MUNICIPAL POLICE EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL VALUATION AS OF
JUNE 30, 2020

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December 9, 2020

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, 2020. 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, 2021 and to recommend the net direct employer contribution rate for Fiscal 2022. 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 actuaries are members of the American Academy of Actuaries and have met the qualification standards for the American Academy of Actuaries to render the actuarial opinions incorporated in this report, and are available to provide further information or answer any questions with respect to this valuation.

Sincerely,

G. S. CURRAN & COMPANY, LTD.

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

TABLE OF CONTENTS

SUMMARY OF VALUATION RESULTS
MUNICIPAL POLICE EMPLOYEES' RETIREMENT SYSTEM

Valuation Date:			June 30, 2020		June 30, 2019
Census Summary:	Active Members		5,644		5,729
	Retired Members and Survivors		4,837		4,770
	DROP Participants		212		203
	Terminated Due a Deferred Benefit		221		201
	Terminated Due a Refund		1,842		1,670
Payroll (excluding DROP accruals):		$	302,984,686	$	305,445,379
Benefits in Payment:		$	154,963,239	$	148,972,071
Present Value of Future Benefits:		$	3,672,992,948	$	3,584,876,862
Actuarial Accrued Liability (EAN):		$	3,135,811,188	$	3,132,449,454
Unfunded Actuarial Accrued Liability:		$	768,189,980	$	849,165,345
Actuarial Value of Assets (AVA):		$	2,367,621,208	$	2,283,284,109
Market Value of Assets (MVA):		$	2,256,740,977	$	2,224,281,981
Ratio of AVA to Actuarial Accrued Liability:			75.50%		72.89%

	Fiscal 2020		Fiscal 2019
Market Rate of Return:	2.4%		3.8%
Actuarial Rate of Return:	4.6%		4.6%

		Fiscal 2021		Fiscal 2020
Employers' Normal Cost (Mid-year):	$	30,088,470	$	30,521,520
Amortization Cost (Mid-year):	$	86,204,755	$	91,971,624
Estimated Administrative Cost:	$	2,687,624	$	2,177,138
Expected Insurance Premium Taxes Due:	$	22,347,331	$	21,797,215
Net Direct Employer Actuarially Required Contributions:	$	96,633,518	$	102,873,067
Projected Payroll:	$	313,124,085	$	305,371,382
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:		33.75% *		32.50% *
For Employees in the Non-Hazardous Subplan:		33.75%		32.50%
Actuarially Required Net Direct Employer Contribution Rate:				
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:		30.86%		33.69%
For Employees in the Non-Hazardous Subplan:		30.86%		33.69%

	Fiscal 2022	Fiscal 2021
Minimum Recommended Net Direct Employer Cont. 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%

* 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 5,644 active contributing members in the system of whom 2,370 have vested retirement benefits; in addition, there are 212 participants in the Deferred Retirement Option Plan (DROP); 4,837 former members or their beneficiaries are receiving retirement benefits. An additional 2,063 terminated members have contributions remaining on deposit with the system; of this number 221 have vested rights for future retirement benefits. All individuals submitted were included in the valuation.

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 $2,256,740,977 as of June 30, 2020. Net investment income for Fiscal 2020 measured on a market value basis was $52,492,225. Contributions to the system for the fiscal year totaled $152,465,336; benefits and expenses amounted to $172,498,565.

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.

In February of 2017, a recommendation was made to the Board of Trustees to reduce the long-term rate of return assumption. The recommendation was formed after an analysis of the system’s portfolio along with expected long-term rates of return, standard deviations of return, and correlations between asset classes collected from a number of investment consulting firms in addition to the system’s investment consultants, New England Pension Consultants. Based on this analysis and after discussions with the Board, a plan was approved to reduce the 7.5% valuation interest rate in effect for the Fiscal 2016 actuarial valuation to 7.125% over the subsequent three actuarial valuations with reductions of 0.175% in 2017, 0.125% in 2018, and 0.075% in 2019. In addition, the inflation rate was to be reduced over the same period. Therefore, the assumed rate of return for the Fiscal 2019 valuation was set at 7.125%. 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 2020. The study found that although the 7.125% assumed rate of return used in the 2019 valuation remains within the reasonable range, a further reduction was warranted to reduce plan risk and to improve the probability of achieving the long-term assumption. 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. For 2020, an assumed rate of inflation of 2.5% was implicit in the assumed rate of return.

In addition, changes were made to the system’s demographic assumptions. This includes updated rates of withdrawal, rates of retirement, rates of DROP entry, rates of disability, rates of annual salary increase, expected Post-DROP service, family statistics, and mortality rates. In addition to updating the base table for mortality to use the Pub-2010 Public Retirement Plans Mortality tables created by the

Society of Actuaries, a change was made in the methodology used to model system mortality. This valuation was prepared based upon full generational mortality.

In addition to changes in the plan's valuation interest rate and changes in the plan's demographic and financial assumptions as a result of the 2020 plan experience study, the plan's 2020 legislation changed the future funding and contribution structure of the system. The actuarial valuation was modified to account for legislation that requires members who achieve 100% accrual on or after July 1, 2021 to continue making employee contributions until terminating membership in the plan. The valuation was also modified to account for legislation that requires employers to continue to contribute on the salaries of DROP participants who begin DROP participation on or after July 1, 2021. These changes result in higher projected payroll (especially in Fiscal 2022) along with changes in projected employee contributions. As a result, employer contribution rates decrease as the system expects to collect a lower contribution rate on a larger overall covered payroll.

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. 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 decreased the interest-adjusted amortization payments on the system's UAL by $8,866,465 which corresponds to payments of 2.83% of Fiscal 2020 projected payroll. In addition, the change in assumptions increased the system's normal cost by $504,165, or 0.17% 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 assess 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 steeply 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 75.50% as of June 30, 2020. 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 0.80% for the fund.

Each pension plan has its own unique benefit structure and demographic profile. As a result each plan will respond to changes in interest rates in a unique way. As the expected rate of return on investments changes and the interest rate used to discount plan liabilities is adjusted, the shift in plan liabilities will depend upon the duration of the liabilities (which can be understood as the plan's sensitivity to the change in the interest rate). A slightly different measure of the duration for the plan can also be understood as an indicator of the plan's maturity. When a pension plan is first established, all of the participants are active members; as members retire and the plan matures, the duration of the plan decreases. A determination of the liability duration gives some insight into the investment time horizon of the plan. Thus the liability duration of a closed plan can be thought of as the weighted "center of gravity" of plan benefit cash flows with expected cash flows occurring both before and after the duration value. For open plans with a continuous flow of new entrants this measure is somewhat less informative since the duration horizon keeps changing as new members enter the plan. For this plan we have estimated the effective liability duration as 10.80.

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 2020, this ratio is 51%; ten years ago this ratio was 33%.

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 2022 by 15.50% of payroll. Future adjustments to the future assumed rates of return may be required; however the likelihood of such an event is difficult to gauge since it requires assigning probabilities to future capital market scenarios.

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

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

CHANGES IN PLAN PROVISIONS

The following changes to the system were enacted during the 2020 Regular Session of the Louisiana Legislature:

Act 3 of the 2020 Regular Session of the Louisiana states that where certain employees of covered employers that also participate in the federal Social Security program have certain rights to elect not to participate in the system, employers must enroll such employees in the system at the time of employment and the employee will remain enrolled until he fulfills the legal requirements to opt out.

Act 124 of the 2020 Regular Session of the Louisiana Legislature makes a number of changes to MPERS. This act provides the following:

- If a member earns benefits equal to or greater than one hundred percent of his average final compensation on or after July 1, 2021, the employer and employee shall continue to pay their respective contributions to the system.

- For employees who commence participation in the Deferred Retirement Option Plan (DROP) on or after July 1, 2021, employer contributions shall continue to be payable. If employer contributions are suspended during DROP participation as a result of interruption of employment, benefit payments into the participant's subaccount will be suspended until payment of employer contributions are restored and the member's DROP participation period shall be extended by the number of months his benefit payments were suspended such that the DROP participation period shall not exceed 36 months.

- The Board of Trustees may make, amend, and promulgate rules to provide for the establishment and maintenance of the system.

- Payments for partial withdrawals that occur on or after July 1, 2018 shall be payable beginning July 1st of the second fiscal year following the determination by the actuary with interest accruing at the system's valuation interest rate beginning on July 1st of the fiscal year following the withdrawal. Should MPERS be required to go to court to collect payments, the employer shall be liable for any legal and actuarial fees incurred by the system in the collection of such amounts.

- All employers shall be required to report separately the amount of compensation paid for overtime on their monthly contribution reports.

- Beginning on July 1, 2021, in cases where employees begin receiving worker's compensation payments and do not pay the employee contributions required to make whole the amount that would have been deducted had they not been on worker's compensation, the member shall not receive service credit for the period in which the deficit was not paid.

- In cases where any employer fails to transmit either employer contributions or member contributions owed to the system, the employer shall submit in addition to those amounts owed certain interest and late fees. Interest shall be charged at the legal rate from the date the payment became delinquent. In cases where an employer is delinquent in excess of 90 days, such late contributions are also subject to a penalty equal to 25% of the aggregate monthly contributions due. In cases where an employer is delinquent in excess of 180 days, the employer becomes liable for the greater of the interest and penalties or the actuarial cost of a purchase of the service credit for which contributions were not timely paid. In these cases, the employer must reimburse and legal and actuarial fees paid by the system in the collection of amounts due.

Act 249 of the 2020 Regular Session of the Louisiana Legislature makes a number of changes to MPERS. This act provides the following:

- Within the definition of "Employee" shall be any elected chief of police whose salary is at least one thousand dollars per month and any member who retires after June 30, 2021 and is later employed on a full-time basis by a police department of any municipality in Louisiana.

- Full-time shall be defined as employment on a permanent, regularly scheduled basis for at least an average of thirty hours per week.

- A definition of a “Special needs trust” was added to the statutes. The statutes allow a special needs trust to be named as an optional beneficiary.

- Beginning July 1, 2021, employees who are age fifty years of age at the date of employment shall be enrolled in the system.

- For employees whose employment makes them eligible for membership on or after July 1, 2021, if the system does not receive the necessary documentation of physical examination and the execution of waivers of preexisting conditions within the allotted time period, the employee shall be a member eligible to begin vesting for regular benefits from the date of employment but shall not be eligible to begin vesting for disability benefits for an injury not incurred in the line of duty until the documentation is received. A new physical examination shall be completed for any employee who has a break in service longer than one year. If the physical examination is not completed because the employer refused to pay for the examination, the employer is liable for any disability benefits to which the member becomes entitled.

- Members absent from service for more than 5 years on or before June 30, 2021 who are not entitled to a deferred annuity, members who withdraw accumulated contributions, members who become a beneficiary, and members who die shall cease to be a member.

- Clarifies the age at which benefits cease upon remarriage is fifty-five instead of sixty. Also requires any surviving spouse under the age of 55 who receives survivor benefits to submit an annual notarized statement attesting to their marital status throughout the year. Should such a person not submit the statement, benefits shall be discontinued without retroactive reimbursement until the statement is submitted. In cases where such statement is not submitted for the remainder of the calendar year, the board of trustees may revoke the spouse’s rights to survivor benefits.

