MUNICIPAL POLICE EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL VALUATION AS OF
JUNE 30, 2018

G. S. CURRAN & COMPANY, LTD.

Actuarial Services

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November 15, 2018

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, 2018. 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, 2019 and to recommend the net direct employer contribution rate for Fiscal 2020. 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: ______________________________ Gary Curran, F.C.A., M.A.A.A., A.S.A.

______________________________ Gregory Curran, F.C.A., M.A.A.A., A.S.A.

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SUMMARY OF VALUATION RESULTS
MUNICIPAL POLICE EMPLOYEES' RETIREMENT SYSTEM

		June 30, 2018	June 30, 2017
Valuation Date:		June 30, 2018	June 30, 2017
Census Summary:	Active Members	5,685	5,663
	Retired Members and Survivors	4,736	4,691
	DROP Participants	180	193
	Terminated Due a Deferred Benefit	187	181
	Terminated Due a Refund	1,563	1,443
Payroll (excluding DROP accruals):		$ 294,988,865	$ 293,792,282
Benefits in Payment:		$ 144,162,327	$ 139,782,252
Present Value of Future Benefits:		$ 3,440,269,565	$ 3,342,446,272
Actuarial Accrued Liability (EAN):		$ 3,007,181,318	$ 2,918,064,612
Unfunded Actuarial Accrued Liability:		$ 804,879,225	$ 834,823,803
Actuarial Value of Assets (AVA):		$ 2,202,302,093	$ 2,083,240,809
Market Value of Assets (MVA):		$ 2,161,775,206	$ 2,045,022,309
Ratio of AVA to Actuarial Accrued Liability:		73.23%	71.39%

	Fiscal 2018	Fiscal 2017
Market Rate of Return:	7.0%	13.1%
Actuarial Rate of Return:	6.9%	7.7%

	Fiscal 2019	Fiscal 2018
Employers' Normal Cost (Mid-year):	$ 29,208,909	$ 27,935,402
Amortization Cost (Mid-year):	$ 84,445,150	$ 85,367,577
Estimated Administrative Cost:	$ 3,056,885	$ 1,507,074
Expected Insurance Premium Taxes Due:	$ 20,587,174	$ 19,733,532
Net Direct Employer Actuarially Required Contributions:	$ 96,123,770	$ 95,076,521
Projected Payroll:	$ 295,352,200	$ 295,099,358
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 Adopted Net Direct Employer Contribution Rate:		
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	32.25% *	30.75% *
For Employees in the Non-Hazardous Subplan:	32.25%	30.75%
Actuarially Required Net Direct Employer Contribution Rate:		
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	32.55%	32.22%
For Employees in the Non-Hazardous Subplan:	32.55%	32.22%

	Fiscal 2020	Fiscal 2019
Minimum Recommended Net Direct Employer Cont. Rate:		
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	32.50% *	32.25% *
For Employees in the Non-Hazardous Subplan:	32.50%	32.25%

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

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 5,685 active contributing members in the system of whom 2,528 have vested retirement benefits; in addition, there are 180 participants in the Deferred Retirement Option Plan (DROP); 4,736 former members or their beneficiaries are receiving retirement benefits. An additional 1,750 terminated members have contributions remaining on deposit with the system; of this number 187 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 $2,161,775,206 as of June 30, 2018. Net investment income for Fiscal 2018 measured on a market value basis was $141,544,619. Contributions to the system for the fiscal year totaled $139,333,534; benefits and expenses amounted to $163,034,739.

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.

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 consultant, 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 following three actuarial valuations with reductions of 0.175% in 2017, 0.125% in 2018, and 0.075% in 2019. Therefore, the assumed rate of return for the Fiscal 2018 valuation was set at 7.20%. In addition, the inflation rate will be reduced over the same period. For 2018, an assumed rate of inflation of 2.6% was implicit in the assumed rate of return. The remaining actuarial assumptions utilized for this report are based on the results of an actuarial experience study for the period July 1, 2009 – June 30, 2014, unless otherwise specified in this report. Additional details are given in the complete Experience Report for fiscal years 2010 through 2014.

Assuming that the expected returns on the portfolio as a whole are normally distributed, using a consultant average nominal rate of return of 7.19% and long-term portfolio standard deviation of 2.25%, we estimate that there is a 50% probability that the fund will have earnings at or above 7.20% in the long term and a 51% probability that the fund will have earnings at or above 7.125% in the long term.

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 on pages forty-one through forty-six. All assumptions used are based on estimates of future long-term experience for the fund. All calculations, recommendations, and conclusions are based on the assumptions specified. To the extent that prospective experience differs from that assumed, adjustments to contribution levels will be required. Such differences will be revealed in future actuarial valuations. The net effect of the changes in assumptions increased the interest-adjusted amortization payments on the system's UAL by $3,518,385 which corresponds to payments of 1.19% of Fiscal 2018 projected payroll. In addition, the change in assumptions increased the system's normal cost by $1,487,666, or 0.50% 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.

All pension plans are subject to asset performance risk. Asset performance is comprised of the real rates of return earned on the portfolio of investments plus the underlying inflation rate. High levels of inflation or deflation can present the plan with problems by either reducing the purchasing power of plan benefits or impairing asset values in the trust. 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. Another element of asset risk is reinvestment risk. Recent interest rate declines have subjected pension plans to an increase in this risk. As fixed income securities have matured, investment managers have been forced to reinvest funds at decreasing rates of return. For pension plans which require significant net cash flow above contributions to fund benefit payments, the risk of insufficient liquidity is another risk component which can create problems if it becomes necessary to sell securities under unfavorable market conditions in order to raise cash necessary to pay retirement benefits. Even for individual securities, insolvency and performance risk can subject a plan to stress if these investments comprise a significant portion of plan assets. Security insolvency or severe underperformance can result in steep increases in sponsor contributions where individual investments comprise more than a de minimis amount of the investment portfolio.

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. Final average compensation plans are vulnerable to unexpectedly large increases in salary for individual members near retirement. Conversely, in cases where plans have large unfunded liabilities, payroll contraction is a risk insofar as contributions which are typically reported as a percentage of payroll may increase as payrolls decline.

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 can present risks to the plan. These events can affect member payroll and plan demographics, both of which impact costs.

Recommended actuarial contributions are based on expectations related to asset and liability performance; all of the above mentioned factors can produce unexpected changes in the future cost structures of the plan. For this reason, future costs may differ significantly from current levels. 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, certain factors have the potential on their own accord to pose a significant risk to future cost levels and solvency.

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 based on the funding methodology used to fund the plan. The ratio is 73.23% as of June 30, 2018. 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. One additional risk measure is the sensitivity of the plan's cost structure to asset gains and losses. For this plan, 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 (reduction) in the actuarially required contribution as a percentage of projected payroll of 0.80% for the fund.

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 sensitive 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 2018, this ratio is 49%; ten years ago this ratio was 34%.

One other area of risk is the risk that plan assumptions will need to be revised to conform to changing actual or expected plan experience. Such assumption revisions could relate to demographic or economic factors. 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 minimum recommended net direct employer contribution rate for Fiscal 2020 by 15.75% of payroll.

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 assumption, completion of amortization payment and credit schedules, and changes in plan provisions or applicable law. Analysis of the effect of all these factors and additional risk metrics is beyond the scope of this report.

