CURRAN ACTUARIAL

CONSULTING, LTD.

Annual Funding Valuation

June 30, 2023

Firefighters' Retirement System

CURRAN ACTUARIAL
CONSULTING, LTD.

October 30, 2023

Board of Trustees
Firefighters' Retirement System
3100 Brentwood Drive
Baton Rouge, LA 70809

Gentlemen:

We are pleased to present our report on the actuarial valuation of the Firefighters' Retirement System for the fiscal year ending June 30, 2023. Our report is based on the actuarial assumptions specified and relies on the data supplied by the system's administrators and accountants. This report was prepared at the request of the Board of Trustees of Firefighters' Retirement System of the State of Louisiana. The primary purpose of this report is to determine the actuarially required contribution for the retirement system for the fiscal year ending June 30, 2024 and to recommend the net direct employer contribution rate for Fiscal 2025. This report does not contain the information necessary for accounting disclosures as required by Governmental Accounting Standards Board (GASB) Statements 67 and 68; that information is included in a separate report. This report was prepared exclusively for the Firefighters' Retirement System for a specific limited purpose. It is not for the use or benefit of any third party for any purpose.

In our opinion, all of the assumptions on which this valuation is based are reasonable individually and in the aggregate. Both economic and demographic assumptions are based on our expectations for future experience for the system. This report has been prepared in accordance with generally accepted actuarial principles and practices, and to the best of our knowledge and belief, fairly reflects the actuarial present values and costs stated herein. The undersigned actuary is a member of the American Academy of Actuaries, has met the qualification standards for the American Academy of Actuaries to render the actuarial opinions incorporated in this report, and is available to provide further information or answer any questions with respect to this valuation.

Sincerely,

CURRAN ACTUARIAL CONSULTING, LTD.

By: Gregory M. C
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Senior Consulting Actuary

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SUMMARY OF VALUATION RESULTS
FIREFIGHTERS' RETIREMENT SYSTEM

		June 30, 2023	June 30, 2022
Census Summary:	Active Members	4,443	4,394
	Retired Members and Survivors	2,744	2,669
	DROP Participants	248	229
	Terminated Due a Deferred Benefit	130	123
	Terminated Due a Refund	1,048	969
Payroll (excluding DROP participants):		$ 266,532,270	$ 253,487,351
Benefits in Payment (excluding DROP accruals):		$ 120,336,832	$ 114,949,681
Present Value of Future Benefits		$ 3,699,785,938	$ 3,516,353,456
Actuarial Accrued Liability (EAN):		$ 2,925,476,136	$ 2,784,575,320
Frozen Unfunded Actuarial Accrued Liability:		$ 456,965,908	$ 491,237,338
Actuarial Value of Assets (AVA):		$ 2,361,258,223	$ 2,239,176,342
Market Value of Assets (MVA):		$ 2,272,795,475	$ 2,079,446,096
Ratio of AVA to Actuarial Accrued Liability:		80.71%	80.41%

	Fiscal 2023	Fiscal 2022
Market Rate of Return:	8.9%	-10.9%
Actuarial Rate of Return:	5.1%	5.7%

	Fiscal 2024	Fiscal 2023
Employers' Normal Cost (Mid-year):	$ 54,207,463	$ 46,942,124
Amortization Cost (Mid-year):	$ 64,259,191	$ 65,930,155
Estimated Administrative Cost:	$ 2,613,940	$ 2,151,250
Projected Insurance Premium Taxes Due:	$ (31,181,383)	$ (30,139,555)
Net Direct Employer Actuarially Required Contributions:	$ 89,899,211	$ 84,883,974
Projected Payroll:	$ 276,742,883	$ 261,247,685
Statutory Employee Contribution Rate: *	10.00%	10.00%
Board Approved Net Direct Employer Contribution Rate: *	33.25%	33.25%
Actuarially Required Net Direct Employer Contribution Rate: *	32.48%	32.49%

	Fiscal 2025	Fiscal 2024
Minimum Recommended Net Direct Employer Cont. Rate: *	32.50%	32.50%

* The above rates are for members with earnings greater than the Department of HHS poverty guidelines. For members with earnings below the poverty guidelines, employer rates will be 2.0% higher and employee rates will be 2.0% lower.

GENERAL COMMENTS

The values and calculations in this report were determined by applying statistical analysis and projections to system data and the assumptions listed. There is sometimes a tendency for readers to either dismiss results as mere “guesses” or alternatively to ascribe a greater degree of accuracy to the results than is warranted. In fact, neither of these assessments is valid. Actuarial calculations by their very nature involve estimations. As such, it is likely that eventual results will differ from those presented. The degree to which such differences evolve will depend on several factors including the completeness and accuracy of the data utilized, the degree to which assumptions approximate future experience, and the extent to which the mathematical model accurately describes the plan’s design and future outcomes.

Data quality varies from system to system and year to year. The data inputs involve both asset information and census information of plan participants. In both cases, the actuary must rely on third parties; nevertheless, steps are taken to reduce the probability and degree of errors. The development of assumptions is primarily the task of the actuary; however, information and advice from plan administrators, staff, and other professionals may be factored into the formation of assumptions. The process of setting assumptions is based primarily on analysis of past trends, but modification of historical experience is often required when the actuary has reason to believe that future circumstances may vary significantly from the past. Setting assumptions includes but is not limited to collecting past plan experience and studying general population demographics and economic factors from the past. The actuary will also consider current and future macro-economic and financial expectations as well as factors that are likely to impact the particular group under consideration. Hence, assumptions will also reflect the actuary’s judgment with regard to future changes in plan population and decrements in view of the particular factors which impact participants. Thus, the process of setting assumptions is not mere “guess work” but rather a process of mathematical analysis of past experience and of those factors likely to impact the future.

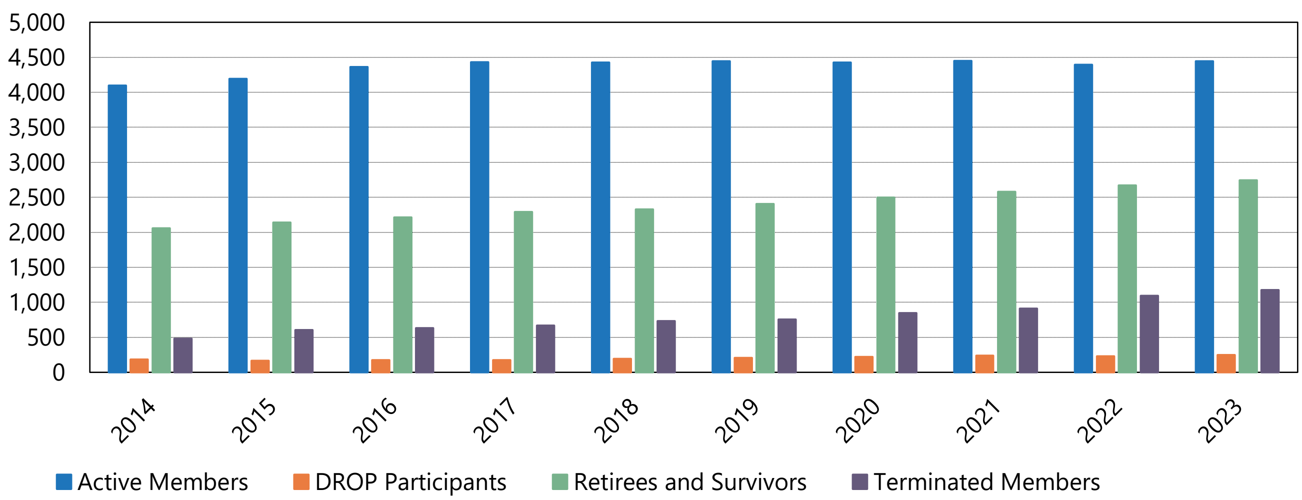
One area where an actuary has limited ability to develop accurate estimates is the projection of future investment earnings. The difficulties here are significant. First, the future is rarely like the past, and the data points available to develop stochastic trials are far fewer than the number required for statistical significance. In this area, some guess work is inevitable. However, there are tools available to lay a foundation for making estimates with an expectation of reliability. Although past data is limited, the available data is likely to provide some insight into the future. This data consists of general economic and financial values such as past rates of inflation, rates of return variance, and correlations of returns among various asset classes along with the actual asset experience of the plan. In addition, the actuary can review the current asset market environment as well as economic forecasts from governmental and investment research groups to form a reasonable opinion with regard to probable future investment experience for the plan.

All of the above efforts would be in vain if the assumption process was static, and the plan would have to deal with the consequences of actual experience differing from assumptions after forty or fifty years of compounded errors. However, actuarial funding methods for pension plans all allow for periodic corrections of assumptions to conform with reality as it unfolds. This process of repeated correction of estimates produces imperfect results but is nevertheless a reasonable approach to determine the contribution levels that will provide for the future benefits of plan participants.

COMMENTS ON DATA

For the valuation, the system's administrative staff furnished census data derived from the system's master data processing file indicating each active covered employee's sex, date of birth, service credit, annual salary, and accumulated contributions. Currently, the system's computer database does not contain DROP member salaries. Since this information is required to value the payment of benefits based on current actuarial assumptions related to potential post-DROP service, estimates of these salaries were made based on each DROP participant's historical average salaries. Information on retirees detailing retiree dates of birth, beneficiary dates of birth, retiree and beneficiary gender, optional form of benefit chosen, along with original and current benefit amounts, was provided. In addition, data was supplied on former employees who are vested or who have contributions remaining on deposit. As illustrated in Exhibit VIII, there are 4,443 active contributing members in the system of whom 2,242 have vested retirement benefits; in addition, there are 248 participants in the Deferred Retirement Option Plan (DROP); 2,744 former members or their beneficiaries are receiving retirement benefits. An additional 1,178 terminated members have contributions remaining on deposit with the system; of this number 130 have vested rights for future retirement benefits. According to **Figure 1**, active membership has declined over the past few years, while retiree and survivor levels have increased.

Figure 1. Membership Counts



Census data submitted to our office is tested for errors and changes are made when errors are identified. Several types of census data errors are possible. To ensure that the valuation results are as accurate as possible, a significant effort is made to identify and correct these errors. To minimize coverage errors (i.e., missing or duplicated individual records) the records are checked for duplicates, and a comparison of the current year's records to those submitted in prior years is made. Changes in status, new records, and previous records, that have no corresponding current record, are identified. This portion of the review indicates the annual flow of members from one status to another and is used to check some of the actuarial assumptions, such as rates of retirement, withdrawal, and mortality. In addition, the census is checked for reasonableness in several areas such as age, service, salary, and current benefits. Records identified by this review as questionable are checked against data from prior valuations, are reviewed against information on the system's membership database, and may be included in a detailed list of items sent to the system's administrative staff for verification and/or correction. Once the identified data has been researched and either verified or corrected, the final data is used in the valuation. Occasionally some requested information is either unavailable or impractical to obtain. In such cases, values may be assigned to missing data. The assigned values are based on information from similar records or based on information implied from other data in the record.

A member's salary is an important component of projecting future cash flows and computing normal costs and accrued liabilities. Our modeling requires the entry of annual salary for this purpose. For individuals who have not completed a full year of service during the measurement period, we use an estimate of their service during the fiscal year to annualize salaries.

In addition to the statistical information provided on the system's participants, the system's administrator furnished general information related to other aspects of the system's expenses, benefits and funding. Valuation asset values as well as income and expenses for the fiscal year were based on information furnished by the Louisiana Legislative Auditor's office. As indicated in the system's financial statements, the net market value of the system's assets was $2,272,795,475 as of June 30, 2023. Net investment income for Fiscal 2023 measured on a market value basis was $186,418,742. Contributions to the system for the fiscal year totaled $146,365,259; benefits and expenses amounted to $139,434,622.

Notwithstanding our efforts to review both census and financial data for apparent errors, we must rely upon the system's administrative staff and accountants to provide accurate information. Our review of submitted information is limited to validation of reasonableness and consistency. Verification of submitted data to source information is beyond the scope of our efforts.

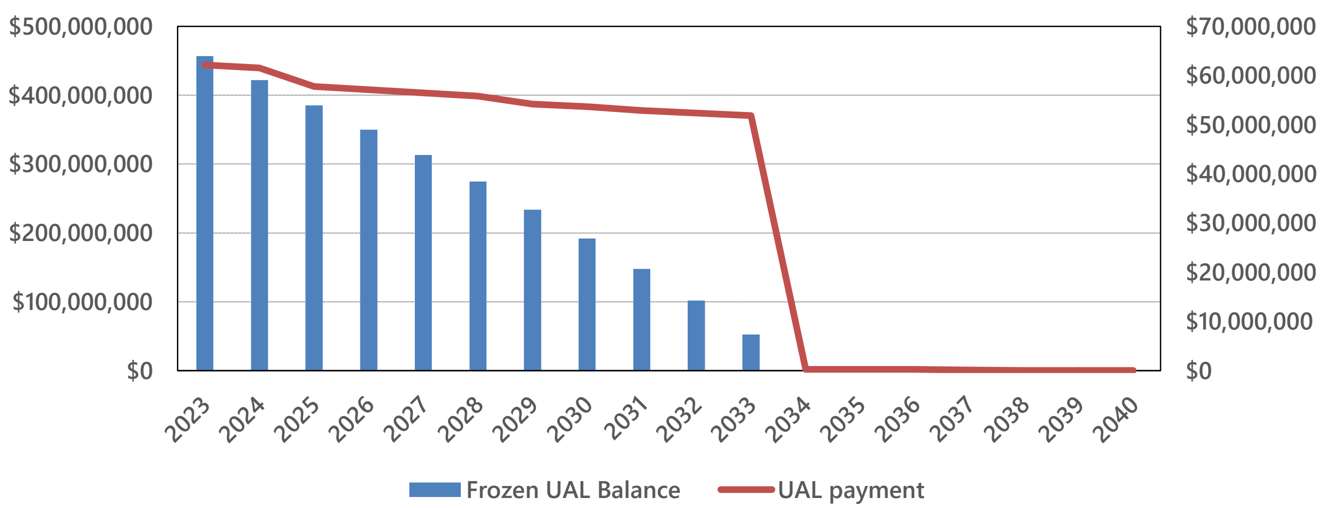
COMMENTS ON ACTUARIAL METHODS AND ASSUMPTIONS

Prior to the 2019 actuarial valuation, all valuations of the Firefighters' Retirement System were based on the Entry Age Normal actuarial cost method. As of June 30, 1989, under the provisions of Louisiana R.S. 11:103, the funding excess for the plan which was determined to be $239,425 was amortized over thirty years. Subsequent experience gains and losses were amortized over fifteen years. Contribution gains or losses arising from contributions in excess of or less than the required contributions were amortized over the same period as experience gains and losses. Further changes in the unfunded accrued liability generated by mergers of groups of firefighters into the system were amortized over thirty years. Act 620 of the 2003 Regular Session of the Louisiana Legislature changed the amortization of unfunded accrued liability. All non-merger amortization bases in existence on June 30, 2002, were combined, offset, and re-amortized through June 30, 2029, in accordance with R.S. 11:103(D). The aggregate value of the bases as of that date was $175,578,584. Act 422 of the 2009 Regular Session of the Louisiana Legislature further changed the amortization of unfunded accrued liability. Beginning with Fiscal 2010, actuarial gains and losses, as well as contribution gains and losses, were amortized over a 20-year period. Each year thereafter, the amortization period was set to decrease by one year until attaining a 15-year amortization period. All changes in assumptions or the method of valuing assets were then amortized over 15 years. All amortization payments were set on a level dollar basis.