- If at the time if a member’s death a special trust has been created by the deceased member for the benefit of such child or children, the payment shall be made to any person designated as a trustee on a certified copy of a trust document submitted to the system by the member.

- Survivor benefits being paid on behalf of a deceased member shall become effective and payable on the first day of the month following sixty days from the date the system receives the survivor’s completed application for benefits.

- A claim for survivor benefits or a refund of accumulated contributions shall be filed with the system by the later of June 30, 2023, or three years from the date of death. The provisions of this Paragraph shall apply to Hazardous Duty Subplan and Non-hazardous Duty Subplan members.

- The benefits of any retiree who retires on or after July 1, 2021 and becomes employed by an employer but does not meet the definition of employee within the 24 month period immediately following the effective date of his retirement shall be suspended for the duration of such employment or the lapse of 24 months, whichever occurs first, even if such service is part-time, based on employment by contract, or in a non-qualifying position. Imposes penalties on employers who do not notify the system when a retiree becomes employed.

- The board of trustees shall use all reasonable means to collect benefits paid by the system to an individual who was not due the benefit. The right to collect shall prescribe after a period of three years has elapsed from the date of the payment, except in the case of fraud. In such cases, the right to collect shall prescribe after a period of thirty years from the date of payment. Details how the system will correct the overpayment of benefits in excess of $5,000 to individuals who are entitled future benefits.

- Any member who transferred service credit from another system, fund, or plan at an accrual rate that is lower than the accrual rate of the receiving system, may elect to upgrade the accrual rate of all or a portion of his transferred service credit by paying an amount calculated on an actuarial basis that totally offsets the increase in accrued liability of the receiving system resulting from the accrual rate upgrade.

- A member may appeal a decision made regarding eligibility for disability benefits, by filing a petition within thirty days after receipt of written notice of the decision. An appeal of any other decision of the board regarding eligibility for disability benefits may be instituted by the member or his beneficiary by filing a petition within thirty days after receipt of written notice of the decision.

- Any claim for disability benefits by a member disabled after June 30, 2021, shall be filed with the system within three years from the date of disability.

- Whenever the board of trustees requires any disability retiree who has not yet attained the equivalent age of regular retirement to undergo a medical examination to determine continued eligibility to receive a disability retirement benefit, the cost of such examination shall be paid by the system. Any further medical examinations shall be at the expense of the party.

- A member who is married under a community property regime shall provide consent of his spouse or an affidavit of unknown location in written form provided by the system and executed before a notary public before he can elect the maximum benefit retirement option or any other retirement option or DROP annuity benefit naming someone other than the member's spouse as the beneficiary. A married member is deemed to be married under a community property regime unless the member submits to the system a valid and enforceable matrimonial agreement establishing a marital regime of separate property. Imposes penalties on members who do not provide spousal consent, affidavit of unknown location, or separate property agreements at the time of the member's retirement.

- Members of the subplan who have service credit in more than one subplan shall meet retirement eligibility based upon the reciprocal recognition provisions of R.S. 11:142.

- If the board of trustees determines that an active contributing member is killed as a result of injuries sustained in the line of duty, the requirement to have at least ten years of creditable service in the system shall not be applied. The board of trustees shall not collect overpayments of survivor benefits paid due to administrative error prior to June 30, 2020, except in a case of fraud, to the survivors of active contributing members with less than ten years of creditable service in the system who were killed as a result of injuries sustained in the line of duty.

- R.S. 11:2219 is repealed in its entirety.

ASSET EXPERIENCE

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

	Market Value	Actuarial Value
2011	23.5%	3.9% *
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%

* Includes the effect of transition to a new method for calculating the actuarial value of assets. The new method for calculating the actuarial value of assets is based on the market value of investment securities adjusted to phase in asset earnings above or below the assumed rate of return over a five-year period with limits set at 85% and 115% of the market value of assets. When the adjusted value falls outside of the limits, the actuarial value is set equal to the average of the limited and adjusted value.

Geometric Average Market Rates of Return

5 year average	(Fiscal 2016 – 2020)	4.7%
10 year average	(Fiscal 2011 – 2020)	7.6%
15 year average	(Fiscal 2006 – 2020)	5.0%
20 year average	(Fiscal 2001 – 2020)	4.5%
25 year average	(Fiscal 1996 – 2020)	5.7%
30 year average	(Fiscal 1991 – 2020)	6.3%

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 2020, the fund earned $28,108,100 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 $32,690,027. This income was offset by investment expenses of $8,305,902.

The actuarial rate of return is presented for comparison to the assumed long-term rate of return of 7.125% in effect for Fiscal 2020 (6.95% for Fiscal 2021). For Fiscal 2020, the actuarial rate of return adjusted for elimination of the effect of merger payments was 4.6%. DROP accounts should be credited with 4.1% (i.e. 4.6% 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. Yields in excess of the 6.95% assumption will reduce future costs; yields below 6.95% will increase future costs. For Fiscal 2020, the system experienced net actuarial investment earnings of $57,612,260 below the actuarial assumed earnings rate of 7.125% (in effect for Fiscal 2020) which produced an actuarial loss and increased the interest-adjusted amortization payments on the system's UAL by $6,097,235 or 1.95% 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 40 years old with 11.03 years of service credit and an annual salary of $53,683. The system's active contributing membership experienced a decrease of 85 members during Fiscal 2020. The number of DROP participants increased by 9. Over the last five years active membership has increased by 109 members.

The average service retiree is 67 years old with a monthly benefit of $3,150. The average age at retirement for regular retirees is 53. The number of retirees and beneficiaries receiving benefits from the system increased by 67 during the fiscal year. Over the last five years, the number of retirees increased by 299 with annual benefits in payment increasing by $26,913,230.

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 $937,215; the corresponding change in employer normal cost percentage was a reduction of 0.54% of payroll. Plan liability experience for Fiscal 2020 was favorable. Disabilities, DROP entries, DROP and Post-DROP retirements, and salary increases at most durations were below projected levels; withdrawals and retiree deaths were above projected levels. These factors tend to reduce costs. Partially offsetting these factors were active retirements above projected levels. Net plan liability experience gains totaled $29,781,524. These gains decreased the interest-adjusted amortization payments on the system's unfunded accrued liability by $3,151,845, which corresponds to payments of 1.01% of Fiscal 2021 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 2020 contributions totaled $1,457,071 less than required; the interest-adjusted amortization payment on the contribution shortfall for Fiscal 2021 is $154,206, or 0.05% of projected payroll. In addition, for Fiscal 2021 the net effect of the change in payroll on amortization costs was to reduce such costs by 0.76% 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 2021, except for those items labeled Fiscal 2020.

	Dollars	Percentage of Payroll
Employer Normal Cost for Fiscal 2020	$ 30,521,520	9.99%
Cost of Demographic and Salary Changes	$ (937,215)	(0.54%)
Change due to Assumption Changes	$ 504,165	0.17%
Employer Normal Cost for Fiscal 2021	$ 30,088,470	9.62%
UAL Amortization Payments for Fiscal 2020	$ 91,971,624	30.12%
Change due to change in payroll	N/A	(0.76%)
Change due to Interest Rate Change	$ (868,251)	(0.28%)
Additional Amortization Expenses for Fiscal 2021:		
Benefit Change Loss (Gain)	$ 0	0.00%
Liability Assumption Loss (Gain)	$ (7,998,214)	(2.55%)
Asset Experience Loss (Gain)	$ 6,097,235	1.95%
Liability Experience Loss (Gain)	$ (3,151,845)	(1.01%)
COLA Loss	$ 0	0.00%
Contribution Loss (Gain)	$ 154,206	0.05%
Total Amortization Expense (Credit) for Fiscal 2021	$ 86,204,755	27.52%
Insurance Premium Taxes	$ (22,347,331)	(7.14%)
Estimated Administrative Cost for Fiscal 2021	$ 2,687,624	0.86%
Total Employer Normal Cost & Amortization Payments	$ 96,633,518	30.86%

The derivation of the actuarially required contribution for the current fiscal year is given in Exhibit I. The employer normal cost for Fiscal 2021, interest adjusted for mid-year payment is $30,088,470. The interest adjusted amortization payments on the system’s unfunded actuarial accrued liability totaled $86,204,755. 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 2021 is $118,980,849. We estimate insurance premium taxes of $22,347,331, or 7.14% of payroll, will be paid to the system in Fiscal 2021. This level of Insurance Premium Taxes represents the same percentage of payroll as the prior year. Hence, the actuarially required net direct employer contribution for Fiscal 2021 amounts to $96,633,518 or 30.86% of payroll.

Since the actual employer contribution rate for Fiscal 2021 is 33.75% of payroll, there will be a contribution surplus of 2.89% of payroll. This surplus will decrease the actuarially required contribution recommended for Fiscal 2022. In order to determine a minimum recommended net direct employer contribution rate for Fiscal 2022, the Employer Normal Cost and Amortization Payments were estimated for Fiscal 2022, adjusted for the impact of the estimated contribution surplus for Fiscal 2021, and the estimated Insurance Premium Taxes for Fiscal 2022. Therefore, as given in line 25 of Exhibit I, the estimated actuarially required net direct employer contribution for Fiscal 2022 is $96,252,930, or 29.75% 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

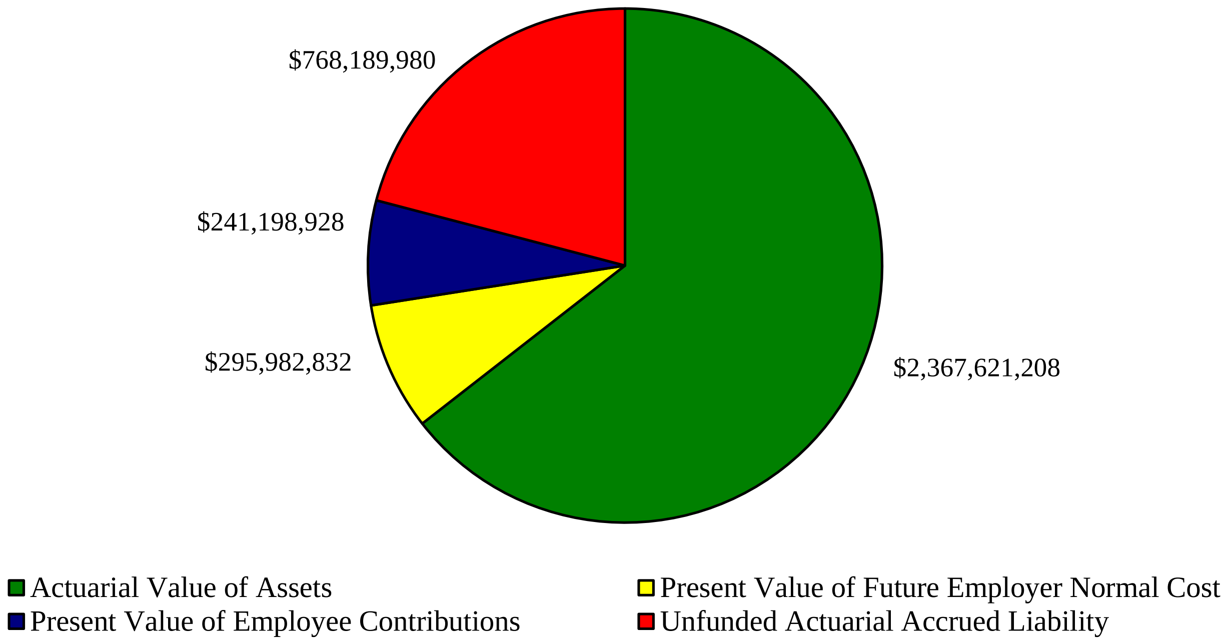
During Fiscal 2020, the actual cost of living (as measured by the US Department of Labor CPI-U) increased by 0.6%. Cost of living provisions for the system are detailed in R.S. 11:2225(A)(7)(b), R.S. 11:246, and R.S. 11:241. R.S. 11:2225(A)(7)(b) allows the Board to use interest earnings in excess of the normal requirements to grant annual cost of living increases of 3% of each retiree's 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. 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).