CHANGES IN PLAN PROVISIONS

The following changes to the system were enacted during the 2018 Regular Session of the Louisiana Legislature:

Act 45 of the 2018 Regular Session of the Louisiana Legislature provides that state and statewide retirement systems may invest in terror free investments outside of index fund vehicles to meet the requirements of R.S. 11:316.

Act 225 of the 2018 Regular Session of the Louisiana Legislature added language to comply with certain federal laws related to the Uniformed Services Employment and Reemployment Rights Act (USERRA) providing that each Board of Trustees shall promulgate rules to comply with USERRA.

Act 343 of the 2018 Regular Session of the Louisiana Legislature clarifies the use of the term "average final compensation" and adds "traumatic physical injury causing damage to the brain or spinal cord" to the disability provision contained in R.S. 11:2223(E)(2) which provides a benefit equal to 100% of average final compensation.

Act 345 of the 2018 Regular Session of the Louisiana Legislature clarifies rules related to payment of survivor benefits to a "surviving child" and further defines the term "student."

Act 397 of the 2018 Regular Session of the Louisiana Legislature stipulates that state and statewide retirement systems may appoint an actuary or actuaries whose duties assigned by the Board shall relate only to the practice of actuarial science or ministerial duties that do not require the exercise of supervision or discretionary control over the administration or management of the system.

Act 398 of the 2018 Regular Session of the Louisiana Legislature clarifies that members whose first employment making them eligible for membership in the system occurred prior to January 1, 2013 who receive a refund of all contributions and later return to employment making them eligible for membership shall enter the system as a new member without regard to the dates of prior membership. Any such member who received a refund before June 30, 2018 shall have the right to reestablish previous service under the plan provisions that applied on the date of the refund only if payment is made within one year of covered employment.

Act 399 of the 2018 Regular Session of the Louisiana Legislature stipulates that the Public Retirement Systems' Actuarial Committee is established as the public retirement and pension system advisor of the Legislature of Louisiana. The act further states that the chair and vice chair shall rotate biennially between the speaker of the House of Representatives, or his designee, and the president of the Senate, or his designee, with terms beginning on the first of July. The committee shall elect any other officers as deemed advisable but no officer shall serve for more than four consecutive years.

Act 586 of the 2018 Regular Session of the Louisiana Legislature makes changes to the rules related to payment of a portion of the Unfunded Accrued Liability by employers who fully or partially dissolve its police department.

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
2009	-24.2%	-16.7%
2010	12.4%	-0.8%
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%

* 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 2014 – 2018)	7.3%
10 year average	(Fiscal 2009 – 2018)	5.2%
15 year average	(Fiscal 2004 – 2018)	6.0%
20 year average	(Fiscal 1999 – 2018)	4.9%

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 2018, the fund earned $29,497,314 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 $120,268,814. This income was offset by investment expenses of $8,221,509.

The actuarial rate of return is presented for comparison to the assumed long-term rate of return of 7.325% in effect for Fiscal 2018 (7.20% for Fiscal 2019). For Fiscal 2018, the actuarial rate of return adjusted for elimination of the effect of merger payments was 6.9%. DROP accounts should be credited with 6.4% (i.e. 6.9% 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 7.20% assumption will reduce future costs; yields below 7.20% will increase future costs. For Fiscal 2018, the system experienced net actuarial investment earnings of $7,852,432 below the actuarial assumed earnings rate of 7.325% (in effect for Fiscal 2018) which produced an actuarial loss and increased the interest-adjusted amortization payments on the system's UAL by $843,248 or 0.29% 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 11.05 years of service credit and an annual salary of $51,889. The system's active contributing membership experienced an increase of 22 members during Fiscal 2018. The number of DROP participants decreased by 13. Over the last five years active membership has increased by 83 members.

The average service retiree is 67 years old with a monthly benefit of $3,022. The number of retirees and beneficiaries receiving benefits from the system increased by 45 during the fiscal year. Over the last five years, the number of retirees increased by 396 with annual benefits in payment increasing by $33,427,093.

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 $214,159; this led to a corresponding reduction in employer normal cost percentage of 0.08% of payroll. Plan liability experience for Fiscal 2018 was favorable. Salary increase rates at most durations were less than projected; retirements, disabilities, and DROP entries were below projected levels; withdrawals were above projected levels. These factors tend to reduce costs. Partially offsetting these factors were deaths below projected levels. Net plan liability experience gains totaled $54,697,789. These gains decreased the interest-adjusted amortization payments on the system's unfunded accrued liability by $5,873,826, which corresponds to an offset to payments of 1.99% of Fiscal 2019 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 2018, contributions totaled $5,491,975 less than required (note this includes the effect of a prior period adjustment of $1,090,517 plus interest to mid-year); the interest-adjusted amortization payment on the contribution shortfall for Fiscal 2019 is $589,766, or 0.20% of projected payroll. In addition, for Fiscal 2019 the net effect of the change in payroll on amortization costs was to reduce such costs by 0.02% 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 2019, except for those items labeled Fiscal 2018.

	Dollars	Percentage of Payroll
Employer Normal Cost for Fiscal 2018	$ 27,935,402	9.47%
Cost of Demographic and Salary Changes	$ (214,159)	(0.08%)
Change due to Assumption Changes	$ 1,487,666	0.50%
Employer Normal Cost for Fiscal 2019	$ 29,208,909	9.89%
UAL Amortization Payments for Fiscal 2018	$ 85,367,577	28.93%
Change due to change in payroll	N/A	(0.02%)
Change due to Assumption (Interest Rate) Change	$ (637,152)	(0.22%)
Additional Amortization Expenses for Fiscal 2019:		
Liability Assumption Loss (Gain)	$ 4,155,537	1.41%
Asset Experience Loss (Gain)	$ 843,248	0.29%
Liability Experience Loss (Gain)	$ (5,873,826)	(1.99%)
Contribution Loss (Gain)	$ 589,766	0.20%
Total Amortization Expense (Credit) for Fiscal 2019	$ 84,445,150	28.60%
Insurance Premium Taxes	$ (20,587,174)	(6.97%)
Estimated Administrative Cost for Fiscal 2019	$ 3,056,885	1.03%
Total Employer Normal Cost & Amortization Payments	$ 96,123,770	32.55%

The derivation of the actuarially required contribution for the current fiscal year is given in Exhibit I. The employer normal cost for Fiscal 2019, interest adjusted for mid-year payment is $29,208,909. The interest adjusted amortization payments on the system's unfunded actuarial accrued liability totaled $84,445,150. 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 2019 is $116,710,944. We estimate insurance premium taxes of $20,587,174, or 6.97% of payroll, will be paid to the system in Fiscal 2019. This level of Insurance Premium Taxes represents a 0.28% increase over the prior year as a percentage of payroll. Hence, the actuarially required net direct employer contribution for Fiscal 2019 amounts to $96,123,770 or 32.55% of payroll.

Since the actual employer contribution rate for Fiscal 2019 is 32.25% of payroll, there will be a contribution shortfall of 0.30% of payroll. This shortfall will increase the actuarially required contribution recommended for Fiscal 2020. In order to determine a minimum recommended net direct employer contribution rate for Fiscal 2020, the Employer Normal Cost and Amortization Payments were estimated for Fiscal 2020, adjusted for the impact of the estimated contribution shortfall for Fiscal 2019, and the estimated Insurance Premium Taxes for Fiscal 2020. Therefore, as given in line 25 of Exhibit I, the estimated actuarially required net direct employer contribution for Fiscal 2020 is $95,802,475, or 32.50% 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.