Act 91 of the 2019 Regular Session of the Louisiana Legislature changed the funding method for use in actuarial valuations of the Firefighters' Retirement System from the Entry Age Normal actuarial cost method to the Frozen Initial Liability actuarial cost method. This change was effective with the 2019 valuation. Based upon this change, all non-merger outstanding balances on the system's entry age normal unfunded actuarial accrued liability as of June 30, 2019 were frozen, combined, and re-amortized over a fifteen year period with payments set to decrease by one percent each year. The remaining merger bases were not changed and will be paid off according to their original schedule. With this change, all actuarial experience gains and losses, contribution gains and losses, gains and losses arising from changes in benefits, and gains and losses arising from changes in assumptions which occur in fiscal years after 2019 are included in the calculation of the plan's normal cost according to the Frozen Initial Liability funding method.

Since the Frozen Initial Liability funding method spreads actuarial gains and losses over future normal costs, favorable plan experience will lower future normal costs while unfavorable plan experience will increase future normal costs. Overall costs may also increase or decrease depending on payroll growth. Since non-merger amortization payments on the frozen unfunded accrued liability are set to decrease by one percent per year over the next eleven years and merger amortizations are level dollar amounts, future amortization payments as a percentage of payroll decrease if payroll is level or increases. Since projected payroll for Fiscal 2024 exceeds the Fiscal 2023 projected payroll and the payment required on the Frozen Unfunded Accrued Liability decreased, the employer contribution rate decreased by 2.02% based on projected UAL payments. **Figure 2** shows the future of the Frozen UAL and the required payments on that UAL.

Figure 2. Frozen Unfunded Actuarial Accrued Liability



The system's valuation interest rate represents the actuary's best estimate of the system's expected long-term rate of return. This important financial assumption has a meaningful impact on the calculation of system liabilities. In the first actuarial valuation following the creation of the system by the Louisiana Legislature, the valuation interest rate was set at 7%. At that point in time, many of Louisiana's statewide retirement systems used a valuation interest rate of 8%. The Firefighters' Retirement System was created by the legislature in part to provide a centralized retirement system for a significant number of the state's local fire departments and districts. Many of the fire departments and fire districts had previous retirement systems that were merged into the Firefighters' Retirement System. In such cases, the sponsors of those legacy, local retirement systems were allowed to pay for a portion of the merger liability with a promissory note with FRS. These notes were created with payments determined based on a 6% interest rate. With

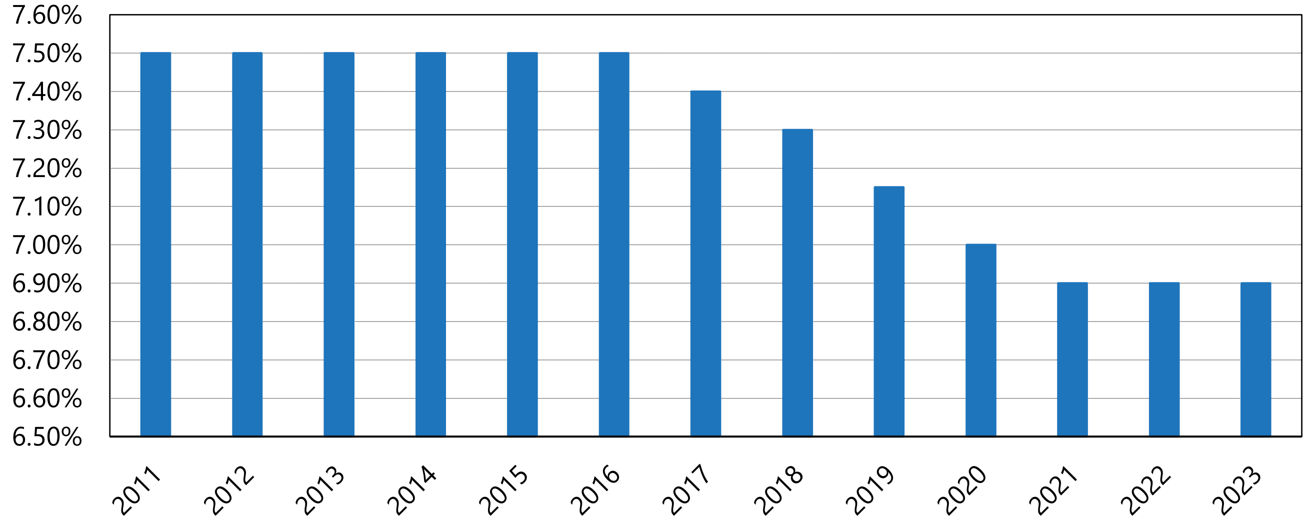
FRS receiving a significant amount of funding from merger notes based on a 6% interest rate, it was necessary to set the valuation interest rate below the rate that could be earned on the system's portfolio.

The 7% valuation interest rate was utilized through the fiscal 2003 actuarial valuation. A review of the valuation interest rate prior to the 2004 actuarial valuation found that most of the initial merger notes had been fully paid off by the responsible municipalities. Given this, the valuation interest rate could be set based on best estimates of the system's expected long-term rate of return on the system portfolio. It was determined that a 7.5% valuation interest rate was reasonable, and the Board of Trustees elected to change this assumption to 7.5% within the Fiscal 2004 actuarial valuation. This assumption was maintained through fiscal 2016.

In February of 2017, a recommendation was made to the Board of Trustees to reduce the long-term rate of return assumption. The recommendation was formed after an analysis of the system's portfolio along with updated expected long-term rates of return, standard deviations of return, and correlations between asset classes collected from a number of investment consulting firms including the system's investment consultant, NEPC. Based on this analysis and after discussions with the Board, a plan was approved to reduce the 7.5% valuation interest rate in effect for the Fiscal 2016 actuarial valuation to 7.0% over the subsequent five actuarial valuations with reductions of 0.10% each year, beginning with the June 30, 2017 valuation. Annual testing with updated capital market assumptions was performed in the following years, and the review for Fiscal 2019 found that the 7.20% valuation interest rate scheduled for use in the 2019 actuarial valuation was no longer inside the reasonable range determined by the actuary. Therefore, the assumed rate of return for the Fiscal 2019 valuation was set at 7.15%. Based upon the Fiscal 2020 review, the Board elected to further reduce the valuation interest rate for use in the Fiscal 2020 valuation to 7.00%, which was found to be within the reasonable range. Prior to the completion of the Fiscal 2021 valuation, the system's actuary notified the Board of Trustees that the 7% valuation interest rate used in the Fiscal 2020 valuation remained within the actuary's reasonable range. However, given the sizable market rate of return for Fiscal 2021 and the Board's stated desire to reduce the risk inherent in the assumed rate of return, the actuary recommended that the Board consider opportunistically lowering the valuation interest rate. The Board of Trustees authorized the actuary to lower the return assumption to a level that would not cause an increase in the minimum recommended employer contribution rate for Fiscal 2023 when compared to Fiscal 2022. Based upon this decision, the valuation interest rate was lowered to 6.9%.

Figure 3 shows the changes in valuation interest rate over the past 10 years.

Figure 3. Assumed Rate of Return



The actuary's review of the valuation interest rate prior to the 2022 and 2023 valuations found that the 6.9% return assumption remained within the reasonable range. These reviews were performed based on the development of 10,000 stochastic trials spanning 30 years. These trials were performed based on the assumption that portfolio returns are normally distributed based on the expected rate of return and standard deviation of returns inherent in modeling based on the firm's consultant average capital market assumptions and the system's target asset allocation. These stochastic trials were then used to determine return levels for each percentile. The reasonable range boundaries were set based on the 40th and 60th percentile expected return levels. Based upon these assumptions and the stochastic simulations, the 2023 review set a reasonable range of 6.67% to 7.91%. The resulting percentiles suggest that there is approximately a 56.4% probability that the system will have long-term earnings at or above 6.90% and a 50% probability that the system will have long-term investment earnings at or above 7.27%.

The remaining actuarial assumptions utilized for this report are based on the results of an actuarial experience study for the period July 1, 2014 – June 30, 2019, unless otherwise specified in this report. This study included a review of all plan decrements in addition to salary scale experience and other demographic factors which impact plan costs. The Experience Study report contains details related to each assumption including the actuary's recommended changes.

Although the Board of Trustees has authority to grant ad hoc Cost-of-living Adjustments (COLAs) under limited circumstances, these COLAs have not been shown to have a historical pattern, the amounts of the COLAs have not been paid relative to a defined cost-of-living or inflation index, and there is no evidence to conclude that COLAs will be granted on a predictable basis in the future. In addition, the Board of Trustees elected not to provide a COLA following the Fiscal 2021 actuarial valuation based on the cost of providing the statutorily permitted COLAs and the Board's concern about the potential impact on future costs. This decision demonstrates that although statutes provide a set of rules which require certain benchmarks to be met before offering a COLA, they do not guarantee future COLAs. Therefore, for purposes of determining the present value of benefits, future COLAs were not deemed to be substantively automatic, and the present value of benefits excludes COLAs not previously granted by the Board of Trustees.

The current year actuarial assumptions utilized for the report are outlined at the end of this report. All assumptions used are based on estimates of future long-term experience for the system as described in the system's 2020 Experience Study report. All calculations, recommendations, and conclusions are based on the assumptions specified. To the extent that prospective experience differs from that assumed, adjustments to contribution levels will be required. Such differences will be revealed in future actuarial valuations.

RISK FACTORS

Defined benefit pension plans are subject to a number of risks. These can be related either to plan assets or liabilities. In order to pay benefits, the plan must have sufficient assets when benefits become due. Several factors can lead to asset levels which are below those required to pay promised benefits. The following categories describe a number of key risks and provide measurements related to a few.

Contribution Policy Risk

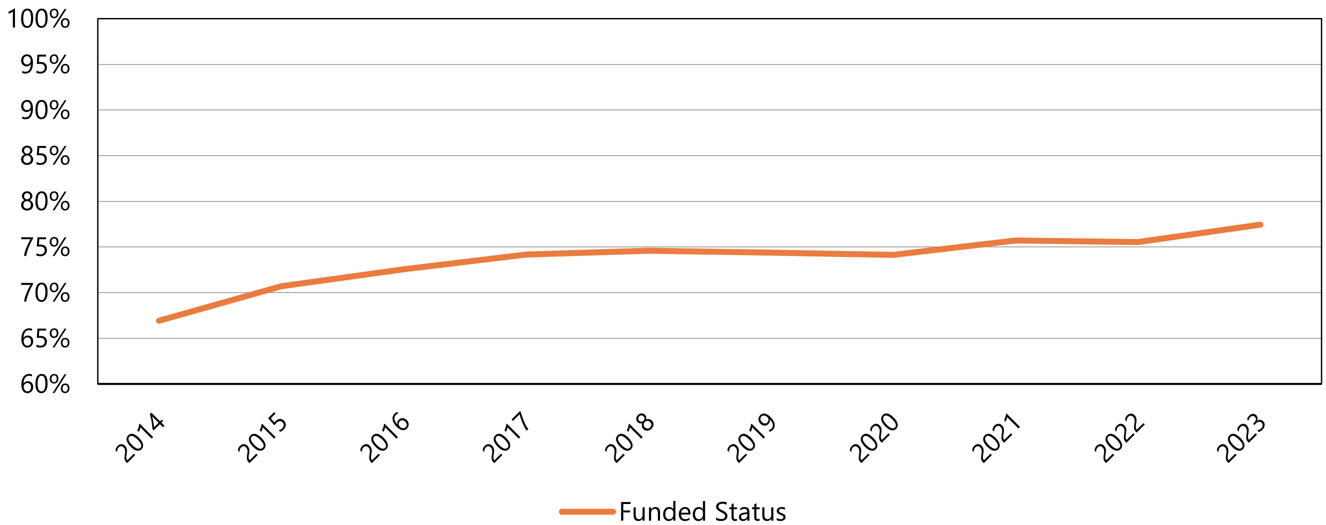
The first risk in this regard is the failure to contribute adequate funds to the plan. In some ways, this is the greatest risk, since other risks can usually be addressed by adequate actuarial funding. Louisiana constitutional and statutory provisions greatly limit this risk by requiring that state and statewide plans maintain funding on an actuarial basis. The State Constitution sets forth general requirements with specific funding parameters specified in the state statutes. This results in a funding policy that is expected to achieve a 100% funded status in time.

Funded Status

Beyond identifying risk categories, it is possible to quantify some risk factors. One fairly well-known risk metric is the funded ratio of the plan. The rate is given as a ratio of plan assets divided by plan liabilities. However, the definition of each of these terms may vary. The two typical alternatives used for assets are the market and actuarial value of assets. There are several alternative measures of liability depending on the funding method employed. The Governmental Accounting Standards Board (GASB) specifies that, for financial reporting purposes, the funded ratio is determined by using the market value of assets divided by the entry age normal accrued liability. This value is given in the system's financial report. Alternatively, we have calculated the ratio of the actuarial value of assets to the entry age normal accrued liability based on the funding methodology used to fund the plan. The ratio is 80.71% for the plan as of June 30, 2023.

This value gives some indication of the financial strength of the plan; however, it does not guarantee the ability of the system to pay benefits in the future or indicate that in the future, contributions are likely to be less than or greater than current contributions. In addition, the ratio cannot be used in isolation to compare the relative strength of different retirement systems. However, the trend of this ratio over time can give some insight into the financial health of the plan. Iin this regard, caution is warranted since market fluctuations in asset values and changes in plan assumptions can distort underlying trends in this value. **Figure 4** gives a history of this value for the last ten years. Note that the underlying trend is somewhat disguised since the system has significantly reduced the valuation interest rate over this period. Absent the reduction in the valuation interest rate, the current ratio would be higher.