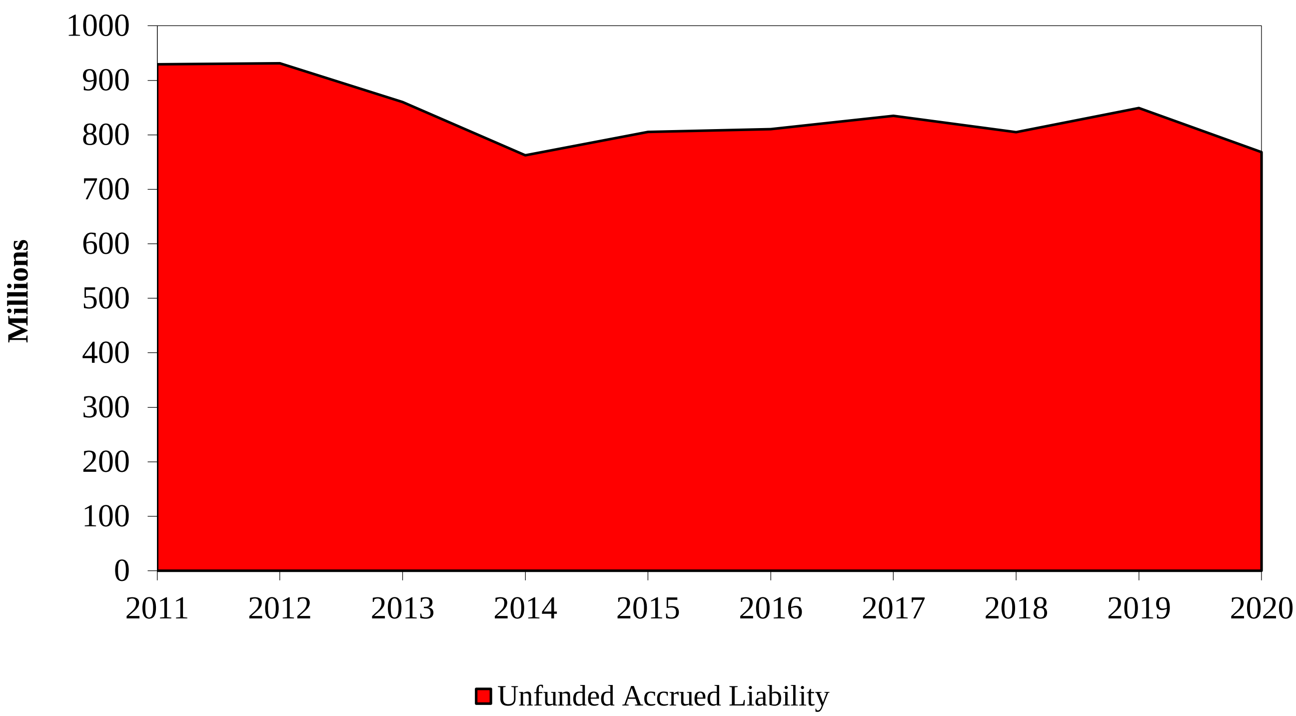
Although the system's funded ratio as of the end of Fiscal 2020 is 75.50% based on the Actuarial Value of Assets divided by the Entry Age Normal Accrued Liability and the system has not granted a COLA in any of the three most recent fiscal years, the system is not eligible to grant a COLA in Fiscal 2021 because the system did not earn the necessary "excess interest" in Fiscal 2020.