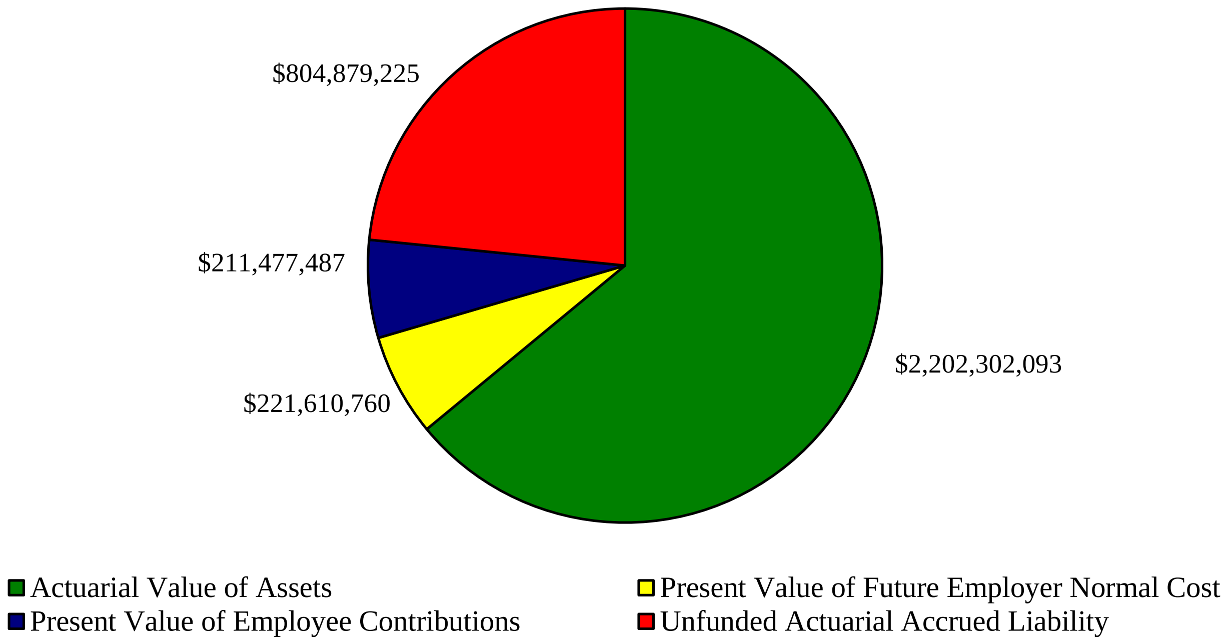
COST OF LIVING INCREASES

During Fiscal 2018, the actual cost of living (as measured by the US Department of Labor CPI-U) increased by 2.9%. 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).

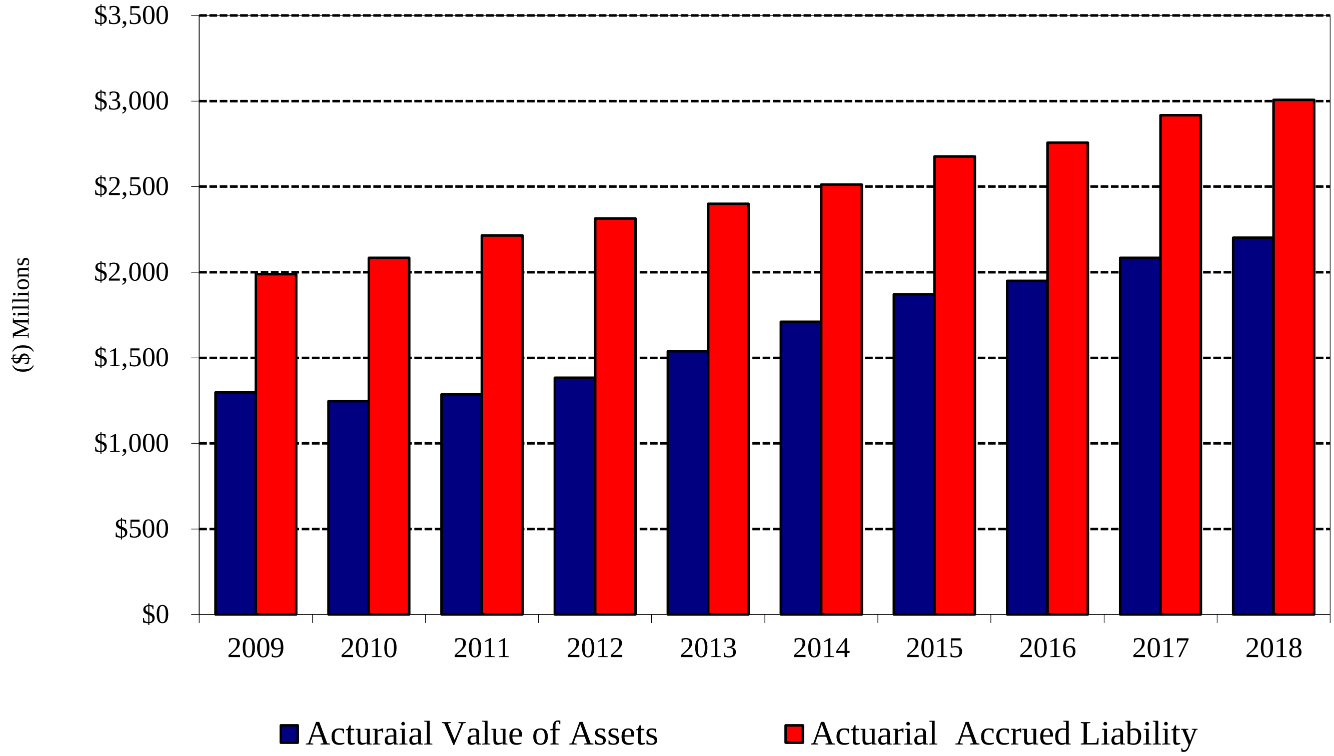
Although the system’s funded ratio as of the end of Fiscal 2018 is 73.23% based on the Actuarial Value of Assets divided by the Entry Age Normal Accrued Liability and the system has not granted a COLA in any of the three most recent fiscal years, the system is not eligible to grant a COLA in Fiscal 2019 because the system did not earn the necessary “excess interest” in Fiscal 2018.

