

**MUNICIPAL POLICE EMPLOYEES'
RETIREMENT SYSTEM**

ACTUARIAL VALUATION AS OF
JUNE 30, 2021

G. S. CURRAN & COMPANY, LTD.

Actuarial Services

10555 N. Glenstone Place • Baton Rouge, Louisiana 70810 • (225)769-4825

Gary S. Curran, FCA, MAAA, ASA, EA
Consulting Actuary

Gregory M. Curran, FCA, MAAA, ASA, EA
Consulting Actuary

November 11, 2021

Board of Trustees
Municipal Police Employees' Retirement System
7722 Office Park Boulevard, Suite 200
Baton Rouge, Louisiana 70809

Ladies and Gentlemen:

We are pleased to present our report on the actuarial valuation of the Municipal Police Employees' Retirement System for the fiscal year ending June 30, 2021. 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 Municipal Police Employees' Retirement System of the State of Louisiana. The primary purposes of the report are to determine the actuarially required contribution for the retirement system for the fiscal year ending June 30, 2022 and to recommend the net direct employer contribution rate for Fiscal 2023. 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 Municipal Police Employees' 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,

G. S. CURRAN & COMPANY, LTD.

By: 
Gregory Curran, F.C.A., M.A.A.A., A.S.A.

TABLE OF CONTENTS

<u>SUBJECT</u>	<u>PAGE</u>
SUMMARY OF VALUATION RESULTS	1
GENERAL COMMENTS	2
COMMENTS ON DATA	3
COMMENTS ON ACTUARIAL METHODS AND ASSUMPTIONS.....	3
RISK FACTORS.....	5
CHANGES IN PLAN PROVISIONS.....	8
ASSET EXPERIENCE	8
DEMOGRAPHICS AND LIABILITY EXPERIENCE	9
FUNDING ANALYSIS AND RECOMMENDATIONS.....	10
COST OF LIVING INCREASES	11
GRAPHS	13
EXHIBIT I – Analysis of Actuarially Required Contributions.....	18
EXHIBIT II – Present Value of Future Benefits.....	19
EXHIBIT III – SCHEDULE A: Market Value of Assets	20
EXHIBIT III – SCHEDULE B: Actuarial Value of Assets.....	21
EXHIBIT IV – Present Value of Future Contributions.....	22
EXHIBIT V – SCHEDULE A: Actuarial Accrued Liabilities	22
EXHIBIT V – SCHEDULE B: Change in Unfunded Actuarial Accrued Liability.....	22
EXHIBIT V – SCHEDULE C: Amortization of the Unfunded Actuarial Accrued Liability.....	23
EXHIBIT VI – Analysis of Change in Assets.....	24
EXHIBIT VII – Census Data	25
EXHIBIT VIII – Year to Year Comparison.....	33
SUMMARY OF PRINCIPAL PLAN PROVISIONS	35
ACTUARIAL ASSUMPTIONS	41
PRIOR YEAR ASSUMPTIONS	45
GLOSSARY.....	46

SUMMARY OF VALUATION RESULTS MUNICIPAL POLICE EMPLOYEES' RETIREMENT SYSTEM

Valuation Date:	June 30, 2021	June 30, 2020
Census Summary:		
Active Members	5,414	5,644
Retired Members and Survivors	4,938	4,837
DROP Participants	257	212
Terminated Due a Deferred Benefit	236	221
Terminated Due a Refund	2,040	1,842
Payroll (excluding DROP participants):	\$ 293,949,856	\$ 302,984,686
Benefits in Payment (excluding DROP accruals):	\$ 162,774,931	\$ 154,963,239
Present Value of Future Benefits:	\$ 3,859,066,095	\$ 3,672,992,948
Actuarial Accrued Liability (EAN):	\$ 3,301,558,629	\$ 3,135,811,188
Unfunded Actuarial Accrued Liability:	\$ 733,479,440	\$ 768,189,980
Actuarial Value of Assets (AVA):	\$ 2,568,079,189	\$ 2,367,621,208
Market Value of Assets (MVA):	\$ 2,816,973,727	\$ 2,256,740,977
Ratio of AVA to Actuarial Accrued Liability:	77.78%	75.50%
	Fiscal 2021	Fiscal 2020
Market Rate of Return:	26.1%	2.4%
Actuarial Rate of Return:	9.6%	4.6%
	Fiscal 2022	Fiscal 2021
Employers' Normal Cost (Mid-year):	\$ 31,340,935	\$ 30,088,470
Amortization Cost (Mid-year):	\$ 85,440,794	\$ 86,204,755
Estimated Administrative Cost:	\$ 2,848,075	\$ 2,687,624
Expected Insurance Premium Taxes Due:	\$ (22,251,594)	\$ (22,347,331)
Net Direct Employer Actuarially Required Contributions:	\$ 97,378,210	\$ 96,633,518
Projected Payroll:	\$ 304,215,523	\$ 313,124,085
Statutory Employee Contribution Rate:		
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	10.00% *	10.00% *
For Employees in the Non-Hazardous Subplan	8.00%	8.00%
Board Approved Net Direct Employer Contribution Rate:		
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	29.75% *	33.75% *
For Employees in the Non-Hazardous Subplan:	29.75%	33.75%
Actuarially Required Net Direct Employer Contribution Rate:		
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	32.01%	30.86%
For Employees in the Non-Hazardous Subplan:	32.01%	30.86%
	Fiscal 2023	Fiscal 2022
Minimum Recommended Net Direct Employer Cont. Rate:		
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	31.25% *	29.75% *
For Employees in the Non-Hazardous Subplan:	31.25%	29.75%

* For members with earnings greater than the Department of HHS poverty guidelines. For members with earnings below the poverty guidelines, employer rates will be 2.5% higher and employee rates will be 2.5% 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 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. Information on retirees detailing dates of birth of retirees and beneficiaries, sex, 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 VII, there are 5,414 active contributing members in the system of whom 2,326 have vested retirement benefits; in addition, there are 257 participants in the Deferred Retirement Option Plan (DROP); 4,938 former members or their beneficiaries are receiving retirement benefits. An additional 2,276 terminated members have contributions remaining on deposit with the system; of this number 236 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 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 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. For this valuation, the number of such records with imputed data is de minimis.

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 system's auditor, the firm of Duplantier, Hrapmann, Hogan & Maher, Certified Public Accountants. As indicated in the system's financial statements, the net market value of the system's assets was \$2,816,973,727 as of June 30, 2021. Net investment income for Fiscal 2021 measured on a market value basis was \$584,755,070. Contributions to the system for the fiscal year totaled \$155,252,808; benefits and expenses amounted to \$179,775,128.

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

This valuation is based on the Entry Age Normal actuarial cost method. Prior to Fiscal 2002, experience gains and losses as well as contribution gains and losses were amortized over fifteen years with level amortization payments. Act 1079 of 2003 explicitly changed the amortization period for

experience gains and losses, changes in assumptions, changes in methods, cost of living increases, and changes in plan benefit provisions to thirty years with level amortization payments. Act 402 of 2014 was introduced to improve the long-term health of the system and to reduce the likelihood for intergenerational cost shifting due to long amortization periods. The act changed the amortization period for all the existing outstanding unfunded liability bases from various periods ranging from one to thirty years to twenty years. The act also set the period to amortize all future actuarial gains and losses as well as changes in assumptions and benefits at fifteen years.

The cost method used for this valuation generally produces normal costs which are level as a percentage of pay if assumptions are met and the composition of the active group with regard to age, sex, and service is stable. Overall costs may increase or decrease depending on payroll growth. Since payments on all of the fund's amortization bases are level, any payroll growth will reduce future amortization payments as a percentage of payroll. Should overall payroll contract, amortization payments will increase as a percentage of payroll.

The current year 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. Details related to the study are contained within the 2020 Municipal Police Employees' Retirement System Experience Study Report.

Beginning with Fiscal 2017, the Board of Trustees voted on a plan to reduce the long-term rate of return assumption from 7.5%. Based on actuarial 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 7.125% over the subsequent three actuarial valuations with reductions of 0.175% in 2017, 0.125% in 2018, and 0.075% in 2019. The 2020 actuarial valuation was run based on a 6.95% valuation interest rate which was selected after the Board of Trustees reviewed the actuary's analysis of the reasonable range during 2020. In reviewing the valuation interest rate for this valuation, consideration was given to several factors. The Fund's target asset allocation was reviewed based upon the G. S. Curran & Company consultant average return study for 2021. The study found that the 6.95% assumed rate of return used in the 2020 valuation remained within the reasonable range. The reasonable range was set by developing 10,000 stochastic trials based on the expected long-term arithmetic return for the Fund's target allocation and the consultant average portfolio standard deviation.

Although the system's 6.95% valuation interest rate remained within the actuary's reasonable range, the Board of Trustees was advised that the significant returns experienced during Fiscal 2021 presented a unique opportunity to consider lowering the assumed rate of return on an opportunistic basis. The Board voted to authorize the actuary to lower the assumed rate of return while requiring that the change in assumptions not cause the minimum recommended employer contribution rate for Fiscal 2023 to exceed 31.75%. The assumed rate of return was lowered to 6.75%, matching the Board of Trustees' target assumption, as of June 30, 2021. For 2021, an assumed rate of inflation of 2.5% was implicit in the assumed rate of return.

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 system as described in the system's 2020 Experience Study report with the exception of the update to the valuation interest rate and an update to use option factors which became effective July 1, 2021. These option factors are used in determining the value of certain survivor benefits due if active members die in the future and for valuing the lifetime payments to members who have selected the "popup" form of benefits.

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. The net effect of the changes in assumptions increased the interest-adjusted amortization payments on the system's UAL by \$7,105,836 which corresponds to payments of 2.34% of Fiscal 2022 projected payroll. In addition, the change in assumptions increased the employer normal cost by \$2,550,130, or 0.84% of projected payroll.

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. As the plan attempts to offset inflation by 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. For the last decade, inflation levels have remained in a fairly narrow range. Current forecasts from investment professionals call for a continuation of this trend. There is always the possibility that high inflation will become a problem in the future or that the country will experience a deflationary period; however, most expert opinion currently assesses both of 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 benefit payments exceed annual contributions 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 current trend toward higher levels of negative noninvestment cash flows will continue in the near future.

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 77.78% as of June 30, 2021. 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 VIII 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 0.88% 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 10.84.

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 2021, this ratio is 55%; ten years ago, this ratio was 37%.

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 16.25% 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

There were no changes to the system enacted during the 2021 Regular Session of the Louisiana Legislature.

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.

	<u>Market Value</u>	<u>Actuarial Value</u>
2012	-2.1%	7.8%
2013	13.7%	11.2%
2014	18.6%	11.9%
2015	1.4%	10.6%
2016	-2.2%	5.7%
2017	13.1%	7.7%
2018	7.0%	6.9%
2019	3.8%	4.6%
2020	2.4%	4.6%
2021	26.1%	9.6%

Geometric Average Market Rates of Return

5-year average (Fiscal 2017 – 2021)	10.2%
10-year average (Fiscal 2012 – 2021)	7.8%
15-year average (Fiscal 2007 – 2021)	6.0%
20-year average (Fiscal 2002 – 2021)	5.9%
25-year average (Fiscal 1997 – 2021)	6.2%
30-year average (Fiscal 1992 – 2021)	6.8%

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. 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 2021, the fund earned \$29,220,001 of dividends, interest and other recurring income. In addition, the Fund had net realized and unrealized capital gains on investments and non-recurring income of \$562,015,474. This income was offset by investment expenses of \$6,480,405.