Components of Present Value of Future Benefits

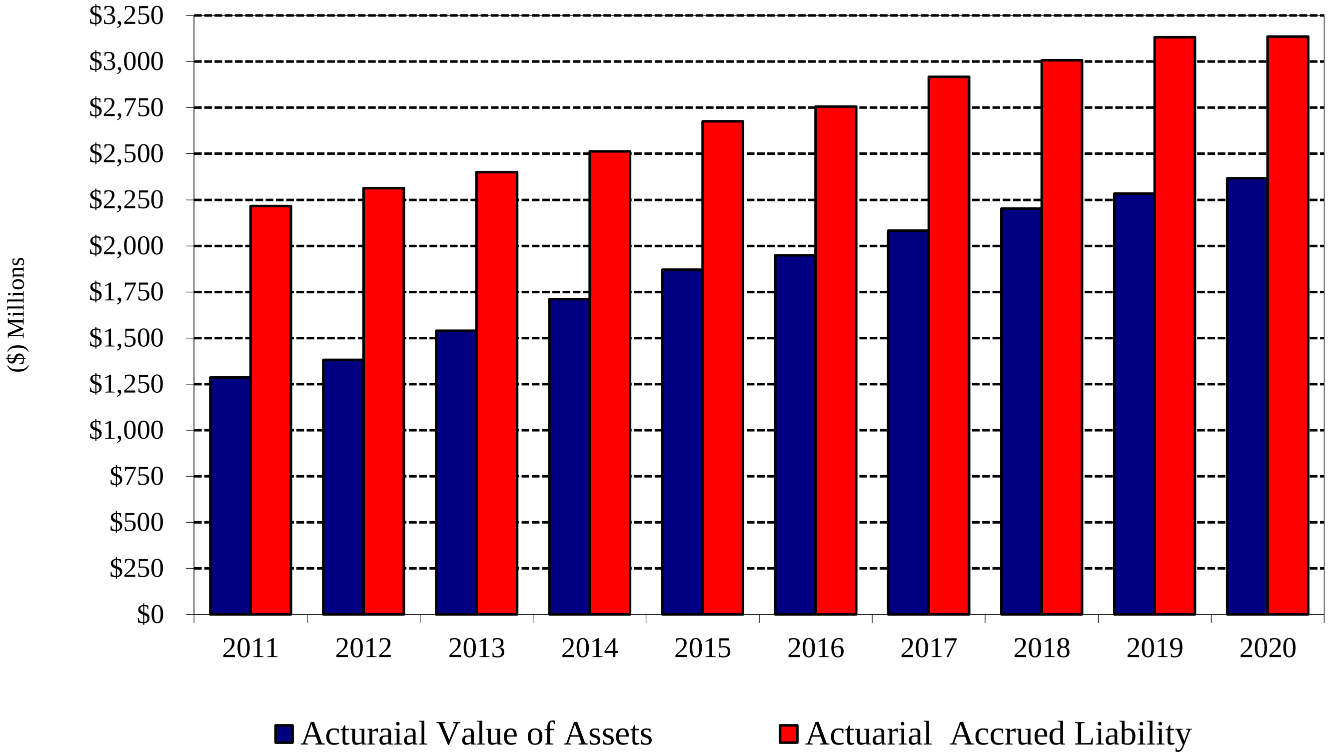
June 30, 2020



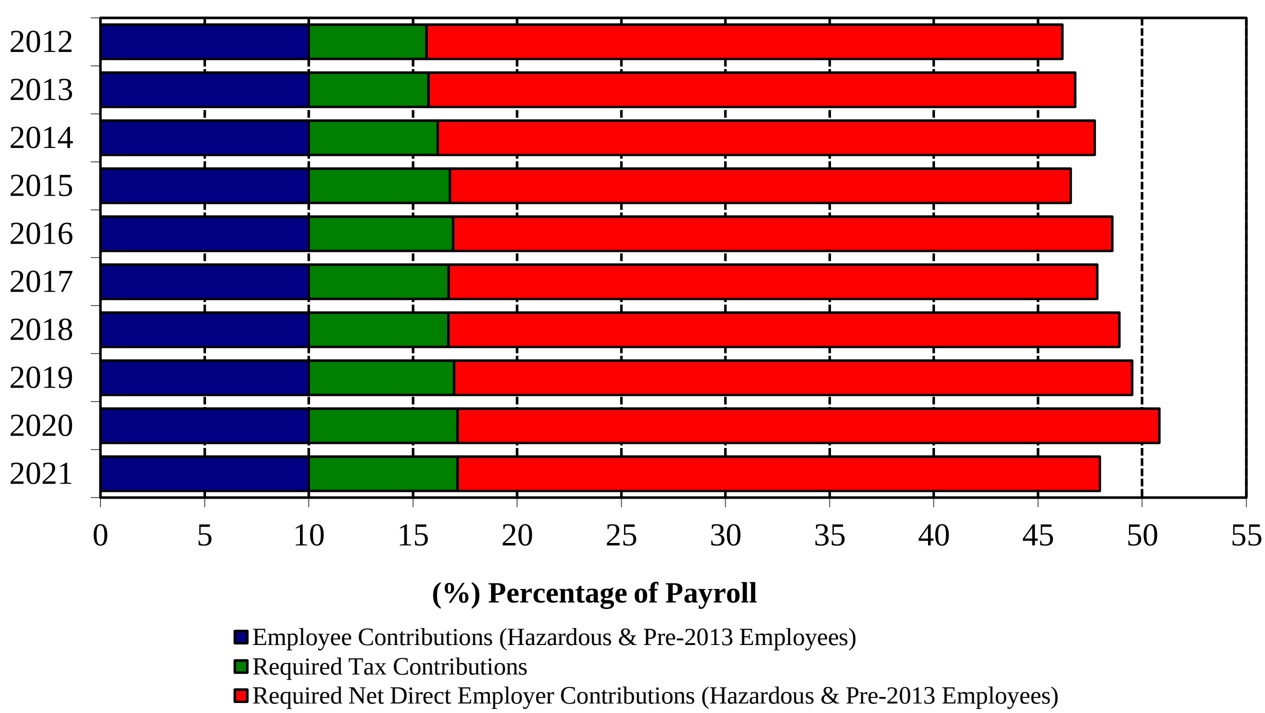
Unfunded Accrued Liability



Actuarial Value of Assets vs. Actuarial Accrued Liability

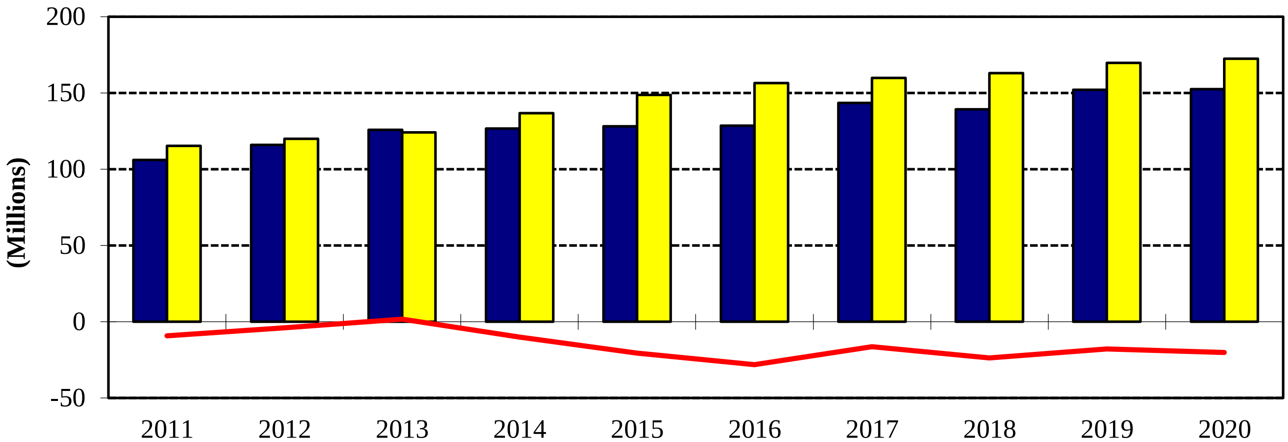


Components of Actuarial Funding



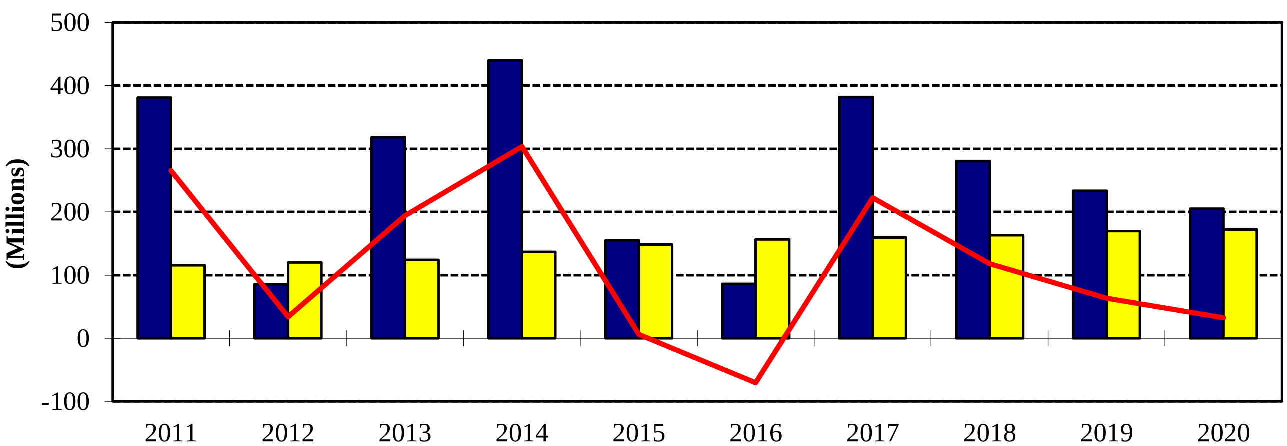
(2012 and later employee contribution level is based on members with earnings above the poverty level)

Net Non-Investment Income



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Non-Investment Income ($Mil)	106.1	116.0	125.9	126.6	128.2	128.6	143.4	139.3	152.0	152.5
Benefits and Expenses ($Mil)	115.3	120.0	124.2	136.7	148.7	156.6	159.8	163.0	170.8	172.5
Net Non-Investment Income ($Mil)	-9.2	-4.0	1.7	-10.1	-20.5	-28.0	-16.4	-23.7	-18.8	-20.0

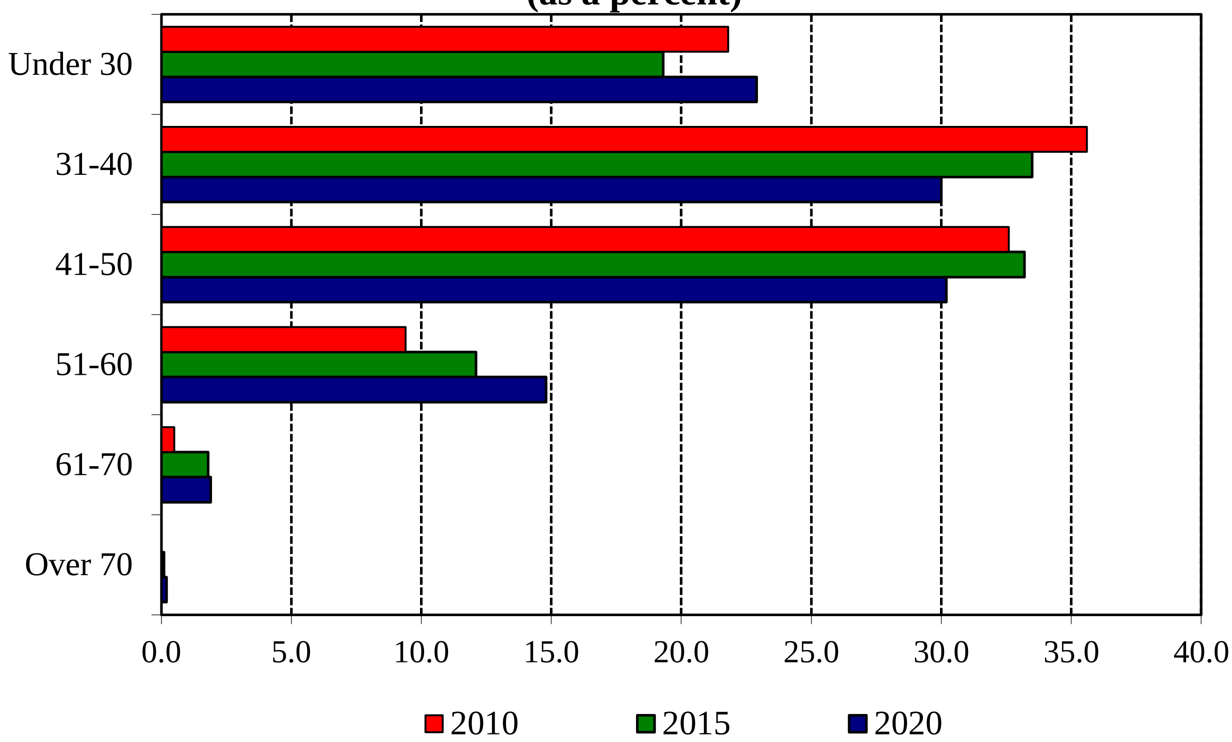
Total Income vs. Expenses
(Based on Market Value of Assets)



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Income ($Mil)	381.0	85.9	318.0	439.9	154.8	86.4	382.0	280.9	233.3	205.0
Benefits and Expenses ($Mil)	115.3	120.0	124.2	136.7	148.7	156.6	159.8	163.0	170.8	172.5
Net Change in MVA ($Mil)	265.7	34.1	193.8	303.2	6.1	-70.2	222.2	117.9	62.5	32.5

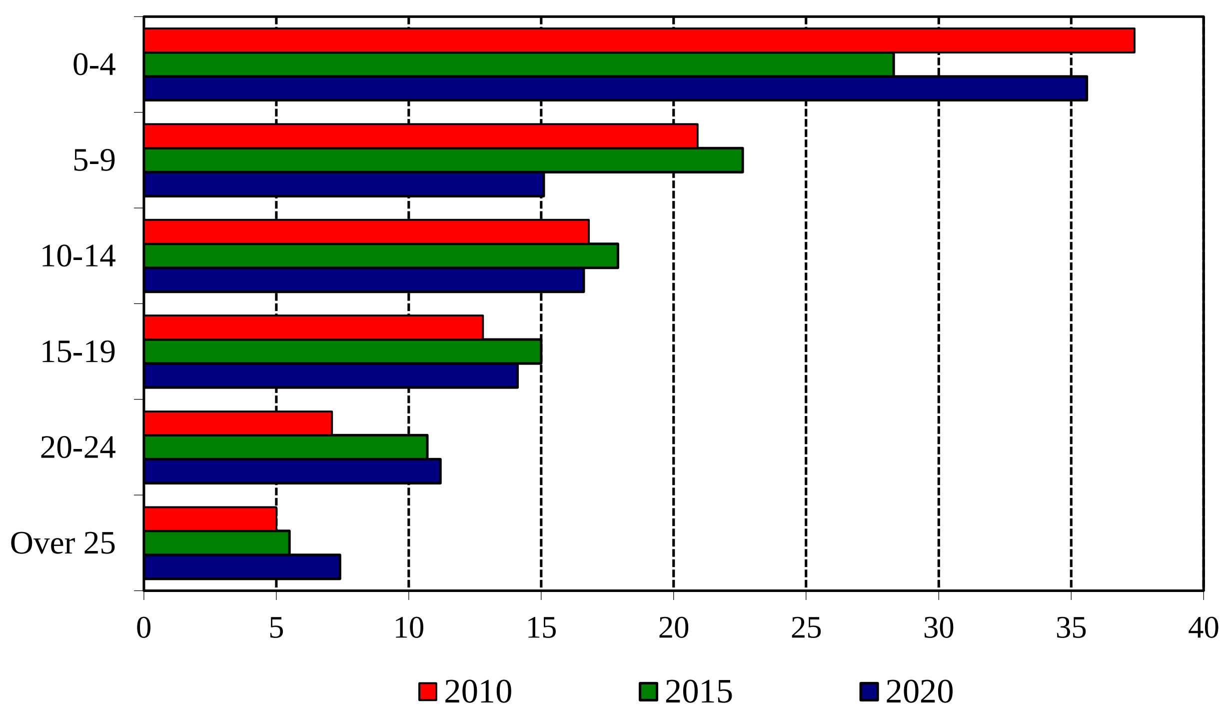
Active – Census by Age

(as a percent)