Components of Present Value of Future Benefits
June 30, 2018

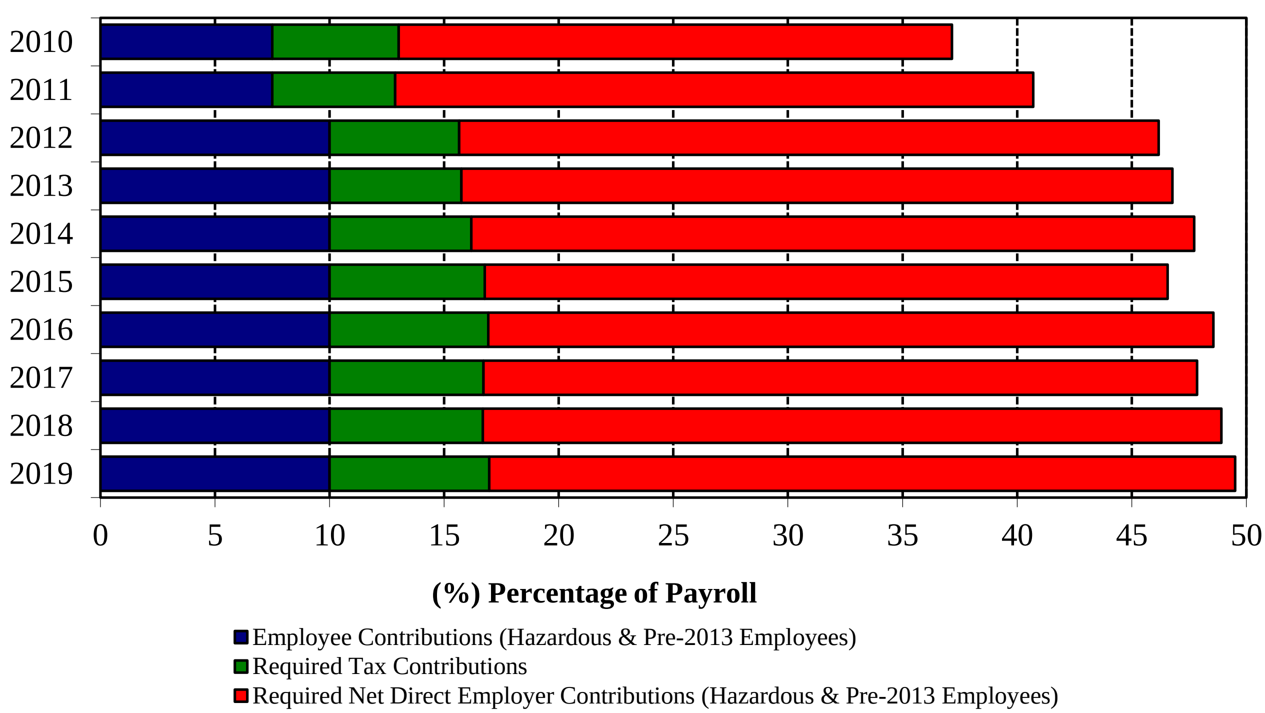


Unfunded Accrued Liability

Actuarial Value of Assets vs. Actuarial Accrued Liability

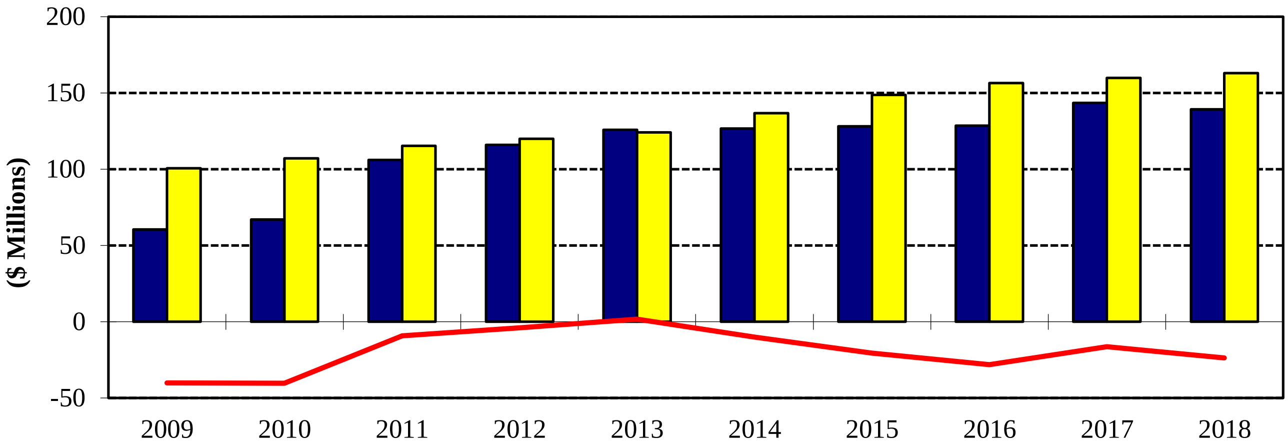


Components of Actuarial Funding



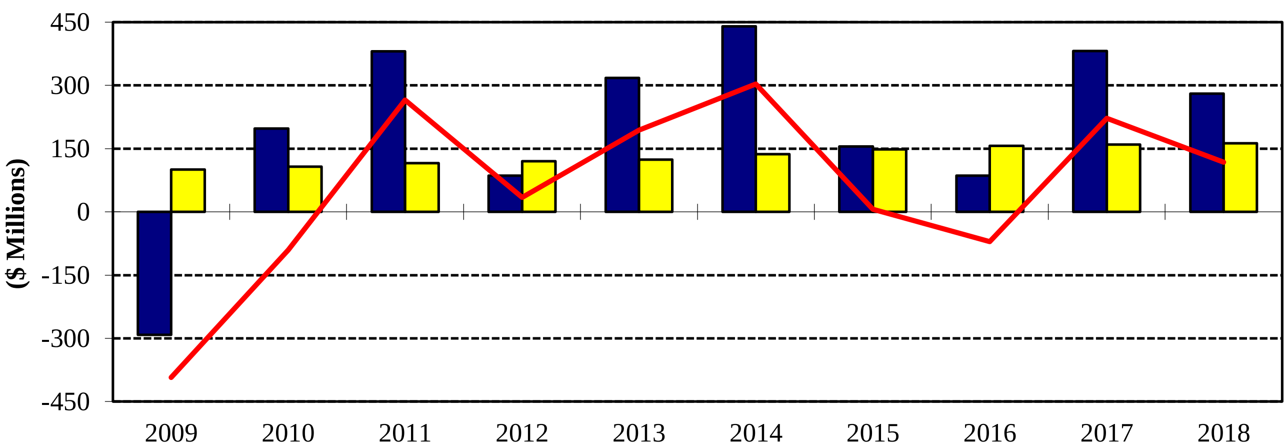
(2012 and later employee contribution level is based on members with earnings above the poverty level)

