CURRAN ACTUARIAL
CONSULTING, LTD.

Annual Funding Valuation
June 30, 2022

Firefighters' Retirement System

CURRAN ACTUARIAL
CONSULTING, LTD.

November 9, 2022

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, 2022. 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, 2023 and to recommend the net direct employer contribution rate for Fiscal 2024. 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 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 fund. 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. Curran
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SUMMARY OF VALUATION RESULTS
FIREFIGHTERS' RETIREMENT SYSTEM

		June 30, 2022	June 30, 2021
Valuation Date:			
Census Summary:	Active Members	4,394	4,450
	Retired Members and Survivors	2,669	2,578
	DROP Participants	229	241
	Terminated Due a Deferred Benefit	123	99
	Terminated Due a Refund	969	811
Payroll (excluding DROP participants):		$ 253,487,351	$ 249,159,310
Benefits in Payment (excluding DROP accruals):		$ 114,949,681	$ 108,262,093
Present Value of Future Benefits		$ 3,516,353,456	$ 3,403,877,879
Actuarial Accrued Liability (EAN):		$ 2,784,575,320	$ 2,681,184,069
Frozen Unfunded Actuarial Accrued Liability:		$ 491,237,338	$ 523,878,929
Actuarial Value of Assets (AVA):		$ 2,239,176,342	$ 2,111,737,202
Market Value of Assets (MVA):		$ 2,079,446,096	$ 2,326,798,869
Ratio of AVA to Actuarial Accrued Liability:		80.41%	78.76%

	Fiscal 2022	Fiscal 2021
Market Rate of Return:	-10.9%	26.1%
Actuarial Rate of Return:	5.7%	9.9%

	Fiscal 2023	Fiscal 2022
Employers' Normal Cost (Mid-year):	$ 46,942,124	$ 45,438,572
Amortization Cost (Mid-year):	$ 65,930,155	$ 66,532,163
Estimated Administrative Cost:	$ 2,151,250	$ 2,030,080
Projected Insurance Premium Taxes Due:	$ (30,139,555)	$ (28,472,051)
Net Direct Employer Actuarially Required Contributions:	$ 84,883,974	$ 85,528,764
Projected Payroll:	$ 261,247,685	$ 257,398,495
Statutory Employee Contribution Rate: *	10.00%	10.00%
Board Approved Net Direct Employer Contribution Rate: *	33.25%	33.75%
Actuarially Required Net Direct Employer Contribution Rate: *	32.49%	33.23%

	Fiscal 2024	Fiscal 2023
Minimum Recommended Net Direct Employer Cont. Rate: *	32.50%	33.25%

* 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 the actuary is limited in his 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, that which is available 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 results which although imperfect are nevertheless a reasonable approach to determine the contribution levels which will provide for the future benefits of plan participants.

COMMENTS ON DATA

For the valuation, the administrator of the system furnished a census in electronic format 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 dates of birth of retirees and beneficiaries, as well as option categories and benefit amounts, was provided in like manner. 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 4,394 active contributing members in the system of whom 2,235 have vested retirement benefits; in addition, there are 229 participants in the Deferred Retirement Option Plan (DROP); 2,669 former members or their beneficiaries are receiving retirement benefits. An additional 1,092 terminated members have contributions remaining on deposit with the system; of this number 123 have vested rights for future retirement benefits.

Census data submitted to our office is tested for errors. 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. In order 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, which 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 retirement rates, rates of withdrawal, and mortality. In addition, the census is checked for reasonableness in several areas, such as age, service, salary, and current benefits. The records identified by this review as questionable are checked against data from prior valuations; those not recently verified are 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 verified or corrected, it is returned to us for use 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.

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 $2,079,446,096 as of June 30, 2022. Net investment income for Fiscal 2022 measured on a market value basis amounted to a loss of $253,855,804. Contributions to the system for the fiscal year totaled $142,825,603; benefits and expenses amounted to $136,322,572.

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 increase or decrease depending on payroll growth. Since payments on the frozen unfunded accrued liability are set to decrease by one percent per year over the next twelve years, future amortization payments as a percentage of payroll will remain level should payroll decrease by one percent per year. Any reduction in payroll less than one percent or any increase in payroll will decrease the amortization costs as a percentage of payroll. Payroll reductions of greater than one percent will increase the amortization costs as a percentage of payroll. Since projected payroll for Fiscal 2023 exceeds the Fiscal 2022 projected payroll and the payment required on the Frozen Unfunded Accrued Liability decreased, the employer contribution rate decreased by 0.61% based on projected UAL payments.

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 expected long-term rates of return, standard deviations of return, and correlations between asset classes collected from a number of investment consulting firms in addition to the system's investment consultants, 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. A review of the valuation interest rate for Fiscal 2019 based on updated capital market

assumptions 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%.

The actuary's reasonable range was determined through the development of 10,000 trials spanning 30 years. These trials were performed by assuming that the expected returns on the portfolio as a whole are normally distributed and using the determined consultant average nominal rate of return and long-term portfolio standard deviation. 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, we estimate that there is a 45% probability that the fund will have earnings at or above 6.90% in the long term and a 50% probability that the fund will have earnings at or above 6.62% in the long term.

Given initial estimates of updated capital market assumptions from a few key investment consulting firms during 2022, it appears possible that the reasonable range determined based on the current target asset allocation will shift up in 2023. Since the system's 6.9% valuation interest rate is within the current reasonable range and we may see increased expected returns for equities and fixed income investments, it was our recommendation that the Board make no change in the valuation interest rate within the Fiscal 2022 valuation. Therefore, the Fiscal 2022 valuation was run based on a 6.9% valuation interest rate.

The system's reductions in the valuation interest have been in part based upon a reduction in the expected long-term inflation rate. Therefore, the assumed long-term inflation rate has also been reduced over the same period. For 2022, an assumed rate of inflation of 2.5% was implicit in the assumed rate of return. This rate was unchanged from the rate assumed in the 2021 valuation.

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 Increases (COLAs) under limited circumstances, these COLAs have not been shown to have a historical pattern, the amounts of the COLAs have not been 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. Therefore, for purposes of determining the present value of benefits, these COLAs were deemed not 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 fund 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. Several factors can lead to asset levels which are below those required to pay promised benefits. 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.

All pension plans are subject to the uncertainty 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 are a risk to plan members in that they reduce purchasing power of plan benefits. Should the plan attempt to offset inflation by providing cost-of-living adjustments, costs will inevitably increase unless provisions are made to prefund such adjustments. Very low inflation will generally reduce 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 although long-term average rates of future inflation may be higher than projected in recent years, the impact of near-term inflation will not be significant. There is always the possibility that persistent high inflation will become 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.

Asset performance over the long run 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. 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 decline mitigating the reinvestment risk the plan currently faces.

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 will 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 in this report illustrates the noninvestment cash flow and benefit payments of the system over the last 10 years. Currently, annual contributions slightly exceed annual benefit payments to the plan. 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 extent of negative cash flows. Absent a significant increase in the active membership of the system, the trend of higher proportions of retired membership will continue and the system could eventually experience negative noninvestment cash flows.

In addition to asset risk, the plan is also subject to risks related to liabilities. These risks include 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 generally are infrequent and are more of a short-term issue.

Liability risk also includes items such as data errors. 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. Even natural disasters and dislocations in the economy or other unforeseen events (such as pandemics like COVID-19) 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 forecast.

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 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 a number of 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. The ratio is 80.41% for the plan as of June 30, 2022. This value gives some indication of the financial strength of the plan; however, it does not guarantee the ability of the fund 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. Even in this regard, caution is warranted since market fluctuations in asset values and changes in plan assumptions can distort underlying trends in this value. Exhibit IX 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 this rate, the current ratio would be significantly higher. One additional risk measure is the sensitivity of the plan's cost structure to asset gains and losses. 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 0.80% for the fund.

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 11.15.

The ability of a system to recover from adverse asset or liability performance is 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 2022, this ratio is 45%; ten years ago this ratio was 32%.

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. Current market expectations related to the assumed rate of return suggest that a decrease in the assumption is more probable than an increase. The magnitude of any potential such change will be related to future capital market expectations. 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 Fiscal 2023 by 17.90% of payroll. Future adjustments to the future assumed rates 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.

Noneconomic 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.

CHANGES IN PLAN PROVISIONS

The following changes to the system were enacted during the 2022 Regular Session of the Louisiana Legislature:

House Resolution 136 was passed during the regular session to urge and request that the Firefighters' Retirement System form a committee to study alternative methods for providing cost-of-living adjustments to retirees. The resolution asked that the committee include the system's actuary, the actuary for the legislative auditor, the chair of the Firefighters' Retirement System Board of Trustees or his designee, the chair of the House Committee on Retirement or his designee, a retiree appointed by the chair of the House Committee on Retirement, a member of the Louisiana Fire Chiefs' Association, a member of the Louisiana Municipal Association appointed by the association's executive director, and a member of the Public Affairs Research Council of Louisiana appointed by the council's president. Such a committee was empaneled and in accordance with the resolution will present its findings to the House Committee on Retirement in December 2022.