The actuarial rate of return is presented for comparison to the assumed long-term rate of return of 6.950% in effect for Fiscal 2021 (6.75% for Fiscal 2022). For Fiscal 2021, the actuarial rate of return adjusted for elimination of the effect of merger payments was 9.6%. DROP accounts should be credited with 9.1% (i.e. 9.6% less 0.5%). The actuarial rate of return is calculated based on the actuarial value of assets and all interest, dividends, and recognized capital gains as given in Exhibit VI. Investment income used to calculate this yield is based upon a smoothing of investment returns 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 of gains or losses on investments relative to the valuation interest rate. Beginning July 1, 2021, yields in excess of the 6.75% assumption will reduce future costs; yields below 6.75% will increase future costs. For Fiscal 2021, the system experienced net actuarial investment earnings of \$61,268,465 above the actuarial assumed earnings rate of 6.95% (in effect for Fiscal 2021) which produced an actuarial gain and decreased the interest-adjusted amortization payments on the system's UAL by \$6,408,367 or 2.11% of projected payroll.

DEMOGRAPHICS AND LIABILITY EXPERIENCE

A reconciliation of the census for the system is given in Exhibit VII. The average active contributing member is 41 years old with 10.98 years of service credit and an annual salary of \$54,294. The system's active contributing membership experienced a decrease of 230 members during Fiscal 2021. The number of DROP participants increased by 45. Over the last five years active membership has decreased by 252 members.

The average service retiree is 67 years old with an annual benefit of \$38,860. The average age at retirement for regular retirees is 53. The number of retirees and beneficiaries receiving benefits from the system increased by 101 during the fiscal year. Over the last five years, the number of retirees increased by 301 with annual benefits in payment increasing by \$27,906,861.

The changes in the makeup of the population and changes in members' salaries decreased the interest adjusted employer normal cost over the last year by \$1,297,665; the corresponding change in employer normal cost percentage was a reduction of 0.14% of payroll. Plan liability experience for Fiscal 2021 was unfavorable. Retirements and DROP entries were significantly above projected levels. These factors tend to increase costs. Partially offsetting these factors were withdrawals and retiree deaths above projected levels along with disabilities below projected levels. Salary increases at most durations were near projected levels. Net plan liability experience losses totaled \$1,258,411. These losses increased the interest-adjusted amortization payments on the system's unfunded accrued liability by \$131,623, which corresponds to payments of 0.04% of Fiscal 2022 payroll.

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 unfunded actuarial accrued liability. The normal cost refers to the annual cost for active members allocated to each year by the particular cost method utilized. The term 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. In addition, it may be increased or diminished by plan experience, changes in assumptions, or changes in benefits including COLA's. Contributions in excess of or less than the actuarially required amount can also decrease or increase the UAL balance. New entrants to the system can also increase or lower costs as a percent of payroll depending upon their demographic distribution. Finally, payroll growth affects plan costs since payments on the system's unfunded liability are on a fixed, level schedule. 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.

An explanation of the change in costs related to asset and liability gains and losses as well as changes in demographics and assumptions is given in prior sections of the report. In addition to these components, variances in contribution levels and payroll also affect costs. For Fiscal 2021 contributions totaled \$6,876,395 more than required; the interest-adjusted amortization credit on the contribution surplus for Fiscal 2022 is \$719,236, or 0.24% of projected payroll. In addition, for Fiscal 2022 the net effect of the change in payroll on amortization costs was to increase such costs by 0.82% of projected payroll.

A reconciliation of the change in costs is given below. Values listed in dollars are interest adjusted for payment throughout the fiscal year. Percentages are based on the projected payroll for Fiscal 2022, except for those items labeled Fiscal 2021.

	Dollars	Percentage of Payroll
Employer Normal Cost for Fiscal 2021	\$ 30,088,470	9.61%
Cost of Demographic and Salary Changes	\$ (1,297,665)	(0.14%)
Change due to Assumption Changes	<u>\$ 2,550,130</u>	<u>0.84%</u>
Employer Normal Cost for Fiscal 2022	\$ 31,340,935	10.31%
UAL Amortization Payments for Fiscal 2021	\$ 86,204,755	27.53%
Change due to change in payroll	N/A	0.82%
Change due to Interest Rate Change	\$ (873,817)	(0.29%)

Additional Amortization Expenses for Fiscal 2022:

Liability Assumption Loss (Gain)	\$ 7,105,836	2.34%
Asset Experience Loss (Gain)	\$ (6,408,367)	(2.11%)
Liability Experience Loss (Gain)	\$ 131,623	0.04%
Contribution Loss (Gain)	\$ (719,236)	(0.24%)
Total Amortization Expense (Credit) for Fiscal 2022	\$ 85,440,794	28.09%
Insurance Premium Taxes	\$ (22,251,594)	(7.32%)
Estimated Administrative Cost for Fiscal 2022	\$ 2,848,075	0.93%
Total Employer Normal Cost & Amortization Payments	\$ 97,378,210	32.01%

The derivation of the actuarially required contribution for the current fiscal year is given in Exhibit I. The employer normal cost for Fiscal 2022, interest adjusted for mid-year payment is \$31,340,935. The interest adjusted amortization payments on the system's unfunded actuarial accrued liability totaled \$85,440,794. The total actuarially required contribution is determined by summing these two values together with estimated administrative expenses. As given in line 12 of Exhibit I the total actuarially required contribution for Fiscal 2022 is \$119,629,804. We estimate insurance premium taxes of \$22,251,594, or 7.32% of payroll, will be paid to the system in Fiscal 2022. This level of Insurance Premium Taxes represents a 0.17% increase over the prior year as a percentage of payroll. Hence, the actuarially required net direct employer contribution for Fiscal 2022 amounts to \$97,378,210 or 32.01% of payroll.

Since the actual employer contribution rate for Fiscal 2022 is 29.75% of payroll, there will be a contribution shortfall of 2.26% of payroll. This shortfall will increase the actuarially required contribution recommended for Fiscal 2023. In order to determine a minimum recommended net direct employer contribution rate for Fiscal 2023, the Employer Normal Cost and Amortization Payments were estimated for Fiscal 2023, adjusted for the impact of the estimated contribution shortfall for Fiscal 2022, and the estimated Insurance Premium Taxes for Fiscal 2023. Therefore, as given in line 25 of Exhibit I, the estimated actuarially required net direct employer contribution for Fiscal 2023 is \$99,095,746, or 31.25% of projected payroll (rounded to the nearest 0.25%) for all members with earnings greater than the Department of HHS poverty guidelines. For members of the Hazardous Duty subplan and for members who were hired before January 1, 2013 who have earnings below the poverty guidelines, the employer contribution rates will be 2.5% higher and the employee contribution rates will be 2.5% lower.

COST OF LIVING INCREASES

During Fiscal 2021, the actual cost-of-living (as measured by the US Department of Labor CPI-U) increased by 5.4%. Cost-of-living provisions for the system are detailed in R.S. 11:2225(A)(7)(b), R.S. 11:246, and R.S. 11:241. R.S. 11:2225(A)(7)(b) allows the Board to use interest earnings in excess of the normal requirements to grant annual cost of living increases of 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. 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.

All of the above provisions require that the system’s investments produce sufficient “excess interest” earnings to fund the increases. 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 Entry Age Normal Method for this system).

The most recent COLA granted by the Board of Trustees was effective November 1, 2014. The system’s funded ratio as of the end of Fiscal 2021 is 77.78% (based on the Actuarial Value of Assets divided by the Entry Age Normal Accrued Liability) and the system has not granted a COLA in any of the three most recent fiscal years. Therefore, the system is eligible to grant a COLA in Fiscal 2022 because the system did earn the necessary “excess interest” in Fiscal 2021.

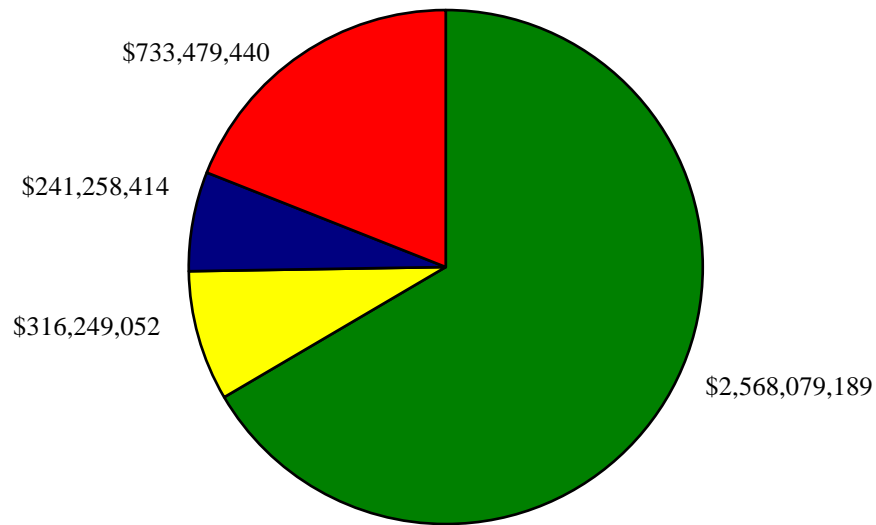
Below is a summary of available cost-of-living increases and their respective costs, assuming a beginning date of January 1, 2022:

<u>COLA Description</u>	<u>Annual Increase in Benefits</u>	<u>Present Value of Increase</u>	<u>Contribution Cost as a % of Payroll</u>
3% current benefit	\$ 4,680,164	\$ 47,224,188	1.66%
2% original benefit (over age 65)	\$ 1,527,675	\$ 13,261,878	0.47%

Should the Board of Trustees have an interest in considering the COLA described in R.S. 11:241, additional data on service credit for retirees and survivors may be necessary. There may be some difficulty in obtaining the needed information on all merged retirees since their service prior to retirement may not have been with MPERS.

For Fiscal 2021, the system experienced net actuarial investment earnings of \$61,268,465 above the actuarial assumed earnings rate of 6.95%. This exceeds the lifetime cost of providing either of the listed cost of living increases.

Components of Present Value of Future Benefits June 30, 2021

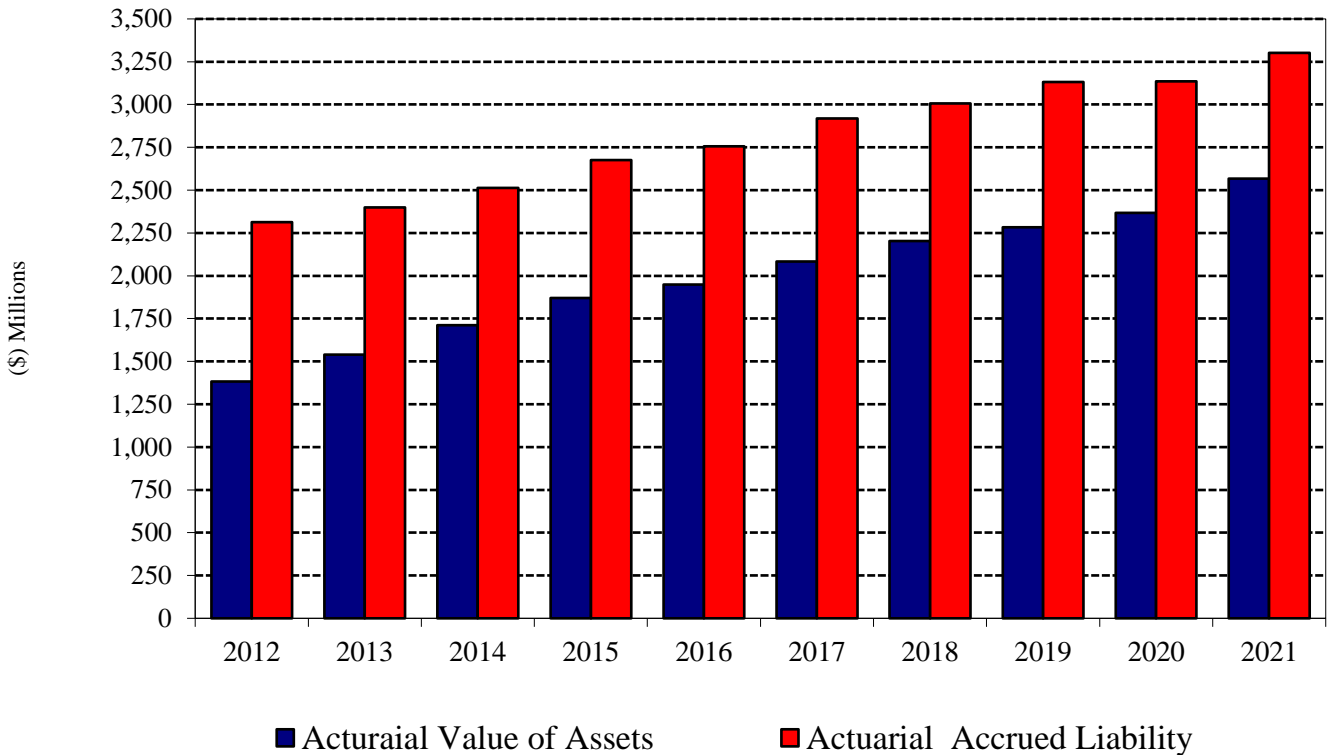


- Actuarial Value of Assets
- Present Value of Future Employer Normal Cost
- Present Value of Employee Contributions
- Unfunded Actuarial Accrued Liability