Net Non-Investment Income



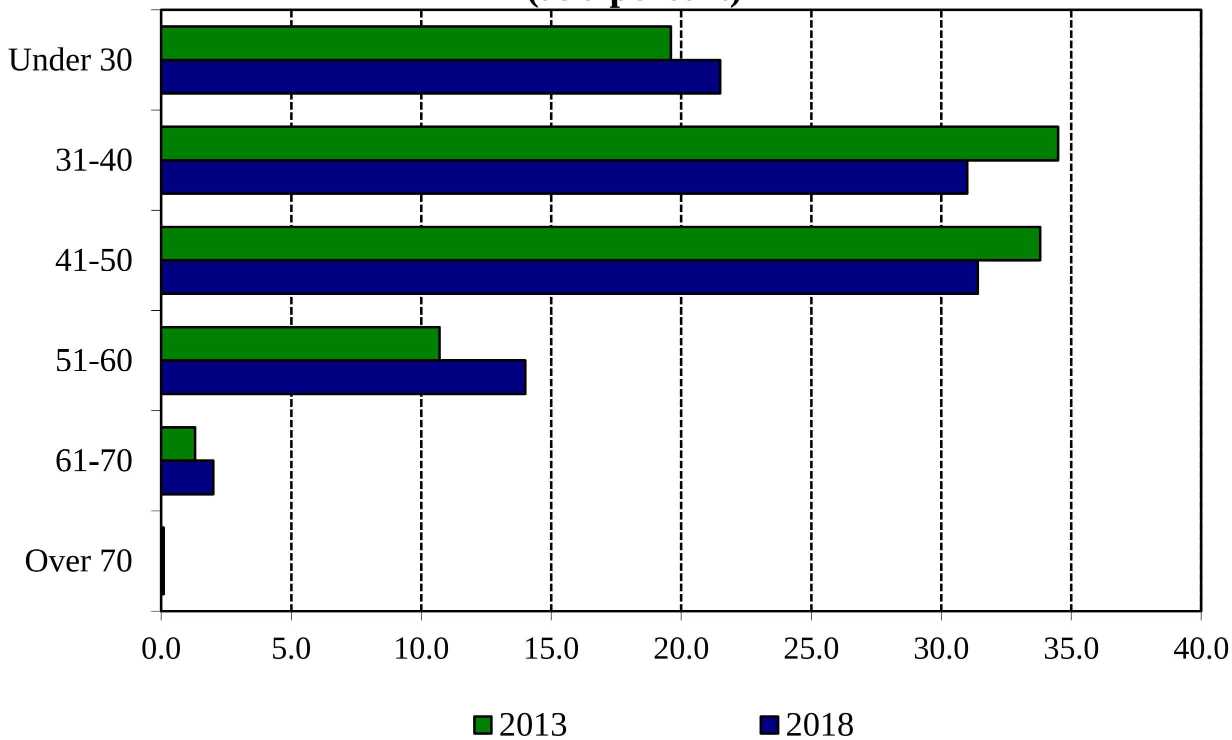
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Non-Investment Income ($Mil)	60.6	67.0	106.1	116.0	125.9	126.6	128.2	128.6	143.4	139.3
Benefits and Expenses ($Mil)	100.7	107.2	115.3	120.0	124.2	136.7	148.7	156.6	159.8	163.0
Net Non-Investment Income ($Mil)	-40.1	-40.2	-9.2	-4.0	1.7	-10.1	-20.5	-28.0	-16.4	-23.7

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

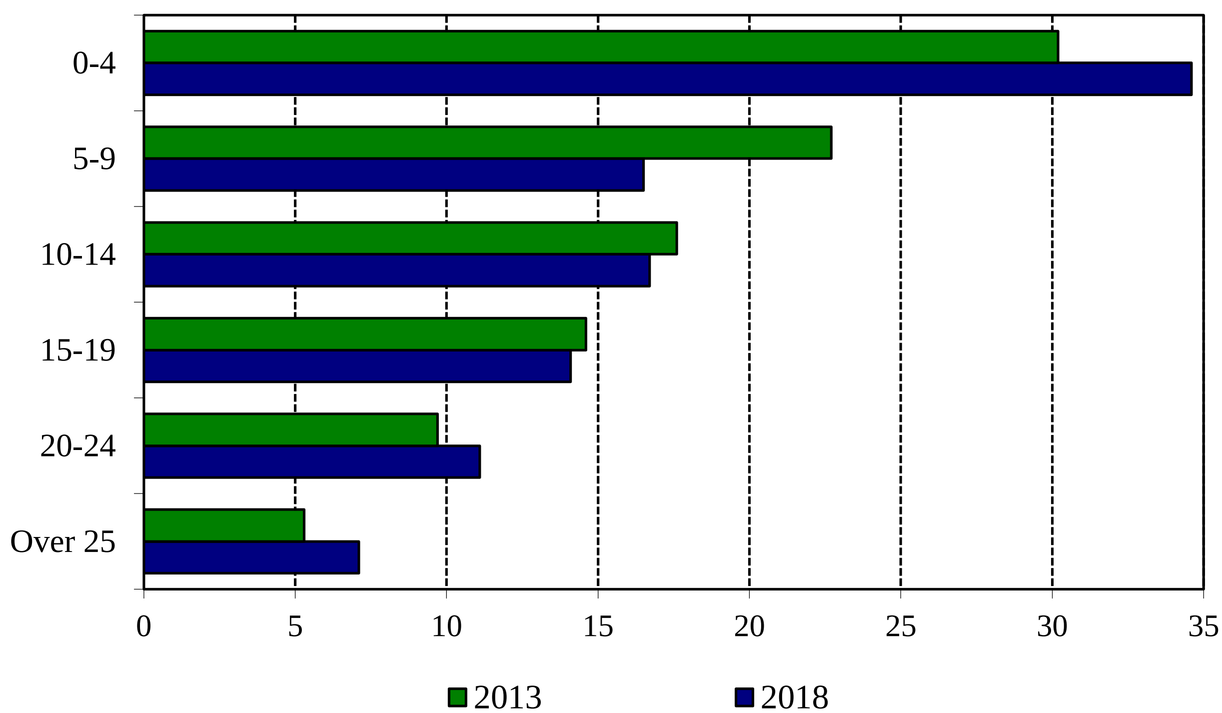


	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total Income ($Mil)	-291.8	198.1	381.0	85.9	318.0	439.9	154.8	86.4	382.0	280.9
Benefits and Expenses ($Mil)	100.7	107.2	115.3	120.0	124.2	136.7	148.7	156.6	159.8	163.0
Net Change in MVA ($Mil)	-392.5	90.9	265.7	34.1	193.8	303.2	6.1	-70.2	222.2	117.9

Active – Census by Age
(as a percent)



Active – Census by Service
(as a percent)