ASSET EXPERIENCE

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

	Market Value	Actuarial Value
2013	10.5%	2.5%
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%

Geometric Average Market Rates of Return

5-year average	(Fiscal 2018 – 2022)	5.2%
10-year average	(Fiscal 2013 – 2022)	5.8%
15-year average	(Fiscal 2008 – 2022)	3.5%
20-year average	(Fiscal 2003 – 2022)	5.4%
25-year average	(Fiscal 1998 – 2022)	4.9%
30-year average	(Fiscal 1993 – 2022)	5.7%

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 2022 the fund earned $35,723,552 of dividends, interest and other recurring income. During the same period, the Fund had net realized and unrealized capital losses on investments (offset by non-recurring income) of $280,822,891. The Fund also had investment expenses of $8,756,465.

The 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 2022, the system experienced net actuarial investment earnings of $24,994,370 below the actuarial assumed earnings rate in effect for Fiscal 2022 of 6.90%. This shortfall in earnings produced an actuarial loss, which increased the normal cost accrual rate by 0.8883%.

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 11.8 years of service credit and an annual salary of $57,689. The system's active contributing membership experienced a decrease of 56 members during Fiscal 2022. The number of DROP participants decreased by 12 during Fiscal 2022. Over the last five years active membership has decreased by 35 members. A review of the active census by age indicates that over the last ten years the population has remained relatively stable. Over the same ten-year period the system's active census by service shows fewer members with less than five years of service while most other service categories show slight increases.

The average service retiree is 66 years old with an annual benefit of $48,509. The average age of members at retirement is 54.The number of retirees and beneficiaries receiving benefits from the system increased by 91 during the fiscal year. Over the last five years, the number has increased by 380; during the same period, the annual benefits in payment increased by $26,504,996.

Plan liability experience for Fiscal 2020 was slightly favorable. 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 near projected levels. The posting of interest on DROP accounts added to the experience gain within this valuation. The posting of 0% interest for those in the "protected class" and a negative return to others while the system earned a positive actuarial rate of return produced a gain. In aggregate, plan liability gains decreased the normal cost accrual rate by 0.4376%.

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. Each year a determination is made of two cost components, and the actuarially required contributions are based on the sum of these two components plus administrative expenses. These two components are the normal cost and the amortization payments on the frozen unfunded actuarial accrued liability. The normal cost refers to the portion of annual cost based on the salary of active participants. The term "frozen unfunded accrued liability" (UAL) refers to the excess of the present value of plan benefits over the sum of current assets and future normal costs. Each year the UAL grows with interest and is reduced by payments. Under the funding method used for the plan since 2019, 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 since payments on the system's frozen unfunded liability are set to decrease by 1% per year or 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 what contribution is actuarially required 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.

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 percent 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 fund's cost structure are outlined below:

Employer's Normal Cost Accrual Rate – Fiscal 2021	17.6214%
Factors Increasing the Normal Cost Accrual Rate:	
Asset Experience Loss	0.8883%
Factors Decreasing the Normal Cost Accrual Rate:	
Liability Experience Gain	0.4376%
Contribution Gain	0.0611%
New Members	0.0780%
Employer's Normal Cost Accrual Rate – Fiscal 2022	17.9329%

In addition to the above factors, payroll growth affects plan costs to the extent that payments on the system's frozen unfunded liability are on a schedule that varies from actual trends in payroll growth or decline. If payroll changes at rates not consistent with the amortization schedule, the result will be costs that change as a percentage of payroll. For Fiscal 2022, the net effect of the change in projected payroll and a lower UAL payment on amortization costs was to decrease such costs by 0.61% of payroll.

The derivation of the actuarially required contribution for the current fiscal year is given in Exhibit I. The employer normal cost for Fiscal 2023, interest adjusted for mid-year payment is $46,942,124. The interest adjusted amortization payments on the system's frozen unfunded actuarial accrued liability totaled $65,930,155. 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 2023 is $115,023,529. We estimate insurance premium taxes of $30,139,555, or 11.54% of payroll, will be paid to the system in Fiscal 2023. This level of Insurance Premium Taxes represents a 0.48% increase over the prior year as a percentage of payroll. Hence, the total actuarially required net direct employer contribution for Fiscal 2023 amounts to $84,883,974 or 32.49% of payroll. Since the actual employer contribution rate for Fiscal 2023 is 33.25% of payroll, there will be a contribution surplus of 0.76% of payroll. This surplus will decrease the actuarially required contribution recommended for Fiscal 2024. In order to determine a minimum recommended net direct employer contribution rate for Fiscal 2024, the Employers' Minimum Net Direct Actuarially Required Contribution for Fiscal 2023 was adjusted for the impact of the estimated contribution surplus. 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 2024 is 32.50%%.

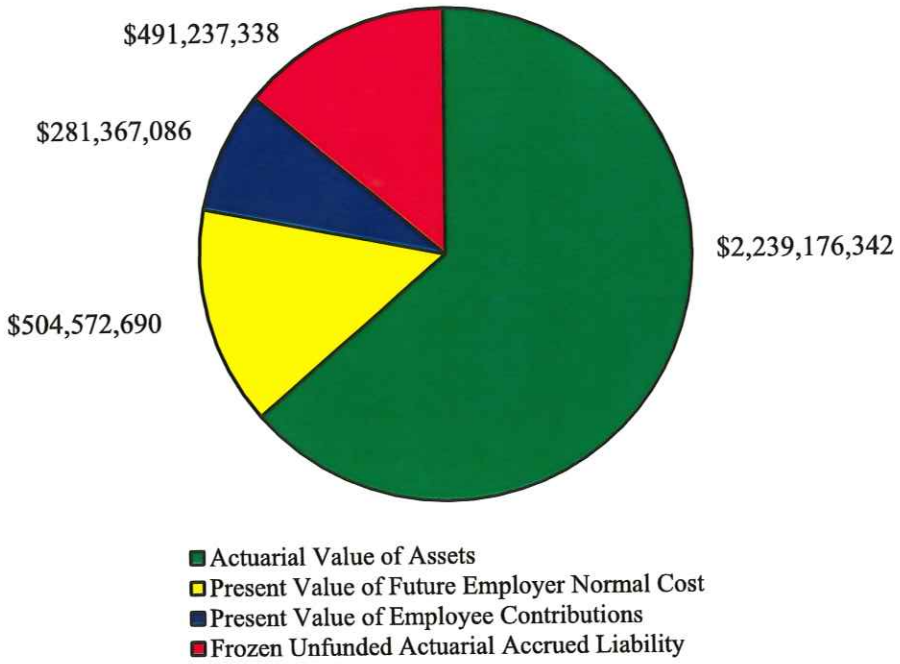
COST OF LIVING INCREASES

During Fiscal 2022, the actual cost of living (as measured by the US Department of Labor CPI-U) increased by 9.1%. Cost of living provisions for the system are detailed in R.S. 11:2260A(7) and R.S. 11:246. The former statute allows the Board to use interest earnings in excess of the normal requirements to grant annual cost of living increases of up to 3% of each retiree's current benefit. R.S. 11:246 provides cost of living increases 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. In addition, 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. The provisions of R.S. 11:241 of this subpart do not repeal provisions relative to cost-of-living adjustments contained within the individual laws governing systems; however, they are to be controlling in cases of conflict.

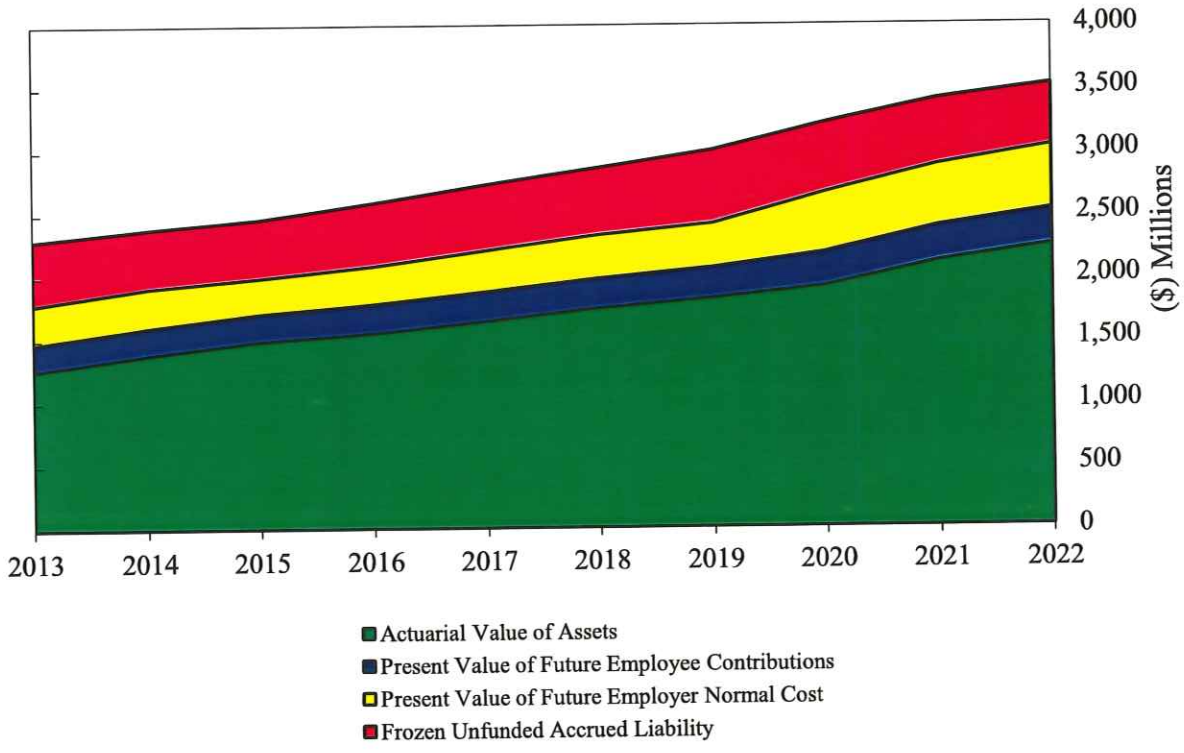
R.S. 11:243 sets forth the funding criteria necessary in order to grant cost of living adjustments to regular retirees and beneficiaries (who are neither the surviving spouse nor children of the retiree.) The criteria for the fund to qualify as eligible to grant any such increase is as follows: a funded 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).