Figure 4. Historical Funded Status



Following are a number of risks and risk measures related to system assets:

Inflation Risk

All pension plans are subject to the uncertainty of asset performance, and inflation is a major component of asset performance. The total nominal rate of return on assets is comprised of the real rates of return earned on the portfolio of investments plus the underlying inflation rate. High levels of inflation pose a risk to plan members in that they reduce the purchasing power of plan benefits. Were the plan to attempt to offset inflation by providing COLAs (often in the form of permanent benefit increases), minimum contribution rates would typically increase unless provisions are made to prefund such adjustments. Very low inflation typically reduces the nominal rate of return on assets; deflation can potentially reduce the capital value of trust assets. During the decade preceding 2020, inflation levels remained in a fairly narrow range. Since 2020, inflation has significantly increased. So far, Federal Reserve efforts to fight inflation have not had the desired effect. Forecasters seem to believe that long-term average rates of future inflation may remain higher than rates projected during the period prior to 2020 and the Covid-19 pandemic. There is always the possibility that high inflation will remain a problem in the future or that the country will experience a deflationary period; however, most expert opinion currently assesses these alternatives as unlikely in the near term.

Reinvestment Risk

Another element of asset risk is reinvestment risk. Interest rate declines can subject pension plans to an increase in this risk. As fixed income securities mature, investment managers may be forced to reinvest funds at decreasing rates of return. For the foreseeable future it is unlikely, though not impossible, that interest rates will steeply decline, which mitigates the reinvestment risk the plan currently faces. As the current cycle of increasing interest rates abates, the possibility of reinvestment risk will undoubtedly increase.

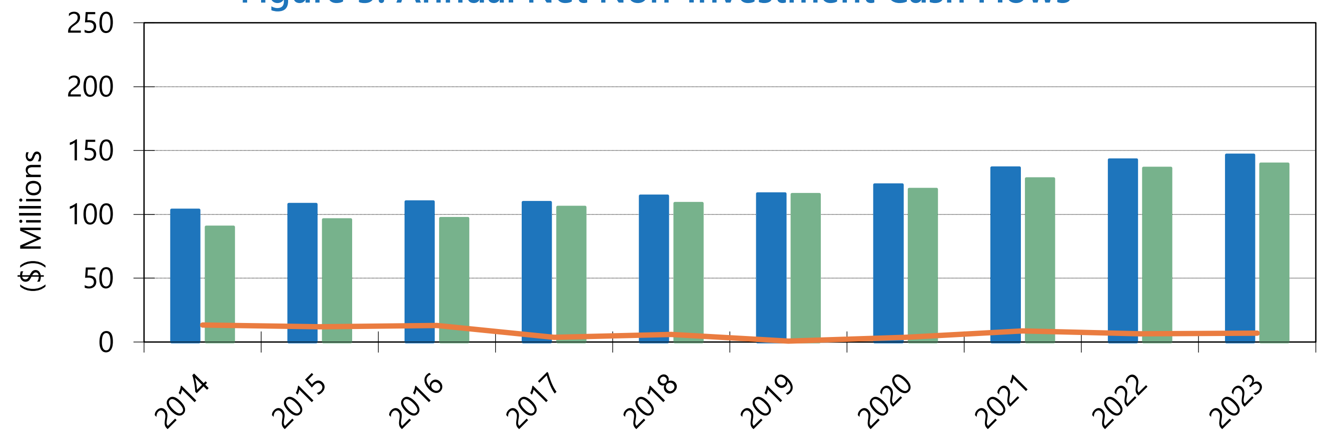
Asset Return Volatility Risk

Long-term asset performance depends not only on average returns but also on the volatility of returns. Two portfolios of identical size with identical average rates of return will accumulate different levels of assets if the volatility of returns differs, since increased volatility reduces the accumulation of assets. Volatility of returns will be determined by both market conditions and the asset allocation of the investment portfolio. If the system's investment portfolio has a substantial allocation to assets that have low price stability, the risk of portfolio volatility will increase, although low correlations among asset classes can mitigate this risk.

Cash Flow Risk

The system is also exposed to risk related to cash flow. Where benefit payments exceed contributions to a plan, the plan will be required to use investment income or potentially investment capital to pay benefits. In cases where it is necessary to use investment income to pay retirement benefits, investment market downturns place additional stress on the portfolio and make the recovery from such downturns more difficult since funds available for reinvestment are reduced by benefit payments. The historical cash flow graph and demonstration given below in **Figure 5** compares the total contribution income to benefits and expenses to determine the noninvestment cash flow of the system over the last ten years. Currently, annual contributions slightly exceed annual benefit payments to the plan.

Figure 5. Annual Net Non-Investment Cash Flows



		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total Contribution Income ($Mil)	■	103.4	107.8	109.9	109.3	114.4	116.3	123.3	136.6	142.8	146.4
Benefits and Expenses ($Mil)	■	90.1	95.8	96.9	105.7	108.6	115.6	119.6	127.9	136.3	139.4
Net Non-Inv. Cash Flow ($Mil)	—	13.3	12.0	13.0	3.6	5.8	0.7	3.7	8.7	6.5	7.0

Future net noninvestment cash flows for the system will be determined based upon both the system maturity and future contribution levels. Hence, increases in future contributions due to adverse actuarial experience will tend to mitigate the potential of negative cash flows arising from the natural maturation of the system, whereas reduced contribution levels resulting from positive experience will tend to increase the scale of negative cash flows. Absent a significant increase in the active membership of the system, the trend of higher proportions of retired membership may continue, and the current trend toward higher levels of negative non-investment cash flows could continue in the near future.

Sensitivity to Investment Gains/Losses

Every retirement system is subject to investment return risk. When the rate of return on the actuarial value of assets does not equal the assumed rate of return, the system experiences investment gains or losses. These can cause contribution rate requirements to be more volatile. We have determined that based on current assets and demographics, for each percentage under (over) the assumed rate of return on the actuarial value of assets, there will be a corresponding increase (decrease) in the actuarially required contribution as a percentage of projected payroll of 0.79% for the system.

Sensitivity to Changes in Valuation Interest Rate

With regard to the economic assumptions, we have determined that a reduction in the valuation interest rate by 1% (without any change to other collateral factors) would increase the actuarially required employer contribution rate for 2024 by 16.79% of payroll. In the future, adjustments to the future assumed rate of return may be required; however, the likelihood of such an event is difficult to gauge since it requires assigning probabilities to future capital market scenarios.

Following are a number of risks and risk measures related to system liabilities:

Maturity Risk

The ability of a system to recover from adverse asset or liability performance is partly related to the maturity of the plan population. In general, plans with increasing active membership are less vulnerable to asset and liability gains and losses than mature plans since changes in plan costs can be partially allocated to new members. If the plan has a large number of active members compared to retirees, asset or liability losses can be more easily addressed. As more members retire, contributions can only be collected from a smaller segment of the overall plan population. Often, population ratios of actives to annuitants are used to measure the plan's ability to adjust or recover from adverse events since contributions are made by or on behalf of active members but not for retirees. Thus, if the plan suffers a mortality loss through increased longevity, this will affect both actives and retirees, but the system can only fund this loss by contributions related to active members. A measure of risk related to plan maturity is the ratio of total benefit payments to active payroll. For Fiscal 2023, this ratio is 45%; ten years ago this ratio was 34%.

Assumption Risk

One other area of exposure the plan faces is the possibility that plan assumptions will need to be revised to conform to changing actual or expected plan experience. Such assumption revisions may relate to economic or demographic factors. With regard to the economic assumptions, there is always the possibility that market expectations will require an adjustment to the assumed rate of return. Market expectations related to the assumed rate of return do not currently suggest that a further decrease in the assumption is warranted. We will continue to monitor capital market assumptions and the Board's decisions related to asset mix. We will advise the Board if the reasonable range changes in any material way in the future.

Non-economic assumptions, such as mortality or other rates of decrement such as withdrawal, retirement, or disability, are also subject to change. In general, such changes tend to affect plan costs less than adjustments to the assumed rates of return. Quantifying the probability or magnitude of such changes is beyond the scope of this report.

In summary, there is a risk that future actuarial measurements may differ significantly from current measurements presented in this report due to factors such as the following: plan experience differing from that anticipated by the economic or demographic assumptions, changes in economic or demographic assumptions, and changes in plan provisions or applicable law. Ordinarily, variations in these factors will offset to some extent. However, even with the expectation that not all variations in costs will likely travel in the same direction, factors such as those outlined above have the potential on their own accord to pose a significant risk to future cost levels and solvency of the system.

Data Error Risk

Liability risk also includes items such as data errors. No actuarial valuation can provide accurate figures without accurate data on plan members, former members, retirees, and survivors. Significant errors in plan data can distort or disguise plan liabilities. When data corrections are made, the plan may experience unexpected increases or decreases in liabilities.

Liability Duration Risk

Each pension plan has its own unique benefit structure and demographic profile. As a result, each plan will respond to changes in interest rates in a unique way. As the expected rate of return on investments changes and the interest rate used to discount plan liabilities is adjusted, the shift in plan liabilities will depend upon the duration of the liabilities (which can be understood as the plan's sensitivity to the change in the interest rate). A slightly different measure of the duration for the plan can also be understood as an indicator of the plan's maturity. When a pension plan is first established, all of the participants are active members; as members retire and the plan matures, the duration of the plan decreases. A determination of the liability duration gives some insight into the investment time horizon of the plan. Thus, the liability duration of a closed plan can be thought of as the weighted "center of gravity" of plan benefit cash flows with expected cash flows occurring both before and after the duration value. For open plans with a continuous flow of new entrants, this measure is somewhat less informative since the duration horizon keeps changing as new members enter the plan. For this plan we have estimated the effective liability duration as 11.10 years.

Other Liability Risks

In addition to asset risk, the plan is also subject to risks related to liabilities. These risks include such things as longevity risk (the risk that retirees will live longer than expected), termination risk (the risk that fewer than the anticipated number of members will terminate service prior to retirement), and other factors that may have an impact on the liability structure of the plan. In a general sense, the short-term effects of these risks on the cost structure of the plan are somewhat limited since changes in these factors tend to be gradual and follow long-term secular trends. Final average compensation plans are also vulnerable to unexpectedly large increases in salary for individual members near retirement. The effect of such events frequently relates to pay plan revisions where salaries catch up after a number of years of slow growth. Revisions of this type usually depend on general economic conditions and can result in liability losses. However, they are generally infrequent and are more of a short-term issue.

Even natural disasters and dislocations in the economy or other unforeseen events can present risks to the plan. These events can affect member payroll and plan demographics, both of which impact costs. The risk associated with either of these factors can vary depending upon the severity of the event and cannot be easily forecasted.

CHANGES IN PLAN PROVISIONS

The following changes to the system were enacted during the 2023 Regular Session of the Louisiana Legislature:

ACT 134 made changes to the makeup of the Firefighters' Retirement System Board of Trustees. The act added an eleventh position to be filled by qualified Fire Chief. The Board will now have two positions for Fire Chiefs and both such positions are to be filled with members of the Louisiana Fire Chiefs Association who are members of the system elected by a majority of the officers of the association to serve five-year terms. The act does not affect the term of the current Fire Chief participating on the Board of Trustees and the additional trustee position shall be filled in December 2023 for a term beginning on January 1, 2024.

ACT 135 made changes to the election of a retired member to the Board of Trustees. The act changed the election process for the retiree position on the Board. This position will be elected by a majority vote of retired members and beneficiaries of the system instead of a vote of the members of the board of trustees. The act will not affect the term of the current retiree member of the Board of Trustees.

ACT 337 provides for the payment of a nonrecurring lump-sum supplemental payment to qualifying retirees and beneficiaries and provides with respect to benefits of designated surviving children. The nonrecurring lump-sum supplement is to be paid no later than August 1, 2023 to any retiree who has received a benefit for at least one year on June 30, 2023 and to any nonretiree beneficiary if the retiree or beneficiary or both combined have received a benefit for at least one year on June 30, 2023. The payment shall be in an amount equal to the lesser of the retiree or beneficiary's current monthly benefit and $2,500. The act also provides that a surviving eligible spouse who is receiving a survivor benefit may designate his deceased spouse's child or children with a permanent mental or physical disability or the deceased member's dependent minor child or children to receive a specified amount of benefits payable to the spouse. Any such payments must be of equivalent value to the total benefits otherwise payable to the surviving eligible spouse. Such designation is irrevocable once the first payment becomes due. The act provides for required proof of disability.

HCR 67 urges the United States Congress to review and eliminate or reduce the Government Pension Offset and Windfall Elimination Provision, which can result in decreases to Social Security Benefits for certain retirees and beneficiaries.

HCR 70 urges and requests the state treasurer and the state and statewide retirement systems to:

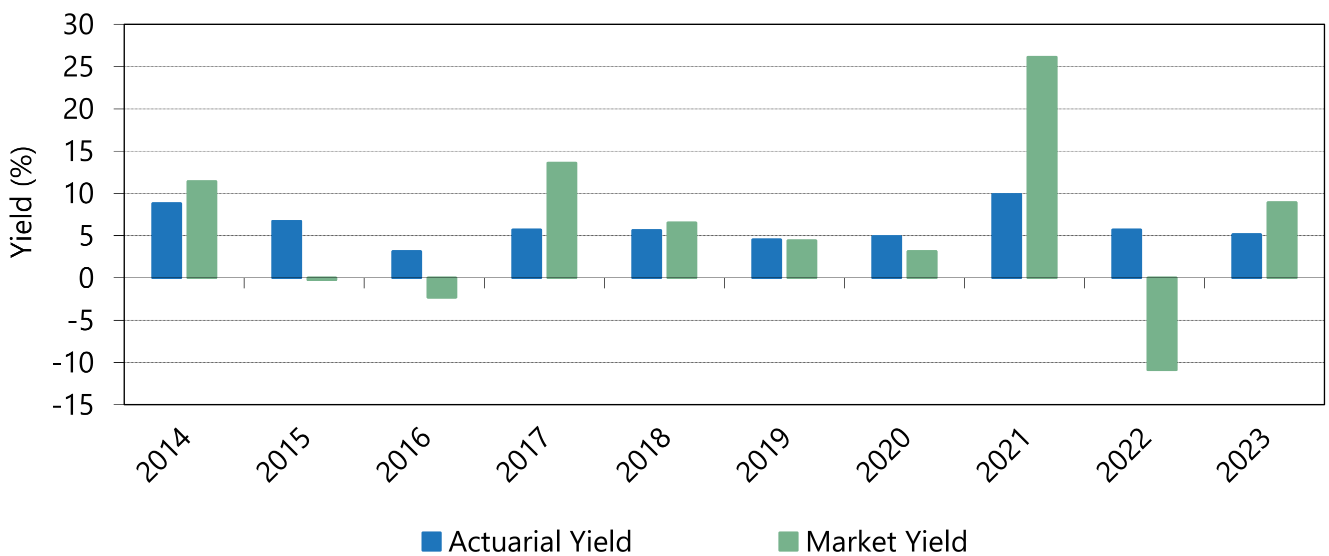
1. Report on investment advisors and companies used by the treasurer and the retirement systems that discriminate against the fossil fuel industry through environmental, social, and governance policies.
2. Report on investment of state and pension assets using nonpecuniary factors.
3. Report on the asset allocation of all of their investments.
4. Provide a report to the legislature including the name of any investment management company, investment advisor, mutual fund, or entity that uses nonpecuniary factors for investment purposes on behalf of the retirement system.
5. Provide a report to the legislature on any entity under contract that is known to boycott energy companies, including the aggregate amount that the listed entity has invested in Louisiana public companies and in U.S. and Louisiana oil and gas companies.
6. Provide a report to the legislature including specified information on investments and categorizing investments in Louisiana, within the United States, and outside the United States.