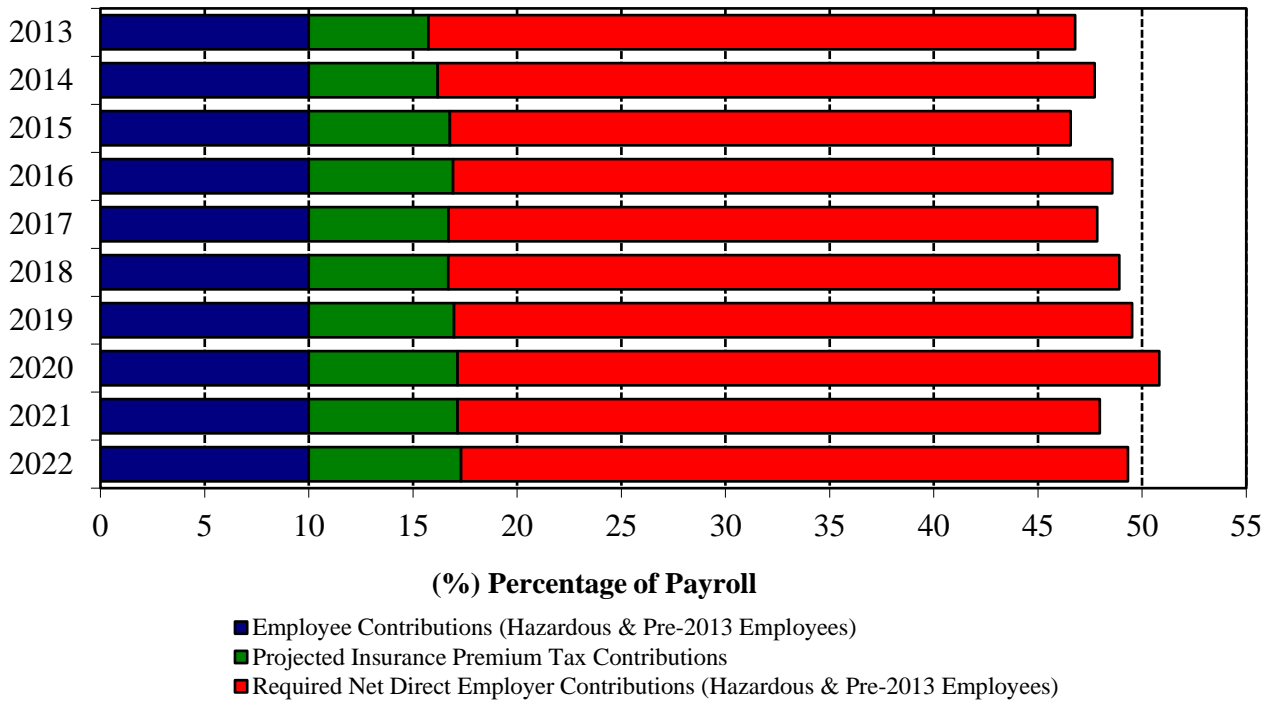
Unfunded Accrued Liability



Actuarial Value of Assets vs. Actuarial Accrued Liability

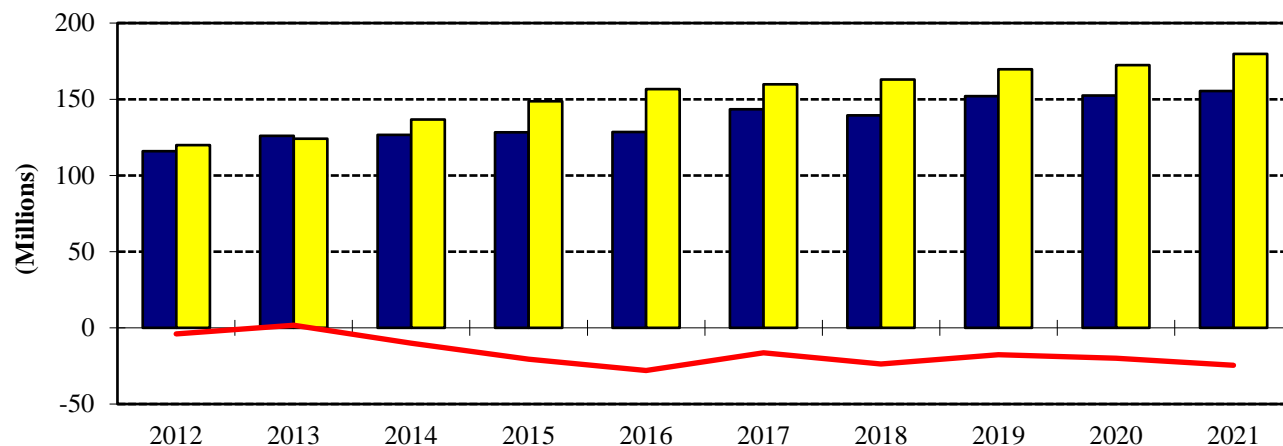


Components of Actuarial Funding



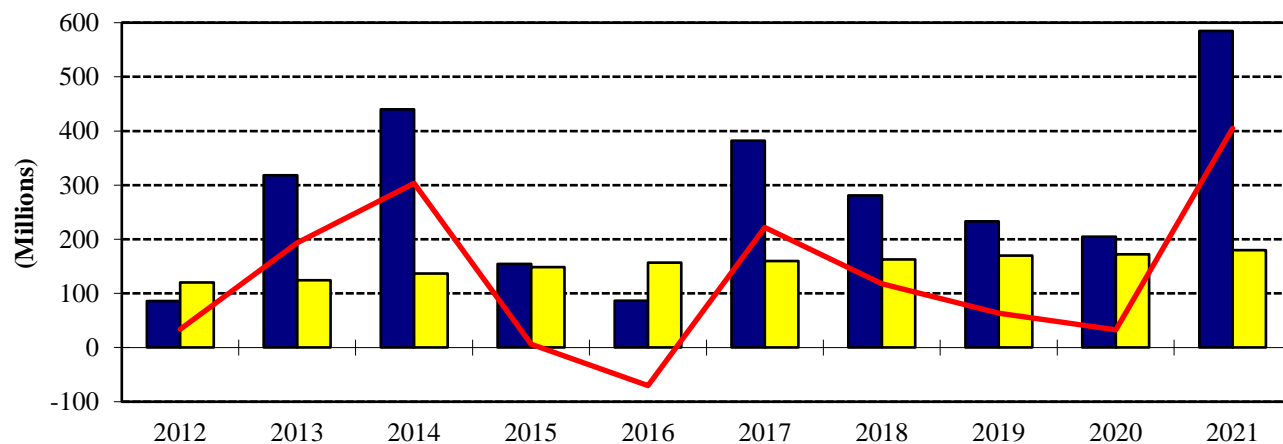
(2012 and later employee contribution level is based on members with earnings above the poverty level)

Net Non-Investment Income



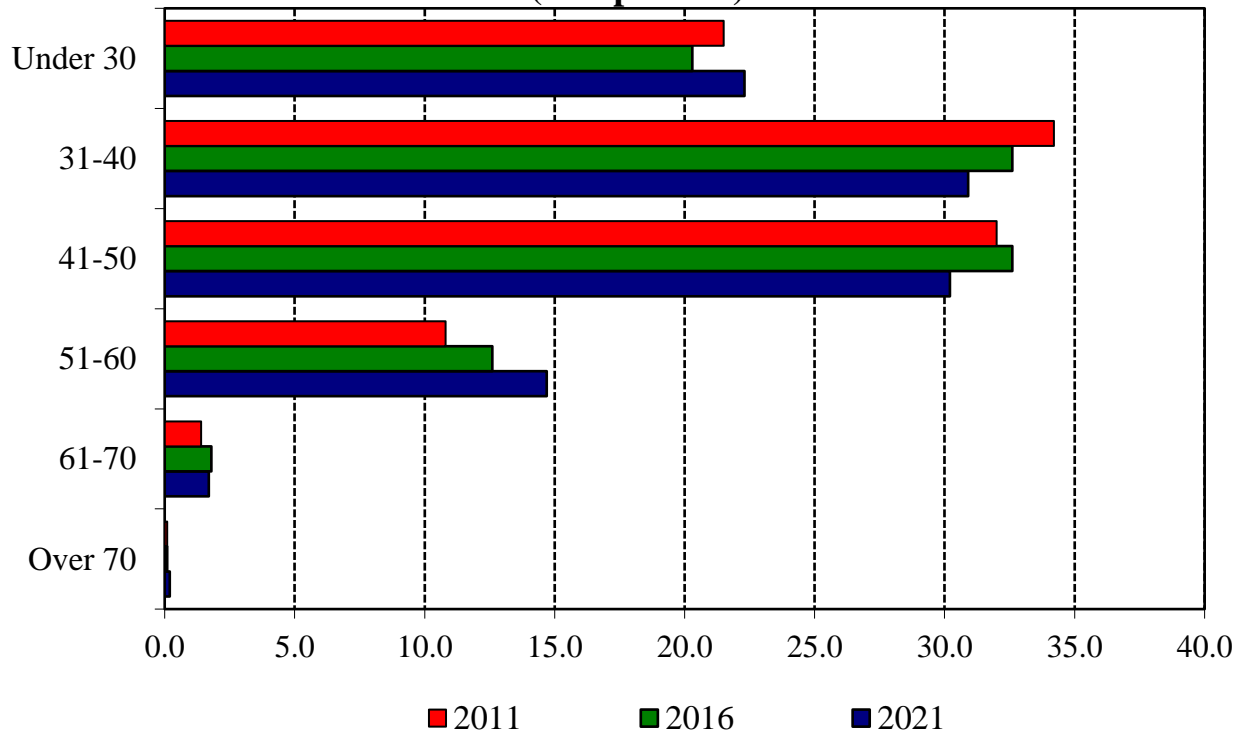
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Non-Investment Income (\$Mil)	■	116.0	125.9	126.6	128.2	128.6	143.4	139.3	152.0	152.5	155.3
Benefits and Expenses (\$Mil)	■	120.0	124.2	136.7	148.7	156.6	159.8	163.0	170.8	172.5	179.8
Net Non-Investment Income (\$Mil)	—	-4.0	1.7	-10.1	-20.5	-28.0	-16.4	-23.7	-18.8	-20.0	-24.5