With a funded ratio (as measured by the Actuarial Value of Assets divided by the Pension Benefit Obligation) of 82.22% and since the system last granted a cost of living increase on January 1, 2015 which is not within the three most recent fiscal years, we have determined that for Fiscal 2022 the plan meets the criteria set forth in R. S. 11:243 for granting a cost of living increase. 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.

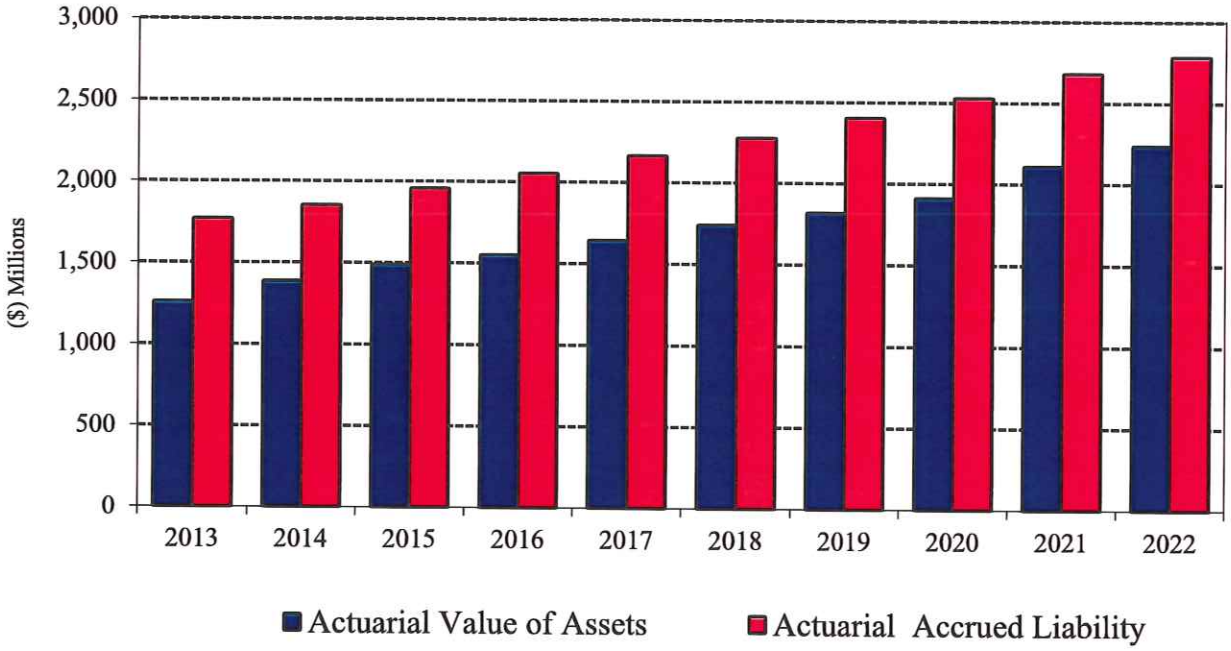
Components of Present Value of Future Benefits
June 30, 2022



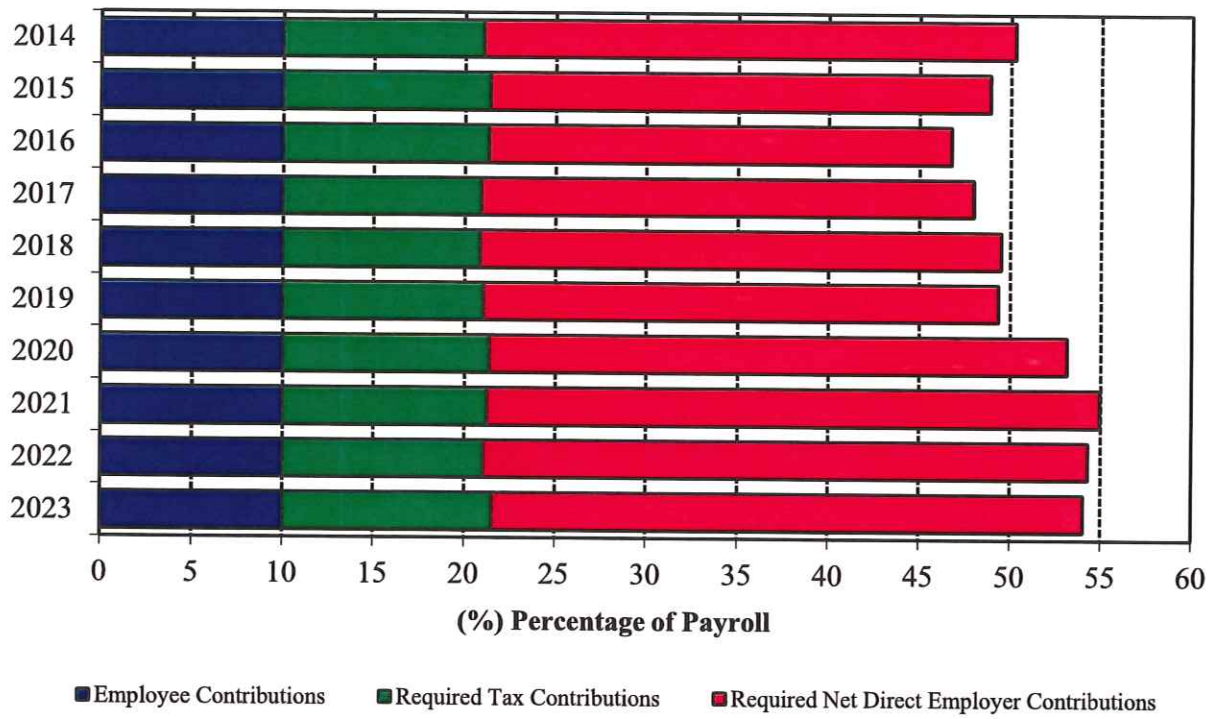
Components of Present Value of Future Benefits
Historical