HCR 110 urges and requests that the state and statewide public retirement system boards of trustees uphold their fiduciary duty when making financial decisions and not allow Environmental, Social, and Governance policies to influence their investment decisions.

ASSET EXPERIENCE

The actuarial and market rates of return for the past ten years are given below (**Figure 6**). These investment rates of return were determined by assuming a uniform distribution of income and expense throughout the fiscal year.

Figure 6. Historical Asset Yields



	Market Yield	Actuarial Yield
2014	11.4%	8.8%
2015	-0.2%	6.7%
2016	-2.3%	3.1%
2017	13.6%	5.7%
2018	6.5%	5.6%
2019	4.4%	4.5%
2020	3.1%	4.9%
2021	26.1%	9.9%
2022	-10.9%	5.7%
2023	8.9%	5.1%

Geometric Average Market Rates of Return		
5-year average	(Fiscal 2019 – 2023)	5.7%
10-year average	(Fiscal 2014 – 2023)	5.6%
15-year average	(Fiscal 2009 – 2023)	4.4%
20-year average	(Fiscal 2004 – 2023)	5.5%
25-year average	(Fiscal 1999 – 2023)	4.8%
30-year average	(Fiscal 1994 – 2023)	5.6%

The market rate of return gives a measure of investment return on a total return basis and includes realized and unrealized capital gains and losses as well as interest income. Asset and income values for merger notes were excluded from calculations in order to provide a measurement of the return on the portion of the portfolio under management. This rate of return gives an indication of performance for an actively managed portfolio where securities are bought and sold with the objective of producing the highest total rate of return. During 2023 the system earned $29,638,701 of dividends, interest and other recurring income. During the same period, the system had net realized and unrealized capital gains on investments and non-recurring income of $165,764,905. This income was offset by investment expenses of $8,984,864.

The Fiscal actuarial rate of return is presented for comparison to the assumed long-term rate of return of 6.90% used for the prior valuation. This rate is calculated based on the actuarial value of assets and the market value income adjusted for actuarial smoothing as given in Exhibit VI. Investment income used to calculate this yield is based upon a smoothing of investment income above or below the valuation interest rate over a five-year period subject to constraints. The difference between rates of return on an actuarial and market value basis results from the smoothing utilized. Yields in excess of the applicable interest assumption will reduce future costs; yields below the applicable assumption will increase future costs. For Fiscal 2023, the system experienced net actuarial investment earnings of $39,587,042 below the actuarial assumed earnings rate in effect for Fiscal 2023 of 6.90%. This shortfall in earnings produced an actuarial loss, which increased the normal cost accrual rate by 1.3305%.

DEMOGRAPHICS AND LIABILITY EXPERIENCE

A reconciliation of the census for the system is given in Exhibit VIII. The average active contributing member is 39 years old with 11.66 years of service credit and an annual salary of $59,989. The system's active contributing membership experienced an increase of 49 members during Fiscal 2023. The number of DROP participants increased by 19 during Fiscal 2023. Over the last five years active membership has increased by 14 members.

The average service retiree is 66 years old with an annual benefit of $49,247. The average age of members at retirement is 54. The number of retirees and beneficiaries receiving benefits from the system increased by 75 during the fiscal year. Over the last five years, the number has increased by 455; during the same period, the annual benefits in payment increased by $31,892,147.

Plan liability experience for Fiscal 2023 was slightly unfavorable. Withdrawals and retiree deaths were significantly above projected levels. These items tend to reduce costs. Offsetting the reduction were active retirements, DROP entries, and disabilities above projected levels. Salary increases were above projected levels. The posting of interest on DROP accounts added to the experience loss within this valuation. The posting of 8.9% interest on DROP accounts while the system's employer contribution rate is determined based on the 5.1% actuarial rate of return produced a loss in Fiscal 2023. In aggregate, plan liability losses increased the normal cost accrual rate by 0.6125%.

FUNDING ANALYSIS AND RECOMMENDATIONS

Actuarial funding of a retirement system is a process whereby funds are accumulated over the working lifetimes of employees in such a manner as to have sufficient assets available at retirement to pay for the lifetime benefits accrued by each member of the system. The required contributions are determined by an actuarial valuation based on rates of mortality, termination, disability, and retirement, as well as investment return and other statistical measures specific to the particular group.

Prior to Act 91 of the 2019 regular session, the Firefighters' Retirement System was valued based upon the Individual Entry Age Normal Actuarial Cost Method. Act 91 changed the funding method to the Frozen Initial Liability Actuarial Cost Method with a frozen UAL determined as the remaining entry age normal unfunded actuarial accrued liability as of June 30, 2019. Under the Frozen Initial Liability Actuarial Cost Method, the system's normal cost incorporates the cost of additional annual accruals, changes in salary, changes in assumptions, and gains and losses. This funding method does not produce new unfunded accrued liability each year. Instead, the unfunded accrued liability represents a measure of the system's level of funding at the time the funding method changed. Each year, a determination is made of two cost components (the normal cost and the amortization payments on the frozen unfunded actuarial accrued liability), and the actuarially required contributions are based on the sum of these two components plus administrative expenses. The normal cost refers to the portion of annual cost based on the salary of active participants. Each year the frozen UAL grows with interest and is reduced by payments. Under the Frozen Initial Liability Actuarial Cost Method, changes in plan experience, benefits, or assumptions do not affect the frozen unfunded actuarial accrued liability. These items increase or decrease future normal costs. Payroll growth affects plan costs. Payments on the system's non-merger portion of the frozen unfunded accrued liability are set to decrease by 1% per year and payments on the system's merger portion of the frozen unfunded accrued liability are set based upon a level schedule. Therefore, if payroll increases, these costs are reduced as a percentage of payroll.

In order to establish the actuarially required contribution in any given year, it is necessary to define the assumptions, funding method, and method of amortizing the UAL. Thus, the determination of the actuarially required contribution depends upon the funding method and amortization schedules employed. Regardless of the method selected, the ultimate cost of providing benefits is dependent upon the benefits, expenses, and investment earnings. Only to the extent that some methods accumulate assets more rapidly and thus produce greater investment earnings does the funding method affect the ultimate cost.

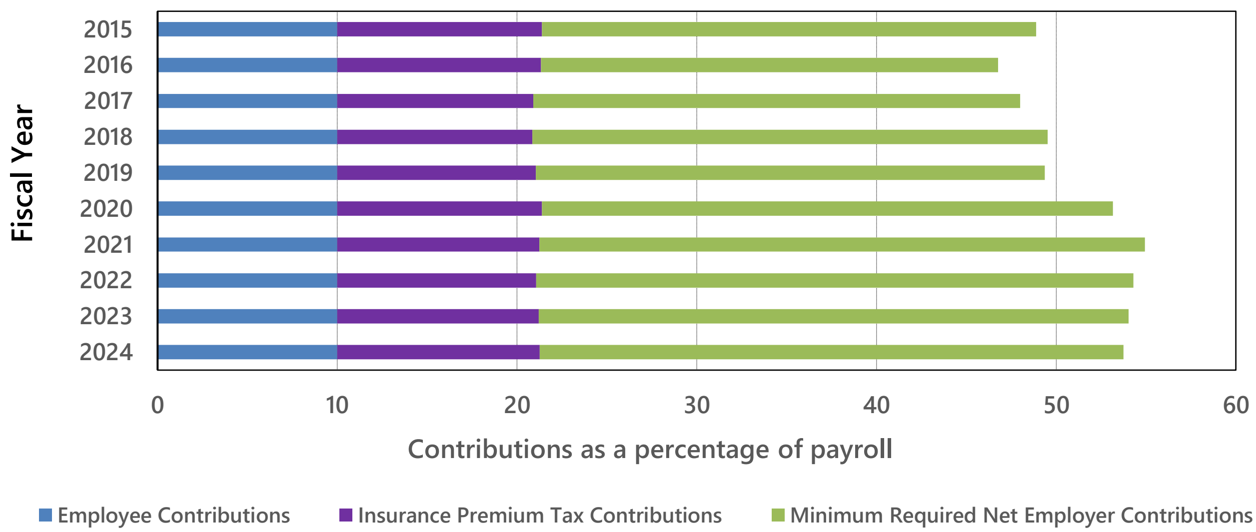
The derivation of the actuarially required contribution for the current fiscal year is given in Exhibit I. The employer normal cost for Fiscal 2024, interest adjusted for mid-year payment is $54,207,463. The interest adjusted amortization payments on the system's frozen unfunded actuarial accrued liability totaled $64,259,191. The total actuarially required contribution is determined by summing these two values together with estimated administrative expenses. As given in line 16 of Exhibit I the total actuarially required contribution for Fiscal 2024 is $121,080,594. We estimate insurance premium taxes of $31,181,383, or 11.27% of payroll, will be paid to the system in Fiscal 2024. This level of Insurance Premium Taxes represents a 0.06% increase over the prior year as a percentage of payroll. Hence, the total actuarially required net direct employer contribution for Fiscal 2024 amounts to $89,899,211 or 32.48% of payroll. R.S. 11:103 requires that the net direct employer contributions be rounded to the nearest 0.25%. The resulting Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2025 is 32.50%.

The Fiscal 2023 employer contribution rate equals the Minimum Recommended Net Direct Employer Contribution Rate of 33.25%. Therefore, no funds were added to the system's Funding Deposit Account within this actuarial valuation.

Since the Board of Trustees elected to hold the employer contribution rate for Fiscal 2024 at 33.25% of payroll (above the Minimum Recommended Net Direct Employer Contribution Rate of 32.50%) the employer contributions resulting from this action will be added to the system's Funding Deposit Account within the Fiscal 2024 actuarial valuation.

The cost of providing benefits to current and former members is borne by employees and employers and relies in part on dedicated insurance premium tax funds. **Figure 7** shows the breakdown of annual costs as a percentage of payroll over the past ten years.

Figure 7. Components of Actuarial Funding



Liability and asset experience as well as changes in assumptions and benefits can increase or decrease plan costs. In addition to these factors, any COLA granted in the prior fiscal year will increase required future contributions. New entrants to the system can also increase or decrease costs as a percentage of payroll depending upon their demographic distribution and other factors related to prior plan experience. Finally, contributions above or below requirements may reduce or increase future costs.

The effects of various factors on the system's cost structure are outlined below:

RECONCILIATION OF THE NORMAL COST ACCRUAL RATE	
Employer's Normal Cost Accrual Rate – Fiscal 2023	17.9329%
Factors Increasing the Normal Cost Accrual Rate:	
Asset Experience Loss	1.3305%
Plan Liability Experience Loss	0.6125%
Factors Decreasing the Normal Cost Accrual Rate:	
New Members	0.1169%
Contribution Gain	0.1302%
Employer's Normal Cost Accrual Rate – Fiscal 2024	19.6288%

LOW-DEFAULT RISK OBLIGATION MEASURE (LDROM)

The retirement system's annual actuarial funding valuation determines the employer's minimum contribution rate based upon a set of actuarial assumptions found to be reasonable individually and in the aggregate for the purpose of the measurement. For a system like the Firefighters' Retirement System that is open to new members and expected to exist in perpetuity, boards of trustees generally elect to invest system assets in a basket of asset classes that subject the system to a number of investment risks, including the risk of default. Such risks are generally mitigated through diversification among the asset classes and through portfolio construction within each asset class. When considering expert opinions about expectations of future returns, generally called capital market assumptions, and when considering historical evidence, it is found that a portfolio composed of a combination of asset classes (including risky assets such as equities, fixed income assets, real estate investments, and other alternative investments) earns a larger return than risk-free or low-default-risk fixed income assets provide. The larger expected return is often referred to as a risk premium as investors generally require a larger return to accept the added risk. It is precisely this exchange of return for added risk that is at the heart of the low-default-risk obligation measure (LDROM) defined within Actuarial Standard of Practice #4. Were the system to simply invest in low-default-risk fixed income securities, the system would be expected to earn less from investment markets but would also expect less portfolio return volatility and less chance of investment default. Since investment income directly offsets the contributions owed by the system's employers, building a portfolio that includes risky assets can be a strategy to lower the long-term requirement for employer contributions, but in doing so, employers accept certain investment risks.

The LDROM can help to quantify both the impact of investing in a portfolio that includes risky assets and using a long-term expected rate of return from such a portfolio to discount liabilities. In addition, the LDROM can help stakeholders understand how much liabilities would increase if the system was measured using a discount rate that did not include the risk premium for assets with higher default risk.

The standard of practice requires the following when determining the LDROM:

- The actuary should use an immediate gain actuarial cost method.
- The actuary should select a discount rate or rates 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.
- Other than the discount rate or rates, the actuary may use the same assumptions used in the funding valuation for this measure.

The biggest decision in making LDROM calculations is the discount rate or rates to use. The standard discusses several possibilities. We have elected to base our LDROM calculations on discount rates derived from high-quality corporate bonds, which we believe best represent low-default-risk fixed income investments. For the purpose of these calculations, we intend to use the U.S. Department of the Treasury's High-Quality Market (HQM) Corporate Bond Yield Curve weighted according to the closed fund cash flows developed for the most recently completed system specific GASB 67 analyses. The LDROM calculations have been performed based on the Entry Age Normal funding method.