Historical Asset Yields

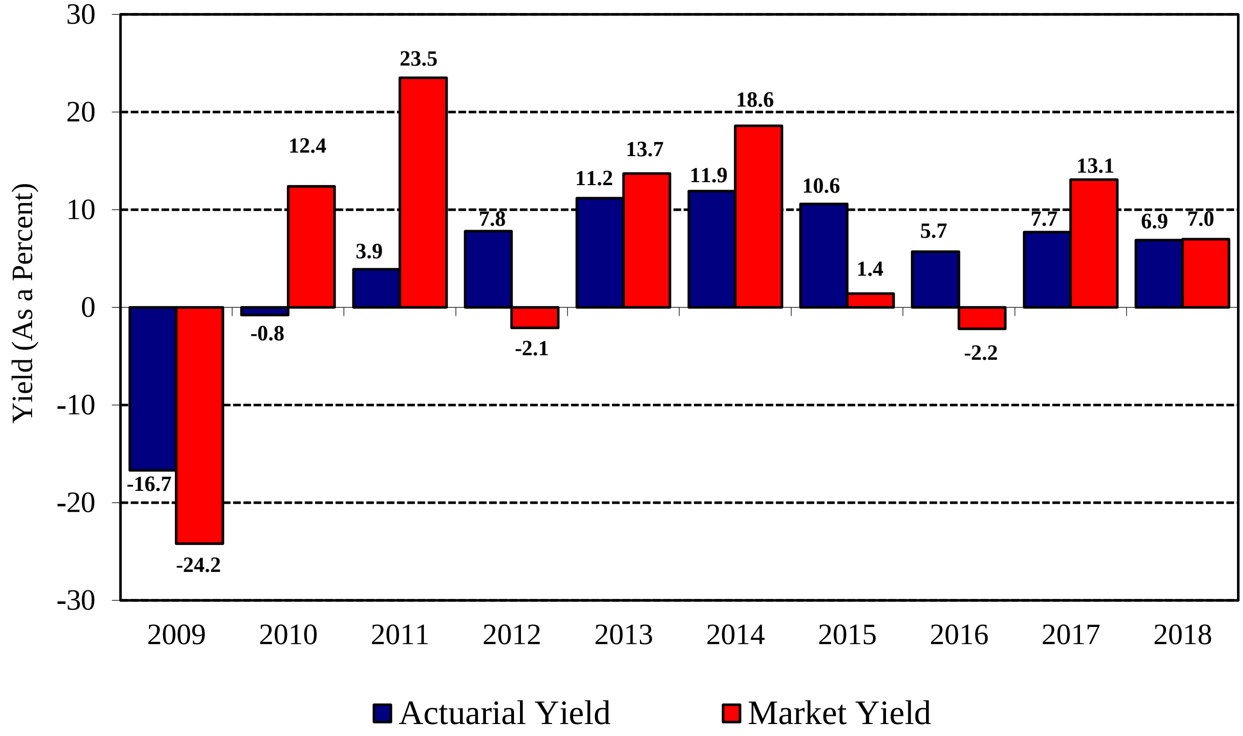


EXHIBIT I
ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS

1.	Normal Cost of Retirement Benefits	$	40,938,596
2.	Normal Cost of Death Benefits	$	1,320,075
3.	Normal Cost of Disability Benefits	$	3,732,555
4.	Normal Cost of Deferred Retirement Benefits	$	4,055,532
5.	Normal Cost of Contribution Refunds	$	5,635,667
6.	TOTAL Normal Cost as of July 1, 2018 (1 + 2 + 3 + 4 + 5)	$	55,682,425
7.	TOTAL Normal Cost Interest Adjusted for Mid-year Payment	$	57,652,153
8.	Adjustment to Total Normal Cost for Employee Portion	$	28,443,244
9.	Employer Normal Cost, Adjusted for Midyear Payment (7 – 8)	$	29,208,909
10.	Amortization Payments on Unfunded Accrued Liability at Midyear	$	84,445,150
11.	Projected Administrative Expenses for Fiscal 2019	$	3,056,885
12.	TOTAL Employer Cost (9 + 10 + 11)	$	116,710,944
13.	Expected Insurance Premium Taxes due in Fiscal 2019	$	20,587,174
14.	Net Direct Actuarially Required Employer Contribution for Fiscal 2019 (12 – 13)	$	96,123,770
15.	Projected Payroll for Contributing Members (Fiscal 2019)	$	295,352,200
16.	Net Direct Actuarially Required Employer Contribution as a Percentage of Projected Payroll for Fiscal 2019 (14 ÷ 15)		32.55% *
17.	Actual Net Direct Employer Contribution Rate for Fiscal 2019		32.25% *
18.	Projected Fiscal 2019 Contribution Loss (Gain) as a % of Payroll (16 – 17)		0.30%
19.	Projected Fiscal 2019 Employer Contribution Shortfall (Surplus) (15 × 18)	$	886,057
20.	Amortization of Interest Adjusted Fiscal 2019 Employer Contribution Shortfall (Surplus) Based on Midyear Payment in Fiscal 2020	$	98,517
21.	Estimated Fiscal 2020 Employer Normal Cost Adjusted for Midyear Payment	$	29,244,885
22.	Estimated Fiscal 2020 Amortization Payments	$	84,445,150
23.	Estimated Fiscal 2020 Administrative Expenses	$	3,136,364
24.	Estimated Insurance Premium Taxes due in Fiscal 2020	$	21,122,441
25.	Estimated Actuarially Required Net Direct Employer Contributions for Fiscal 2020 (20 + 21 + 22 + 23 – 24)	$	95,802,475
26.	Projected Payroll for Contributing Members (Fiscal 2020)	$	295,715,983
27.	Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2020 (25 ÷ 26, Rounded to nearest 0.25%)		32.50% *

* The above rates are for members with earnings greater than the Department of HHS poverty guidelines. For members 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	$ 1,576,770,445	
Survivor Benefits	18,226,047	
Disability Benefits	78,788,139	
Vested Termination Benefits	78,674,531	
Refunds of Contributions	35,680,415	
TOTAL Present Value of Future Benefits for Active Members		$ 1,788,139,577

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement	$ 33,328,946	
Terminated Members with Reciprocals Due Benefits at Retirement	151,945	
Terminated Members Due a Refund	8,367,672	
TOTAL Present Value of Future Benefits for Terminated Members		$ 41,848,563

PRESENT VALUE OF FUTURE BENEFITS FOR RETIREES:

Regular Retirees			
Maximum	$ 534,570,398		
Option 1	1,213,140		
Option 2	575,676,354		
Option 3	221,630,416		
Option 4	1,159,061		
Option 5	0		
TOTAL Regular Retirees		$ 1,334,249,369	
Disability Retirees		47,997,138	
Survivors & Widows		145,303,735	
DROP Account Balances Payable to Retirees		81,339,887	
IBO Retirees' Account Balance		1,391,296	
TOTAL Present Value of Future Benefits for Retirees & Survivors			$ 1,610,281,425

TOTAL PRESENT VALUE OF FUTURE BENEFITS	$ 3,440,269,565

EXHIBIT III – SCHEDULE A
MARKET VALUE OF ASSETS

CURRENT ASSETS:				
Cash in Banks	$	32,373,719		
Contributions and Taxes Receivable		11,938,192		
Accrued Interest and Dividends		4,534,350		
Investments Receivable		61,572,811		
TOTAL CURRENT ASSETS			$	110,419,072
Property, Plant & Equipment			$	2,177,692
INVESTMENTS:				
Cash Equivalents	$	41,113,928		
Equities		1,187,820,935		
Fixed Income		420,917,028		
Real Estate		177,662,809		
Alternative Investments		130,742,607		
Tactical Allocation		105,159,573		
Collateral for Securities Lending		17,879,578		
TOTAL INVESTMENTS			$	2,081,296,458
DEFERRED OUTFLOWS OF RESOURCES			$	38,341
TOTAL ASSETS			$	2,193,931,563
CURRENT LIABILITIES:				
Accounts Payable	$	373,018		
Refunds Payable		452,832		
Investments Payable		11,549,588		
Securities Lending Obligations		17,879,578		
Other Post-Employment Benefits		1,794,597		
TOTAL CURRENT LIABILITIES			$	32,049,613
DEFERRED INFLOWS OF RESOURCES			$	106,744
TOTAL LIABILITIES			$	32,156,357
MARKET VALUE OF ASSETS			$	2,161,775,206

EXHIBIT III – SCHEDULE B
ACTUARIAL VALUE OF ASSETS

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

Fiscal year 2018	$	(7,361,314)
Fiscal year 2017		102,423,689
Fiscal year 2016		(183,165,585)
Fiscal year 2015		(114,129,074)
Fiscal year 2014		176,967,651
Total for five years	$	(25,264,633)

Deferral of Excess (Shortfall) of Invested Income:

Fiscal year 2018 (80%)	$	(5,889,051)
Fiscal year 2017 (60%)		61,454,213
Fiscal year 2016 (40%)		(73,266,234)
Fiscal year 2015 (20%)		(22,825,815)
Fiscal year 2014 (0%)		0
Total Deferred for Year	$	(40,526,887)

Market Value of Plan Net Assets, End of Year	$	2,161,775,206
Preliminary Actuarial Value of Plan Assets, End of Year	$	2,202,302,093

Actuarial Value of Assets Corridor

85% of market value, end of year	$	1,837,508,925
115% of market value, end of year	$	2,486,041,487

Final Actuarial Value of Plan Net Assets, End of Year	$	2,202,302,093

EXHIBIT IV
PRESENT VALUE OF FUTURE CONTRIBUTIONS

Employee Contributions to the Annuity Savings Fund	$	211,477,487
Employer Normal Contributions to the Pension Accumulation Fund		221,610,760
Employer Amortization Payments to the Pension Accumulation Fund		804,879,225
TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS	$	1,237,967,472