Actuarial Value of Assets vs. Actuarial Accrued Liability

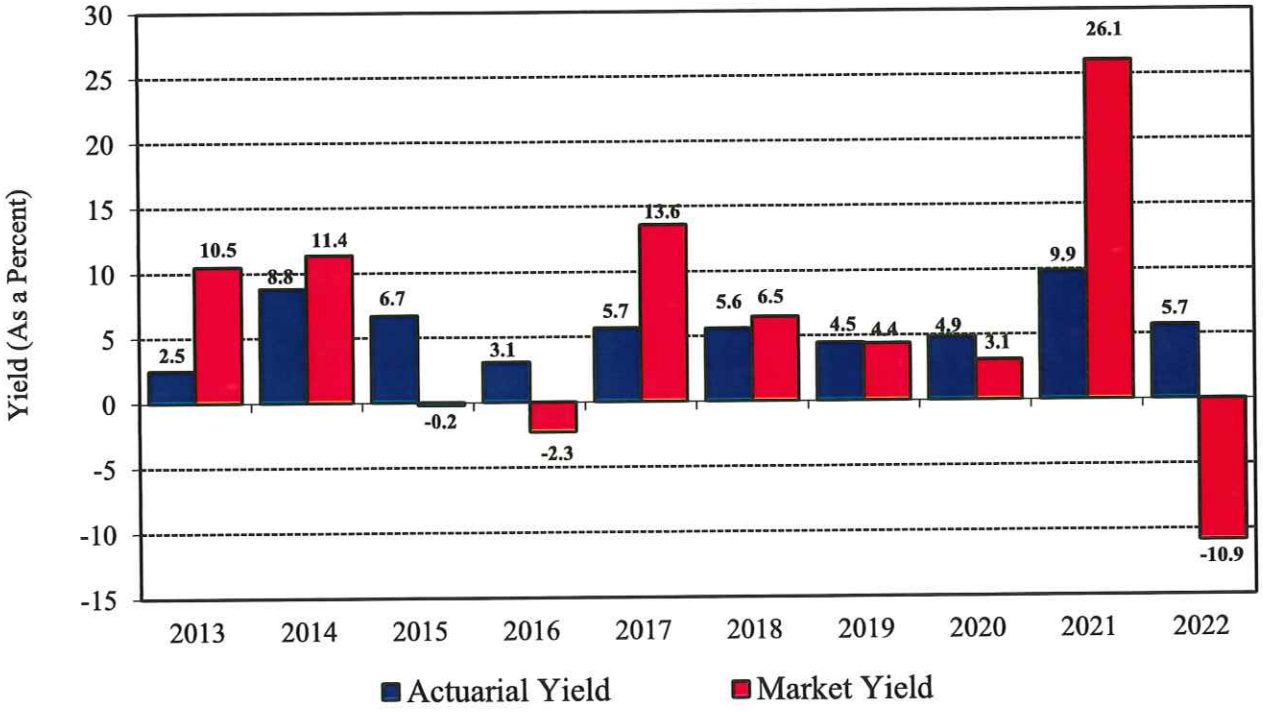


Components of Actuarial Funding

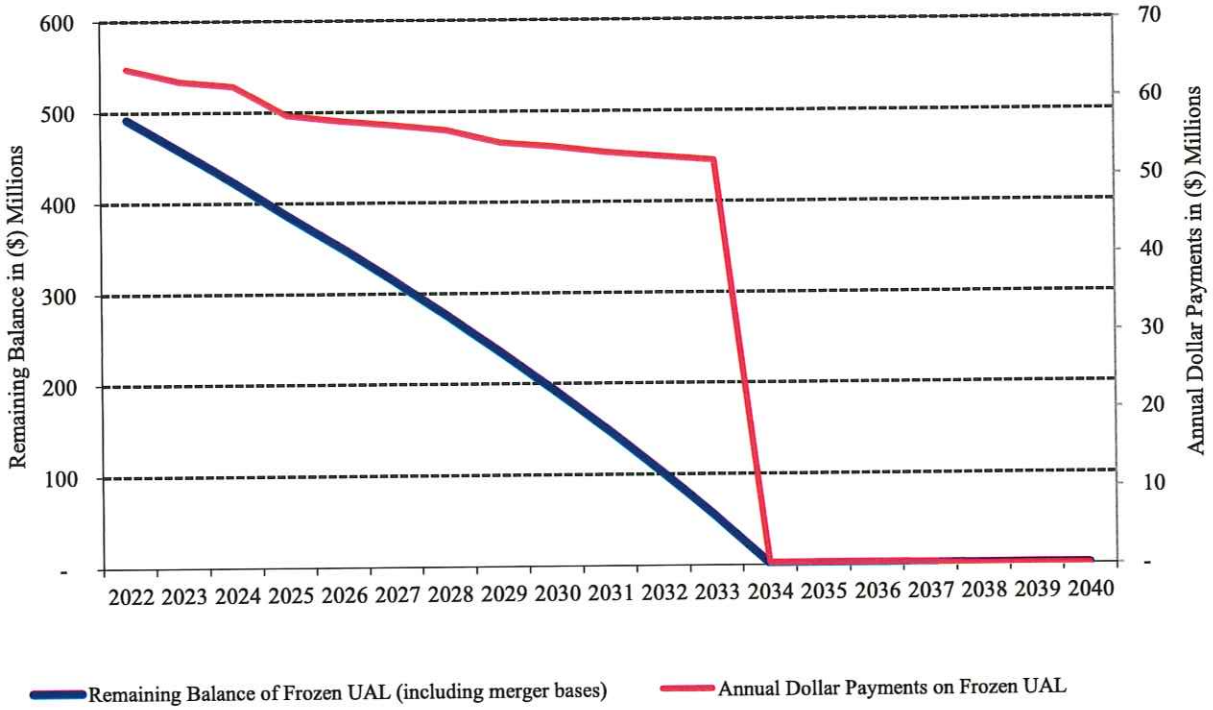


(2012 and later employee contribution level is based on members with earnings above the poverty level)

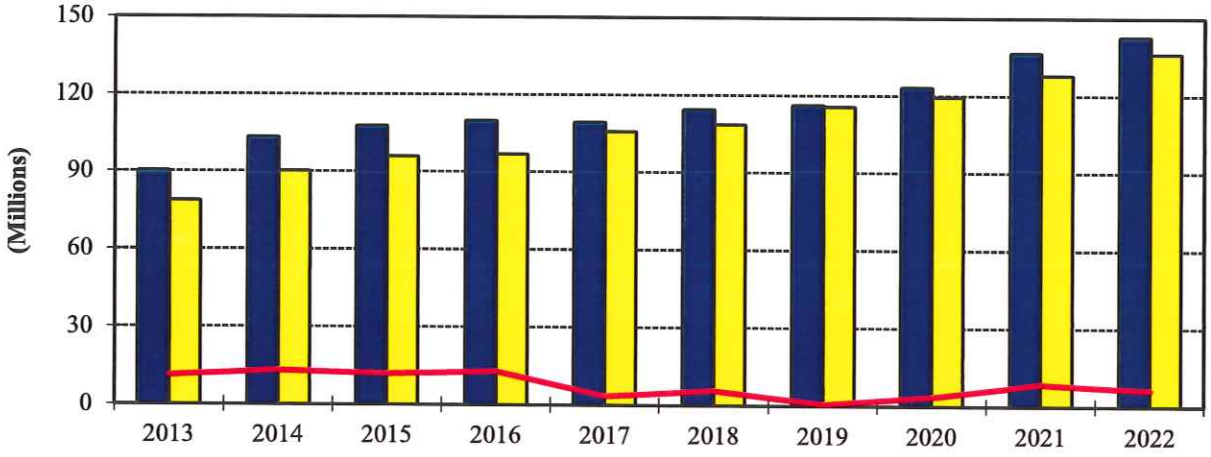
Historical Asset Yields



Frozen Unfunded Actuarial Accrued Liability



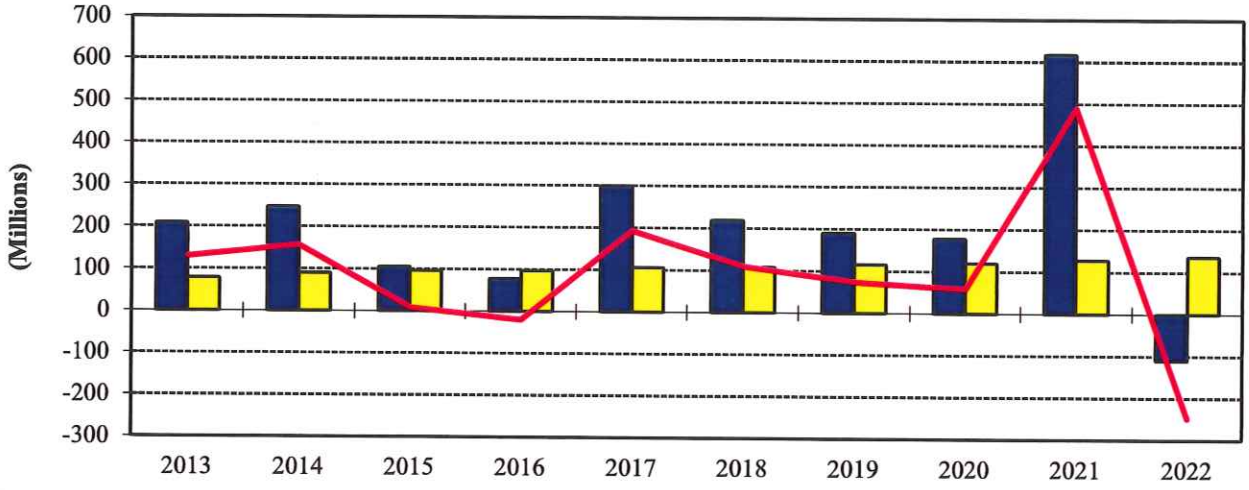
Net Non-Investment Income



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Non-Investment Income ($Mil)	90.2	103.4	107.8	109.9	109.3	114.4	116.3	123.3	136.6	142.8
Benefits and Expenses ($Mil)	78.7	90.1	95.8	96.9	105.7	108.6	115.6	119.6	127.9	136.3
Net Non-Investment Income ($Mil)	11.5	13.3	12.0	13.0	3.6	5.8	0.7	3.7	8.7	6.5