The U.S. Treasury HQM Corporate Bond Yield Curve is developed using regression variables, projects yield curves beyond the longest maturity date, and makes use of bond market characteristics to help generate a stable curve. It represents spot yields of corporate bonds rated AAA, AA, or A and is available monthly on the IRS website. When the June 2023 HQM Corporate Bond Yield Curve is weighted based on the GASB 67 cash flows, the effective single discount rate derived from the analysis is 5.18%.

In the following section, we disclose an LDROM-based actuarial accrued liability, which can be compared to the entry age normal actuarial accrued liability, and an LDROM-based funded ratio, which can be compared to the system's funded ratio determined based on the entry age normal actuarial accrued liability. Our calculations are based on the effective single discount rate derived from the U.S. Treasury HQM Corporate Bond Yield Curve of 5.18%. All other assumptions match those used to determine funding liabilities.

LDROM Comparison	Funding Valuation	LDROM Valuation
Discount Rate	6.90%	5.18%
Accrued Liability for Active Members	$ 1,446,391,460	$ 1,864,362,690
Accrued Liability for Terminated Members	$ 34,331,675	$ 43,770,380
Accrued Liability for Retired Members	$ 1,444,753,001	$ 1,671,510,609
Total Actuarial Accrued Liability (AAL)	$ 2,925,476,136	$ 3,579,643,679
Funded Ratio (AVA/AAL)	80.71%	65.96%

The differences in the measures shown above can be viewed within the risk/return framework. By accepting added investment risk, the system is expected to significantly reduce the employer's responsibility to fund system liabilities over the long run, but that decision will likely result in greater variability in employer contributions over time as risky assets typically experience greater return volatility.

COST-OF-LIVING ADJUSTMENTS

During Fiscal 2023, the actual cost-of-living (as measured by the US Department of Labor CPI-U) increased by 3.0%.

RELEVANT COLA STATUTES	
Statute	**Description**
R.S. 11:2260A(7)	Allows the Board to grant cost-of-living adjustments of up to 3% of each retiree's current benefit. (Applies to those retired for at least one year.)
R.S. 11:246	Provides supplemental cost-of-living adjustments to retirees and beneficiaries over the age of 65 equal to 2% of the benefit in payment on October 1, 1977, or the date the benefit was originally received if retirement commenced after that date. (Applies to those retired for at least one year. May only be granted if the system's earnings exceed those which would be realized based on the valuation interest rate as applied to the actuarial value of assets in sufficient amount to offset the present value of the increase or by funding the lifetime cost of the increase through a withdrawal from the Funding Deposit Account balance.)
R.S. 11:241	Provides for cost-of-living benefits payable based on a formula equal to up to $1 times the total of the number of years of credited service accrued at retirement or at death of the member or retiree plus the number of years since retirement or since death of the member or retiree to the system's fiscal year end preceding the payment of the benefit increase. (Applies to those retired for at least one year.)

R.S. 11:243 sets forth the funding criteria necessary in order to grant cost-of-living adjustments to regular retirees and beneficiaries (who are neither the surviving spouse nor children of the retiree.) The criteria for the system to qualify as eligible to grant any such increase is as follows: a funded ratio of at least 70% if the system has not granted a benefit increase to retirees, survivors, or beneficiaries in any of the three most recent fiscal years; a funded ratio of at least 80% if the system has not granted such an increase in any of the two most recent fiscal years; or a funded ratio of at least 90% if the system has not granted such an increase in the most recent fiscal year. The funded ratio at any fiscal year end is the ratio of the actuarial value of assets to the actuarial accrued liability under the funding method prescribed by the legislative auditor (currently the Projected Unit Credit Method for this system).

The system meets the rules of R.S. 11:243 based on the funded ratio (as measured by the Actuarial Value of Assets divided by the Pension Benefit Obligation) of 82.50% given the date of the last granted cost-of-living increase on January 1, 2015 which is not within the three most recent fiscal years. However, the system failed to earn the 6.90% assumed rate of return on an actuarial basis and therefore has no "excess interest" for the fiscal year. Therefore, the system does not qualify for payment of a cost-of-living increase.

EXHIBITS

EXHIBIT I
ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS

1.	Present Value of Future Benefits	$	3,699,785,938
2.	Frozen Unfunded Actuarial Accrued Liability	$	456,965,908
3.	Actuarial Value of Assets	$	2,361,258,223
4.	Funding Deposit Account Credit Balance	$	0
5.	Present Value of Future Employee Contributions	$	297,535,262
6.	Present Value of Future Employer Normal Costs (1 - 2 – (3 – 4) – 5)	$	584,026,545
7.	Present Value of Future Salaries	$	2,975,352,624
8.	Employer Normal Cost Accrual Rate (6 ÷ 7)		19.628818%
9.	Projected Fiscal 2024 Salary for Current Membership	$	267,101,349
10.	Employer Normal Cost as of July 1, 2023 (8 × 9)	$	52,428,838
11.	Employer Normal Cost Interest Adjusted for Mid-year Payment	$	54,207,463
12.	Amortization Payment on Remaining Frozen Unfunded Accrued Liability	$	62,150,754
13.	Amortization Payment Interest Adjusted for Mid-year Payment	$	64,259,191
14.	TOTAL Employer Normal Cost and Amortization Payment (11 + 13)	$	118,466,654
15.	Estimated Administrative Cost for Fiscal 2024	$	2,613,940
16.	GROSS Employer Actuarially Required Contribution for Fiscal 2024 (14 + 15)	$	121,080,594
17.	Projected Insurance Premium Taxes for Fiscal 2024	$	(31,181,383)
18.	Net Direct Employer Actuarially Required Contribution for Fiscal 2024 (16 + 17)	$	89,899,211
19.	Projected Payroll for Fiscal 2024	$	276,742,883
20.	Employers' Minimum Net Direct Actuarially Required Contribution as a % of Projected Payroll for Fiscal 2024 (18 ÷ 19)		32.48%
21.	Board Adopted Employer Contribution Rate for Fiscal 2024		33.25%
22.	Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2025 (20, Rounded to nearest 0.25%)		32.50%

* The above rates are for members with earnings greater than the Department of HHS poverty guidelines. For members with earnings below the poverty guidelines, employer rates will be 2.0% higher and employee rates will be 2.0% lower.

EXHIBIT II
PRESENT VALUE OF FUTURE BENEFITS

PRESENT VALUE OF FUTURE BENEFITS FOR ACTIVE MEMBERS:

Retirement Benefits	$ 2,130,088,992	
Survivor Benefits	33,804,071	
Disability Benefits	18,619,147	
Vested Termination Benefits	23,342,066	
Refunds of Contributions	14,846,986	
TOTAL Present Value of Future Benefits for Active Members		$ 2,220,701,262

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement	$ 27,675,857	
Terminated Members with Reciprocals Due Benefits at Retirement	0	
Terminated Members Due a Refund	6,655,818	
TOTAL Present Value of Future Benefits for Terminated Members		$ 34,331,675

PRESENT VALUE OF FUTURE BENEFITS FOR RETIREES:

Regular Retirees			
Maximum	$ 245,874,219		
Option 1	122,609,805		
Option 2	625,670,695		
Option 3	186,395,109		
Option 4	9,639,415		
Option 5	0		
TOTAL Regular Retirees		$ 1,190,189,243	
Disability Retirees		36,863,377	
Survivors & Widows		87,181,186	
DROP Lifetime Annuities		1,420,350	
DROP Account Balances Payable to Retirees*		124,172,090	
IBO Balances Payable to Retirees*		4,926,755	
TOTAL Present Value of Future Benefits for Retirees & Survivors			$ 1,444,753,001

TOTAL PRESENT VALUE OF FUTURE BENEFITS	$ 3,699,785,938

*DROP/IBO Balances include estimated interest for Fiscal 2023

EXHIBIT III – SCHEDULE A
MARKET VALUE OF ASSETS

CURRENT ASSETS:

Cash in Banks	$ 13,050,118		
Contributions Receivable	10,406,266		
Accrued Interest and Dividends	5,311,836		
Investments Receivable	1,339,894		
Prepaid Expenses	30,011		
Notes Receivable for Mergers	750,602		
TOTAL CURRENT ASSETS		$	30,888,727
Property Plant & Equipment		$	2,024,634

INVESTMENTS:

Cash Equivalents	$ 69,685,334		
Equities	1,261,964,561		
Fixed Income	539,680,310		
Real Estate	155,722,858		
Alternative Investments	126,540,899		
Multi-Asset Strategies	89,793,239		
TOTAL INVESTMENTS		$	2,243,387,201
DEFERRED OUTFLOWS		$	52,390
TOTAL ASSETS		$	2,276,352,952

CURRENT LIABILITIES:

Accounts Payable	$ 1,572,263		
Investments Payable	1,299,273		
Other Post-Employment Benefits	269,776		
TOTAL CURRENT LIABILITIES		$	3,141,312
DEFERRED INFLOWS OF RESOURCES		$	416,165
TOTAL LIABILITIES		$	3,557,477
MARKET VALUE OF ASSETS		$	2,272,795,475

EXHIBIT III – SCHEDULE B
ACTUARIAL VALUE OF ASSETS

Excess (Shortfall) of invested income
for current and previous 4 years:

Fiscal year 2023	$	42,701,843
Fiscal year 2022		(414,625,538)
Fiscal year 2021		351,501,915
Fiscal year 2020		(72,248,326)
Fiscal year 2019		(50,158,174)
Total for five years	$	(142,828,280)

Deferral of excess (shortfall) of invested income:

Fiscal year 2023 (80%)	$	34,161,474
Fiscal year 2022 (60%)		(248,775,323)
Fiscal year 2021 (40%)		140,600,766
Fiscal year 2020 (20%)		(14,449,665)
Fiscal year 2019 (0%)		0
Total deferred for year	$	(88,462,748)

Market value of plan net assets, end of year	$	2,272,795,475
Preliminary actuarial value of plan assets, end of year	$	2,361,258,223

Actuarial value of assets corridor

85% of market value, end of year	$	1,931,876,154
115% of market value, end of year	$	2,613,714,796

Final actuarial value of plan net assets, end of year	$	2,361,258,223

EXHIBIT IV
PRESENT VALUE OF FUTURE CONTRIBUTIONS

Employee Contributions to the Annuity Savings Fund	$	297,535,262
Employer Normal Contributions to the Pension Accumulation Fund		584,026,545
Employer Amortization Payments to the Pension Accumulation Fund		456,965,908
TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS	$	1,338,527,715

EXHIBIT V - SCHEDULE A
CHANGE IN FROZEN UNFUNDED ACTUARIAL ACCRUED LIABILITY

Prior Year Frozen Unfunded Accrued Liability			$	491,237,338
Interest on Frozen Unfunded Accrued Liability	$	33,895,376		
TOTAL Increase in Frozen Unfunded Accrued Liability			$	33,895,376
Amortization Payment on Frozen Unfunded Accrued Liability	$	63,766,891		
Interest on Amortization Payment	$	4,399,915		
TOTAL Decrease in Frozen Unfunded Accrued Liability			$	68,166,806
NET Change in Frozen Unfunded Accrued Liability			$	(34,271,430)
CURRENT YEAR FROZEN UNFUNDED ACCRUED LIABILITY			$	456,965,908

EXHIBIT V – SCHEDULE B
RECONCILIATION OF CONTRIBUTIONS

Interest Adjusted Prior Year Employer Normal Cost	$	48,534,615
Interest Adjusted Amortization Payment on Remaining UAL		68,166,807
Interest Adjusted Administrative Expenses		2,232,115
TOTAL Interest Adjusted Actuarially Required Contributions	$	118,933,537
Interest Adjusted Direct Employer Contributions	$	92,529,155
Interest Adjusted Insurance Premium Taxes		30,277,107
TOTAL Interest Adjusted Employer Contributions	$	122,806,262
CONTRIBUTION SHORTFALL (SURPLUS)	$	(3,872,725)

EXHIBIT V - SCHEDULE C
AMORTIZATION OF FROZEN UNFUNDED ACTUARIAL ACCRUED LIABILITY

June 30, 2023

FISCAL YEAR		AMORT. PERIOD	INITIAL BALANCE	YEARS REMAINING	REMAINING BALANCE	AMORT. PAYMENTS (BOY)
1993	Merger Loss	30	$ 13,485,002	0	$ 0	$ 0
1995	Merger Loss	30	41,779,611	2	6,220,547	3,214,000
1996	Merger Loss	30	1,772,399	3	382,785	136,197
1997	Merger Loss	30	890,324	4	248,020	68,342
1998	Merger Loss	30	1,602,435	5	540,013	122,874
1999	Merger Loss	30	14,104,876	6	5,522,300	1,080,432
2001	Merger Loss	30	3,117,590	8	1,527,228	238,327
2007	Merger Loss	30	1,065,812	14	760,756	80,887
2008	Merger Loss	30	1,556,324	15	1,155,360	117,916
2011	Merger Loss	30	329,132	18	268,839	24,821
2019	Cumulative Non-Merger Bases	15	549,175,053	11	440,340,060	57,066,958

TOTAL Frozen Unfunded Actuarial Accrued Liability as of July 1, 2023	$ 456,965,908	
TOTAL Fiscal 2024 Amortization Payments on July 1, 2023		$ 62,150,754
TOTAL Fiscal 2024 Amortization Payments Adjusted to Mid-Year		$ 64,259,191

Sum of Remaining Balances and Amortization Payments may not equal total UAL or payments due to rounding.