Total Income vs. Expenses (Based on Market Value of Assets)

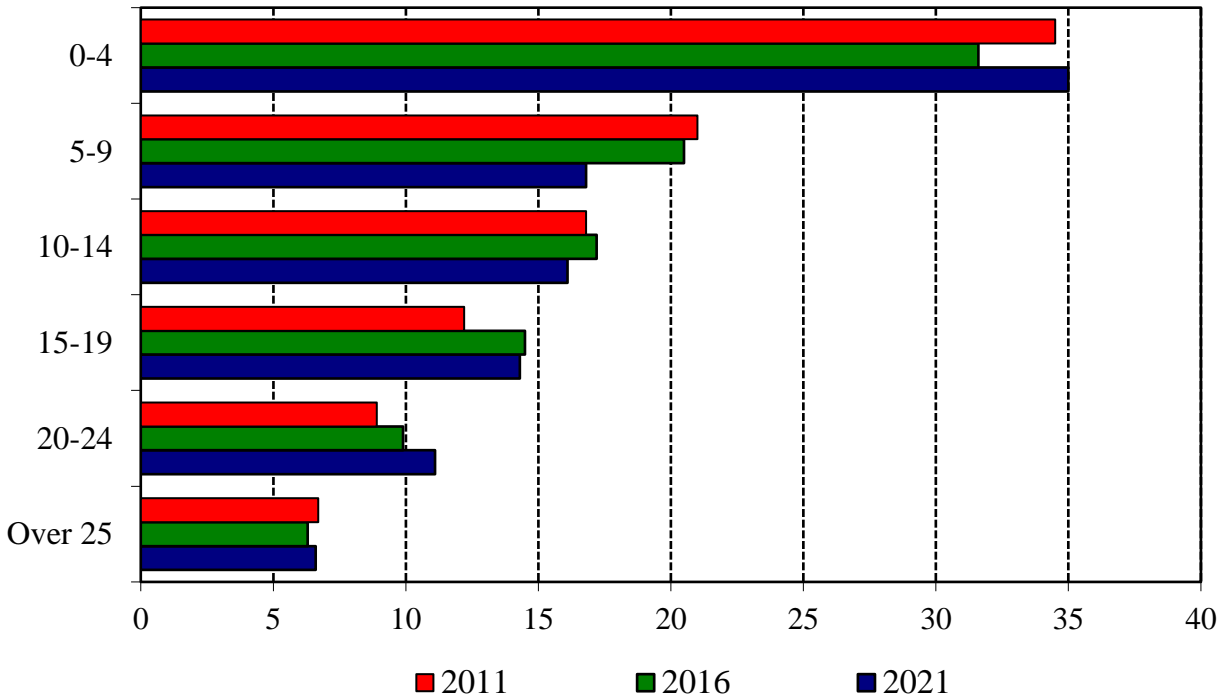


		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total Income (\$Mil)	■	85.9	318.0	439.9	154.8	86.4	382.0	280.9	233.3	205.0	584.8
Benefits and Expenses (\$Mil)	■	120.0	124.2	136.7	148.7	156.6	159.8	163.0	170.8	172.5	179.8
Net Change in MVA (\$Mil)	—	34.1	193.8	303.2	6.1	-70.2	222.2	117.9	62.5	32.5	405.0

Active – Census by Age (as a percent)



Active – Census by Service (as a percent)



Historical Asset Yields

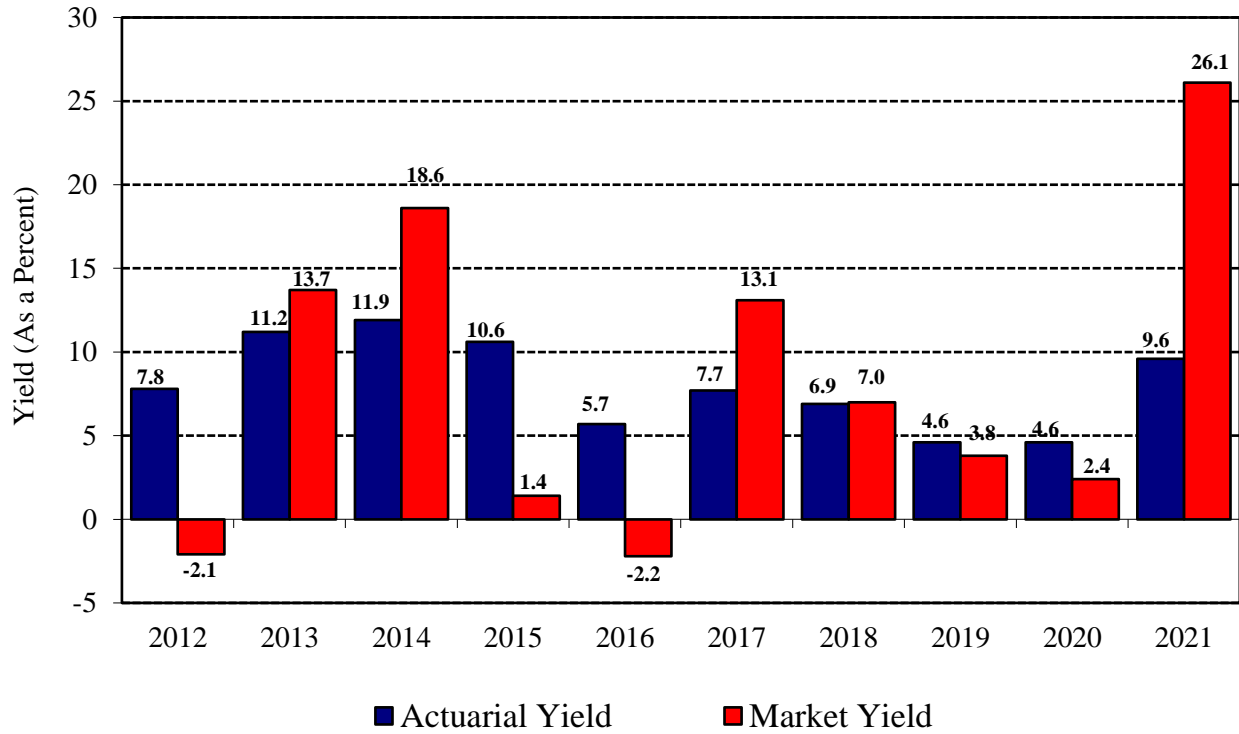


EXHIBIT I
ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS

1. Normal Cost of Retirement Benefits	\$ 42,007,361
2. Normal Cost of Death Benefits	\$ 1,767,508
3. Normal Cost of Disability Benefits	\$ 4,579,384
4. Normal Cost of Deferred Retirement Benefits.....	\$ 4,110,436
5. Normal Cost of Contribution Refunds	\$ 6,069,977
6. TOTAL Normal Cost as of July 1, 2021 (1 + 2 + 3 + 4 + 5)	\$ 58,534,666
7. TOTAL Normal Cost Interest Adjusted for Mid-year Payment	\$ 60,477,953
8. Adjustment to Total Normal Cost for Employee Portion	\$ 29,137,018
9. Employer Normal Cost, Adjusted for Midyear Payment (7 – 8)	\$ 31,340,935
10. Amortization Payments on Unfunded Accrued Liability at Midyear	\$ 85,440,794
11. Projected Administrative Expenses for Fiscal 2022	\$ 2,848,075
12. TOTAL Employer Cost (9 + 10 + 11)	\$ 119,629,804
13. Expected Insurance Premium Taxes due in Fiscal 2022.....	\$ (22,251,594)
14. Net Direct Actuarially Required Employer Contribution for Fiscal 2022 (12 + 13).....	\$ 97,378,210
15. Projected Payroll for Contributing Members (Fiscal 2022)	\$ 304,215,523
16. Net Direct Actuarially Required Employer Contribution as a Percentage of Projected Payroll for Fiscal 2022 (14 ÷ 15)	32.01% *
17. Board Approved Net Direct Employer Contribution Rate for Fiscal 2022.....	29.75% *
18. Projected Fiscal 2022 Contribution Loss (Gain) as a % of Payroll (16 – 17).....	2.26%
19. Projected Fiscal 2022 Employer Contribution Shortfall (Surplus) (15 × 18)	\$ 6,875,271
20. Amortization of Interest Adjusted Fiscal 2022 Employer Contribution Shortfall (Surplus) Based on Midyear Payment in Fiscal 2023	\$ 742,992
21. Estimated Fiscal 2023 Employer Normal Cost Adjusted for Midyear Payment	\$ 32,771,035
22. Estimated Fiscal 2023 Amortization Payments	\$ 85,440,794
23. Estimated Fiscal 2023 Administrative Expenses	\$ 2,948,809
24. Estimated Insurance Premium Taxes due in Fiscal 2023.....	\$ (22,807,884)
25. Estimated Actuarially Required Net Direct Employer Contributions for Fiscal 2023 (20 + 21 + 22 + 23 +24).....	\$ 99,095,746
26. Projected Payroll for Contributing Members (Fiscal 2023)	\$ 318,097,001
27. Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2023 (25 ÷ 26, Rounded to nearest 0.25%).....	31.25% *

* The above rates are for members with earnings greater than the Department of HHS poverty guidelines. For members of the Hazardous Duty Subplan or hired before January 1, 2013, and who have earnings below the poverty guidelines, employer rates will be 2.5% higher and employee rates will be 2.5% lower.

EXHIBIT II
PRESENT VALUE OF FUTURE BENEFITS

PRESENT VALUE OF FUTURE BENEFITS FOR ACTIVE MEMBERS:

Retirement Benefits.....	\$ 1,709,729,914
Survivor Benefits.....	26,031,580
Disability Benefits.....	110,537,369
Vested Termination Benefits.....	74,404,473
Refunds of Contributions	32,879,173

TOTAL Present Value of Future Benefits for Active Members..... \$ 1,953,582,509

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement..	\$ 51,101,228
Terminated Members with Reciprocals	
Due Benefits at Retirement	0
Terminated Members Due a Refund	11,553,068

TOTAL Present Value of Future Benefits for Terminated Members..... \$ 62,654,296

PRESENT VALUE OF FUTURE BENEFITS FOR RETIREES:

Regular Retirees	
Maximum.....	\$ 581,096,562
Option 1	1,138,273
Option 2	700,826,197
Option 3	246,023,824
Option 4	1,116,817
Option 5	0
TOTAL Regular Retirees	\$ 1,530,201,673
Disability Retirees	50,639,021
Survivors	165,692,685
DROP Account Balances Payable to Retirees	94,682,873
IBO Retirees' Account Balance	1,613,038

TOTAL Present Value of Future Benefits for Retirees & Survivors..... \$ 1,842,829,290

TOTAL PRESENT VALUE OF FUTURE BENEFITS..... \$ 3,859,066,095

**EXHIBIT III – SCHEDULE A
MARKET VALUE OF ASSETS**

CURRENT ASSETS:

Cash in Banks	\$ 19,528,588
Contributions and Taxes Receivable.....	10,212,426
Accrued Interest and Dividends	4,451,238
Investments Receivable	1,571,029
Prepaid Expenses	852

TOTAL CURRENT ASSETS..... \$ 35,764,133

Property, Plant & Equipment..... \$ 4,880,784

INVESTMENTS:

Cash Equivalents.....	\$ 30,948,167
Equities	1,576,695,732
Fixed Income	794,028,996
Real Estate	177,718,487
Alternative Investments	173,084,655
Collateral for Securities Lending.....	8,745,814
Other Investments	29,307,321

TOTAL INVESTMENTS..... \$ 2,790,529,172

DEFERRED OUTFLOWS OF RESOURCES..... \$ 622,542

TOTAL ASSETS..... \$ 2,831,796,631

CURRENT LIABILITIES:

Accounts Payable.....	\$ 1,005,506
Benefits Payable.....	66,851
Refunds Payable.....	338,706
Investments Payable.....	1,491,713
Securities Lending Obligations.....	8,745,814
Other Post-Employment Benefits	1,849,074
Net Pension Liability	971,638

TOTAL CURRENT LIABILITIES..... \$ 14,469,302

DEFERRED INFLOWS OF RESOURCES..... \$ 353,602

TOTAL LIABILITIES..... \$ 14,822,904

MARKET VALUE OF ASSETS..... \$ 2,816,973,727

**EXHIBIT III – SCHEDULE B
ACTUARIAL VALUE OF ASSETS**

Excess (Shortfall) of Invested Income
for Current and Previous 4 Years:

Fiscal year 2021	\$ 428,749,410
Fiscal year 2020	(105,286,461)
Fiscal year 2019	(73,652,124)
Fiscal year 2018	(7,361,314)
Fiscal year 2017	<u>102,423,689</u>
Total for five years	\$ 344,873,200

Deferral of Excess (Shortfall) of Invested Income:

Fiscal year 2021 (80%)	\$ 342,999,528
Fiscal year 2020 (60%)	(63,171,877)
Fiscal year 2019 (40%)	(29,460,850)
Fiscal year 2018 (20%)	(1,472,263)
Fiscal year 2017 (0%)	<u>0</u>
Total Deferred for Year	\$ 248,894,538

Market Value of Plan Net Assets, End of Year

\$ 2,816,973,727

Preliminary Actuarial Value of Plan Assets, End of Year

\$ 2,568,079,189

Actuarial Value of Assets Corridor

85% of market value, end of year

\$ 2,394,427,668

115% of market value, end of year

\$ 3,239,519,786

Final Actuarial Value of Plan Net Assets, End of Year

\$ 2,568,079,189

EXHIBIT IV
PRESENT VALUE OF FUTURE CONTRIBUTIONS

Employee Contributions to the Annuity Savings Fund	\$ 241,258,414
Employer Normal Contributions to the Pension Accumulation Fund.....	316,249,052
Employer Amortization Payments to the Pension Accumulation Fund	733,479,440
TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS	\$ 1,290,986,906

EXHIBIT V – SCHEDULE A
ACTUARIAL ACCRUED LIABILITIES

LIABILITY FOR ACTIVE MEMBERS

Accrued Liability for Retirement Benefits.....	\$ 1,310,408,005
Accrued Liability for Survivor Benefits	9,695,032
Accrued Liability for Disability Benefits.....	68,000,885
Accrued Liability for Vested Termination Benefits.....	34,327,087
Accrued Liability for Refunds of Contributions	(26,355,966)

TOTAL Actuarial Accrued Liability for Active Members..... \$ 1,396,075,043

LIABILITY FOR TERMINATED MEMBERS \$ 62,654,296

LIABILITY FOR RETIREES AND SURVIVORS \$ 1,842,829,290

TOTAL ACTUARIAL ACCRUED LIABILITY \$ 3,301,558,629

ACTUARIAL VALUE OF ASSETS \$ 2,568,079,189

UNFUNDED ACTUARIAL ACCRUED LIABILITY \$ 733,479,440

Ratio of Actuarial Value of Assets to Entry Age Normal Accrued Liability 77.78%

EXHIBIT V – SCHEDULE B
CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY

PRIOR YEAR UNFUNDED ACCRUED LIABILITY \$ 768,189,980

Interest on Unfunded Accrued Liability \$ 53,389,203

Liability Assumption Loss..... 67,936,761

Liability Experience Loss 1,258,411

TOTAL Additions to UAL \$ 122,584,375

Asset Experience Gain..... \$ 61,268,465

Contribution Excess with Accrued Interest 6,876,395

Interest Adjusted Amortization Payments 89,150,055

TOTAL Reductions to UAL \$ 157,294,915

NET Change in Unfunded Accrued Liability..... \$ (34,710,540)

CURRENT YEAR UNFUNDED ACCRUED LIABILITY \$ 733,479,440

EXHIBIT V – SCHEDULE C
AMORTIZATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY
JUNE 30, 2021

<u>FISCAL</u> <u>YEAR</u>	<u>DESCRIPTION</u>	<u>AMORT.</u> <u>PERIOD</u>	<u>INITIAL</u> <u>BALANCE</u>	<u>YEARS</u> <u>REMAINING</u>	<u>REMAINING</u> <u>BALANCE</u>	<u>AMORT.</u> <u>PAYMENTS</u>
2014	Cumulative Bases	20	\$801,359,380	13	\$635,965,017	\$70,275,487
2015	Asset Experience Gain	15	\$(52,886,689)	9	\$(38,030,287)	\$(5,410,034)
2015	Liability Experience Gain	15	\$(9,412,440)	9	\$(6,768,391)	\$(962,844)
2015	Contribution Gain	15	\$(6,385,205)	9	\$(4,591,538)	\$(653,173)
2015	Liability Assumption Loss	15	\$91,142,323	9	\$65,539,529	\$9,323,386
2016	Asset Experience Loss	15	\$32,707,657	10	\$25,312,363	\$3,337,121
2016	Liability Experience Gain	15	\$(8,714,512)	10	\$(6,744,137)	\$(889,131)
2016	Contribution Loss	15	\$1,831,833	10	\$1,417,650	\$186,900
2017	Asset Experience Gain	15	\$(4,227,464)	11	\$(3,487,243)	\$(430,233)
2017	Liability Experience Loss	15	\$7,622,189	11	\$6,287,557	\$775,718
2017	Contribution Gain	15	\$(8,105,382)	11	\$(6,686,144)	\$(824,893)
2017	Liability Assumption Loss	15	\$52,448,263	11	\$43,264,667	\$5,337,711
2018	Asset Experience Loss	15	\$7,852,432	12	\$6,853,812	\$797,609
2018	Liability Experience Gain	15	\$(54,697,789)	12	\$(47,741,691)	\$(5,555,916)
2018	Contribution Loss	15	\$5,491,975	12	\$4,793,543	\$557,846
2018	Liability Assumption Loss	15	\$38,696,875	12	\$33,775,665	\$3,930,626
2019	Asset Experience Loss	15	\$58,094,818	13	\$53,321,666	\$5,892,158
2019	Liability Experience Gain	15	\$(788,461)	13	\$(723,680)	\$(79,968)
2019	Contribution Gain	15	\$(8,114,574)	13	\$(7,447,870)	\$(823,005)
2019	Liability Assumption Loss	15	\$24,575,373	13	\$22,556,227	\$2,492,511
2020	Asset Experience Loss	15	\$57,612,260	14	\$55,310,757	\$5,836,083
2020	Liability Experience Gain	15	\$(29,781,524)	14	\$(28,591,808)	\$(3,016,848)
2020	Contribution Loss	15	\$1,457,071	14	\$1,398,863	\$147,600
2020	Liability Assumption Gain	15	\$(75,574,461)	14	\$(72,555,402)	\$(7,655,642)
2021	Asset Experience Gain	15	\$(61,268,465)	15	\$(61,268,465)	\$(6,202,452)
2021	Liability Experience Loss	15	\$1,258,411	15	\$1,258,411	\$127,394
2021	Contribution Gain	15	\$(6,876,395)	15	\$(6,876,395)	\$(696,125)
2021	Liability Assumption Loss	15	\$67,936,761	15	\$67,936,761	\$6,877,510
TOTAL Unfunded Actuarial Accrued Liability					\$733,479,440	*
TOTAL Fiscal 2022 Amortization Payments at Beginning of Year						\$ 82,695,396
TOTAL Fiscal 2022 Amortization Payments Adjusted to Mid-Year						\$85,440,794

* Does not equal sum of remaining balances due to rounding.

EXHIBIT VI
ANALYSIS OF CHANGE IN ASSETS

Actuarial Value of Assets (June 30, 2020)		\$ 2,367,621,208
INCOME:		
Member Contributions	\$ 29,597,518	
Employer Contributions	102,976,834	
Irregular Contributions	232,574	
Insurance Premium Taxes	22,347,331	
Other Income	98,551	
 Total Contributions		 \$ 155,252,808
Net Appreciation of Investments	\$ 562,015,474	
Interest & Dividends	29,108,636	
Other Income	111,365	
Investment Expense	(6,480,405)	
 Net Investment Income		 \$ 584,755,070
 TOTAL Income		 \$ 740,007,878
EXPENSES:		
Retirement Benefits	\$ 157,448,046	
DROP Disbursements	13,240,945	
Refunds of Contributions	4,511,520	
Transfers to Other Systems	2,104,016	
Administrative Expenses (Including Depreciation and OPEB)	2,470,601	
 TOTAL Expenses		 \$ 179,775,128
 Net Market Value Income for Fiscal 2021 (Income – Expenses)		 \$ 560,232,750
 Unadjusted Fund Balance as of June 30, 2021 (Fund Balance Previous Year + Net Income)		 \$ 2,927,853,958
 Adjustment for Actuarial Smoothing		 \$ (359,774,769)
 Actuarial Value of Assets: (June 30, 2021)		 \$ 2,568,079,189

**EXHIBIT VII
CENSUS DATA**

	Active	Terminated with Funds on Deposit	DROP	Retired	Total
Number of members as of June 30, 2020	5,644	2,063	212	4,837	12,756
Additions to Census					
Initial membership	484	109			593
Omitted in error last year					
Death of another member				74	74
Adjustment for multiple records	2				2
Change in Status during Year					
Actives terminating service	(383)	383			
Actives who retired	(113)			113	
Actives entering DROP	(132)		132		
Term. members rehired	77	(77)			
Term. members who retire		(19)		19	
Retirees who are rehired	2			(2)	
Refunded who are rehired	15	5			20
DROP participants retiring			(69)	69	
DROP returned to work	17		(17)		
Eliminated from Census					
Refund of contributions	(187)	(166)			(353)
Deaths	(12)	(22)		(157)	(191)
Included in error last year			(1)	(13)	(14)
Adjustment for multiple records				(2)	(2)
Number of members as of June 30, 2021	5,414	2,276	257	4,938	12,885

ACTIVES CENSUS BY AGE:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
16 - 20	12	4	16	32,070	513,122
21 - 25	328	98	426	37,482	15,967,257
26 - 30	552	211	763	43,510	33,197,962
31 - 35	602	195	797	48,329	38,518,336
36 - 40	666	210	876	54,178	47,460,025
41 - 45	619	224	843	59,558	50,207,388
46 - 50	620	174	794	63,002	50,023,580
51 - 55	446	121	567	64,527	36,587,089
56 - 60	169	58	227	64,557	14,654,500
61 - 65	48	25	73	61,758	4,508,334
66 - 70	13	8	21	67,117	1,409,448
71 - 75	5	3	8	87,004	696,031
76 - 80	2	0	2	55,203	110,405
91 - 95	1	0	1	96,379	96,379
TOTAL	4,083	1,331	5,414	54,294	293,949,856

THE ACTIVE CENSUS INCLUDES 2,326 ACTIVES WITH VESTED BENEFITS, INCLUDING 98 ACTIVE FORMER DROP PARTICIPANTS. THE 257 CURRENT DROP PARTICIPANTS ARE EXCLUDED.