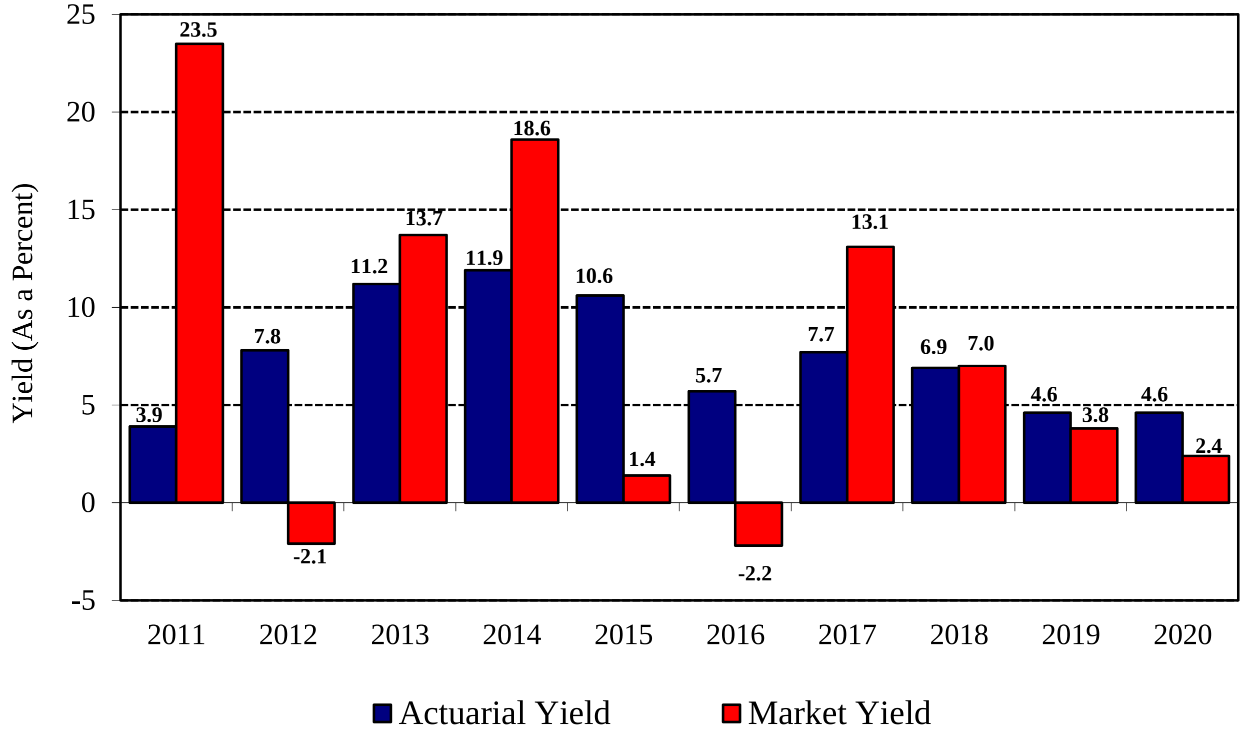


Active – Census by Service

(as a percent)



Historical Asset Yields



EXHIBITS

EXHIBIT I
ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS

1.	Normal Cost of Retirement Benefits	$	41,147,741
2.	Normal Cost of Death Benefits	$	1,789,347
3.	Normal Cost of Disability Benefits	$	4,520,771
4.	Normal Cost of Deferred Retirement Benefits	$	4,017,478
5.	Normal Cost of Contribution Refunds	$	6.152,831
6.	TOTAL Normal Cost as of July 1, 2020 (1 + 2 + 3 + 4 + 5)	$	57,628,168
7.	TOTAL Normal Cost Interest Adjusted for Mid-year Payment	$	59,597,111
8.	Adjustment to Total Normal Cost for Employee Portion	$	29,508,641
9.	Employer Normal Cost, Adjusted for Midyear Payment (7 – 8)	$	30,088,470
10.	Amortization Payments on Unfunded Accrued Liability at Midyear	$	86,204,755
11.	Projected Administrative Expenses for Fiscal 2021	$	2,687,624
12.	TOTAL Employer Cost (9 + 10 + 11)	$	118,980,849
13.	Expected Insurance Premium Taxes due in Fiscal 2021	$	22,347,331
14.	Net Direct Actuarially Required Employer Contribution for Fiscal 2021 (12 – 13)	$	96,633,518
15.	Projected Payroll for Contributing Members (Fiscal 2021)	$	313,124,085
16.	Net Direct Actuarially Required Employer Contribution as a Percentage of Projected Payroll for Fiscal 2021 (14 ÷ 15)		30.86% *
17.	Board Approved Net Direct Employer Contribution Rate for Fiscal 2021		33.75% *
18.	Projected Fiscal 2021 Contribution Loss (Gain) as a % of Payroll (16 – 17)		(2.89%)
19.	Projected Fiscal 2021 Employer Contribution Shortfall (Surplus) (15 × 18)	$	(9,049,286)
20.	Amortization of Interest Adjusted Fiscal 2021 Employer Contribution Shortfall (Surplus) Based on Midyear Payment in Fiscal 2022	$	(990,428)
21.	Estimated Fiscal 2022 Employer Normal Cost Adjusted for Midyear Payment	$	31,095,382
22.	Estimated Fiscal 2022 Amortization Payments	$	86,204,755
23.	Estimated Fiscal 2022 Administrative Expenses	$	2,849,235
24.	Estimated Insurance Premium Taxes due in Fiscal 2022	$	22,906,014
25.	Estimated Actuarially Required Net Direct Employer Contributions for Fiscal 2022 (20 + 21 + 22 + 23 – 24)	$	96,252,930
26.	Projected Payroll for Contributing Members (Fiscal 2022)	$	323,602,800
27.	Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2022 (25 ÷ 26, Rounded to nearest 0.25%)		29.75% *

* 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	$ 1,656,255,096	
Survivor Benefits	25,910,693	
Disability Benefits	109,394,815	
Vested Termination Benefits	72,160,097	
Refunds of Contributions	33,485,604	
TOTAL Present Value of Future Benefits for Active Members		$ 1,897,206,305

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement	$ 42,954,233	
Terminated Members with Reciprocals Due Benefits at Retirement	0	
Terminated Members Due a Refund	9,166,704	
TOTAL Present Value of Future Benefits for Terminated Members		$ 52,120,937

PRESENT VALUE OF FUTURE BENEFITS FOR RETIREES:

Regular Retirees			
Maximum	$ 541,788,451		
Option 1	1,147,895		
Option 2	649,989,427		
Option 3	240,412,173		
Option 4	1,120,481		
Option 5	0		
TOTAL Regular Retirees		$ 1,434,458,427	
Disability Retirees		51,163,228	
Survivors		152,065,727	
DROP Account Balances Payable to Retirees		85,978,324	
IBO Retirees' Account Balance		0	
TOTAL Present Value of Future Benefits for Retirees & Survivors			$ 1,723,665,706

TOTAL PRESENT VALUE OF FUTURE BENEFITS	$ 3,672,992,948

EXHIBIT III – SCHEDULE A
MARKET VALUE OF ASSETS

CURRENT ASSETS:			
Cash in Banks	$ 26,710,670		
Contributions and Taxes Receivable	10,108,159		
Accrued Interest and Dividends	5,000,757		
Investments Receivable	385,197		
Prepaid Expenses	10,652		
TOTAL CURRENT ASSETS		$	42,215,435
Property, Plant & Equipment		$	3,500,420
INVESTMENTS:			
Cash Equivalents	$ 20,185,546		
Equities	1,123,924,346		
Fixed Income	706,351,455		
Real Estate	174,676,936		
Alternative Investments	162,691,980		
Collateral for Securities Lending	4,187,009		
Other Investments	28,342,803		
TOTAL INVESTMENTS		$	2,220,360,075
DEFERRED OUTFLOWS OF RESOURCES		$	426,016
TOTAL ASSETS		$	2,266,501,946
CURRENT LIABILITIES:			
Accounts Payable	$ 952,041		
Benefits Payable	66,851		
Refunds Payable	262,347		
Investments Payable	1,463,102		
Securities Lending Obligations	4,187,009		
Other Post-Employment Benefits	1,904,608		
Other Current Liabilities	606,109		
TOTAL CURRENT LIABILITIES		$	9,442,067
DEFERRED INFLOWS OF RESOURCES		$	318,902
TOTAL LIABILITIES		$	9,760,969
MARKET VALUE OF ASSETS		$	2,256,740,977

EXHIBIT III – SCHEDULE B
ACTUARIAL VALUE OF ASSETS

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

Fiscal year 2020	$ (105,286,461)
Fiscal year 2019	(73,652,124)
Fiscal year 2018	(7,361,314)
Fiscal year 2017	102,423,689
Fiscal year 2016	(183,165,585)
Total for five years	$ (267,041,795)

Deferral of Excess (Shortfall) of Invested Income:

Fiscal year 2020 (80%)	$ (84,229,169)
Fiscal year 2019 (60%)	(44,191,274)
Fiscal year 2018 (40%)	(2,944,526)
Fiscal year 2017 (20%)	20,484,738
Fiscal year 2016 (0%)	0
Total Deferred for Year	$ (110,880,231)

Market Value of Plan Net Assets, End of Year	$ 2,256,740,977
Preliminary Actuarial Value of Plan Assets, End of Year	$ 2,367,621,208

Actuarial Value of Assets Corridor

85% of market value, end of year	$ 1,918,229,830
115% of market value, end of year	$ 2,595,252,124

Final Actuarial Value of Plan Net Assets, End of Year	$ 2,367,621,208

EXHIBIT IV
PRESENT VALUE OF FUTURE CONTRIBUTIONS

Employee Contributions to the Annuity Savings Fund	$	241,198,928
Employer Normal Contributions to the Pension Accumulation Fund		295,982,832
Employer Amortization Payments to the Pension Accumulation Fund		768,189,980
TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS	$	1,305,371,740

EXHIBIT V – SCHEDULE A
ACTUARIAL ACCRUED LIABILITIES

LIABILITY FOR ACTIVE MEMBERS		
Accrued Liability for Retirement Benefits	$ 1,273,676,473	
Accrued Liability for Survivor Benefits	9,734,102	
Accrued Liability for Disability Benefits	68,377,150	
Accrued Liability for Vested Termination Benefits	33,866,097	
Accrued Liability for Refunds of Contributions	(25,629,277)	
TOTAL Actuarial Accrued Liability for Active Members		$ 1,360,024,545
LIABILITY FOR TERMINATED MEMBERS		$ 52,120,937
LIABILITY FOR RETIREES AND SURVIVORS		$ 1,723,665,706
TOTAL ACTUARIAL ACCRUED LIABILITY		$ 3,135,811,188
ACTUARIAL VALUE OF ASSETS		$ 2,367,621,208
UNFUNDED ACTUARIAL ACCRUED LIABILITY		$ 768,189,980
Ratio of Actuarial Value of Assets to Entry Age Normal Accrued Liability		75.50%

EXHIBIT V – SCHEDULE B
CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY

PRIOR YEAR UNFUNDED ACCRUED LIABILITY		$ 849,165,345
Interest on Unfunded Accrued Liability	$ 60,503,031	
Asset Experience Loss	57,612,260	
Change in Valuation Interest Rate	59,007,373	
Contribution Shortfall with Accrued Interest	1,457,071	
TOTAL Additions to UAL		$ 178,579,735
Liability Assumption Gain	$ 134,581,834	
Liability Experience Gain	29,781,524	
Interest Adjusted Amortization Payments	95,191,742	
TOTAL Reductions to UAL		$ 259,555,100
NET Change in Unfunded Accrued Liability		$ (80,975,365)
CURRENT YEAR UNFUNDED ACCRUED LIABILITY		$ 768,189,980

EXHIBIT V – SCHEDULE C
AMORTIZATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY
JUNE 30, 2020