EXHIBIT VI
ANALYSIS OF CHANGE IN ASSETS

Actuarial Value of Assets (June 30, 2022)		$ 2,239,176,342
INCOME:		
Member Contributions	$ 26,944,318	
Employer Contributions	89,493,139	
Irregular Contributions	241,112	
Insurance Premium Taxes	29,283,671	
Transfers From Other Systems	403,019	
Total Contributions		$ 146,365,259
Net Appreciation of Investments	$ 165,762,577	
Interest & Dividends	29,638,701	
Legal Settlement	2,328	
Investment Expense	(8,984,864)	
Net Investment Income		$ 186,418,742
TOTAL Income		$ 332,784,001
EXPENSES:		
Retirement Benefits (Including DROP)	$ 133,432,447	
Refunds of Contributions	3,362,761	
Transfers to Other Systems	480,538	
Administrative Expenses (Includes OPEB)	2,158,876	
TOTAL Expenses		$ 139,434,622
Net Market Value Income for Fiscal 2023 (Income - Expenses)		$ 193,349,379
Unadjusted Assets as of June 30, 2023 (Assets Previous Year + Net Income)		$ 2,432,525,721
Adjustment for Actuarial Smoothing		$ (71,267,498)
Actuarial Value of Assets: (June 30, 2023)		$ 2,361,258,223

EXHIBIT VII
FUNDING DEPOSIT ACCOUNT

Funding Deposit Account Balance as of June 30, 2022	$	0
Interest on Opening Balance at 6.90%		0
Contributions to the Funding Deposit Account		0
Withdrawals from the Funding Deposit Account		0
Funding Deposit Account Balance as of June 30, 2023	$	0

EXHIBIT VIII – SCHEDULE A
PENSION BENEFIT OBLIGATION

Present Value of Credited Projected Benefits Payable to Current Employees	$	1,383,165,405
Present Value of Benefits Payable to Terminated Employees		34,331,675
Present Value of Benefits Payable to Current Retirees and Beneficiaries		1,444,753,001
TOTAL PENSION BENEFIT OBLIGATION	$	2,862,250,081
NET ACTUARIAL VALUE OF ASSETS	$	2,361,258,223
Ratio of Net Actuarial Value of Assets to Pension Benefit Obligation		82.50%

EXHIBIT VIII - SCHEDULE B
ENTRY AGE NORMAL ACTUARIAL ACCRUED LIABILITIES

Accrued Liability for Active Employees	$	1,446,391,460
Accrued Liability for Terminated Employees	$	34,331,675
Accrued Liability for Current Retirees and Beneficiaries	$	1,444,753,001
TOTAL ENTRY AGE NORMAL ACCRUED LIABILITY	$	2,925,476,136
ACTUARIAL VALUE OF ASSETS	$	2,361,258,223
Ratio of Net Actuarial Value of Assets to Entry Age Normal Accrued Liability		80.71%

EXHIBIT VIII
CENSUS DATA

	Active	Terminated with Funds on Deposit	DROP	Retired	Total
Number of members as of June 30, 2022	4,394	1,092	229	2,669	8,384
Additions to Census					
Initial membership	367	46			413
Omitted in error last year				8	8
Death of another member				28	28
Adjustment for multiple records	2			2	4
Change in Status during Year					
Actives terminating service	(166)	166			
Actives who retired	(57)			57	
Actives entering DROP	(93)		93		
Term. members rehired	33	(33)			
Term. members who retire		(5)		5	
Retirees who are rehired	2	1		(3)	
Refunded who are rehired	5	1			6
DROP participants retiring			(54)	54	
DROP returned to work	19		(19)		
Omitted in error last year					
Eliminated from Census					
Refund of contributions	(61)	(89)			(150)
Deaths	(2)	(1)	(1)	(76)	(80)
Included in error last year					
Adjustment for multiple records					
Number of members as of June 30, 2023	4,443	1,178	248	2,744	8,613

Actives Census by Age:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
16 - 20	70	3	73	35,886	2,619,704
21 - 25	462	33	495	40,627	20,110,573
26 - 30	605	40	645	46,687	30,112,917
31 - 35	710	43	753	52,720	39,698,117
36 - 40	732	40	772	60,564	46,755,359
41 - 45	583	58	641	67,589	43,324,800
46 - 50	485	26	511	75,902	38,785,914
51 - 55	324	25	349	80,013	27,924,676
56 - 60	132	14	146	82,679	12,071,105
61 - 65	29	14	43	82,985	3,568,334
66 - 70	11	2	13	96,986	1,260,814
71 - 75	1	0	1	199,362	199,362
76 - 80	1	0	1	100,595	100,595
Total	4,145	298	4,443	59,989	266,532,270

* The active census includes 2,242 actives with vested benefits, including 61 active former DROP participants. The 248 current DROP participants are excluded.

DROP Participants by Age:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
46 - 50	21	2	23	67,701	1,557,116
51 - 55	116	5	121	71,471	8,648,014
56 - 60	68	5	73	70,042	5,113,030
61 - 65	22	2	24	62,720	1,505,289
66 - 70	6	1	7	56,460	395,222
Total	233	15	248	69,430	17,218,671

Terminated Members Due a Deferred Retirement Benefit:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
31 - 35	12	0	12	22,912	274,943
36 - 40	18	1	19	27,762	527,473
41 - 45	34	6	40	32,793	1,311,705
46 - 50	37	2	39	30,226	1,178,807
51 - 55	18	0	18	22,852	411,342
56 - 60	1	0	1	109,147	109,147
61 - 65	1	0	1	73,705	73,705
Total	121	9	130	29,901	3,887,122

Terminated Members Due a Refund of Contributions:

Contributions Ranging From		To	Number	Total Contributions
0	-	99	78	3,975
100	-	499	234	61,825
500	-	999	113	78,613
1,000	-	1,999	124	175,383
2,000	-	4,999	167	541,532
5,000	-	9,999	127	921,479
10,000	-	19,999	105	1,493,851
20,000	-	99,999	99	3,262,676
100,000	&	Above	1	107,007
Total			1,048	6,646,341

Regular Retirees:

Age			Number Male	Number Female	Total Number	Average Benefit	Total Benefit
41	-	45	2	0	2	58,971	117,942
46	-	50	38	2	40	53,906	2,156,226
51	-	55	148	10	158	54,331	8,584,340
56	-	60	391	27	418	54,309	22,701,150
61	-	65	481	28	509	53,385	27,172,880
66	-	70	373	17	390	50,070	19,527,123
71	-	75	320	7	327	44,518	14,557,394
76	-	80	185	6	191	38,601	7,372,815
81	-	85	98	0	98	38,842	3,806,479
86	-	90	29	0	29	31,879	924,502
91	-	95	13	0	13	21,928	285,063
96	-	100	3	0	3	28,196	84,589
101	-	105	1	0	1	19,415	19,415
Total			2,082	97	2,179	49,247	107,309,918

Disability Retirees:

Age			Number Male	Number Female	Total Number	Average Benefit	Total Benefit
26	-	30	1	1	2	25,872	51,743
31	-	35	1	0	1	11,694	11,694
36	-	40	2	0	2	25,457	50,914
41	-	45	13	1	14	29,742	416,382
46	-	50	10	2	12	28,976	347,708
51	-	55	21	1	22	27,285	600,271
56	-	60	11	3	14	22,010	308,142
61	-	65	17	2	19	25,465	483,832
66	-	70	19	0	19	20,383	387,280
71	-	75	14	2	16	21,307	340,906
76	-	80	5	0	5	20,406	102,029
81	-	85	3	0	3	10,196	30,588
86	-	90	3	0	3	15,028	45,085
91	-	95	1	0	1	3,641	3,641
Total			121	12	133	23,911	3,180,215

Survivors:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
0 - 20	16	17	33	5,507	181,724
21 - 25	7	5	12	6,306	75,674
26 - 30	0	3	3	8,534	25,602
31 - 35	0	3	3	20,748	62,244
36 - 40	1	3	4	30,932	123,727
41 - 45	3	9	12	28,012	336,147
46 - 50	1	8	9	22,119	199,070
51 - 55	2	19	21	30,420	638,823
56 - 60	2	33	35	32,835	1,149,213
61 - 65	2	31	33	26,344	869,367
66 - 70	2	36	38	31,742	1,206,196
71 - 75	0	58	58	23,449	1,360,070
76 - 80	2	52	54	24,527	1,324,448
81 - 85	0	53	53	21,030	1,114,601
86 - 90	1	36	37	20,332	752,298
91 - 95	0	24	24	16,221	389,304
96 - 100	0	3	3	12,730	38,191
Total	39	393	432	22,793	9,846,699

Active Members:

Attained Ages	Completed Years of Service 0 - 1	1 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 & Over	Total
0 - 20	57	16	-	-	-	-	-	-	73
21 - 25	153	325	17	-	-	-	-	-	495
26 - 30	80	270	279	16	-	-	-	-	645
31 - 35	48	143	295	247	20	-	-	-	753
36 - 40	15	83	169	258	238	9	-	-	772
41 - 45	13	41	71	120	223	168	5	-	641
46 - 50	5	13	32	70	100	184	107	-	511
51 - 55	3	9	16	36	49	113	97	26	349
56 - 60	-	1	8	18	24	32	34	29	146
61 - 65	-	-	-	5	12	7	5	14	43
66 - 70	-	-	-	-	1	3	1	8	13
71 & Over	-	-	-	-	-	-	-	2	2
Total	**374**	**901**	**887**	**770**	**667**	**516**	**249**	**79**	**4,443**

Average Annual Salary of Active Members:

Attained Ages	Completed Years of Service 0 - 1	1 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 & Over	Total
0 - 20	34,937	39,269	-	-	-	-	-	-	**35,886**
21 - 25	34,953	42,981	46,712	-	-	-	-	-	**40,627**
26 - 30	35,719	44,533	51,535	53,321	-	-	-	-	**46,687**
31 - 35	36,925	45,733	52,303	59,599	61,781	-	-	-	**52,720**
36 - 40	44,721	46,767	54,744	61,818	68,763	70,737	-	-	**60,564**
41 - 45	38,180	46,972	53,764	63,765	71,901	77,039	91,421	-	**67,589**
46 - 50	41,467	51,421	54,898	63,916	73,777	79,971	89,597	-	**75,902**
51 - 55	79,746	57,883	55,492	65,326	71,232	82,605	88,788	95,681	**80,013**
56 - 60	-	43,615	57,070	59,826	74,335	81,249	96,438	97,626	**82,679**
61 - 65	-	-	-	45,461	62,496	71,630	135,487	100,874	**82,985**
66 - 70	-	-	-	-	44,713	76,085	101,228	110,827	**96,986**
71 & Over	-	-	-	-	-	-	-	149,979	**149,979**
Total	**36,318**	**44,618**	**52,731**	**61,435**	**70,588**	**79,376**	**91,221**	**100,224**	**59,989**

Terminated Members Due a Deferred Retirement Benefit:

Attained Ages	Years until Retirement Eligibility 0 - 1	1 - 2	2 - 3	3 - 5	5 - 10	10 - 15	15 - 20	20 & Over	Total
0 - 30	-	-	-	-	-	-	-	-	-
31 - 35	-	-	-	-	-	-	4	8	12
36 - 40	-	-	-	-	-	-	19	-	19
41 - 45	-	-	-	1	8	31	-	-	40
46 - 50	1	3	2	7	26	-	-	-	39
51 - 55	7	3	2	6	-	-	-	-	18
56 - 60	1	-	-	-	-	-	-	-	1
61 - 65	1	-	-	-	-	-	-	-	1
66 - 70	-	-	-	-	-	-	-	-	-
71 & Over	-	-	-	-	-	-	-	-	-
Total	10	6	4	14	34	31	23	8	130

Average Annual Benefits of Terminated Members Due a Deferred Retirement Benefit:

Attained Ages	Years until Retirement Eligibility 0 - 1	1 - 2	2 - 3	3 - 5	5 - 10	10 - 15	15 - 20	20 & Over	Total
0 - 30	-	-	-	-	-	-	-	-	-
31 - 35	-	-	-	-	-	-	24,104	22,316	22,912
36 - 40	-	-	-	-	-	-	27,762	-	27,762
41 - 45	-	-	-	35,104	49,908	28,301	-	-	32,793
46 - 50	54,830	43,430	38,785	34,497	25,948	-	-	-	30,226
51 - 55	22,657	23,529	22,900	22,726	-	-	-	-	22,852
56 - 60	109,147	-	-	-	-	-	-	-	109,147
61 - 65	73,705	-	-	-	-	-	-	-	73,705
66 - 70	-	-	-	-	-	-	-	-	-
71 & Over	-	-	-	-	-	-	-	-	-
Total	39,628	33,480	30,843	29,495	31,585	28,301	27,126	22,316	29,901

Service Retirees:

Attained Ages	Completed Years Since Retirement 0 - 1	1 - 2	2 - 3	3 - 5	5 - 10	10 - 15	15 - 20	20 & Over	Total
0 - 50	14	12	10	6	-	-	-	-	**42**
51 - 55	38	28	24	38	30	-	-	-	**158**
56 - 60	34	60	53	89	130	39	13	-	**418**
61 - 65	15	27	30	50	182	149	55	1	**509**
66 - 70	4	3	7	23	96	122	107	28	**390**
71 - 75	-	2	-	5	20	58	97	145	**327**
76 - 80	-	1	-	-	2	14	31	143	**191**
81 - 85	-	-	-	-	-	3	7	88	**98**
86 - 90	-	-	-	-	-	-	1	28	**29**
91 & Over	-	-	-	-	-	-	-	17	**17**
Total	**105**	**133**	**124**	**211**	**460**	**385**	**311**	**450**	**2,179**

Average Annual Benefits Payable to Service Retirees:

Attained Ages	Completed Years Since Retirement 0 - 1	1 - 2	2 - 3	3 - 5	5 - 10	10 - 15	15 - 20	20 & Over	Total
0 - 50	55,353	59,544	48,370	50,167	-	-	-	-	**54,147**
51 - 55	55,939	59,871	57,904	50,414	49,228	-	-	-	**54,331**
56 - 60	63,008	59,118	55,797	54,008	54,121	44,794	35,779	-	**54,309**
61 - 65	62,245	60,885	63,647	62,030	54,473	49,885	40,363	17,529	**53,385**
66 - 70	58,842	54,508	51,850	56,296	60,104	49,171	43,093	38,954	**50,070**
71 - 75	-	90,281	-	66,949	53,217	49,704	46,088	38,788	**44,518**
76 - 80	-	[illegible]	-	-	26,044	38,722	38,226	38,266	**38,601**
81 - 85	-	-	-	-	-	53,925	50,127	37,430	**38,842**
86 - 90	-	-	-	-	-	-	30,747	31,920	**31,879**
91 & Over	-	-	-	-	-	-	-	22,886	**22,886**
Total	**59,161**	**60,507**	**57,282**	**55,708**	**55,028**	**48,741**	**42,872**	**37,292**	**49,247**

Disability Retirees:

Attained Ages	Completed Years Since Retirement 0 - 1	1 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 & Over	Total
0 - 30	1	1	-	-	-	-	-	-	2
31 - 35	-	1	-	-	-	-	-	-	1
36 - 40	1	1	-	-	-	-	-	-	2
41 - 45	2	8	3	-	-	1	-	-	14
46 - 50	1	5	4	2	-	-	-	-	12
51 - 55	2	4	6	6	2	2	-	-	22
56 - 60	-	-	1	4	3	3	3	-	14
61 - 65	1	-	2	1	6	4	3	2	19
66 - 70	-	-	1	2	2	4	4	6	19
71 - 75	-	-	-	-	2	1	1	12	16
76 - 80	-	-	-	-	-	1	1	3	5
81 & Over	-	-	-	-	-	2	-	5	7
Total	8	20	17	15	15	18	12	28	133