Total Income vs. Expenses

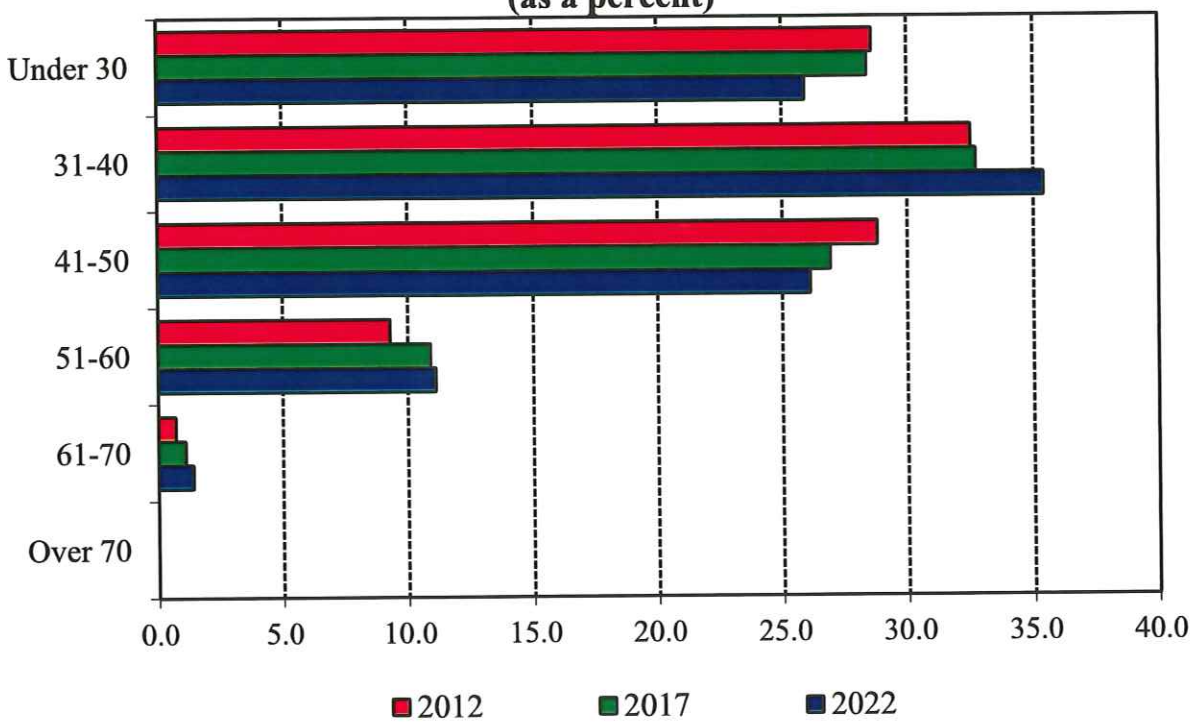
(Based on Market Value of Assets)



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Income ($Mil)	209.0	247.2	104.6	77.7	299.5	218.9	190.5	178.4	617.0	-111.0
Benefits and Expenses ($Mil)	78.7	90.1	95.8	96.9	105.7	108.6	115.6	119.6	127.9	136.3
Net Change in MVA ($Mil)	130.3	157.1	8.8	-19.2	193.8	110.3	74.9	58.8	489.1	-247.3

Active – Census by Age

(as a percent)



Active – Census by Service

(as a percent)

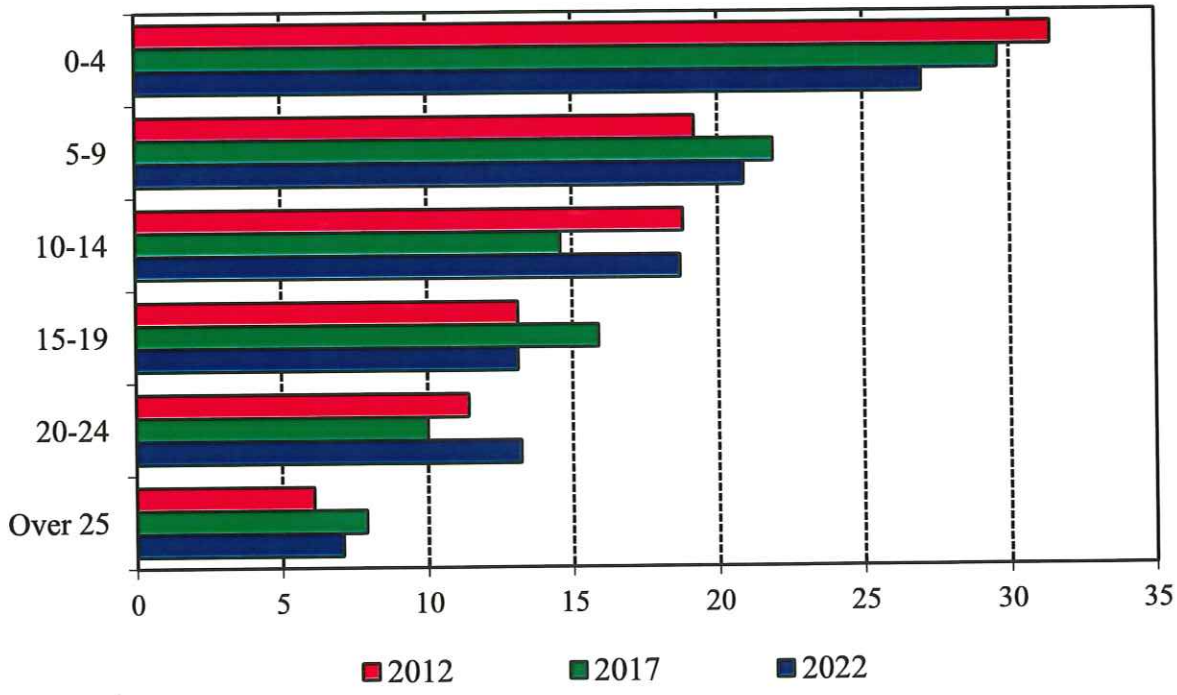


EXHIBIT I
ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS

1.	Present Value of Future Benefits	$ 3,516,353,456
2.	Funding Deposit Account Credit Balance	$ 0
3.	Frozen Unfunded Actuarial Accrued Liability	$ 491,237,338
4.	Actuarial Value of Assets	$ 2,239,176,342
5.	Present Value of Future Employee Contributions	$ 281,367,086
6.	Present Value of Future Employer Normal Costs (1 + 2 – 3 – 4 – 5)	$ 504,572,690
7.	Present Value of Future Salaries	$ 2,813,670,856
8.	Employer Normal Cost Accrual Rate (6 ÷ 7)	17.932897%
9.	Projected Fiscal 2023 Salary for Current Membership	$ 253,176,525
10.	Employer Normal Cost as of July 1, 2022 (8 × 9)	$ 45,401,885
11.	Employer Normal Cost Interest Adjusted for Mid-year Payment	$ 46,942,124
12.	Amortization Payment on Remaining Frozen Unfunded Accrued Liability	$ 63,766,891
13.	Amortization Payment Interest Adjusted for Mid-year Payment	$ 65,930,155
14.	TOTAL Employer Normal Cost and Amortization Payment (11 + 13)	$ 112,872,279
15.	Estimated Administrative Cost for Fiscal 2023	$ 2,151,250
16.	GROSS Employer Actuarially Required Contribution for Fiscal 2023 (14 + 15)	$ 115,023,529
17.	Projected Insurance Premium Taxes for Fiscal 2023	$ (30,139,555)
18.	Net Direct Employer Actuarially Required Contribution for Fiscal 2023 (16 + 17)	$ 84,883,974
19.	Projected Payroll for Fiscal 2023	$ 261,247,685
20.	Employers' Minimum Net Direct Actuarially Required Contribution as a % of Projected Payroll for Fiscal 2023 (18 ÷ 19)	32.49%
21.	Board Adopted Employer Contribution Rate for Fiscal 2023	33.25%
22.	Contribution Shortfall (Excess) as a Percentage of Payroll (20 – 21)	-0.76%
23.	Increase (Reduction) to Following Year Payment for Contribution Shortfall (Excess)	-0.07%
24.	Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2024 (20 + 23, 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	$ 2,017,431,512	
Survivor Benefits	32,378,484	
Disability Benefits	17,662,487	
Vested Termination Benefits	22,251,317	
Refunds of Contributions	14,002,263	
TOTAL Present Value of Future Benefits for Active Members		$ 2,103,726,063

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement..	$ 24,971,743	
Terminated Members with Reciprocals Due Benefits at Retirement	0	
Terminated Members Due a Refund	6,312,043	
TOTAL Present Value of Future Benefits for Terminated Members		$ 31,283,786

PRESENT VALUE OF FUTURE BENEFITS FOR RETIREES:

Regular Retirees		
Maximum	$ 242,590,331	
Option 1	116,112,456	
Option 2	585,896,390	
Option 3	184,016,116	
Option 4	10,474,133	
Option 5	0	
TOTAL Regular Retirees	$ 1,139,089,426	
Disability Retirees	37,560,875	
Survivors & Widows	81,226,816	
DROP Lifetime Annuities	1,191,918	
DROP Account Balances Payable to Retirees*	117,510,809	
IBO Balances Payable to Retirees*	4,763,763	
TOTAL Present Value of Future Benefits for Retirees & Survivors		$ 1,381,343,607
TOTAL PRESENT VALUE OF FUTURE BENEFITS		$ 3,516,353,456