FISCAL YEAR	DESCRIPTION	AMORT. PERIOD	INTIAL BALANCE	YEARS REMAINING	REMAINING BALANCE	AMORT. PAYMENTS
2014	Cumulative Bases	20	$801,359,380	14	$665,585,097	$70,947,400
2015	Asset Experience Gain	15	$(52,886,689)	10	$(41,005,154)	$(5,446,213)
2015	Liability Experience Gain	15	$(9,412,440)	10	$(7,297,839)	$(969,283)
2015	Contribution Gain	15	$(6,385,205)	10	$(4,950,704)	$(657,541)
2015	Liability Assumption Loss	15	$91,142,323	10	$70,666,269	$9,385,737
2016	Asset Experience Loss	15	$32,707,657	11	$27,029,406	$3,361,932
2016	Liability Experience Gain	15	$(8,714,512)	11	$(7,201,619)	$(895,741)
2016	Contribution Loss	15	$1,831,833	11	$1,513,815	$188,289
2017	Asset Experience Gain	15	$(4,227,464)	12	$(3,694,374)	$(433,745)
2017	Liability Experience Loss	15	$7,622,189	12	$6,661,019	$782,050
2017	Contribution Gain	15	$(8,105,382)	12	$(7,083,280)	$(831,626)
2017	Liability Assumption Loss	15	$52,448,263	12	$45,834,454	$5,381,282
2018	Asset Experience Loss	15	$7,852,432	13	$7,213,111	$804,685
2018	Liability Experience Gain	15	$(54,697,789)	13	$(50,244,467)	$(5,605,205)
2018	Contribution Loss	15	$5,491,975	13	$5,044,836	$562,795
2018	Liability Assumption Loss	15	$38,696,875	13	$35,546,296	$3,965,497
2019	Asset Experience Loss	15	$58,094,818	14	$55,805,123	$5,948,493
2019	Liability Experience Gain	15	$(788,461)	14	$(757,386)	$(80,733)
2019	Contribution Gain	15	$(8,114,574)	14	$(7,794,754)	$(830,874)
2019	Liability Assumption Loss	15	$24,575,373	14	$23,606,783	$2,516,342
2020	Asset Experience Loss	15	$57,612,260	15	$57,612,260	$5,895,797
2020	Liability Experience Gain	15	$(29,781,524)	15	$(29,781,524)	$(3,047,716)
2020	Contribution Loss	15	$1,457,071	15	$1,457,071	$149,111
2020	Liability Assumption Gain	15	$(75,574,461)	15	$(75,574,461)	$(7,733,973)

TOTAL Unfunded Actuarial Accrued Liability	$768,189,980	*
TOTAL Fiscal 2021 Amortization Payments at Beginning of Year	$ 83,356,760	
TOTAL Fiscal 2021 Amortization Payments Adjusted to Mid-Year	$86,204,755	

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

EXHIBIT VI
ANALYSIS OF CHANGE IN ASSETS

Actuarial Value of Assets (June 30, 2019)		$ 2,283,284,109
INCOME:		
Member Contributions	$ 30,264,864	
Employer Contributions	100,615,513	
Irregular Contributions	(212,256)	
Insurance Premium Taxes	21,797,215	
Total Contributions		$ 152,465,336
Net Appreciation of Investments	$ 32,690,027	
Interest & Dividends	27,971,022	
Other Income	137,078	
Investment Expense	(8,305,902)	
Net Investment Income		$ 52,492,225
TOTAL Income		$ 204,957,561
EXPENSES:		
Retirement Benefits	$ 151,252,790	
DROP Disbursements	13,733,293	
Refunds of Contributions	3,885,219	
Transfers to Other Systems	1,431,008	
Administrative Expenses (Including Depreciation and OPEB).	2,196,255	
TOTAL Expenses		$ 172,498,565
Net Market Value Income for Fiscal 2020 (Income – Expenses)		$ 32,458,996
Unadjusted Fund Balance as of June 30, 2020 (Fund Balance Previous Year + Net Income)		$ 2,315,743,105
Adjustment for Actuarial Smoothing		$ 51,878,103
Actuarial Value of Assets: (June 30, 2020)		$ 2,367,621,208

EXHIBIT VII
CENSUS DATA

	Active	Terminated with Funds on Deposit	DROP	Retired	Total
Number of members as of June 30, 2019	5,729	1,871	203	4,770	12,573
Additions to Census					
Initial membership	498	87			585
Omitted in error last year					
Death of another member				51	51
Adjustment for multiple records					
Change in Status during Year					
Actives terminating service	(292)	292			
Actives who retired	(93)			93	
Actives entering DROP	(86)		86		
Term. members rehired	51	(51)			
Term. members who retire		(15)		15	
Retirees who are rehired	2			(2)	
Refunded who are rehired	16	11			27
DROP participants retiring			(57)	57	
DROP returned to work	20		(20)		
Omitted in error last year					
Eliminated from Census					
Refund of contributions	(192)	(130)			(322)
Deaths	(9)	(2)		(143)	(154)
Included in error last year				(3)	(3)
Adjustment for multiple records				(1)	(1)
Number of members as of June 30, 2020	5,644	2,063	212	4,837	12,756

ACTIVES CENSUS BY AGE:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
16 - 20	14	3	17	31,593	537,076
21 - 25	333	103	436	37,289	16,257,919
26 - 30	611	227	838	42,516	35,628,303
31 - 35	640	195	835	47,838	39,944,821
36 - 40	641	217	858	53,463	45,870,988
41 - 45	646	213	859	58,629	50,362,676
46 - 50	661	185	846	62,143	52,572,826
51 - 55	467	129	596	64,690	38,555,417
56 - 60	181	60	241	64,466	15,536,238
61 - 65	58	26	84	62,718	5,268,300
66 - 70	11	12	23	64,533	1,484,256
71 - 75	8	0	8	96,683	773,466
76 - 80	2	0	2	49,823	99,646
86 - 90	1	0	1	92,754	92,754
TOTAL	4,274	1,370	5,644	53,683	302,984,686

THE ACTIVE CENSUS INCLUDES 2370 ACTIVES WITH VESTED BENEFITS, INCLUDING 111 ACTIVE FORMER DROP PARTICIPANTS. THE 212 CURRENT DROP PARTICIPANTS ARE EXCLUDED.

DROP PARTICIPANTS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
46 - 50	17	0	17	71,958	1,223,285
51 - 55	68	15	83	61,887	5,136,627
56 - 60	49	24	73	47,202	3,445,713
61 - 65	21	12	33	45,072	1,487,374
66 - 70	5	1	6	45,736	274,418
TOTAL	160	52	212	54,563	11,567,417

TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
31 - 35	5	1	6	22,322	133,929
36 - 40	25	6	31	22,918	710,443
41 - 45	50	9	59	25,615	1,511,300
46 - 50	65	17	82	28,283	2,319,174
51 - 55	37	4	41	24,735	1,014,137
56 - 60	2	0	2	34,325	68,649
TOTAL	184	37	221	26,053	5,757,632

TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

Contributions Ranging From		To	Number	Total Contributions
0	-	99	232	10,196
100	-	499	447	116,933
500	-	999	236	168,482
1000	-	1999	194	277,920
2000	-	4999	240	779,900
5000	-	9999	180	1,283,552
10000	-	19999	176	2,466,644
20000	-	99999	137	4,063,077
	TOTAL		1,842	9,166,704

REGULAR RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
41 - 45	2	1	3	31,706	95,117
46 - 50	46	7	53	45,820	2,428,478
51 - 55	226	29	255	50,000	12,749,894
56 - 60	478	89	567	48,201	27,329,786
61 - 65	567	133	700	42,988	30,091,263
66 - 70	636	119	755	36,336	27,433,985
71 - 75	554	65	619	30,182	18,682,360
76 - 80	294	35	329	25,124	8,265,856
81 - 85	143	12	155	25,849	4,006,657
86 - 90	56	3	59	25,005	1,475,310
91 - 99	22	3	25	19,144	478,597
TOTAL	3,024	496	3,520	37,795	133,037,303

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	23,802	166,614
41 - 45	8	8	16	20,078	321,252
46 - 50	20	10	30	20,076	602,269
51 - 55	23	11	34	17,389	591,213
56 - 60	23	9	32	18,043	577,369
61 - 65	33	7	40	18,591	743,659
66 - 70	31	14	45	14,799	665,942
71 - 75	25	4	29	15,826	458,955
76 - 80	13	3	16	14,939	239,017
81 - 85	3	0	3	13,894	41,682
86 - 90	1	0	1	10,088	10,088
TOTAL	185	69	254	17,431	4,427,576

SURVIVORS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
0 - 25	40	56	96	7,227	693,762
26 - 30	0	5	5	24,483	122,417
31 - 35	0	3	3	31,749	95,246
36 - 40	1	4	5	27,849	139,243
41 - 45	0	21	21	25,556	536,673
46 - 50	0	27	27	19,914	537,682
51 - 55	2	40	42	23,675	994,362
56 - 60	0	64	64	24,215	1,549,743
61 - 65	10	70	80	23,427	1,874,187
66 - 70	6	123	129	17,703	2,283,696
71 - 75	5	162	167	17,346	2,896,814
76 - 80	7	158	165	14,566	2,403,358
81 - 85	5	130	135	14,108	1,904,644
86 - 90	4	67	71	11,936	847,442
91 - 99	3	50	53	11,681	619,091
TOTAL	83	980	1,063	16,461	17,498,360

ACTIVE MEMBERS:

Attained Ages	Completed Years of Service: 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 20	14	2	1									17
21 - 25	182	144	63	36	7	4						436
26 - 30	138	166	151	112	90	179	2					838
31 - 35	78	80	85	62	83	280	162	5				835
36 - 40	39	50	41	53	42	166	327	139	1			858
41 - 45	38	24	24	21	23	101	193	305	129	1		859
46 - 50	22	23	21	20	23	70	124	184	281	77	1	846
51 - 55	8	5	6	12	11	39	82	107	137	163	26	596
56 - 60	1	2		2	1	12	34	37	61	54	37	241
61 - 65		1	2			3	11	13	19	13	22	84
66 - 70						1		3	4	6	9	23
71 & Over								1		1	9	11
Totals	520	497	394	318	280	855	935	794	632	315	104	5,644

AVERAGE ANNUAL SALARY OF ACTIVE MEMBERS:

Attained Ages	Completed Years of Service: 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Salary
0 - 20	31,324	28,390	41,766									31,593
21 - 25	33,863	38,361	41,727	39,833	47,750	43,469						37,289
26 - 30	34,247	38,861	44,456	45,700	46,385	46,578	54,095					42,516
31 - 35	33,902	38,940	42,890	45,915	48,390	50,936	56,455	53,755				47,838
36 - 40	34,322	39,972	43,449	44,158	49,982	49,524	58,538	64,013	52,000			53,463
41 - 45	34,457	37,097	42,920	42,140	50,198	50,784	57,047	64,355	71,848	57,595		58,629
46 - 50	36,234	43,286	44,554	46,344	42,666	47,432	55,101	62,017	71,694	80,104	58,301	62,143
51 - 55	37,088	36,636	58,014	50,497	43,468	45,350	55,992	57,922	68,710	77,618	77,718	64,690
56 - 60	37,159	66,756		50,541	39,975	43,304	45,435	56,358	67,321	72,831	82,038	64,466
61 - 65		70,032	49,022			40,053	51,398	49,722	63,753	65,901	77,286	62,718
66 - 70						60,602		52,311	43,338	64,258	78,647	64,533
71 & Over								87,094		22,937	95,093	87,806
Average	34,136	39,071	43,711	44,837	47,423	49,021	56,620	62,190	70,207	76,430	80,561	53,683

TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Attained Ages	Years Until Retirement Eligibility											
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 30												0
31 - 35									6			6
36 - 40								31				31
41 - 45	1					3	55					59
46 - 50	2	4	2	3	3	68						82
51 - 55	7	10	6	7	11							41
56 - 60	2											2
61 & Over												0
Totals	12	14	8	10	14	71	55	31	6	0	0	221

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

Attained Ages	Years Until Retirement Eligibility											
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 30												0
31 - 35									22,322			22,322
36 - 40								22,918				22,918
41 - 45	21,985					37,660	25,024					25,615
46 - 50	49,263	39,448	56,279	46,740	46,339	24,574						28,283
51 - 55	22,624	24,753	24,425	28,320	23,950							24,735
56 - 60	34,324											34,324
61 & Over												0
Average	28,961	28,952	32,389	33,846	28,748	25,127	25,024	22,918	22,322	0	0	26,053

SERVICE RETIREES:

Attained Ages	Completed Years Since Retirement 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 50	22	12	12	4	3	3						56
51 - 55	60	40	38	37	31	45	4					255
56 - 60	50	47	43	60	64	243	54	4	2			567
61 - 65	23	23	27	24	45	266	216	70	6			700
66 - 70	7	10	18	8	16	160	210	253	64	8	1	755
71 - 75	1	4		2	4	42	81	199	208	57	21	619
76 - 80				1		9	22	41	88	123	45	329
81 - 85						2	3	11	11	31	97	155
86 - 90							1		6	14	38	59
91 & Over								1		1	23	25
Totals	163	136	138	136	163	770	591	579	385	234	225	3,520

AVERAGE ANNUAL BENEFITS PAYABLE TO SERVICE RETIREES:

Attained Ages	Completed Years Since Retirement 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 50	45,424	54,181	42,544	42,178	29,538	35,417						45,064
51 - 55	52,040	55,849	53,128	49,219	48,716	43,299	23,733					50,000
56 - 60	49,886	42,993	53,443	47,740	46,295	51,563	37,981	20,339	13,690			48,201
61 - 65	42,606	40,372	48,791	42,617	50,643	46,183	40,941	33,769	11,972			42,988
66 - 70	34,536	42,552	40,302	38,029	47,136	43,509	34,691	35,026	26,766	17,863	18,747	36,336
71 - 75	32,610	40,110		61,163	55,451	39,639	35,490	28,792	27,971	29,167	18,832	30,182
76 - 80				49,741		26,484	28,881	27,022	23,707	27,697	16,476	25,124
81 - 85						23,034	47,150	23,552	24,226	35,278	22,680	25,849
86 - 90							82,481		25,353	29,226	21,883	25,005
91 & Over								6,605		30,058	19,215	19,144
Average	48,284	47,201	49,784	46,716	47,955	46,467	37,239	31,796	26,325	28,825	20,574	37,795

DISABILITY RETIREES:

Attained Ages	Completed Years Since Retirement 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	2	1	1		2					7
41 - 45	1	1	1	2	1	8	2					16
46 - 50	1	2	1	2	3	10	5	4	2			30
51 - 55		1		4		6	8	8	7			34
56 - 60				2	1	5	5	6	8	3	2	32
61 - 65						2	7	11	12	3	5	40
66 - 70							3	6	8	15	13	45
71 - 75							1	2	4	12	10	29
76 - 80									2	1	13	16
81 - 85											3	3
86 - 90											1	1
91 & Over												0
Totals	2	6	4	11	6	31	33	37	43	34	47	254

AVERAGE ANNUAL BENEFITS PAYABLE TO DISABILITY RETIREES:

Attained Ages	Completed Years Since Retirement 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		24,891	22,683	18,611	20,307		28,720					23,802
41 - 45	17,873	35,126	28,893	18,201	16,716	19,097	16,733					20,078
46 - 50	16,621	26,016	28,930	26,883	33,402	19,875	15,480	13,228	10,824			20,076
51 - 55		29,360		27,702		17,666	20,041	13,599	10,848			17,389
56 - 60				18,119	11,297	23,327	36,481	12,069	11,465	15,526	10,042	18,043
61 - 65						22,243	22,413	21,074	18,076	16,317	8,923	18,591
66 - 70							12,416	20,031	16,435	15,642	10,954	14,799
71 - 75							13,555	10,923	15,617	18,596	13,793	15,826
76 - 80									7,678	12,686	16,229	14,939
81 - 85											13,894	13,894
86 - 90											10,088	10,088
91 & Over												0
Average	17,247	25,154	25,797	23,257	24,754	19,956	21,780	16,431	14,314	16,647	12,931	17,431

SURVIVING BENEFICIARIES OF FORMER MEMBERS:

Attained Ages	Completed Years Since Retirement: 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 20	5	6	11	11	10	13	17	5				78
21 - 25			1		1	4	6	3	2		1	18
26 - 30	1	1		2		1						5
31 - 35			1	1			1					3
36 - 40			1	1	1			1		1		5
41 - 45	2	1	3	1	1	4	6	1			2	21
46 - 50	1	1		2	2	2	4	6	7	1	1	27
51 - 55	1	1	2		2	5	10	10	3	5	3	42
56 - 60		1		1	4	8	9	10	14	11	6	64
61 - 65		1	1	2	1	7	16	19	8	12	13	80
66 - 70	1					6	16	22	28	22	34	129
71 - 75				1	1	4	10	23	47	39	42	167
76 - 80			1		2	2	1	8	22	36	93	165
81 - 85						1	3	3	6	9	113	135
86 - 90						1		2	2		66	71
91 & Over										2	51	53
Totals	11	12	21	22	25	58	99	113	139	138	425	1,063

AVERAGE ANNUAL BENEFITS PAYABLE TO SURVIVORS OF FORMER MEMBERS:

Attained Ages	Completed Years Since Retirement: 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 20	6,805	6,314	6,508	6,821	8,696	5,262	5,614	4,405				6,299
21 - 25			18,375		18,364	17,040	9,975	8,130	5,320		2,640	11,245
26 - 30	16,604	35,248		26,632		17,301						24,483
31 - 35			35,405	47,031			12,811					31,749
36 - 40			41,095	35,757	36,943			9,622		15,825		27,849
41 - 45	43,031	30,777	38,372	27,750	12,745	24,745	21,920	27,184			3,269	25,556
46 - 50	27,604	30,687		30,790	37,245	23,803	34,085	11,622	10,644	10,429	4,708	19,914
51 - 55	80,778	60,638	32,007		54,695	22,059	31,316	13,728	10,462	11,251	10,387	23,675
56 - 60		64,269		45,130	29,630	41,074	32,296	29,544	14,161	12,055	12,710	24,215
61 - 65		52,021	59,382	34,701	56,857	28,603	32,249	23,978	17,706	16,115	9,977	23,427
66 - 70	31,030					20,015	19,923	20,991	20,504	16,683	12,085	17,703
71 - 75				6,000	49,239	21,008	27,746	20,079	18,392	17,018	11,670	17,346
76 - 80			5,185		44,199	9,032	36,701	16,369	15,235	19,885	11,538	14,566
81 - 85						23,517	39,185	19,654	19,794	19,368	12,491	14,108
86 - 90						36,139		14,180	29,184		10,978	11,936
91 & Over										29,758	10,972	11,681
Average	25,100	25,960	19,531	19,134	26,076	21,059	23,295	19,320	17,318	17,311	11,578	16,461

EXHIBIT VIII
YEAR-TO-YEAR COMPARISON

	Fiscal 2020	Fiscal 2019	Fiscal 2018	Fiscal 2017
Number of Active Members	5,644	5,729	5,685	5,663
Number of Retirees & Survivors	4,837	4,770	4,736	4,691
DROP Participants	212	203	180	193
Number of Terminated Due Deferred Benefits	221	201	187	181
Number Terminated Due Refunds	1,842	1,670	1,563	1,443
Active Lives Payroll (excludes DROP participants)	$ 302,984,686	$ 305,445,379	$ 294,988,865	$ 293,792,282
Retiree Benefits in Payment	$ 154,963,239	$ 148,972,071	$ 144,162,327	$ 139,782,252
Market Value of Assets	$ 2,256,740,977	$ 2,224,281,981	$ 2,161,775,206	$ 2,045,022,309
Ratio of Actuarial Value of Assets to Actuarial Accrued Liability	75.50%	72.89%	73.23%	71.39%
Actuarial Accrued Liability (EAN)	$ 3,135,811,188	$ 3,132,449,454	$ 3,007,181,318	$ 2,918,064,612
Actuarial Value of Assets	$ 2,367,621,208	$ 2,283,284,109	$ 2,202,302,093	$ 2,083,240,809
UAL (Funding Excess)	$ 768,189,980	$ 849,165,345	$ 804,879,225	$ 834,823,803

	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018
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 Projected Payroll	7.14%	7.14%	6.97%	6.69%
Actuarially Required Employer Contribution Rate:				
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	30.86% †	33.69% †	32.55% †	32.22% †
For Employees in the Non-Hazardous Subplan:	30.86%	33.69%	32.55%	32.22%
Actual Employer Contribution Rate				
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	33.75% †	32.50% †	32.25% †	30.75% †
For Employees in the Non-Hazardous Subplan:	33.75%	32.50%	32.25%	30.75%

† 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.

Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011
5,666	5,535	5,468	5,602	5,779	5,933
4,637	4,538	4,444	4,340	4,230	4,165
191	228	271	314	284	231
175	168	159	145	130	128
1,324	1,320	1,272	1,252	1,176	1,251
$ 281,546,022	$ 265,089,428	$ 259,594,435	$ 264,711,491	$ 272,606,934	$ 273,348,634
$ 134,868,070	$ 128,050,009	$ 118,522,277	$ 110,735,234	$ 104,998,503	$ 99,863,547
$ 1,822,858,397	$ 1,893,077,295	$ 1,887,019,463	$ 1,600,532,779	$ 1,406,662,003	$ 1,440,795,586
70.64%	69.91%	68.11%	64.15%	59.75%	58.05%
$ 2,760,140,132	$ 2,676,472,766	$ 2,512,627,665	$ 2,399,375,820	$ 2,313,751,839	$ 2,215,674,343
$ 1,949,755,816	$ 1,871,160,542	$ 1,711,268,285	$ 1,539,218,085	$ 1,382,503,860	$ 1,286,287,651
$ 810,384,316	$ 805,312,224	$ 801,359,380	$ 860,157,735	$ 931,247,979	$ 929,386,692

Fiscal 2017	Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012
10.00% †	10.00% †	10.00% †	10.00%	10.00%	10.00%
8.00%	8.00%	8.00%	N/A	N/A	N/A
6.71%	6.93%	6.77%	6.19%	5.75%	5.65%
31.14% †	31.63% †	29.80% †	31.53%	31.03%	30.52%
31.14%	33.63%	31.80%	N/A	N/A	N/A
31.75% †	29.50% †	31.50% †	31.00%	31.00%	26.50%
33.75%	31.50%	33.50%	N/A	N/A	N/A

* COLA not included

SUMMARY OF PRINCIPAL PLAN PROVISIONS

The Municipal Police Employees’ Retirement System 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. 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: 6.95% (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:

Years of Service	Salary Growth Rate
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 105% for males and 115% 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 the attained age with a multiplier applied based upon the member's completed years of service. A table of the age based rates is included later in the report. Those rates are multiplied by the following factors based on the member's years of service.