Average Annual Benefits Payable to Disability Retirees:

Attained Ages	Completed Years Since Retirement 0 - 1	1 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 & Over	Total
0 - 30	25,473	26,270	-	-	-	-	-	-	25,872
31 - 35	-	11,694	-	-	-	-	-	-	11,694
36 - 40	33,031	17,883	-	-	-	-	-	-	25,457
41 - 45	32,252	31,115	29,306	-	-	15,044	-	-	29,742
46 - 50	28,852	30,396	32,820	17,797	-	-	-	-	28,976
51 - 55	29,639	35,866	27,254	28,147	21,311	11,250	-	-	27,285
56 - 60	-	-	26,880	27,230	18,895	20,816	17,736	-	22,010
61 - 65	39,579	-	43,315	9,416	31,286	24,400	11,994	13,456	25,465
66 - 70	-	-	25,265	31,114	25,497	14,825	21,413	17,307	20,383
71 - 75	-	-	-	-	30,361	28,054	20,492	19,303	21,307
76 - 80	-	-	-	-	-	13,384	24,781	21,288	20,406
81 & Over	-	-	-	-	-	10,207	-	11,780	11,331
Total	31,340	30,011	30,676	25,669	26,582	17,708	18,343	17,327	23,911

Surviving Beneficiaries of Former Members:

Attained Ages	Completed Years Since Retirement								
	0 - 1	1 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 & Over	Total
0 - 30	-	13	16	9	6	1	3	-	**48**
31 - 35	-	1	2	-	-	-	-	-	**3**
36 - 40	-	-	2	-	2	-	-	-	**4**
41 - 45	-	3	2	3	2	1	1	-	**12**
46 - 50	-	2	3	1	1	-	1	1	**9**
51 - 55	-	4	2	4	6	3	2	-	**21**
56 - 60	-	3	9	7	6	6	3	1	**35**
61 - 65	-	2	5	8	6	5	6	1	**33**
66 - 70	-	1	2	5	15	4	5	6	**38**
71 - 75	-	-	6	1	6	20	13	12	**58**
76 - 80	-	1	-	1	4	13	14	21	**54**
81 & Over	-	-	-	-	1	11	9	96	**117**
Total	-	**30**	**49**	**39**	**55**	**64**	**57**	**138**	**432**

Average Annual Benefits Payable to Survivors of Former Members:

Attained Ages	Completed Years Since Retirement								
	0 - 1	1 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 & Over	Total
0 - 30	-	6,666	6,670	5,443	3,385	3,756	5,522	-	**5,896**
31 - 35	-	21,009	20,618	-	-	-	-	-	**20,748**
36 - 40	-	-	37,539	-	24,325	-	-	-	**30,932**
41 - 45	-	35,936	40,531	15,077	25,699	15,635	35,014	-	**28,012**
46 - 50	-	17,362	33,899	27,967	23,716	-	9,175	1,791	**22,119**
51 - 55	-	55,965	20,495	43,541	18,812	21,078	11,852	-	**30,420**
56 - 60	-	46,822	44,784	40,362	27,942	19,495	9,615	9,691	**32,835**
61 - 65	-	38,422	39,523	32,682	25,210	12,218	19,828	2,139	**26,344**
66 - 70	-	55,571	75,214	41,706	32,227	24,800	22,036	16,481	**31,742**
71 - 75	-	-	30,543	51,759	31,250	20,601	25,094	16,610	**23,449**
76 - 80	-	30,481	-	34,036	35,541	23,668	29,081	19,188	**24,527**
81 & Over	-	-	-	-	46,572	22,566	35,275	17,522	**19,610**
Total	-	**25,914**	**28,187**	**29,094**	**26,100**	**20,747**	**24,443**	**17,369**	**22,793**

EXHIBIT IX
YEAR-TO-YEAR COMPARISON

	Fiscal 2023	Fiscal 2022	Fiscal 2021	Fiscal 2020
Number of Active Members	4,443	4,394	4,450	4,426
Number of Retirees & Survivors	2,744	2,669	2,578	2,497
DROP Participants	248	229	241	220
Number of Terminated Due Deferred	130	123	99	85
Number Terminated Due Refunds	1,048	969	811	763
Active Lives Payroll (excludes DROP participants)	$ 266,532,270	$ 253,487,351	$ 249,159,310	$ 245,786,834
Retiree Benefits in Payment	$ 120,336,832	$ 114,949,681	$ 108,262,093	$ 102,305,920
Market Value of Assets	$ 2,272,795,475	$ 2,079,446,096	$ 2,326,798,869	$ 1,837,689,661
Ratio of Actuarial Value of Assets to Actuarial Accrued Liability	80.71%	80.41%	78.76%	75.63%
Actuarial Accrued Liability (EAN)	$ 2,925,476,136	$ 2,784,575,320	$ 2,681,184,069	$ 2,530,844,605
Actuarial Value of Assets	$ 2,361,258,223	$ 2,239,176,342	$ 2,111,737,202	$ 1,914,024,117
UAL (Funding Excess)	$ 456,965,908	$ 491,237,338	$ 523,878,929	$ 554,826,689
P.V. of Future Employer Normal Cont.	$ 584,026,545	$ 504,572,690	$ 490,121,628	$ 475,561,988
Present Value of Future Employee Contrib.	$ 297,535,262	$ 281,367,086	$ 278,140,120	$ 269,628,321
Present Value of Future Benefits	$ 3,699,785,938	$ 3,516,353,456	$ 3,403,877,879	$ 3,214,041,115

	Fiscal 2024	Fiscal 2023	Fiscal 2022	Fiscal 2021
Employee Contribution Rate Above Poverty Level	10.00%	10.00%	10.00%	10.00%
Required Tax Contributions as a Percentage of Projected Payroll	11.27%	11.54%	11.06%	11.25%
Actuarially Required Employer Contribution as a Percentage of Projected Payroll	32.48%	32.49%	33.23%	33.69%
Actual Employer Contribution as a Percentage of Projected Payroll	33.25%	33.25%	33.75%	32.25%

The above employee and employer contribution rates are for members with earnings greater than the Department of HHS poverty guidelines. For members with earnings below the poverty guidelines, employer rates will be 2.0% higher and employee rates will be 2.0% lower.

Fiscal 2019	Fiscal 2018	Fiscal 2017	Fiscal 2016	Fiscal 2015	Fiscal 2014
4,446	4,424	4,429	4,362	4,192	4,098
2,407	2,327	2,289	2,213	2,139	2,057
208	192	173	173	166	185
84	76	72	72	81	9
671	656	597	558	523	472
$ 240,413,972	$ 236,005,445	$ 232,500,397	$ 225,301,112	$ 211,963,892	$ 203,333,976
$ 97,547,088	$ 91,808,883	$ 88,444,685	$ 83,899,034	$ 79,924,818	$ 73,404,453
$ 1,778,931,314	$ 1,704,049,168	$ 1,593,696,648	$ 1,399,892,212	$ 1,419,138,769	$ 1,410,307,198
75.72%	76.40%	75.82%	75.48%	76.09%	74.66%
$ 2,405,122,324	$ 2,279,256,967	$ 2,166,881,556	$ 2,053,982,618	$ 1,958,850,006	$ 1,855,298,538
$ 1,821,040,904	$ 1,741,451,961	$ 1,643,007,075	$ 1,550,261,745	$ 1,490,408,510	$ 1,385,135,204
$ 584,081,420	$ 537,805,006	$ 523,874,481	$ 503,720,873	$ 468,441,496	$ 470,163,334
$ 352,991,474	$ 346,076,765	$ 328,942,059	$ 305,570,473	$ 286,640,979	$ 315,734,786
$ 243,350,511	$ 240,713,969	$ 238,106,260	$ 230,423,085	$ 216,351,986	$ 213,279,261
$ 3,001,464,309	$ 2,866,047,701	$ 2,733,929,875	$ 2,589,976,176	$ 2,461,842,971	$ 2,384,312,585

Fiscal 2020	Fiscal 2019	Fiscal 2018	Fiscal 2017	Fiscal 2016	Fiscal 2015
10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
11.38%	11.04%	10.85%	10.91%	11.33%	11.39%
31.78%	28.32%	28.67%	27.09%	25.44%	27.50%
27.75%	26.50%	26.50%	25.25%	27.25%	29.25%

SUMMARY OF PRINCIPAL PLAN PROVISIONS

The Firefighters' Retirement System was established as of January 1, 1980, for the purpose of providing retirement allowances and other benefits as described under R.S. 11:2256 - 11:2259. The following summary of plan provisions is for general informational purposes only and does not constitute a guarantee of benefits.

MEMBERSHIP

All full-time firefighters or any person in a position as defined in the municipal fire and police civil service system who is employed by a fire department of any municipality, parish, or fire protection district of the State of Louisiana, except Orleans, and East Baton Rouge Parishes, who earns at least three hundred seventy-five dollars per month excluding state supplemental pay are required to be members of this retirement system. Employees of the system are eligible, at their option to become members of the system. Persons must be under the age of fifty to be eligible for system membership unless they become members through merger.

CONTRIBUTION RATES

Under the provisions of R.S. 11:62, 11:103, and 22:1476A(3), the system is financed by a combination of employee contributions, employer contributions, and insurance premium taxes. The employee contribution rate is set by R.S. 11:62 but cannot be less than 8% or more than 10% of earnable compensation. The employee contribution rate is fixed at 8% for members whose earnable compensation is less than or equal to the poverty guidelines issued by the U. S. Department of Health and Human Services. Gross employer contributions are determined by actuarial valuation and are subject to change each year in accordance with R.S. 11:103, 11:105, 11:107 and 11:107.1. The employee contribution rate is set at 8% when gross employer contributions total 25% or less of earnable compensation. The employee rate then increases 0.25% for each 0.75% increase in the total rate, subject to a maximum rate of 10%. Insurance premium taxes are allocated to the system based on available funds and the statutory provisions as described in R.S. 22:1476A(3).

CONTRIBUTION REFUNDS

Upon withdrawal from service, members not entitled to a retirement allowance may receive a refund of accumulated contributions. Refunds are payable ninety days after the effective date of withdrawal from service.

AVERAGE FINAL COMPENSATION

The average annual earned compensation of an employee for any period of thirty-six successive or joined months of service as an employee during which the said earned compensation was the highest. In case of interruption of employment, the thirty-six-month period shall be computed by joining employment periods immediately preceding and succeeding the interruption. The earnings to be considered for the thirteenth through the twenty-fourth months shall not exceed one hundred fifteen percent of the earnings for the first through the twelfth months. The earnings to be considered for the final twelve months shall not exceed one hundred fifteen percent of the earnings of the thirteenth through the twenty-fourth months.

RETIREMENT BENEFITS

Members with twelve years of creditable service may retire at age fifty-five; members with twenty years of service may retire at age fifty; members with twenty-five years of service may retire regardless of age, provided that they have been a member of this system for at least one year. The retirement allowance is equal to three and one-third percent of the member's average final compensation multiplied by his years of creditable service, not to exceed one hundred percent of his average final compensation.

OPTIONAL ALLOWANCES

Members may receive their benefits as a life annuity, or in lieu of such receive a reduced benefit according to the option selected which is the actuarial equivalent of the maximum benefit.

Option 1 - If the member dies before he has received in annuity payments the present value of his member's annuity as it was at the time of retirement the balance is paid to his beneficiary.

Option 2 - Upon retirement, the member receives a reduced benefit. Upon the member's death, the designated beneficiary will continue to receive the same reduced benefit.

Option 3 - Upon retirement, the member receives a reduced benefit. Upon the member's death, the designated beneficiary will receive one-half of the member's reduced benefit.

Option 4 - Upon retirement, the member elects to receive a board approved benefit payable to the member, the member's spouse, or the member's dependent child, which is actuarially equivalent to the maximum benefit.

A member may also elect to receive an actuarially reduced benefit which provides for an automatic 2 ½% annual compound increase in monthly retirement benefits based on the reduced benefit and commencing on the later of age fifty-five or retirement anniversary; this COLA is in addition to any ad hoc COLAs which are payable.

Initial Benefit Option – This option is available only to regular retirees who have not participated in the Deferred Retirement Option Plan. Under this option members may receive an initial benefit plus a reduced monthly retirement allowance which, when combined, equal the actuarially equivalent amount of the maximum retirement allowance. The initial benefit may not exceed an amount equal to thirty-six payments of the member's maximum retirement allowance. The initial benefit can be paid either as a lump-sum payment or placed in an account called an "initial benefit account" with interest credited thereto and monthly payments made from the account.

DISABILITY BENEFITS

Any member who has been officially certified as totally disabled solely as the result of injuries sustained in the performance of his official duties, or for any cause, provided the member has a least five years of creditable service and provided that the disability was incurred while the member was an active contributing member, is entitled to disability benefits. Any member under the age of fifty who becomes totally disabled will receive a disability benefit equal to 60% of final compensation for an injury received in the line of duty; or 75% of his accrued retirement benefit with a minimum of 25% of average salary for any injury received, even though not in the line of duty. Any member age fifty or older who becomes totally disabled from an injury sustained in the line of duty is entitled to a disability benefit equal to the greater of 60% of final compensation or his accrued retirement benefit. Any member age fifty or older who becomes totally disabled as a result of any injury, even though not in the line of duty, is entitled to a disability benefit equal to his accrued retirement benefit with a minimum of 25% of average salary. The surviving spouse of a member who was on disability retirement at the time of death receives a benefit of $200 per month. When the member takes disability retirement, he may in addition take an actuarially reduced benefit in which case the member's surviving spouse receives 50% of the disability benefit being paid immediately prior to the death of the disability retiree. The retirement system may reduce benefits paid to a disability retiree who is also receiving workers compensation payments.

SURVIVOR BENEFITS

Benefits are payable to survivors of a deceased member who dies and is not eligible for retirement as follows. If any member is killed in the line of duty and leaves a surviving eligible spouse, the spouse is entitled to an annual benefit equal to two-thirds of the deceased member's final compensation. If any member dies from a cause not in the line of duty, the surviving spouse is entitled to an annual benefit equal to 3% of the deceased member's average final compensation multiplied by his total years of creditable service; however, in no event is the annual benefit less than 40% nor more than 60% of the deceased member's average final compensation. Children of the deceased member who are under the age of eighteen years are entitled to the greater of $200 per month or 10% of average final compensation (not to exceed 100% of average final compensation) until reaching the age of eighteen or until the age of twenty-two if enrolled full-time in an institution of higher learning, unless the surviving child is physically handicapped or mentally retarded in which case the benefit is payable regardless of age. If a deceased member dies leaving no surviving spouse, but at least one minor child, each child is entitled to receive forty percent of the deceased's average final compensation, not to exceed an aggregate of sixty percent of average final compensation.