*DROP/IBO Balances include estimated interest for Fiscal 2021

EXHIBIT III – SCHEDULE A
MARKET VALUE OF ASSETS

CURRENT ASSETS:		
Cash in Banks	$ 12,119,586	
Contributions Receivable	9,949,855	
Accrued Interest and Dividends	4,609,307	
Investments Receivable	1,235,976	
Prepaid Expenses	32,262	
Notes Receivable for Mergers	766,726	
TOTAL CURRENT ASSETS		$ 28,713,712
Property Plant & Equipment		$ 1,917,622
INVESTMENTS:		
Cash Equivalents	$ 71,622,173	
Equities	1,088,299,643	
Fixed Income	531,708,366	
Real Estate	174,476,893	
Alternative Investments	104,060,528	
Multi-Asset Strategies	82,669,199	
TOTAL INVESTMENTS		$ 2,052,836,802
DEFERRED OUTFLOWS		$ 71,799
TOTAL ASSETS		$ 2,083,539,935
CURRENT LIABILITIES:		
Accounts Payable	$ 1,492,907	
Investments Payable	1,830,400	
Other Post-Employment Benefits	706,641	
TOTAL CURRENT LIABILITIES		$ 4,029,948
DEFERRED INFLOWS OF RESOURCES		$ 63,891
TOTAL LIABILITIES		$ 4,093,839
MARKET VALUE OF ASSETS		$ 2,079,446,096

EXHIBIT III – SCHEDULE B
ACTUARIAL VALUE OF ASSETS

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

Fiscal year 2022	$ (414,625,538)
Fiscal year 2021	351,501,915
Fiscal year 2020	(72,248,326)
Fiscal year 2019	(50,158,174)
Fiscal year 2018	(13,637,997)
Total for five years	$ (199,168,120)

Deferral of excess (shortfall) of invested income:

Fiscal year 2022 (80%)	$ (331,700,430)
Fiscal year 2021 (60%)	210,901,149
Fiscal year 2020 (40%)	(28,899,330)
Fiscal year 2019 (20%)	(10,031,635)
Fiscal year 2018 (0%)	0
Total deferred for year	$ (159,730,246)

Market value of plan net assets, end of year	$ 2,079,446,096
Preliminary actuarial value of plan assets, end of year	$ 2,239,176,342

Actuarial value of assets corridor

85% of market value, end of year	$ 1,767,529,182
115% of market value, end of year	$ 2,391,363,010
Final actuarial value of plan net assets, end of year	$ 2,239,176,342

EXHIBIT IV
PRESENT VALUE OF FUTURE CONTRIBUTIONS

Employee Contributions to the Annuity Savings Fund		$ 281,367,086
Employer Normal Contributions to the Pension Accumulation Fund		504,572,690
Employer Amortization Payments to the Pension Accumulation Fund		491,237,338
TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS		$ 1,277,177,114

EXHIBIT V - SCHEDULE A
ENTRY AGE NORMAL ACTUARIAL ACCRUED LIABILITIES

LIABILITY FOR ACTIVE MEMBERS		
Accrued Liability for Retirement Benefits	$ 1,360,497,648	
Accrued Liability for Survivor Benefits	11,805,045	
Accrued Liability for Disability Benefits	3,348,646	
Accrued Liability for Vested Termination Benefits	8,071,640	
Accrued Liability for Refunds of Contributions	(11,775,052)	
TOTAL Actuarial Accrued Liability for Active Members		$ 1,371,947,927
LIABILITY FOR TERMINATED MEMBERS		$ 31,283,786
LIABILITY FOR RETIREES AND SURVIVORS		$ 1,381,343,607
TOTAL ACTUARIAL ACCRUED LIABILITY (AAL)		$ 2,784,575,320
ACTUARIAL VALUE OF ASSETS (AVA)		$ 2,239,176,342
RATIO OF AVA TO ENTRY AGE NORMAL AAL		80.41%

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

Prior Year Frozen Unfunded Accrued Liability		$ 523,878,929
Interest on Frozen Unfunded Accrued Liability	$ 36,147,646	
TOTAL Increase in Frozen Unfunded Accrued Liability		$ 36,147,646
Amortization Payment on Frozen Unfunded Accrued Liability	$ 64,349,146	
Interest on Amortization Payment	$ 4,440,091	
TOTAL Decrease in Frozen Unfunded Accrued Liability		$ 68,789,237
NET Change in Frozen Unfunded Accrued Liability		$ (32,641,591)
CURRENT YEAR FROZEN UNFUNDED ACCRUED LIABILITY		$ 491,237,338

EXHIBIT V - SCHEDULE C
AMORTIZATION OF FROZEN UNFUNDED ACTUARIAL ACCRUED LIABILITY
June 30, 2022

FISCAL YEAR	DESCRIPTION	AMORT. PERIOD	INITIAL BALANCE	YEARS REMAINING	REMAINING BALANCE	AMORT. PAYMENTS (BOY)
1993	Merger Loss	30	$13,485,002	1	$ 1,039,703	$1,039,703
1995	Merger Loss	30	41,779,611	3	9,033,034	3,214,000
1996	Merger Loss	30	1,772,399	4	494,275	136,197
1997	Merger Loss	30	890,324	5	300,353	68,342
1998	Merger Loss	30	1,602,435	6	628,031	122,874
1999	Merger Loss	30	14,104,876	7	6,246,288	1,080,432
2001	Merger Loss	30	3,117,590	9	1,666,978	238,327
2007	Merger Loss	30	1,065,812	15	792,539	80,887
2008	Merger Loss	30	1,556,324	16	1,198,702	117,916
2011	Merger Loss	30	329,132	19	276,307	24,821
2019	Cumulative Non-Merger Bases	15	549,175,053	12	469,561,128	57,643,392

TOTAL Frozen Unfunded Actuarial Accrued Liability as of July 1, 2022	$ 491,237,338	
TOTAL Fiscal 2023 Amortization Payments on July 1, 2022		$ 63,766,891
TOTAL Fiscal 2023 Amortization Payments Adjusted to Mid-Year		$ 65,930,155

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, 2021)		$ 2,111,737,202
INCOME:		
Member Contributions	$ 25,824,943	
Employer Contributions	87,158,108	
Irregular Contributions	155,866	
Insurance Premium Taxes	28,465,639	
Transfers From Other Systems	1,221,047	
Total Contributions		$ 142,825,603
Net Depreciation of Investments	$ (280,876,858)	
Interest & Dividends	35,723,552	
Legal Settlement	53,967	
Investment Expense	(8,756,465)	
Net Investment Income		$ (253,855,804)
TOTAL Income		$ (111,030,201)
EXPENSES:		
Retirement Benefits (Including DROP)	$ 132,107,687	
Refunds of Contributions	2,056,377	
Transfers to Other Systems	169,118	
Administrative Expenses (Includes OPEB)	1,989,390	
TOTAL Expenses		$ 136,322,572
Net Market Value Income for Fiscal 2022 (Income - Expenses)		$ (247,352,773)
Unadjusted Assets as of June 30, 2022 (Assets Previous Year + Net Income)		$ 1,864,384,429
Adjustment for Actuarial Smoothing		$ 374,791,913
Actuarial Value of Assets: (June 30, 2022)		$ 2,239,176,342

EXHIBIT VII
PENSION BENEFIT OBLIGATION

Present Value of Credited Projected Benefits Payable to Current Employees	$ 1,310,844,223
Present Value of Benefits Payable to Terminated Employees	31,283,786
Present Value of Benefits Payable to Current Retirees and Beneficiaries	1,381,343,607
TOTAL PENSION BENEFIT OBLIGATION	$ 2,723,471,616
NET ACTUARIAL VALUE OF ASSETS	$ 2,239,176,342
Ratio of Net Actuarial Value of Assets to Pension Benefit Obligation	82.22%

EXHIBIT VIII
CENSUS DATA

	Active	Terminated with Funds on Deposit	DROP	Retired	Total
Number of members as of June 30, 2021	4,450	910	241	2,578	8,179
Additions to Census					
Initial membership	305	57			362
Omitted in error last year					
Death of another member				20	20
Adjustment for multiple records	1				1
Change in Status during Year					
Actives terminating service	(193)	193			
Actives who retired	(67)			67	
Actives entering DROP	(73)		73		
Term. members rehired	16	(16)			
Term. members who retire		(6)		6	
Retirees who are rehired					
Refunded who are rehired	6				6
DROP participants retiring			(69)	69	
DROP returned to work	16		(16)		
Omitted in error last year					
Eliminated from Census					
Refund of contributions	(61)	(46)			(107)
Deaths	(6)			(71)	(77)
Included in error last year					
Adjustment for multiple records					
Number of members as of June 30, 2022	4,394	1,092	229	2,669	8,384

Actives Census By Age:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
16 - 20	51	2	53	33,355	1,767,817
21 - 25	430	20	450	37,853	17,033,770
26 - 30	596	40	636	44,510	28,308,160
31 - 35	763	43	806	51,151	41,227,375
36 - 40	713	38	751	57,671	43,310,692
41 - 45	570	57	627	64,478	40,427,817
46 - 50	493	26	519	73,268	38,026,283
51 - 55	317	32	349	77,932	27,198,122
56 - 60	124	14	138	78,640	10,852,312
61 - 65	43	12	55	78,360	4,309,817
66 - 70	6	2	8	90,358	722,860
71 - 75	1	0	1	204,659	204,659
76 - 80	1	0	1	97,667	97,667
Total	4,108	286	4,394	57,689	253,487,351

(Excludes DROP Participants)

