disabled: Pub-2010 Public Safety Disabled Retiree Amount-Weighted Mortality Table, set forward four years for males and females, projected generationally using Scale MP-2019.

Other information

See Section 4, Exhibit I of the January 1, 2023 actuarial valuation for a full outline of assumptions. See Exhibit K of this section for the history of changes to plan provisions and assumptions over the last two years.

DROP Utilization: 0% of Police and Fire members are assumed to elect to enter DROP.

Interest on DROP Accounts: Beginning January 1, 2018, 2.75% payable upon retirement on active account balances as of September 1, 2017.

Appendix A: Definition of Pension Terms

The following list defines certain technical terms for the convenience of the reader:

Term	Definition
Actuarial accrued liability for actives	The equivalent of the accumulated normal costs allocated to the years before the valuation date.
Actuarial accrued liability for retirees and beneficiaries	Actuarial Present Value of lifetime benefits to existing retirees and beneficiaries. This sum takes account of life expectancies appropriate to the ages of the annuitants and the interest that the sum is expected to earn before it is entirely paid out in benefits.
Actuarial cost method	A procedure allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability that are used to determine the actuarially determined contribution.
Actuarial gain or loss	A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., assets earn more than projected, salary increases are less than assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results yield actuarial liabilities that are larger than projected.
Actuarially equivalent	Of equal Actuarial Present Value, determined as of a given date and based on a given set of Actuarial Assumptions.
Actuarial present value	The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. Each such amount or series of amounts is: Adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.) Multiplied by the probability of the occurrence of an event (such as survival, death, disability, withdrawal, etc.) on which the payment is conditioned, and Discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Appendix A: Definition of Pension Terms

Term	Definition
Actuarial present value of future benefits	The Actuarial Present Value of benefit amounts expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age, anticipated future compensation, and future service credits. The Actuarial Present Value of Future Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive members entitled to either a refund of member contributions or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
Actuarial valuation	The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan, as well as Actuarially Determined Contributions.
Actuarial value of assets	The value of the Plan's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly plans use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the Actuarially Determined Contribution.
Actuarially determined	Values that have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the Plan.
Actuarially determined contribution	The employer's contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under the Plan's funding policy. The ADC consists of the Employer Normal Cost and the Amortization Payment.
Amortization method	A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the Unfunded Actuarial Accrued Liability. Under the Level Percentage of Pay method, the Amortization Payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the Unfunded Actuarial Accrued Liability. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.
Amortization payment	The portion of the pension plan contribution, or ADC, that is intended to pay off the Unfunded Actuarial Accrued Liability.
Assumptions or actuarial assumptions	The estimates upon which the cost of the Plan is calculated, including: Investment return — the rate of investment yield that the Plan will earn over the long-term future; Mortality rates — the rate or probability of death at a given age for employees and retirees; Retirement rates — the rate or probability of retirement at a given age or service; Disability rates — the rate or probability of disability retirement at a given age; Withdrawal rates — the rate or probability at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement; Salary increase rates — the rates of salary increase due to inflation, real wage growth and merit and promotion increases.

Appendix A: Definition of Pension Terms

Term	Definition
Closed amortization period	A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example, if the amortization period is initially set at 20 years, it is 19 years at the end of one year, 18 years at the end of two years, etc. See Open Amortization Period.
Decrements	Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or withdrawal.
Defined benefit plan	A retirement plan in which benefits are defined by a formula based on the member's compensation, age and/or years of service.
Defined contribution plan	A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.
Employer normal cost	The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.
Experience study	A periodic review and analysis of the actual experience of the Plan that may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified based on recommendations from the Actuary.
Funded ratio	The ratio of the Actuarial Value of Assets AVA to the Actuarial Accrued Liability (AAL). Plans sometimes also calculate a market funded ratio, using the Market Value of Assets (MVA), rather than the AVA.
GASB 67 and GASB 68	Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68. These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. Statement No. 68 sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 67 sets the rules for the systems themselves.
Investment return	The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.
Net Pension Liability (NPL)	The Net Pension Liability is equal to the Total Pension Liability minus the Plan Fiduciary Net Position.
Normal cost	The portion of the Actuarial Present Value of Future Benefits and expenses, if applicable, allocated to a valuation year by the Actuarial Cost Method. Any payment with respect to an Unfunded Actuarial Accrued Liability is not part of the Normal Cost (see Amortization Payment). For pension plan benefits that are provided in part by employee contributions, Normal Cost refers to the total of member contributions and employer Normal Cost unless otherwise specifically stated.
Open amortization period	An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. If the initial period is set as 30 years, the same 30-year period is used in each future year in determining the Amortization Period.

Appendix A: Definition of Pension Terms

Term	Definition
Plan Fiduciary Net Position	Market value of assets.
Service costs	The portions of the actuarial present value of projected benefit payments that are attributed to valuation years.
Total Pension Liability (TPL)	The actuarial accrued liability under the entry age normal cost method and based on the blended discount rate as described in GASB 67 and 68.
Unfunded actuarial accrued liability	The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative, in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus or an Overfunded Actuarial Accrued Liability.
Valuation date or actuarial valuation date	The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Benefits is determined. The expected benefits to be paid in the future are discounted to this date.