Service Duration ≤	Factor	Service Duration ≤	Factor
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:

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

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	0.00000
56	0.01166	0.06000	0.15000	0.25000	0.00000
57	0.01375	0.06000	0.15000	0.25000	0.00000
58	0.01628	0.06000	0.15000	0.26000	0.00000
59	0.01925	0.06000	0.15000	0.26000	0.00000
60	0.02629	0.07000	0.16000	0.26000	0.00000
61	0.03201	0.07000	0.16000	0.25000	0.00000
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:	7.125% (Net of investment expense)
ACTIVE MEMBER MORTALITY:	RP 2000 Sex Distinct Employee Tables set back 4 years for males and set back 3 years for females.
ANNUITANT AND BENEFICIARY MORTALITY:	RP-2000 Combined Healthy with Blue Collar Adjustment Sex Distinct Tables Projected to 2029 using Scale AA for males with no set back and Projected to 2029 using Scale AA for females with a one year set back.
ANNUAL SALARY INCREASE RATE:	Salary increases include 2.5% inflation and merit increases. The gross rates including inflation and merit increases are as follows:

Years of Service (less than or equal to)	Salary Increase (in the following year)
1-2	9.75%
3-23	4.75%
Above 23	4.25%

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.
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 retire at the end of this participation period.
RETIREMENT RATES FOR ACTIVE FORMER DROP PARTICIPANTS:	Retirement rates for active former DROP participants are as follows:

Ages	Retirement Rates
74 & Under	0.24
75 & Over	1.00

DISABILITY RATES:	55% of the disability rates used for the 21st valuation of the Railroad Retirement System for individuals with 10-19 years of service. The table of these rates is included later in the report.
WITHDRAWAL RATES:	The rates of withdrawal are applied based upon the attained age with a multiplier applied based upon the member's completed years of service. A table of the age based rates is included later in the

report. Those rates are multiplied by the following factors based on the member's years of service.

Service (less than or equal to)	Factor
1	4.5
2	3.3
3-4	2.6
5	2.5
6-7	2.0
8-10	1.6
11-14	1.4
15-17	1.2
18 and up	1.0

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

FAMILY STATISTICS: Assumptions utilized in determining the costs of various survivor benefits as listed below, are derived from the information provided in the 2010 U. S. Census:

Member's Age	% With Children	Number of Children	Average Age
25	70%	1.84	5
35	86%	2.13	9
45	75%	1.70	12
55	22%	1.42	14
65	4%	1.45	15

DISABLED LIVES MORTALITY: RP-2000 Disabled Lives Mortality Tables set back 5 years for males and set back 3 years for females.

VESTING ELECTING PERCENTAGE: 55% 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.

PRIOR ACTUARIAL TABLES AND RATES

Age	Disability Rates	Retirement Rates	DROP Entry Rates	Withdrawal Rates
18	0.00083	0.00000	0.00000	0.04750
19	0.00083	0.00000	0.00000	0.04750
20	0.00083	0.00000	0.00000	0.04750
21	0.00083	0.00000	0.00000	0.04750
22	0.00083	0.00000	0.00000	0.04750
23	0.00083	0.00000	0.00000	0.04750
24	0.00083	0.00000	0.00000	0.04500
25	0.00083	0.00000	0.00000	0.04500
26	0.00083	0.00000	0.00000	0.04500
27	0.00083	0.00000	0.00000	0.04000
28	0.00083	0.00000	0.00000	0.04000
29	0.00083	0.00000	0.00000	0.04000
30	0.00083	0.00000	0.00000	0.04000
31	0.00083	0.00000	0.00000	0.03500
32	0.00083	0.00000	0.00000	0.03500
33	0.00083	0.00000	0.00000	0.03500
34	0.00083	0.00000	0.00000	0.03500
35	0.00094	0.00000	0.00000	0.03500
36	0.00105	0.00000	0.00000	0.03000
37	0.00116	0.00000	0.00000	0.03000
38	0.00132	0.00000	0.00000	0.03000
39	0.00149	0.00000	0.00000	0.02300
40	0.00171	0.00000	0.00000	0.02300
41	0.00193	0.08000	0.23000	0.02300
42	0.00215	0.08000	0.23000	0.02300
43	0.00242	0.08000	0.23000	0.02300
44	0.00275	0.08000	0.23000	0.02300
45	0.00314	0.08000	0.23000	0.02300
46	0.00358	0.08000	0.23000	0.02300
47	0.00402	0.08000	0.23000	0.02500
48	0.00457	0.08000	0.23000	0.02500
49	0.00517	0.08000	0.23000	0.02500
50	0.00589	0.08000	0.15000	0.03000
51	0.00671	0.08000	0.23000	0.03000
52	0.00759	0.08000	0.23000	0.03000
53	0.00864	0.08000	0.23000	0.03000
54	0.00979	0.08000	0.23000	0.03000
55	0.01111	0.08000	0.20000	0.03000
56	0.01265	0.05000	0.20000	0.03000
57	0.01436	0.05000	0.20000	0.03000
58	0.01628	0.05000	0.20000	0.03000
59	0.01854	0.05000	0.20000	0.03000
60	0.02684	0.12000	0.20000	0.03000
61	0.02684	0.12000	0.20000	0.03000
62	0.02684	0.12000	0.20000	0.03000
63	0.02684	0.12000	0.20000	0.03000
64	0.02684	0.12000	0.20000	0.03000
65	0.02684	0.12000	0.20000	0.03000
66	0.02684	0.12000	0.20000	0.03000
67	0.02684	0.12000	0.20000	0.03000
68	0.02684	0.12000	0.20000	0.03000
69	0.02684	0.12000	0.20000	0.03000
70	0.02684	0.12000	0.20000	0.03000
71	0.02684	0.12000	0.20000	0.03000
72	0.02684	0.12000	0.20000	0.03000
73	0.02684	0.12000	0.20000	0.03000
74	0.02684	0.12000	0.20000	0.03000
75	0.02684	1.00000	0.00000	0.03000

PRIOR ACTUARIAL TABLES AND RATES (Continued)

Age	Male Employee Mortality Rates	Female Employee Mortality Rates	Male Retired Mortality Rates	Female Retired Mortality Rates	Male Disabled Mortality Rates	Female Disabled Mortality Rates
18	0.00025	0.00017	0.00018	0.00012	0.02257	0.00745
19	0.00027	0.00018	0.00019	0.00012	0.02257	0.00745
20	0.00028	0.00018	0.00020	0.00012	0.02257	0.00745
21	0.00030	0.00019	0.00021	0.00012	0.02257	0.00745
22	0.00032	0.00019	0.00022	0.00012	0.02257	0.00745
23	0.00033	0.00019	0.00024	0.00012	0.02257	0.00745
24	0.00035	0.00019	0.00026	0.00013	0.02257	0.00745
25	0.00036	0.00019	0.00028	0.00013	0.02257	0.00745
26	0.00037	0.00020	0.00032	0.00015	0.02257	0.00745
27	0.00037	0.00020	0.00033	0.00015	0.02257	0.00745
28	0.00038	0.00021	0.00034	0.00016	0.02257	0.00745
29	0.00038	0.00021	0.00036	0.00017	0.02257	0.00745
30	0.00038	0.00022	0.00063	0.00019	0.02257	0.00745
31	0.00038	0.00024	0.00069	0.00023	0.02257	0.00745
32	0.00039	0.00025	0.00076	0.00026	0.02257	0.00745
33	0.00041	0.00026	0.00082	0.00028	0.02257	0.00745
34	0.00044	0.00031	0.00088	0.00031	0.02257	0.00745
35	0.00050	0.00035	0.00094	0.00034	0.02257	0.00745
36	0.00056	0.00039	0.00099	0.00037	0.02257	0.00745
37	0.00063	0.00044	0.00104	0.00040	0.02257	0.00745
38	0.00070	0.00047	0.00106	0.00043	0.02257	0.00745
39	0.00077	0.00051	0.00107	0.00046	0.02257	0.00745
40	0.00084	0.00055	0.00109	0.00051	0.02257	0.00745
41	0.00090	0.00060	0.00110	0.00057	0.02257	0.00745
42	0.00096	0.00065	0.00113	0.00063	0.02257	0.00745
43	0.00102	0.00071	0.00115	0.00069	0.02257	0.00745
44	0.00108	0.00077	0.00119	0.00076	0.02257	0.00745
45	0.00114	0.00085	0.00123	0.00080	0.02257	0.00745
46	0.00122	0.00094	0.00126	0.00084	0.02257	0.00745
47	0.00130	0.00103	0.00129	0.00088	0.02257	0.00745
48	0.00140	0.00112	0.00133	0.00094	0.02257	0.00745
49	0.00151	0.00122	0.00138	0.00101	0.02257	0.00818
50	0.00162	0.00133	0.00142	0.00111	0.02257	0.00896
51	0.00173	0.00143	0.00157	0.00123	0.02385	0.00978
52	0.00186	0.00155	0.00167	0.00139	0.02512	0.01063
53	0.00200	0.00168	0.00183	0.00158	0.02640	0.01154
54	0.00214	0.00181	0.00203	0.00180	0.02769	0.01248
55	0.00229	0.00197	0.00241	0.00205	0.02897	0.01346
56	0.00245	0.00213	0.00293	0.00235	0.03027	0.01446
57	0.00262	0.00232	0.00342	0.00265	0.03156	0.01550
58	0.00281	0.00253	0.00401	0.00293	0.03286	0.01654
59	0.00303	0.00276	0.00455	0.00328	0.03415	0.01760
60	0.00331	0.00301	0.00518	0.00373	0.03544	0.01865
61	0.00363	0.00329	0.00608	0.00428	0.03673	0.01971
62	0.00400	0.00360	0.00695	0.00501	0.03803	0.02077
63	0.00441	0.00393	0.00818	0.00586	0.03933	0.02184
64	0.00488	0.00429	0.00918	0.00690	0.04067	0.02294
65	0.00538	0.00466	0.01032	0.00790	0.04204	0.02408
66	0.00592	0.00504	0.01201	0.00899	0.04347	0.02529
67	0.00647	0.00543	0.01337	0.01024	0.04498	0.02660
68	0.00703	0.00582	0.01440	0.01143	0.04658	0.02803
69	0.00757	0.00621	0.01591	0.01273	0.04831	0.02959
70	0.00810	0.00658	0.01726	0.01417	0.05017	0.03132
71	0.00860	0.00695	0.01893	0.01565	0.05221	0.03323
72	0.00907	0.00729	0.02077	0.01741	0.05445	0.03533
73	0.00951	0.00761	0.02284	0.01881	0.05691	0.03764
74	0.00992	0.01858	0.02519	0.02085	0.05961	0.04014
75	0.02457	0.02067	0.02866	0.02233	0.06258	0.04285

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.