Drop Participants:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
46 - 50	25	1	26	68,220	1,773,710
51 - 55	102	5	107	68,182	7,295,520
56 - 60	65	5	70	68,743	4,812,043
61 - 65	18	2	20	64,706	1,294,118
66 - 70	5	1	6	56,194	337,161
Total	215	14	229	67,740	15,512,552

Terminated Members Due a Deferred Retirement Benefit:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
31 - 35	10	0	10	17,749	177,486
36 - 40	17	1	18	23,520	423,351
41 - 45	35	5	40	30,500	1,220,009
46 - 50	33	0	33	28,547	942,048
51 - 55	19	1	20	22,919	458,374
56 - 60	2	0	2	113,649	227,298
Total	116	7	123	28,037	3,448,566

Terminated Members Due a Refund of Contributions:

Contributions Ranging From		To	Number	Total Contributions
0	-	99	72	3,616
100	-	499	225	58,892
500	-	999	103	71,996
1,000	-	1,999	101	143,584
2,000	-	4,999	155	506,822
5,000	-	9,999	116	838,504
10,000	-	19,999	106	1,510,601
20,000	-	99,999	90	3,071,021
100,000	&	Above	1	107,007
Total			969	6,312,043

Regular Retirees:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
41 - 45	1	0	1	64,480	64,480
46 - 50	44	4	48	55,821	2,679,400
51 - 55	131	8	139	52,699	7,325,174
56 - 60	415	21	436	53,812	23,462,164
61 - 65	465	27	492	52,883	26,018,585
66 - 70	356	19	375	48,726	18,272,289
71 - 75	307	5	312	43,340	13,522,094
76 - 80	173	6	179	37,545	6,720,605
81 - 85	86	0	86	36,593	3,146,958
86 - 90	30	0	30	30,001	900,035
91 - 95	10	0	10	24,815	248,150
96 - 100	4	0	4	29,925	119,701
101 - 105	1	0	1	19,415	19,415
Total	2,023	90	2,113	48,509	102,499,050

Disability Retirees:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
26 - 30	1	1	2	18,982	37,964
36 - 40	2	0	2	26,329	52,658
41 - 45	12	1	13	27,788	361,240
46 - 50	13	2	15	31,073	466,098
51 - 55	24	0	24	24,078	577,877
56 - 60	13	3	16	21,932	350,915
61 - 65	18	3	21	22,892	480,739
66 - 70	17	1	18	20,804	374,480
71 - 75	14	1	15	22,302	334,536
76 - 80	7	0	7	17,875	125,122
81 - 85	4	0	4	9,857	39,428
86 - 90	3	0	3	16,267	48,802
91 - 95	1	0	1	3,641	3,641
Total	129	12	141	23,074	3,253,500

Survivors:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
0 - 20	16	17	33	5,743	189,530
21 - 25	6	6	12	5,902	70,824
26 - 30	0	1	1	1,638	1,638
31 - 35	0	3	3	20,748	62,244
36 - 40	1	5	6	30,085	180,508
41 - 45	3	8	11	25,401	279,406
46 - 50	1	11	12	22,980	275,764
51 - 55	0	15	15	33,738	506,073
56 - 60	1	31	32	30,737	983,588
61 - 65	1	35	36	28,280	1,018,075
66 - 70	2	29	31	30,851	956,366
71 - 75	0	58	58	22,151	1,284,763
76 - 80	1	46	47	22,857	1,074,298
81 - 85	0	54	54	20,345	1,098,606
86 - 90	0	36	36	21,166	761,967
91 - 95	0	27	27	16,288	439,787
96 - 100	0	1	1	13,694	13,694
Total	32	383	415	22,162	9,197,131

Active Members:

Completed Years of Service

Attained Ages	0 - 1	1 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	Over 30	Total
0 - 20	45	8	-	-	-	-	-	-	53
21 - 25	133	303	14	-	-	-	-	-	450
26 - 30	74	257	285	20	-	-	-	-	636
31 - 35	32	156	336	264	18	-	-	-	806
36 - 40	14	91	156	284	185	21	-	-	751
41 - 45	10	38	73	119	203	181	3	-	627
46 - 50	5	7	28	77	83	230	88	1	519
51 - 55	-	10	20	31	48	106	102	32	349
56 - 60	1	1	8	17	25	31	27	28	138
61 - 65	-	-	-	9	11	12	5	18	55
66 - 70	-	-	-	-	1	1	1	5	8
71 & Over	-	-	-	-	-	-	-	2	2
Total	314	871	920	821	574	582	226	86	4,394

Average Annual Salary of Active Members:

Completed Years of Service

Attained Ages	0 - 1	1 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	Over 30	Total
0 - 20	33,286	33,742	-	-	-	-	-	-	33,355
21 - 25	33,116	39,559	45,929	-	-	-	-	-	37,853
26 - 30	34,253	42,226	48,773	51,047	-	-	-	-	44,510
31 - 35	36,784	44,016	50,658	57,076	60,817	-	-	-	51,151
36 - 40	37,828	43,880	52,639	59,437	66,262	68,460	-	-	57,671
41 - 45	37,172	44,173	50,754	59,756	69,363	73,050	86,264	-	64,478
46 - 50	42,377	54,553	52,520	60,917	71,155	76,833	86,381	92,382	73,268
51 - 55	-	57,911	52,744	63,113	67,985	80,583	87,129	91,105	77,932
56 - 60	39,328	193,723	49,609	57,468	67,890	85,042	86,750	91,772	78,640
61 - 65	-	-	-	62,277	55,222	69,330	105,691	98,971	78,360
66 - 70	-	-	-	-	42,954	44,156	73,793	112,391	90,358
71 & Over	-	-	-	-	-	-	-	151,163	151,163
Total	34,289	42,252	50,438	58,788	67,858	76,264	87,133	95,618	57,689

Terminated Members Due A Deferred Retirement Benefit:

Years until Retirement Eligibility

Attained Ages	0 - 1	1 - 2	2 - 3	3 - 5	5 - 10	10 - 15	15 - 20	Over 20	Total
0 - 30	-	-	-	-	-	-	-	-	-
31 - 35	-	-	-	-	-	-	1	9	10
36 - 40	-	-	-	-	-	1	17	-	18
41 - 45	-	-	-	2	8	30	-	-	40
46 - 50	1	1	2	4	25	-	-	-	33
51 - 55	4	7	4	5	-	-	-	-	20
56 - 60	2	-	-	-	-	-	-	-	2
61 - 65	-	-	-	-	-	-	-	-	-
66 - 70	-	-	-	-	-	-	-	-	-
71 & Over	-	-	-	-	-	-	-	-	-
Total	7	8	6	11	33	31	18	9	123

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

Years until Retirement Eligibility

Attained Ages	0 - 1	1 - 2	2 - 3	3 - 5	5 - 10	10 - 15	15 - 20	Over 20	Total
0 - 30	-	-	-	-	-	-	-	-	-
31 - 35	-	-	-	-	-	-	17,334	17,795	17,749
36 - 40	-	-	-	-	-	20,149	23,718	-	23,520
41 - 45	-	-	-	47,623	37,639	27,455	-	-	30,500
46 - 50	35,592	54,830	41,624	32,658	25,510	-	-	-	28,547
51 - 55	23,017	22,657	24,743	21,747	-	-	-	-	22,919
56 - 60	113,649	-	-	-	-	-	-	-	113,649
61 - 65	-	-	-	-	-	-	-	-	-
66 - 70	-	-	-	-	-	-	-	-	-
71 & Over	-	-	-	-	-	-	-	-	-
Total	50,708	26,679	30,370	30,419	28,450	27,219	23,363	17,795	28,037

Service Retirees:

Completed Years Since Retirement

Attained Ages	0 - 1	1 - 2	2 - 3	3 - 5	5 - 10	10 - 15	15 - 20	Over 20	Total
0 - 50	18	15	12	3	1	-	-	-	49
51 - 55	35	23	21	27	31	2	-	-	139
56 - 60	48	58	45	80	149	45	11	-	436
61 - 65	22	24	17	46	196	140	46	1	492
66 - 70	2	4	9	20	85	109	114	32	375
71 - 75	3	-	-	6	22	50	95	136	312
76 - 80	-	-	-	-	2	15	25	137	179
81 - 85	-	-	-	-	-	3	6	77	86
86 - 90	-	-	-	-	-	-	-	30	30
91 & Over	-	-	-	-	-	-	-	15	15
Total	128	124	104	182	486	364	297	428	2,113

Average Annual Benefits Payable To Service Retirees:

Completed Years Since Retirement

Attained Ages	0 - 1	1 - 2	2 - 3	3 - 5	5 - 10	10 - 15	15 - 20	Over 20	Total
0 - 50	59,193	53,671	54,765	56,504	46,643	-	-	-	55,998
51 - 55	58,846	57,790	49,637	50,670	46,660	39,717	-	-	52,699
56 - 60	60,001	58,158	56,490	59,153	50,138	46,458	33,951	-	53,812
61 - 65	61,840	56,851	53,691	62,877	55,947	47,700	39,311	36,710	52,883
66 - 70	59,388	57,626	50,994	63,341	58,773	46,930	43,698	34,518	48,726
71 - 75	100,106	-	-	40,586	50,382	49,061	44,732	37,995	43,340
76 - 80	-	-	-	-	29,728	38,051	40,530	37,059	37,545
81 - 85	-	-	-	-	-	40,364	44,753	35,810	36,593
86 - 90	-	-	-	-	-	-	-	30,001	30,001
91 & Over	-	-	-	-	-	-	-	25,818	25,818
Total	60,818	57,277	53,974	58,640	53,689	47,001	42,743	36,052	48,509