EXHIBIT V – SCHEDULE A
ACTUARIAL ACCRUED LIABILITIES

LIABILITY FOR ACTIVE MEMBERS				
Accrued Liability for Retirement Benefits	$	1,260,941,081		
Accrued Liability for Survivor Benefits		8,292,322		
Accrued Liability for Disability Benefits		50,426,316		
Accrued Liability for Vested Termination Benefits		46,433,730		
Accrued Liability for Refunds of Contributions		(11,042,119)		
TOTAL Actuarial Accrued Liability for Active Members			$	1,355,051,330
LIABILITY FOR TERMINATED MEMBERS			$	41,848,563
LIABILITY FOR RETIREES AND SURVIVORS			$	1,610,281,425
TOTAL ACTUARIAL ACCRUED LIABILITY			$	3,007,181,318
ACTUARIAL VALUE OF ASSETS			$	2,202,302,093
UNFUNDED ACTUARIAL ACCRUED LIABILITY			$	804,879,225
Ratio of Actuarial Value of Assets to Entry Age Normal Accrued Liability				73.23%

EXHIBIT V – SCHEDULE B
CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY

PRIOR YEAR UNFUNDED ACCRUED LIABILITY			$	834,823,803
Interest on Unfunded Accrued Liability	$	61,150,844		
Asset Experience Loss		7,852,432		
Liability Assumption Loss		38,696,875		
Contribution Shortfall with Accrued Interest		5,491,975		
TOTAL Additions to UAL			$	113,192,126
Liability Experience Gain	$	54,697,789		
Interest Adjusted Amortization Payments		88,438,915		
TOTAL Reductions to UAL			$	143,136,704
NET Change in Unfunded Accrued Liability			$	(29,944,578)
CURRENT YEAR UNFUNDED ACCRUED LIABILITY			$	804,879,225

EXHIBIT V – SCHEDULE C
AMORTIZATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY
JUNE 30, 2018

FISCAL YEAR	DESCRIPTION	AMORT. PERIOD	INTIAL BALANCE	YEARS REMAINING	REMAINING BALANCE	AMORT. PAYMENTS
2014	Cumulative Bases	20	$801,359,380	16	$718,222,067	$71,865,560
2015	Asset Experience Gain	15	(52,886,689)	12	(46,318,255)	(5,498,017)
2015	Liability Experience Gain	15	(9,412,440)	12	(8,243,431)	(978,502)
2015	Contribution Gain	15	(6,385,205)	12	(5,592,174)	(663,796)
2015	Liability Assumption Loss	15	91,142,323	12	79,822,606	9,475,012
2016	Asset Experience Loss	15	32,707,657	13	30,092,295	3,396,916
2016	Liability Experience Gain	15	(8,714,512)	13	(8,017,684)	(905,062)
2016	Contribution Loss	15	1,831,833	13	1,685,357	190,249
2017	Asset Experience Gain	15	(4,227,464)	14	(4,063,400)	(438,636)
2017	Liability Experience Loss	15	7,622,189	14	7,326,379	790,868
2017	Contribution Gain	15	(8,105,382)	14	(7,790,819)	(841,003)
2017	Liability Assumption Loss	15	52,448,263	14	50,412,792	5,441,958
2018	Asset Experience Loss	15	7,852,432	15	7,852,432	814,438
2018	Experience Gain	15	(54,697,789)	15	(54,697,789)	(5,673,142)
2018	Contribution Loss	15	5,491,975	15	5,491,975	569,616
2018	Liability Assumption Loss	15	38,696,875	15	38,696,875	4,013,560
	TOTAL Unfunded Actuarial Accrued Liability				$804,879,225	*
	TOTAL Fiscal 2019 Amortization Payments at Beginning of Year					$ 81,560,019
	TOTAL Fiscal 2019 Amortization Payments Adjusted to Mid-Year					$ 84,445,150

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

EXHIBIT VI
ANALYSIS OF CHANGE IN ASSETS

Actuarial Value of Assets (June 30, 2017)		$ 2,083,240,809
Prior Period Adjustment		(1,090,517)
Adjusted Actuarial Value of Assets (June 30, 2017)		$ 2,082,150,292
INCOME:		
Member Contributions	$ 28,725,678	
Employer Contributions	90,835,597	
Irregular Contributions	21,228	
Insurance Premium Taxes	19,733,532	
Other Income	17,499	
Total Contributions		$ 139,333,534
Net Appreciation of Investments	$ 120,257,951	
Interest & Dividends	21,061,942	
Securities Litigation Income	10,863	
Alternative Investment Income	8,435,372	
Investment Expense	(8,221,509)	
Net Investment Income		$ 141,544,619
TOTAL Income		$ 280,878,153
EXPENSES:		
Retirement Benefits	$ 141,134,204	
DROP Disbursements	11,955,612	
Refunds of Contributions	4,396,691	
Transfers to Other Systems	3,794,342	
Other Post-Employment Benefits	30,244	
Administrative Expenses (Including Depreciation)	1,723,646	
TOTAL Expenses		$ 163,034,739
Net Market Value Income for Fiscal 2018 (Income – Expenses)		$ 117,843,414
Unadjusted Fund Balance as of June 30, 2018 (Fund Balance Previous Year + Net Income)		$ 2,199,993,706
Adjustment for Actuarial Smoothing		$ 2,308,387
Actuarial Value of Assets: (June 30, 2018)		$ 2,202,302,093

EXHIBIT VII
CENSUS DATA

	Active	Terminated with Funds on Deposit	DROP	Retired	Total
Number of members as of June 30, 2017	5,663	1,624	193	4,691	12,171
Additions to Census					
Initial membership	566	61			627
Omitted in error last year				4	4
Death of another member			(1)	59	58
Adjustment for multiple records					
Change in Status during Year					
Actives terminating service	(233)	233			
Actives who retired	(82)			82	
Actives entering DROP	(70)		70		
Term. members rehired	41	(41)			
Term. members who retire		(5)		5	
Retirees who are rehired	1			(1)	
Refunded who are rehired	17	3			20
DROP participants retiring			(53)	53	
DROP returned to work	29		(29)		
Omitted in error last year					
Eliminated from Census					
Refund of contributions	(236)	(120)			(356)
Deaths	(11)	(5)		(157)	(173)
Included in error last year					
Adjustment for multiple records					
Number of members as of June 30, 2018	5,685	1,750	180	4,736	12,351

ACTIVES CENSUS BY AGE:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
16 - 20	9	6	15	30,468	457,023
21 - 25	284	101	385	36,191	13,933,466
26 - 30	607	217	824	41,023	33,803,226
31 - 35	680	189	869	47,154	40,977,054
36 - 40	671	223	894	51,403	45,953,852
41 - 45	674	225	899	55,382	49,788,603
46 - 50	711	174	885	60,743	53,757,155
51 - 55	442	137	579	60,780	35,191,433
56 - 60	162	56	218	62,203	13,560,233
61 - 65	65	25	90	63,528	5,717,477
66 - 70	14	7	21	65,838	1,382,598
71 - 75	3	0	3	93,615	280,846
76 - 80	2	0	2	49,523	99,045
86 - 90	1	0	1	86,854	86,854
TOTAL	4,325	1,360	5,685	51,889	294,988,865

THE ACTIVE CENSUS INCLUDES 2,528 ACTIVES WITH VESTED BENEFITS, INCLUDING 136 ACTIVE FORMER DROP PARTICIPANTS. THE 180 CURRENT DROP PARTICIPANTS ARE EXCLUDED.