DEFERRED RETIREMENT OPTION PLAN

In lieu of terminating employment and accepting a service retirement allowance, any member of the system who has at least twenty years of creditable service and who is eligible to receive a service retirement allowance may elect to participate in the deferred retirement option plan for up to thirty-six months and defer the receipt of benefits. Upon commencement of participation in the plan, membership in the system terminates and neither the employee nor employer contributions are payable. Compensation and creditable service will remain as they existed on the effective date of commencement of participation in the plan. The monthly retirement benefits that would have been payable, had the member elected to cease employment and receive a service retirement allowance, are paid into the deferred retirement option plan account. Upon termination of employment at the end of the specified period of participation, a participant in the program may receive, at his option, a lump sum payment from the account equal to the payments to the account, or a true annuity based upon his account, or he may elect any other method of payment if approved by the Board of Trustees. The monthly benefits that were being paid into the system during the period of participation will begin to be paid to the retiree. If employment is not terminated at the end of the thirty-six months, payments into the account cease and the member resumes active contributing membership in the system. If the participant dies during the period of participation in the program, a lump sum payment equal to his account balance is paid to his named beneficiary or, if none, to his estate; in addition, normal survivor benefits are payable to survivors of retirees.

COST-OF-LIVING ADJUSTMENTS

The Board of Trustees is authorized to grant retired members and widows of members who have retired an annual cost-of-living increase of up to 3% of their current benefit, and all retired members and widows who are sixty-five years of age and older a 2% increase in their original benefit. In order for the Board to grant either of these increases the system must meet certain criteria detailed in the statute related to funding status and interest earnings. In lieu of these cost-of-living adjustments the Board may also grant an increase in the form based on a formula equal to up to $1 times the total of the number of years of credited service accrued at retirement or at death of the member or retiree plus the number of years since retirement or since death of the member or retiree to the system's fiscal year end preceding the payment of the benefit increase.

ACTUARIAL ASSUMPTIONS

In determining actuarial costs, certain assumptions must be made regarding future experience under the plan. These assumptions include the rate of investment return, mortality of plan members, rates of salary increase, rates of retirement, rates of termination, rates of disability, and various other factors that have an impact on the cost of the plan. To the extent that future experience varies from the assumptions selected for valuation, future costs will be either higher or lower than anticipated. The following chart illustrates the effect of emerging experience on the plan.

Factor	Increase in Factor Results in
Investment Earnings Rate	Decrease in Cost
Annual Rate of Salary Increase	Increase in Cost
Rates of Retirement	Increase in Cost
Rates of Termination	Decrease in Cost
Rates of Disability	Increase in Cost
Rates of Mortality	Decrease in Cost

ACTUARIAL COST METHOD

Frozen Initial Liability Actuarial Cost Method with allocation of cost based on earnings. The frozen unfunded accrued liability was calculated using the Individual Entry Age Normal Method.

VALUATION INTEREST RATE

6.90% (Net of investment expense)

ACTUARIAL ASSET VALUES

All assets are valued at market value adjusted to defer four-fifths of all earnings above or below the valuation interest rate in the valuation year, three-fifths of all earnings above or below the valuation interest rate in the prior year, two-fifths of all earnings above or below the valuation interest rate from two years prior, and one-fifth of all earnings above or below the valuation interest rate from three years prior. The resulting smoothed values are subject to a corridor of 85% to 115% of the market value of assets. If the smoothed value falls outside the corridor, the actuarial value is set equal to the average of the corridor limit and the smoothed value.

ACTIVE MEMBER MORTALITY

Pub-2010 Public Retirement Plans Mortality Table for Safety Below-Median Employees multiplied by 105% for males and 115% for females, each with full generational projection using the MP2019 scale.

ANNUITANT AND BENEFICIARY MORTALITY

Pub-2010 Public Retirement Plans Mortality Table for Safety Below-Median Healthy Retirees multiplied by 105% for males and 115% for females, each with full generational projection using the MP2019 scale.

DISABLED LIVES MORTALITY

Pub-2010 Public Retirement Plans Mortality Table for Safety Disabled Retirees multiplied by 105% for males and 115% for females, each with full generational projection using the MP2019 scale.

RETIREE COST-OF-LIVING ADJUSTMENTS

The present value of future retirement benefits is based on benefits currently being paid by the system and includes previously granted cost-of-living adjustments. The present values do not include provisions for potential future increases not yet authorized by the Board of Trustees.

ANNUAL SALARY INCREASE RATE

Salary increases include 2.5% inflation and merit increases. The gross rates including inflation and merit increases are as follows:

Years of Service	Salary Growth Rate
1 – 2	14.10%
3 & over	5.20%

RETIREMENT RATES

The table of these rates is included later in the report. These rates apply only to those individuals eligible to retire.

RETIREMENT LIMITATIONS

Projected retirement benefits are not subject to IRS Section 415 limits.

DROP ENTRY RATES

The table of these rates is included later in the report. These rates apply only to those individuals eligible to participate.

DROP PARTICIPATION PERIOD

All DROP participants are assumed to participate for 3 years and 75% are assumed to retire at the end of this participation period with 25% assumed to work 2 years post-DROP and then retire.

RETIREMENT RATES FOR ACTIVE FORMER DROP PARTICIPANTS

The rates of retirement for active former DROP participants are included later in this report.

DISABILITY RATES

75% of the disability rates used for the 27th valuation of the Railroad Retirement System for individuals with 10-19 years of service. The table of these rates is included later in the report.

WITHDRAWAL RATES

The rates of withdrawal are applied based upon completed years of service according to the following table:

Service Duration (≤)	Factor	Service Duration (≤)	Factor
1	0.095	9	0.029
2	0.079	10	0.025
3	0.066	11	0.022
4	0.055	12	0.018
5	0.047	13	0.015
6	0.040	14	0.013
7	0.036	15	0.010
8	0.032	>16	0.005

Note: The withdrawal rate for individuals eligible to retire is assumed to be zero.

MARRIAGE STATISTICS

70% of the members are assumed to be married; husbands are assumed to be three years older than wives.

SERVICE-RELATED DEATH

20% of Total Deaths

FAMILY STATISTICS

Assumptions utilized in determining the costs of various survivor benefits as listed below, are derived from the information provided in the 2019 Table F1: Family Households, by Type, Age of Own Children, Age of Family Members, and Age of Householder provided by the U.S. Census Bureau:

Member's Age	% With Children	Number of Children	Average Age
25	60%	1.77	4
35	82%	2.11	8
45	63%	1.75	11
55	11%	1.42	14
65	2%	1.50	14

IN THE LINE OF DUTY DISABILITY

20% of Total Disabilities

VESTING ELECTING PERCENTAGE

70% of those vested elect deferred benefits in lieu of contribution refunds.

ACTUARIAL TABLES AND RATES

Age	Retirement Rates	DROP Entry Rates	Post-DROP Retirement Rates	Disability Rates
18	0.000000	0.000000	0.000000	0.000900
19	0.000000	0.000000	0.000000	0.000900
20	0.000000	0.000000	0.000000	0.000900
21	0.000000	0.000000	0.000000	0.000900
22	0.000000	0.000000	0.000000	0.000900
23	0.000000	0.000000	0.000000	0.000900
24	0.000000	0.000000	0.000000	0.000900
25	0.000000	0.000000	0.000000	0.000900
26	0.000000	0.000000	0.000000	0.000900
27	0.000000	0.000000	0.000000	0.000900
28	0.000000	0.000000	0.000000	0.000900
29	0.000000	0.000000	0.000000	0.000900
30	0.000000	0.000000	0.000000	0.000900
31	0.000000	0.000000	0.000000	0.000900
32	0.000000	0.000000	0.000000	0.000900
33	0.000000	0.000000	0.000000	0.000900
34	0.000000	0.000000	0.000000	0.000900
35	0.000000	0.000000	0.000000	0.000980
36	0.000000	0.000000	0.000000	0.000980
37	0.000000	0.000000	0.000000	0.000980
38	0.000000	0.000000	0.000000	0.001050
39	0.000000	0.000000	0.000000	0.001130
40	0.000000	0.000000	0.000000	0.001200
41	0.020000	0.000000	0.000000	0.001280
42	0.020000	0.000000	0.000000	0.001350
43	0.040000	0.000000	0.000000	0.001500
44	0.060000	0.050000	0.000000	0.001580
45	0.070000	0.060000	0.000000	0.001800
46	0.070000	0.070000	0.000000	0.001950
47	0.070000	0.080000	0.000000	0.002180
48	0.060000	0.090000	0.040000	0.002480
49	0.050000	0.100000	0.040000	0.002850
50	0.050000	0.120000	0.100000	0.003230
51	0.040000	0.130000	0.150000	0.003680
52	0.040000	0.150000	0.190000	0.004280
53	0.040000	0.170000	0.230000	0.004950
54	0.040000	0.180000	0.250000	0.005780
55	0.040000	0.190000	0.270000	0.006750
56	0.040000	0.210000	0.270000	0.007950
57	0.040000	0.220000	0.270000	0.009380
58	0.040000	0.230000	0.270000	0.011100
59	0.050000	0.230000	0.260000	0.013130
60	0.060000	0.230000	0.250000	0.017930
61	0.070000	0.220000	0.240000	0.021830
62	0.080000	0.200000	0.230000	0.024150
63	0.100000	0.200000	0.230000	0.025350
64	0.120000	0.200000	0.240000	0.019280
65	0.140000	0.200000	0.250000	0.015530
66	0.170000	0.200000	0.250000	0.003900
67	0.210000	0.200000	0.260000	0.003900
68	0.250000	0.200000	0.260000	0.003900
69	0.300000	0.200000	0.250000	0.003900
70	0.500000	0.000000	0.220000	0.003900
71	0.500000	0.000000	0.180000	0.003900
72	0.500000	0.000000	0.110000	0.003900
73	0.500000	0.000000	0.020000	0.003900
74	0.500000	0.000000	0.020000	0.003900
75	0.500000	0.000000	1.000000	0.003900

GLOSSARY

ACCRUED BENEFIT

The pension benefit that an individual has earned as of a specific date based on the provisions of the plan and the individual's age, service, and salary as of that date.

ACTUARIAL ACCRUED LIABILITY

The actuarial present value of benefits payable to members of the system less the present value of future normal costs attributable to the members.

ACTUARIAL ASSUMPTION

Assumptions as to the occurrence of future events affecting pension costs. These assumptions include rates of mortality, withdrawal, disablement, and retirement. Also included are rates of investment earnings, changes in compensation, as well as statistics related to marriage and family composition.

ACTUARIAL COST METHOD

A procedure for determining the portion of the cost of a pension plan to be allocated to each year. Each cost method allocates a certain portion of the actuarial present value of benefits between the actuarial accrued liability and future normal costs. Once this allocation is made, a determination of the normal cost attributable to a specific year can be made along with the payment to amortize any unfunded actuarial accrued liability. To the extent that a particular funding method allocates a greater (lesser) portion of the actual present value of benefits to the actuarial accrued liability it will allocate less (more) to future normal costs.

ACTUARIAL EQUIVALENCE

Payments or receipts with equal actuarial value on a given date when valued using the same set of actuarial assumptions.

ACTUARIAL GAIN (LOSS)

The financial effect on the system of the difference between the expected and actual experience of the system. The experience may be related to investment earnings above (or below) those expected or changes in the liability structure due to fewer (or greater) than the expected numbers of retirements, deaths, disabilities, or withdrawals. In addition, other factors such as pay increases above (or below) those forecast can result in actuarial gains or losses. The effect of such gains (or losses) is to decrease (or increase) future costs.

ACTUARIAL PRESENT VALUE

The value, as of a specified date, of an amount or series of amounts payable or receivable thereafter, with each amount adjusted to reflect the time value of money (through accrual of interest) and the probability of payments. For example: if $600 invested today will be worth $1,000 in 10 years and there is a 50%

probability that a person will live 10 years, then the actuarial present value of $1,000 payable to that person if he should survive 10 years is $300.

ACTUARIAL VALUE OF ASSETS

The value of cash, investments, and other property belonging to the pension plan as used by the actuary for the purpose of the actuarial valuation. This may correspond to the book value, market value, or some modification involving either or both book and market value. Adjustments to market values are often made to reduce the volatility of asset values.

ASSET GAIN (LOSS)

That portion of the actuarial gain attributable to investment performance above (below) the expected rate of return in the actuarial assumptions.

AMORTIZATION PAYMENT

That portion of the pension plan contribution designated to pay interest and reduce the outstanding principal balance of unfunded actuarial accrued liability. If the amortization payment is less than the accrued interest on the unfunded actuarial accrued liability the outstanding principal balance will increase.

CONTRIBUTION SHORTFALL (EXCESS)

The difference between contributions recommended in the prior valuation and the actual amount received.

DECREMENTS

Events which result in the termination of membership in the system such as retirement, disability, withdrawal, or death.

EMPLOYER NORMAL COST

That portion of the normal cost not attributable to employee contributions. It includes both direct contributions made by the employer and contributions from other non-employee sources such as revenue sharing, and revenues related to taxes.

FUNDED RATIO

A measure of the ratio of assets to liabilities of the system according to a specific definition of those two values. Typically, the assets used in the measure are the actuarial value of assets; the liabilities are defined by reference to some recognized actuarial funding method. Thus, the funded ratio of a plan depends not only on the financial strength of the plan but also on the funding method used to determine the liabilities and the asset valuation method used to determine the assets in the ratio.

NORMAL COST

That portion of the actuarial present value of pension plan benefits and expenses allocated to a valuation year by the actuarial cost method. This is analogous to one year's insurance premium.

PENSION BENEFIT OBLIGATION

The actuarial present value of benefits earned or credited to date based on the members expected final average compensation at retirement. For current retirees or terminated members this is equivalent to the actuarial present value of their accrued benefit.

PROJECTED BENEFITS

The benefits expected to be paid in the future based on the provisions of the plan and the actuarial assumptions. The projected values are based on anticipated future advancement in age and accrual of service as well as increases in salary paid to the participant.

FROZEN UNFUNDED ACTUARIAL ACCRUED LIABILITY

The excess of the entry age normal actuarial accrued liability over the actuarial value of assets as of the date the Unfunded Actuarial Accrued Liability was frozen (June 30, 2019). The amortizations included in the Frozen UAL each have a specified period for payments to be made. Each year's required payment pays interest and a portion of principal.

VESTED BENEFITS

Benefits that the members are entitled to even if they withdraw from service.