DROP PARTICIPANTS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
46 - 50	13	4	17	65,884	1,120,027
51 - 55	95	14	109	69,327	7,556,593
56 - 60	67	18	85	53,583	4,554,518
61 - 65	28	9	37	49,134	1,817,969
66 - 70	7	2	9	47,509	427,579
TOTAL	210	47	257	60,221	15,476,686

TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
31 - 35	3	1	4	22,727	90,908
36 - 40	28	9	37	24,724	914,773
41 - 45	56	5	61	26,505	1,616,811
46 - 50	63	18	81	30,439	2,465,539
51 - 55	46	7	53	25,913	1,373,411
TOTAL	196	40	236	27,379	6,461,442

TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

Contributions Ranging From To	Number	Total Contributions
0 - 99	244	10,908
100 - 499	450	118,073
500 - 999	251	179,880
1,000 - 1,999	230	332,632
2,000 - 4,999	281	916,822
5,000 - 9,999	202	1,453,658
10,000 - 19,999	210	2,972,553
20,000 - 99,999	172	5,168,861
TOTAL	2,040	11,153,387

Excludes \$399.681 due to survivors of several deceased members.

REGULAR RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
41 - 45	1	1	2	30,300	60,599
46 - 50	44	7	51	46,601	2,376,637
51 - 55	232	35	267	50,755	13,551,547
56 - 60	474	93	567	48,995	27,780,368
61 - 65	568	143	711	45,027	32,014,242
66 - 70	609	122	731	37,619	27,499,571
71 - 75	570	77	647	31,720	20,522,641
76 - 80	340	39	379	26,074	9,882,010
81 - 85	149	14	163	25,697	4,188,600
86 - 90	53	4	57	24,942	1,421,714
91 - 99	19	2	21	21,050	442,044
TOTAL	3,059	537	3,596	38,860	139,739,973

DISABILITY RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
31 - 35	1	0	1	9,516	9,516
36 - 40	4	3	7	21,542	150,796
41 - 45	8	7	15	21,793	326,901
46 - 50	15	11	26	20,068	521,762
51 - 55	30	8	38	19,741	750,159
56 - 60	22	13	35	19,166	670,797
61 - 65	30	4	34	17,160	583,443
66 - 70	26	10	36	15,483	557,405
71 - 75	21	7	28	14,598	408,748
76 - 80	12	3	15	14,607	219,111
81 - 85	3	0	3	12,276	36,829
86 - 90	1	0	1	12,018	12,018
91 - 99	1	0	1	10,088	10,088
TOTAL	174	66	240	17,740	4,257,573

SURVIVORS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
0 - 25	42	56	98	7,099	695,671
26 - 30	0	1	1	16,604	16,604
31 - 35	1	5	6	25,446	152,675
36 - 40	1	4	5	28,391	141,956
41 - 45	1	19	20	26,308	526,157
46 - 50	1	21	22	23,424	515,318
51 - 55	5	45	50	22,735	1,136,734
56 - 60	4	70	74	25,511	1,887,827
61 - 65	8	70	78	24,756	1,930,978
66 - 70	18	118	136	18,442	2,508,130
71 - 75	16	157	173	18,092	3,129,949
76 - 80	12	160	172	15,054	2,589,276
81 - 85	4	123	127	14,653	1,860,922
86 - 90	4	87	91	11,573	1,053,105
91 - 99	4	45	49	12,900	632,083
TOTAL	121	981	1,102	17,039	18,777,385

ACTIVE MEMBERS:

Attained Ages	Completed Years of Service											Total		
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over			
0 - 20	14	1												16
21 - 25	189	114	78	29	12	4								426
26 - 30	113	118	158	126	87	158	3							763
31 - 35	78	64	71	81	52	313	133	5						797
36 - 40	55	35	47	44	53	193	311	137	1					876
41 - 45	37	28	27	20	26	106	194	295	110					843
46 - 50	25	16	18	20	15	73	112	178	279				1	794
51 - 55	3	11	6	7	12	47	82	103	141				24	567
56 - 60		2	2			12	28	39	50				35	227
61 - 65			1	1		3	7	18	16				16	73
66 - 70						1			4				6	21
71 & Over									1				1	11
Totals	514	389	409	328	257	910	870	776	602	265	94			5,414

AVERAGE ANNUAL SALARY OF ACTIVE MEMBERS:

Attained Ages	Completed Years of Service											Average Salary		
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over			
0 - 20	31,722	28,309	40,712	42,693	40,624	43,085								32,070
21 - 25	33,765	37,361	43,955	45,419	46,480	48,814	42,481							37,482
26 - 30	35,064	39,898	43,805	45,649	50,192	52,169	55,508							43,510
31 - 35	33,777	39,772	43,656	44,031	47,235	52,380	59,758	43,907						48,329
36 - 40	35,289	38,912	43,563	45,036	44,962	52,989	57,954	65,114	54,308					54,178
41 - 45	33,423	39,367	40,843	45,036	44,962	52,989	57,954	67,554	71,888					59,558
46 - 50	38,182	37,440	45,303	45,755	43,781	48,597	56,287	63,778	73,166					63,002
51 - 55	42,950	39,984	43,631	53,036	54,125	46,263	56,168	60,683	67,929					64,527
56 - 60		42,355	67,376	71,000		42,284	51,402	56,070	63,567					64,557
61 - 65			69,532			37,376	47,755	50,585	68,393					61,758
66 - 70						64,745		43,720	54,860					67,117
71 & Over									47,052					82,074
Average	34,404	38,891	43,818	45,287	47,159	50,930	57,496	64,191	70,585	76,172	78,557			54,294

TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Attained Ages	Years Until Retirement Eligibility											Total	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over		
0 - 30													0
31 - 35									4				4
36 - 40						1		36					37
41 - 45						4	57						61
46 - 50	5	2	4	2	2	66							81
51 - 55	10	7	8	13	15								53
56 & Over													0
Totals	15	9	12	15	17	71	57	36	4	0	0	0	236

AVERAGE ANNUAL BENEFITS OF TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Attained Ages	Years Until Retirement Eligibility											Average Benefit	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over		
0 - 30													0
31 - 35									22,727				22,727
36 - 40						51,176		23,989					24,724
41 - 45						37,846	25,709						26,505
46 - 50	51,225	68,375	45,568	45,935	56,283	25,545							30,439
51 - 55	33,482	22,899	27,409	24,846	22,402								25,913
56 & Over													0
Average	39,396	33,005	33,462	27,658	26,388	26,599	25,709	23,989	22,727	0	0	0	27,379

SERVICE RETIREES:

Attained Ages	Completed Years Since Retirement											Total			
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over				
0 - 50	21	11	7	8	4	2									53
51 - 55	68	51	34	29	30	52	3								267
56 - 60	71	59	49	53	53	216	62	4							567
61 - 65	24	28	29	25	33	276	210	81	5						711
66 - 70	9	7	12	20	8	143	220	239	67	5					731
71 - 75	2	4	4	3	3	47	100	183	213	75	13				647
76 - 80					1	8	26	44	104	147	49				379
81 - 85						1	2	15	14	32	99				163
86 - 90							2		4	9	42				57
91 & Over							2		3	18					21
Totals	195	160	135	138	132	745	625	566	410	268	222				3,596

AVERAGE ANNUAL BENEFITS PAYABLE TO SERVICE RETIREES:

Attained Ages	Completed Years Since Retirement											Average Benefit			
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over				
0 - 50	48,270	44,358	55,122	42,052	42,178	22,328									45,986
51 - 55	54,717	53,203	56,512	47,282	48,412	44,467	20,064								50,755
56 - 60	47,337	49,619	44,176	55,280	48,049	51,561	42,111	25,705							48,995
61 - 65	51,210	44,121	44,689	52,904	44,389	48,965	42,028	37,563	16,737						45,027
66 - 70	45,138	38,474	37,945	41,149	38,403	46,233	36,592	35,942	28,365	13,531	18,747				37,619
71 - 75	69,350	31,446	40,110	31,206	55,621	40,071	37,681	30,024	29,414	28,795	20,516				31,720
76 - 80					49,741	36,133	28,955	28,792	23,693	28,763	16,964				26,074
81 - 85						22,087	23,624	26,831	20,869	32,247	24,169				25,697
86 - 90							64,178		18,721	25,817	23,479				24,942
91 & Over									29,889	19,577					21,050
Average	50,612	48,496	47,286	49,831	46,639	48,073	38,790	33,391	27,244	28,805	21,838				38,860

DISABILITY RETIREES:

Completed Years Since Retirement

Attained Ages	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 30												0
31 - 35			1									1
36 - 40	1		1	2	1	1	1					7
41 - 45		1	1	1	2	5	5					15
46 - 50		2	1	1	2	6	9	4	1			26
51 - 55	1		2		4	10	9	6	6			38
56 - 60				2	3	7	6	5	9	3	2	35
61 - 65						3	4	8	12	2	5	34
66 - 70							2	5	5	13	11	36
71 - 75							1	3	2	9	13	28
76 - 80									1	2	12	15
81 - 85											3	3
86 - 90											1	1
91 & Over											1	1
Totals	2	3	6	4	12	32	37	31	36	29	48	240

AVERAGE ANNUAL BENEFITS PAYABLE TO DISABILITY RETIREES:

Completed Years Since Retirement

Attained Ages	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 30												0
31 - 35			9,516									9,516
36 - 40	25,737		24,891	22,683	18,611	20,307	15,885					21,542
41 - 45		17,873	35,126	28,893	18,202	19,801	21,920					21,793
46 - 50		20,657	30,662	28,930	25,528	25,000	17,308	13,342	10,660			20,068
51 - 55	18,146		25,365		27,702	24,459	19,022	14,072	11,711			19,741
56 - 60					19,334	22,408	36,662	13,043	11,565	15,526	10,043	19,166
61 - 65						19,351	24,498	20,439	15,053	20,008	8,647	17,160
66 - 70							11,703	21,086	18,816	15,481	12,112	15,483
71 - 75							13,555	10,504	15,585	18,444	12,809	14,598
76 - 80									12,647	9,790	15,574	14,607
81 - 85											12,276	12,276
86 - 90											12,018	12,018
91 & Over											10,088	10,088
Average	21,942	19,729	25,154	25,797	22,907	22,775	21,821	16,241	13,987	16,325	12,685	17,740

SURVIVING BENEFICIARIES OF FORMER MEMBERS:

COMPLETED YEARS SINCE RETIREMENT

ATTAINED AGES	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&OVER	TOTAL
0 - 20	3	5	6	11	10	20	13	3				71
21 - 25				1	1	5	12	5	2		1	27
26 - 30		1										1
31 - 35	1		1	1	2	1		2				6
36 - 40	1		1	1	1							5
41 - 45	1	1		3	2	5	5	1		1	2	20
46 - 50	2	1	2	3	1	3	5	3	3	5	1	22
51 - 55	6	2	2	2	1	5	9	9	7	14	4	50
56 - 60	7		2		1	10	14	9	11	14	7	74
61 - 65	6		1		3	9	13	14	10	11	10	78
66 - 70	12	1				4	16	23	27	21	32	136
71 - 75	16					2	15	20	41	38	41	173
76 - 80	6			1		4	1	6	22	42	90	172
81 - 85	5					1	2	3	6	10	100	127
86 - 90	3					1	1		5	2	79	91
91 & OVER										1	48	49
TOTALS	69	11	12	21	21	70	106	98	134	145	415	1,102

AVERAGE ANNUAL BENEFITS PAYABLE TO SURVIVORS OF FORMER MEMBERS:

COMPLETED YEARS SINCE RETIREMENT

ATTAINED AGES	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&OVER	AVERAGE BENEFIT
0 - 20	5,832	6,804	6,322	6,522	6,889	7,204	5,757	3,975				6,492
21 - 25				18,375	6,139	17,305	6,406	6,714	5,320		2,640	8,695
26 - 30		16,604	35,248									16,604
31 - 35	11,456			35,405	26,633	17,301		11,217				25,446
36 - 40	31,397			41,095	47,031							28,391
41 - 45	23,729	33,296		38,599	31,754	26,990	21,833	27,184			9,265	26,308
46 - 50	28,445	52,765	30,732	32,007	36,835	25,291	27,645	15,182	12,784	5,537	3,833	23,424
51 - 55	27,738	74,894			24,745	39,332	26,889	13,616	9,101	10,671	13,374	22,735
56 - 60	39,687		62,454			34,399	36,736	24,224	14,964	11,222	12,442	25,511
61 - 65	22,477		52,021	59,382	38,177	39,723	31,378	24,862	18,467	15,857	9,760	24,756
66 - 70	18,311					20,314	23,995	22,136	20,325	16,589	12,059	18,442
71 - 75	19,131					43,563	24,014	19,362	19,921	17,656	12,234	18,092
76 - 80	22,601			5,185		26,219	36,701	13,992	15,546	19,052	12,009	15,054
81 - 85	17,929					23,517	27,588	21,238	14,543	22,129	13,203	14,653
86 - 90	7,639					36,139	62,379		20,416	12,795	10,177	11,573
91 & OVER										28,854	12,567	12,900
AVERAGE	21,653	28,864	25,964	19,571	19,759	24,140	23,224	19,116	17,604	17,142	11,949	17,039

**EXHIBIT VIII
YEAR-TO-YEAR COMPARISON**

	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018
Number of Active Members	5,414	5,644	5,729	5,685
Number of Retirees & Survivors	4,938	4,837	4,770	4,736
DROP Participants	257	212	203	180
Number of Terminated Due Deferred Benefits	236	221	201	187
Number Terminated Due Refunds	2,040	1,842	1,670	1,563
Active Lives Payroll (excludes DROP participants)	\$ 293,949,856	\$ 302,984,686	\$ 305,445,379	\$ 294,988,865
Retiree Benefits in Payment	\$ 162,774,931	\$ 154,963,239	\$ 148,972,071	\$ 144,162,327
Market Value of Assets	\$ 2,816,973,727	\$ 2,256,740,977	\$ 2,224,281,981	\$ 2,161,775,206
Ratio of Actuarial Value of Assets to Actuarial Accrued Liability	77.78%	75.50%	72.89%	73.23%
Actuarial Accrued Liability (EAN)	\$ 3,301,558,629	\$ 3,135,811,188	\$ 3,132,449,454	\$ 3,007,181,318
Actuarial Value of Assets	\$ 2,568,079,189	\$ 2,367,621,208	\$ 2,283,284,109	\$ 2,202,302,093
UAL (Funding Excess)	\$ 733,479,440	\$ 768,189,980	\$ 849,165,345	\$ 804,879,225

	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2019
Employee Contribution Rate:				
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	10.00% †	10.00% †	10.00% †	10.00% †
For Employees in the Non-Hazardous Subplan:	8.00%	8.00%	8.00%	8.00%
Required Tax Contributions as a Percentage of	7.31%	7.14%	7.14%	6.97%
Actuarially Required Employer Contribution Rate:				
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	32.01% †	30.86% †	33.69% †	32.55% †
For Employees in the Non-Hazardous Subplan:	32.01%	30.86%	33.69%	32.55%
Actual Employer Contribution Rate				
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	29.75% †	33.75% †	32.50% †	32.25% †
For Employees in the Non-Hazardous Subplan:	29.75%	33.75%	32.50%	32.25%

† For members with earnings greater than the Department of HHS poverty guidelines. For members with earnings below the poverty guidelines, employer rates will be 2.5% higher and employee rates will be 2.5% lower.

Fiscal 2017	Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012
5,663	5,666	5,535	5,468	5,602	5,779
4,691	4,637	4,538	4,444	4,340	4,230
193	191	228	271	314	284
181	175	168	159	145	130
1,443	1,324	1,320	1,272	1,252	1,176
\$ 293,792,282	\$ 281,546,022	\$ 265,089,428	\$ 259,594,435	\$ 264,711,491	\$ 272,606,934
\$ 139,782,252	\$ 134,868,070	\$ 128,050,009	\$ 118,522,277	\$ 110,735,234	\$ 104,998,503
\$ 2,045,022,309	\$ 1,822,858,397	\$ 1,893,077,295	\$ 1,887,019,463	\$ 1,600,532,779	\$ 1,406,662,003
71.39%	70.64%	69.91%	68.11%	64.15%	59.75%
\$ 2,918,064,612	\$ 2,760,140,132	\$ 2,676,472,766	\$ 2,512,627,665	\$ 2,399,375,820	\$ 2,313,751,839
\$ 2,083,240,809	\$ 1,949,755,816	\$ 1,871,160,542	\$ 1,711,268,285	\$ 1,539,218,085	\$ 1,382,503,860
\$ 834,823,803	\$ 810,384,316	\$ 805,312,224	\$ 801,359,380	\$ 860,157,735	\$ 931,247,979
Fiscal 2018	Fiscal 2017	Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013
10.00% †	10.00% †	10.00% †	10.00% †	10.00%	10.00%
8.00%	8.00%	8.00%	8.00%	N/A	N/A
6.69%	6.71%	6.93%	6.77%	6.19%	5.75%
32.22% †	31.14% †	31.63% †	29.80% †	31.53%	31.03%
32.22%	31.14%	33.63%	31.80%	N/A	N/A
30.75% †	31.75% †	29.50% †	31.50% †	31.00%	31.00%
30.75%	33.75%	31.50%	33.50%	N/A	N/A

* COLA not included

SUMMARY OF PRINCIPAL PLAN PROVISIONS

The Municipal Police Employees' Retirement System (MPERS) was established as of July 1, 1973, for the purpose of providing retirement allowances and other benefits as described under R.S. 11:2211 – 11:2235. MPERS represents a cost sharing multiple employer, defined benefit governmental pension plan.

The following summary of plan provisions is for general informational purposes only and does not constitute a guarantee of benefits. The provisions contained within this section are as of June 30, 2020.

MEMBERSHIP – All full-time police officers empowered to make arrests, all full-time police officers decommissioned due to illness or injury, empowered by a municipality of the state of Louisiana, and engaged in law enforcement, all individuals in a position as defined in the municipal fire and police civil service system who are employed on a full-time basis by a police department of any municipality of this state, and are under the direction of a chief of police, and are paid from the budget of the applicable police department are required to become members of this retirement system, if they earn at least \$375 per month excluding state supplemental pay. All elected chiefs of police, whose salary is at least \$100 per month, all academy recruits who are participating in or awaiting participation in a formal training program, required prior to commission as a municipal police officer, with complete law enforcement office authority, all full-time secretaries to an appointed chief or elected chief of police, and all full-time employees of the system are required to become members of this retirement system. Persons must be under the age of fifty on their date of employment to be eligible for system membership. Certain restrictions to membership apply to those who are receiving disability or regular retirement benefits from another system.

For employees whose first employment making them eligible for membership in the system occurred on or after January 1, 2013, membership will be in the Hazardous Duty Subplan if they are eligible to receive state supplemental pay by virtue of their employment or the Nonhazardous Duty Subplan if they are not eligible for state supplemental pay.

CONTRIBUTION RATES – The fund is financed by employee and employer contributions together with funds from dedicated insurance premium taxes as allocated by the Public Retirement Systems' Actuarial Committee in accordance with R.S. 11:62, R.S. 11:103, and R.S. 22:1476A(3). For employees hired prior to January 1, 2013, the employee contribution rate is at least 7.5% but not greater than 10% based on the total contribution expressed as a percentage of payroll after applying all required tax contributions. The employee rate, when such contributions total 25% or less, is set at 7.5%. The employee rate then increases 0.25% for each 0.75% increase in the total rate, and an additional 0.25% when the rate exceeds 28.75%, subject to a maximum rate of 10%. Regardless of the total contribution rate, members whose earnable compensation is less than or equal to the poverty guidelines issued by the U.S. Department of Health and Human Services have an employee contribution rate of 7.5%. Where members qualify for discounted employee contributions due to the poverty guidelines, the employer must make up the difference through an increased employer contribution rate. Net direct employer contributions are nine percent (9.0%) of earnable compensation unless the funds allocated from dedicated taxes are insufficient to provide the actuarially required contributions or the actuarially required contributions are less than 9.0%. Members who accrue 100% of average final compensation prior to July 1, 2021 are not required to contribute to the system once they have enough service to have accrued 100% of average final compensation, but the employer is required to continue to contribute the employer's contribution until the member retires. For members

who enter DROP prior to July 1, 2021, no employer contributions are required while the members participate in DROP.

For employees hired on or after January 1, 2013 who are members of the Hazardous Duty Subplan, the employee contribution rate is the same as that for employees hired before January 1, 2013. For employees hired on or after January 1, 2013 who are members of the Nonhazardous Duty Subplan, the employee contribution rate is 8%.

CONTRIBUTION REFUNDS – Upon withdrawal from service, members not entitled to a retirement allowance may receive a refund of accumulated contributions. Refunds are payable thirty days after the effective date of withdrawal from service, if the member's employer has submitted all contributions.

AVERAGE FINAL COMPENSATION –

For employees hired prior to January 1, 2013: The average annual earned compensation of an employee for the highest period of thirty-six successive or joined months of service as an employee.

For employees hired on or after January 1, 2013: The average annual earned compensation of an employee for the highest period of sixty successive or joined months of service as an employee.

The twelve-month salaries used to compute the average final compensation are subject to a limit in the rate of increase of 15% per year with certain exceptions.

NORMAL RETIREMENT BENEFITS –

For employees hired prior to January 1, 2013: 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. 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.

For employees hired on or after January 1, 2013 who participate in the Hazardous Duty Subplan: Members with twelve years of creditable service may retire at age fifty-five; members with twenty-five years of service may retire at any age. The retirement allowance is equal to three 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. Members in this subplan who retire with thirty or more years of creditable service receive benefits according to a three and one-third percent retirement allowance.

For employees hired on or after January 1, 2013 who participate in the Nonhazardous Duty Subplan: Members with ten years of creditable service may retire at age sixty; members with twenty-five years of creditable service may retire at age fifty-five; members with thirty years of service may retire at any age. The retirement allowance is equal to two and one-half 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.

EARLY RETIREMENT –

For employees hired prior to January 1, 2013: Members with twenty or more years of creditable service who leave employment before age fifty may elect to receive early retirement benefits equal to an actuarially reduced accrued normal retirement benefit.

For employees hired on or after January 1, 2013: Members with twenty or more years of creditable service may elect to receive early retirement benefits equal to an actuarially reduced accrued normal retirement benefit.

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 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 ten years of creditable service and provided that the disability was incurred while the member was an active contributing member, is entitled to disability benefits.

For employees hired prior to January 1, 2013: Disability retirees will receive a benefit equal to three percent of average final compensation multiplied by the number of years of service, subject to a minimum of 40% of final compensation and a maximum of 60% of final compensation. Any disability retiree who is in a coma or paraplegic, who suffers a traumatic physical injury causing damage to the brain or spinal cord, or who is blinded or loses the total use of a limb, solely as a result of injuries

sustained in the line of duty will receive a benefit equal to 100% of average final compensation. Disability retirees who retired with a service-connected disability benefit have the option, at normal retirement age, to continue receiving a disability benefit or to convert to receiving their vested retirement benefit. All other disability retirees, at normal retirement age, will receive the greater of their disability retirement benefit or their vested benefit.

For employees hired on or after January 1, 2013 who participate in the Hazardous Duty Subplan: Disability retirees who are disabled in the line of duty or who have 10 years of service credit will receive a benefit equal to two and three-quarters percent of average final compensation multiplied by the number of years of service, subject to a minimum of 33% of final compensation and a maximum of 55% of final compensation. Any disability retiree who is in a coma or paraplegic, who suffers a traumatic physical injury causing damage to the brain or spinal cord, or who is blinded or loses the total use of a limb, solely as a result of injuries sustained in the line of duty will receive a benefit equal to 100% of average final compensation. Disability retirees who retired with a service-connected disability benefit have the option, at normal retirement age, to continue receiving a disability benefit or to convert to receiving their vested retirement benefit. All other disability retirees, at normal retirement age, will receive the greater of their disability retirement benefit or their vested benefit.