Disability Retirees:

Completed Years Since Retirement

Attained Ages	0 - 1	1 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	Over 30	Total
0 - 30	1	1	-	-	-	-	-	-	2
31 - 35	-	-	-	-	-	-	-	-	-
36 - 40	1	1	-	-	-	-	-	-	2
41 - 45	3	5	3	1	1	-	-	-	13
46 - 50	2	5	6	2	-	-	-	-	15
51 - 55	3	3	4	6	5	2	1	-	24
56 - 60	-	-	2	5	3	4	2	-	16
61 - 65	-	-	3	1	6	4	3	4	21
66 - 70	-	-	-	1	3	4	2	8	18
71 - 75	-	-	-	-	2	2	3	8	15
76 - 80	-	-	-	-	-	2	-	5	7
81 & Over	-	-	-	-	-	2	-	6	8
Total	10	15	18	16	20	20	11	31	141

Average Annual Benefits Payable To Disability Retirees:

Completed Years Since Retirement

Attained Ages	0 - 1	1 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	Over 30	Total
0 - 30	26,270	11,694	-	-	-	-	-	-	18,982
31 - 35	-	-	-	-	-	-	-	-	-
36 - 40	34,775	17,883	-	-	-	-	-	-	26,329
41 - 45	25,978	34,154	29,306	9,574	15,044	-	-	-	27,788
46 - 50	44,515	30,251	31,790	17,539	-	-	-	-	31,073
51 - 55	32,176	37,222	23,484	26,393	15,641	10,313	18,561	-	24,078
56 - 60	-	-	18,148	30,370	20,218	17,343	16,370	-	21,932
61 - 65	-	-	37,298	19,788	31,993	19,635	11,573	10,960	22,892
66 - 70	-	-	-	42,439	24,817	14,190	27,567	18,212	20,804
71 - 75	-	-	-	-	30,361	26,418	20,716	19,854	22,302
76 - 80	-	-	-	-	-	11,668	-	20,357	17,875
81 & Over	-	-	-	-	-	9,396	-	12,180	11,484
Total	32,454	30,884	28,932	26,068	24,052	16,013	18,482	16,879	23,074

Surviving Beneficiaries of Former Members:

Completed Years Since Retirement

Attained Ages	0 - 1	1 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	Over 30	Total
0 - 30	1	19	8	11	4	1	2	-	46
31 - 35	-	2	1	-	-	-	-	-	3
36 - 40	-	1	3	1	1	-	-	-	6
41 - 45	-	3	-	4	1	1	1	1	11
46 - 50	-	3	2	2	3	2	-	-	12
51 - 55	1	3	1	5	2	1	2	-	15
56 - 60	2	2	9	6	3	5	4	1	32
61 - 65	-	1	5	9	11	5	3	2	36
66 - 70	-	1	2	4	7	7	1	9	31
71 - 75	-	2	4	1	6	23	11	11	58
76 - 80	-	-	-	-	4	12	12	19	47
81 & Over	-	-	-	-	1	12	9	96	118
Total	4	37	35	43	43	69	45	139	415

Average Annual Benefits Payable To Survivors of Former Members:

Completed Years Since Retirement

Attained Ages	0 - 1	1 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	Over 30	Total
0 - 30	7,550	6,424	5,830	4,967	3,923	3,756	5,836	-	5,695
31 - 35	-	20,011	22,222	-	-	-	-	-	20,748
36 - 40	-	15,617	38,747	13,820	34,830	-	-	-	30,085
41 - 45	-	43,446	-	17,988	24,679	15,635	35,014	1,791	25,401
46 - 50	-	24,438	32,864	21,202	21,688	14,628	-	-	22,980
51 - 55	51,786	57,357	1,920	37,903	18,890	29,298	11,852	-	33,738
56 - 60	40,114	28,108	48,654	33,013	30,061	11,498	13,456	9,691	30,737
61 - 65	-	40,668	40,753	32,425	29,266	14,835	22,174	9,595	28,280
66 - 70	-	55,571	75,214	33,700	32,453	22,622	43,133	20,768	30,851
71 - 75	-	35,241	19,792	34,036	28,014	22,675	24,739	12,668	22,151
76 - 80	-	-	-	-	32,540	28,478	24,870	15,999	22,857
81 & Over	-	-	-	-	46,572	20,825	29,557	18,246	19,611
Total	34,891	20,982	32,114	23,978	27,027	21,465	23,788	17,356	22,162

EXHIBIT IX
YEAR-TO-YEAR COMPARISON

	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019
Number of Active Members	4,394	4,450	4,426	4,446
Number of Retirees & Survivors	2,669	2,578	2,497	2,407
DROP Participants	229	241	220	208
Number of Terminated Due Deferred Benefits	123	99	85	84
Number Terminated Due Refunds	969	811	763	671
Active Lives Payroll (excludes DROP participants)	$ 253,487,351	$ 249,159,310	$ 245,786,834	$ 240,413,972
Retiree Benefits in Payment	$ 114,949,681	$ 108,262,093	$ 102,305,920	$ 97,547,088
Market Value of Assets	$ 2,079,446,096	$ 2,326,798,869	$ 1,837,689,661	$ 1,778,931,314
Ratio of Actuarial Value of Assets to Actuarial Accrued Liability	80.41%	78.76%	75.63%	75.72%
Actuarial Accrued Liability (EAN)	$ 2,784,575,320	$ 2,681,184,069	$ 2,530,844,605	$ 2,405,122,324
Actuarial Value of Assets	$ 2,239,176,342	$ 2,111,737,202	$ 1,914,024,117	$ 1,821,040,904
UAL (Funding Excess)	$ 491,237,338	$ 523,878,929	$ 554,826,689	$ 584,081,420
P.V. of Future Employer Normal Contributions	$ 504,572,690	$ 490,121,628	$ 475,561,988	$ 352,991,474
Present Value of Future Employee Contrib.	$ 281,367,086	$ 278,140,120	$ 269,628,321	$ 243,350,511
Present Value of Future Benefits	$ 3,516,353,456	$ 3,403,877,879	$ 3,214,041,115	$ 3,001,464,309

	Fiscal 2023	Fiscal 2022	Fiscal 2021	Fiscal 2020
Employee Contribution Rate Above Poverty Level	10.00%	10.00%	10.00%	10.00%
Required Tax Contributions as a Percentage of Projected Payroll	11.54%	11.06%	11.25%	11.38%
Actuarially Required Employer Contribution as a Percentage of Projected Payroll	32.49%	33.23%	33.69%	31.78%
Actual Employer Contribution as a Percentage of Projected Payroll	33.25%	33.75%	32.25%	27.75%

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 2018	Fiscal 2017	Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013
4,424	4,429	4,362	4,192	4,098	4,063
2,327	2,289	2,213	2,139	2,057	1,958
192	173	173	166	185	221
76	72	72	81	9	71
656	597	558	523	472	450
$ 236,005,445	$ 232,500,397	$ 225,301,112	$ 211,963,892	$ 203,333,976	$ 199,129,982
$ 91,808,883	$ 88,444,685	$ 83,899,034	$ 79,924,818	$ 73,404,453	$ 67,678,016
$ 1,704,049,168	$ 1,593,696,648	$ 1,399,892,212	$ 1,419,138,769	$ 1,410,307,198	$ 1,253,213,084
76.40%	75.82%	75.48%	76.09%	74.66%	71.13%
$ 2,279,256,967	$ 2,166,881,556	$ 2,053,982,618	$ 1,958,850,006	$ 1,855,298,538	$ 1,771,931,777
$ 1,741,451,961	$ 1,643,007,075	$ 1,550,261,745	$ 1,490,408,510	$ 1,385,135,204	$ 1,260,348,240
$ 537,805,006	$ 523,874,481	$ 503,720,873	$ 468,441,496	$ 470,163,334	$ 511,583,537
$ 346,076,765	$ 328,942,059	$ 305,570,473	$ 286,640,979	$ 315,734,786	$ 310,702,226
$ 240,713,969	$ 238,106,260	$ 230,423,085	$ 216,351,986	$ 213,279,261	$ 210,842,508
$ 2,866,047,701	$ 2,733,929,875	$ 2,589,976,176	$ 2,461,842,971	$ 2,384,312,585	$ 2,294,778,794

Fiscal 2019	Fiscal 2018	Fiscal 2017	Fiscal 2016	Fiscal 2015	Fiscal 2014
10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
11.04%	10.85%	10.91%	11.33%	11.39%	11.05%
28.32%	28.67%	27.09%	25.44%	27.50%	29.23%
26.50%	26.50%	25.25%	27.25%	29.25%	28.25%

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 fund 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 fund 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 INCREASES - 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 INCREASES:	The present value of future retirement benefits is based on benefits currently being paid by the system and includes previously granted cost of living increases. 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.