For employees hired on or after January 1, 2013 who participate in the Nonhazardous Duty Subplan: Disability retirees who have at least 10 years of service credit will receive a benefit equal to two and one-quarter percent of average final compensation multiplied by the number of years of service, subject to a minimum of 25% of final compensation and a maximum of 50% of final compensation. Any disability retiree who is in a coma or paraplegic, who suffers a traumatic physical injury causing damage to the brain or spinal cord, or who is blinded or loses the total use of a limb, solely as a result of injuries sustained in the line of duty will receive a benefit equal to 100% of average final compensation. At normal retirement age, disability retirees will receive the greater of their disability retirement benefit or their vested benefit.

SURVIVOR BENEFITS – Benefits are payable to survivors of any active contributing member who dies before retirement, or disability retirees who die after retirement as follows.

For employees hired prior to January 1, 2013: If he leaves a surviving spouse, she will receive an annual benefit equal to 3 1/3% 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. If the surviving spouse remarries, the benefits shall cease unless the remarriage occurs after age fifty-five. If the member dies as a result of injuries sustained in the line of duty, the surviving spouse receives a benefit equal to 100% of average final compensation, which shall not cease due to remarriage, less any benefits payable to surviving children. Unmarried 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 when combined with the surviving spouse's benefit) until reaching the age of eighteen, or until the age of twenty-three, assuming they remain unmarried, if enrolled full-time in an institution of higher learning, high school, or vocational-technical school, 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, subject to the same age restrictions as in the case of a surviving spouse with minor children. If a member dies after he is eligible for retirement but before

actual retirement, his surviving spouse will be paid the greater of the surviving spouse benefits detailed above, or an automatic option 2 benefit. Members who have terminated employment with at least twelve years of service credit are eligible for the benefits detailed in this paragraph.

For employees hired on or after January 1, 2013 who participate in the Hazardous Duty Subplan: The surviving spouse of a deceased active contributing member or disability retiree with at least ten years of creditable service not killed in the line of duty will receive an annual benefit equal to the benefit calculated using the regular retirement formula; however, in no event is the annual benefit less than 33% nor more than 55% of the deceased member's average final compensation. If the surviving spouse remarries, the benefits shall cease unless the remarriage occurs after age sixty. If the member dies as a result of injuries sustained in the line of duty, the surviving spouse receives a benefit equal to 100% of average final compensation, which shall not cease due to remarriage, less any benefits payable to surviving children. Unmarried 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 when combined with the surviving spouse's benefit) until reaching the age of eighteen, or until the age of twenty-three, assuming they remain unmarried, if enrolled full-time in an institution of higher learning, high school, or vocational-technical school, 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 twenty-five percent of the deceased's average final compensation, not to exceed an aggregate of fifty percent of average final compensation, subject to the same age restrictions as in the case of a surviving spouse with minor children. If a member dies after he is eligible for retirement but before actual retirement, his surviving spouse will be paid the greater of the surviving spouse benefits detailed above, or an automatic option 2 benefit. Members who have terminated employment with at least twelve years of service credit are eligible for the benefits detailed in this paragraph.

For employees hired on or after January 1, 2013 who participate in the Nonhazardous Duty Subplan: The surviving spouse of a deceased active contributing member or disability retiree with at least ten years of creditable service not killed in the line of duty will receive an annual benefit equal to the benefit calculated using the regular retirement formula; however, in no event is the annual benefit less than 25% nor more than 50% of the deceased member's average final compensation. If the surviving spouse remarries, the benefits shall cease unless the remarriage occurs after age sixty. If the member dies as a result of injuries sustained in the line of duty, the surviving spouse receives a benefit equal to 100% of average final compensation, which shall not cease due to remarriage, less any benefits payable to surviving children. Unmarried 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 when combined with the surviving spouse's benefit) until reaching the age of eighteen, or until the age of twenty-three, assuming they remain unmarried, if enrolled full-time in an institution of higher learning, high school, or vocational-technical school, 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 twenty percent (twenty-five percent in the case of one minor child) of the deceased's average final compensation, not to exceed an aggregate of fifty percent of average final compensation, subject to the same age restrictions as in the case of a surviving spouse with minor children. If a member dies after he is eligible for retirement but before actual retirement, his surviving spouse will be paid the greater of the surviving spouse benefits detailed above, or an automatic option 2 benefit. Members who have terminated employment with at least twelve years of service credit are eligible for the benefits detailed in this paragraph.

DEFERRED RETIREMENT OPTION PLAN – In lieu of terminating employment and accepting a service retirement allowance, any member of the system who is eligible to receive a regular 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. Such members may accumulate an additional benefit for service rendered after completion of the Deferred Retirement Option Plan. 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 – Pursuant to R.S. 11:2225, the Board of Trustees is authorized to use interest earnings in excess of the normal requirements to grant annual cost of living increases of 3% of each retiree's original or 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 lieu of the prior provisions, 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.

All of the above provisions require that the system earn sufficient excess interest earnings to fund the increases and to meet certain other criteria detailed in the statutes related to funding status.

R. S. 11:2225(A)(7)(c) and (d) provide that the Board of Trustees is authorized to provide a one-time cost of living adjustment of 3% of each retiree's normal monthly benefit (not to be less than \$20 per month) from excess interest earnings without regard to the provisions of R.S. 11:242 (which describes the target ratio).

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:	 Individual Entry Age Normal With Allocation of Cost Based on Earnings. Entry and Attained Ages Calculated on an Age Near Birthday Basis.
 VALUATION INTEREST RATE:	 6.75% (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 115% for males and 125% 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 115% for males and 125% 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. The gross rates including inflation and merit increases are as follows:

<u>Years of Service</u>	<u>Salary Growth Rate</u>
1-2	12.30%
3 & Over	4.70%

RETIREMENT RATES: The table of these rates through age 75 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: A table of these rates is included later in the report. These rates apply only to those individuals eligible to enter DROP.

DROP PARTICIPATION PERIOD: All DROP participants are assumed to participate for 3 years and 70% are assumed to retire at the end of this participation period with 30% 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: 110% 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.

SERVICE-RELATED DISABILITY: 20% of Total Disabilities

DISABLED LIVES MORTALITY: Pub-2010 Public Retirement Plans Mortality Table for Safety Disabled Retirees multiplied by 115% for males and 125% for females, each with full generational projection using the MP2019 scale.

SERVICE-RELATED DEATH: 20% of Total Deaths

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

<u>Service Duration ≤</u>	<u>Factor</u>	<u>Service Duration ≤</u>	<u>Factor</u>
1	0.17	13	0.04
2	0.14	14	0.03
3	0.13	15	0.03
4	0.12	16	0.03
5	0.11	17	0.03
6	0.09	18	0.02
7	0.08	19	0.02
8	0.07	20	0.02
9	0.05	21	0.02
10	0.04	22	0.02
11	0.04	23	0.02
12	0.04	24 & Over	0.01

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.

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:

<u>Member's Age</u>	<u>% With Children</u>	<u>Number of Children</u>	<u>Average Age</u>
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

VESTING ELECTING PERCENTAGE: 70% of vested participants with not more than 20 years of service and 90% of vested participants with more than 20 years of service elect deferred benefits in lieu of contribution refunds.

ACTUARIAL TABLES AND RATES

Age	Disability Rates	Retirement Rates	DROP Entry Rates	Post-DROP Retirement Rates	Remarriage Rates
18	0.00132	0.00000	0.00000	0.00000	0.06124
19	0.00132	0.00000	0.00000	0.00000	0.06124
20	0.00132	0.00000	0.00000	0.00000	0.06124
21	0.00132	0.00000	0.00000	0.00000	0.05818
22	0.00132	0.00000	0.00000	0.00000	0.05524
23	0.00132	0.00000	0.00000	0.00000	0.05242
24	0.00132	0.00000	0.00000	0.00000	0.04971
25	0.00132	0.00000	0.00000	0.00000	0.04566
26	0.00132	0.00000	0.00000	0.00000	0.04335
27	0.00132	0.00000	0.00000	0.00000	0.04114
28	0.00132	0.00000	0.00000	0.00000	0.03902
29	0.00132	0.00000	0.00000	0.00000	0.03698
30	0.00132	0.00000	0.00000	0.00000	0.03502
31	0.00132	0.00000	0.00000	0.00000	0.03314
32	0.00132	0.00000	0.00000	0.00000	0.03134
33	0.00132	0.00000	0.00000	0.00000	0.02961
34	0.00132	0.00000	0.00000	0.00000	0.02795
35	0.00143	0.00000	0.00000	0.00000	0.02636
36	0.00143	0.00000	0.00000	0.00000	0.02483
37	0.00143	0.00000	0.00000	0.00000	0.02336
38	0.00154	0.00000	0.00000	0.00000	0.02195
39	0.00165	0.00000	0.00000	0.00000	0.02060
40	0.00176	0.00000	0.00000	0.00000	0.01930
41	0.00187	0.22000	0.02000	0.00000	0.01805
42	0.00198	0.22000	0.02000	0.00000	0.01686
43	0.00220	0.22000	0.02000	0.00000	0.01571
44	0.00231	0.18000	0.08000	0.32000	0.01461
45	0.00264	0.14000	0.11000	0.32000	0.01355
46	0.00286	0.12000	0.13000	0.32000	0.01253
47	0.00319	0.10000	0.14000	0.32000	0.01156
48	0.00363	0.09000	0.14000	0.32000	0.01063
49	0.00418	0.07000	0.14000	0.32000	0.00973
50	0.00473	0.07000	0.13000	0.31000	0.00887
51	0.00539	0.06000	0.14000	0.30000	0.00804
52	0.00627	0.06000	0.14000	0.29000	0.00725
53	0.00726	0.06000	0.15000	0.27000	0.00649
54	0.00847	0.06000	0.15000	0.26000	0.00576
55	0.00990	0.06000	0.15000	0.26000	0.00500
56	0.01166	0.06000	0.15000	0.25000	0.00425
57	0.01375	0.06000	0.15000	0.25000	0.00350
58	0.01628	0.06000	0.15000	0.26000	0.00275
59	0.01925	0.06000	0.15000	0.26000	0.00200
60	0.02629	0.07000	0.16000	0.26000	0.00125
61	0.03201	0.07000	0.16000	0.25000	0.00050
62	0.03542	0.09000	0.17000	0.24000	0.00000
63	0.03718	0.10000	0.18000	0.23000	0.00000
64	0.02827	0.12000	0.18000	0.22000	0.00000
65	0.02277	0.14000	0.17000	0.22000	0.00000
66	0.00572	0.17000	0.15000	0.21000	0.00000
67	0.00572	0.20000	0.12000	0.21000	0.00000
68	0.00572	0.23000	0.08000	0.21000	0.00000
69	0.00572	0.23000	0.08000	0.22000	0.00000
70	0.00572	0.23000	0.08000	0.22000	0.00000
71	0.00572	0.23000	0.08000	0.23000	0.00000
72	0.00572	0.23000	0.08000	0.22000	0.00000
73	0.00572	0.23000	0.08000	0.22000	0.00000
74	0.00572	0.23000	0.08000	0.21000	0.00000
75	0.00572	1.00000	0.00000	1.00000	0.00000

PRIOR YEAR ASSUMPTIONS

VALUATION INTEREST RATE: 6.95% (Net of investment expense)

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 fund less the present value of future normal costs attributable to the members.

Actuarial Assumptions – 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 fund of the difference between the expected and actual experience of the fund. 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 average final 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.

Unfunded Actuarial Accrued Liability – The excess of the actuarial accrued liability over the actuarial value of assets.

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