DROP PARTICIPANTS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
46 - 50	22	2	24	60,025	1,440,611
51 - 55	63	8	71	58,537	4,156,114
56 - 60	46	15	61	48,548	2,961,433
61 - 65	10	12	22	32,691	719,202
66 - 70	1	1	2	19,976	39,951
TOTAL	142	38	180	51,763	9,317,311

TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
31 - 35	1	0	1	20,253	20,253
36 - 40	25	3	28	23,606	660,955
41 - 45	41	6	47	27,462	1,290,731
46 - 50	62	9	71	26,062	1,850,425
51 - 55	29	10	39	22,184	865,181
56 - 60	1	0	1	15,712	15,712
TOTAL	159	28	187	25,151	4,703,257

TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

Contributions Ranging From		To	Number	Total Contributions
0	-	99	220	9,432
100	-	499	385	99,819
500	-	999	191	137,815
1000	-	1999	151	217,983
2000	-	4999	184	586,664
5000	-	9999	148	1,055,175
10000	-	19999	146	2,080,680
20000	-	99999	138	4,157,932
		TOTAL	1,563	8,345,500

REGULAR RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
41 - 45	2	1	3	24,313	72,939
46 - 50	56	2	58	43,590	2,528,196
51 - 55	233	37	270	49,948	13,485,922
56 - 60	449	96	545	46,430	25,304,410
61 - 65	631	126	757	40,728	30,830,931
66 - 70	587	89	676	33,521	22,660,168
71 - 75	526	67	593	27,497	16,305,987
76 - 80	266	18	284	25,305	7,186,521
81 - 85	116	10	126	24,035	3,028,462
86 - 90	53	3	56	22,128	1,239,157
91 - 99	28	5	33	21,417	706,754
TOTAL	2,947	454	3,401	36,269	123,349,447

DISABILITY RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
31 - 35	1	2	3	20,866	62,599
36 - 40	6	4	10	21,279	212,789
41 - 45	6	9	15	18,398	275,977
46 - 50	26	5	31	19,471	603,611
51 - 55	22	16	38	19,174	728,609
56 - 60	28	6	34	15,192	516,511
61 - 65	40	12	52	17,645	917,558
66 - 70	34	9	43	14,749	634,201
71 - 75	24	2	26	16,157	420,092
76 - 80	9	3	12	16,015	192,176
81 - 85	1	0	1	12,018	12,018
86 - 90	2	0	2	10,334	20,667
TOTAL	199	68	267	17,217	4,596,808

SURVIVORS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
0 - 25	44	57	101	7,393	746,665
26 - 30	0	4	4	27,757	111,028
31 - 35	1	2	3	30,056	90,169
36 - 40	0	10	10	27,725	277,247
41 - 45	0	13	13	19,651	255,458
46 - 50	2	26	28	19,388	542,859
51 - 55	0	53	53	19,493	1,033,121
56 - 60	3	58	61	24,359	1,485,917
61 - 65	9	74	83	19,183	1,592,197
66 - 70	6	142	148	16,297	2,411,972
71 - 75	8	137	145	16,000	2,320,021
76 - 80	2	150	152	13,972	2,123,739
81 - 85	8	120	128	13,186	1,687,845
86 - 90	5	81	86	11,035	948,985
91 - 99	3	50	53	11,110	588,849
TOTAL	91	977	1,068	15,184	16,216,072

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	12	3										15
21 - 25	165	119	62	33	4	2						385
26 - 30	194	122	142	143	65	158						824
31 - 35	89	78	85	73	51	314	173	6				869
36 - 40	54	49	42	49	27	210	336	125	2			894
41 - 45	38	37	33	34	23	103	195	304	130	2		899
46 - 50	29	20	21	13	14	89	119	193	287	99	1	885
51 - 55	5	9	9	8	4	44	87	118	142	127	26	579
56 - 60	3	1		2		18	29	35	46	53	31	218
61 - 65				1		2	8	17	20	16	26	90
66 - 70							1	3	3	3	11	21
71 & Over										1	5	6
Totals	589	438	394	356	188	940	948	801	630	301	100	5,685

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	31,129	27,826										30,468
21 - 25	34,009	36,503	39,377	39,591	40,516	34,109						36,191
26 - 30	34,652	38,770	43,870	44,050	40,812	45,375						41,023
31 - 35	35,359	40,359	43,585	45,354	43,506	49,436	55,708	47,890				47,154
36 - 40	35,328	36,382	45,421	46,247	41,972	49,164	55,987	61,544	63,647			51,403
41 - 45	34,271	39,408	40,190	44,548	40,922	48,213	55,578	61,367	66,194	90,758		55,382
46 - 50	36,969	46,812	40,510	38,232	45,369	46,581	54,464	58,956	70,117	76,128	100,129	60,743
51 - 55	38,115	43,176	37,405	39,248	32,817	46,063	50,317	55,345	67,574	73,330	76,420	60,780
56 - 60	31,121	42,626		80,716		37,775	48,632	52,976	65,147	70,149	83,990	62,203
61 - 65				64,400		43,692	51,606	49,446	63,072	64,603	77,583	63,528
66 - 70							79,744	33,979	56,392	60,409	77,319	65,838
71 & Over										24,965	88,356	77,791
Average	34,670	38,615	42,632	44,197	41,886	47,862	54,904	59,104	68,062	73,052	80,002	51,889

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									1			1
36 - 40								28				28
41 - 45						1	45	1				47
46 - 50	1	2	4	5		59						71
51 - 55	6	6	12	10	5							39
56 - 60	1											1
61 & Over												0
Totals	8	8	16	15	5	60	45	29	1	0	0	187

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									20,253			20,253
36 - 40								23,606				23,606
41 - 45						37,054	26,936	41,545				27,462
46 - 50	40,008	42,381	33,907	38,437		23,692						26,062
51 - 55	22,389	18,358	22,375	24,673	21,093							22,184
56 - 60	15,712											15,712
61 & Over												0
Average	23,757	24,364	25,258	29,261	21,093	23,915	26,936	24,224	20,253	0	0	25,151

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	21	15	11	8	2	4						61
51 - 55	44	52	52	33	28	53	8					270
56 - 60	36	51	52	59	73	207	60	6	1			545
61 - 65	18	17	39	31	59	264	248	74	7			757
66 - 70	12	5	9	13	11	104	223	214	78	7		676
71 - 75		3	3	5	8	35	76	187	219	22	35	593
76 - 80				1		6	18	28	80	95	56	284
81 - 85						2	2	3	11	24	84	126
86 - 90								2	6	3	45	56
91 & Over								2	1	2	28	33
Totals	131	143	166	150	181	675	635	516	403	153	248	3,401

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	43,713	48,553	41,712	39,363	37,475	26,548						42,642
51 - 55	55,431	51,646	50,900	52,855	51,409	43,866	25,747					49,948
56 - 60	51,201	42,254	45,576	49,099	52,989	46,699	39,256	22,728	12,905			46,430
61 - 65	41,287	40,233	48,925	46,977	48,738	42,788	37,875	32,123	13,969			40,728
66 - 70	36,596	45,726	50,961	37,778	42,666	38,546	33,707	31,486	27,119	27,784		33,521
71 - 75		35,091	48,230	32,568	40,286	35,201	29,583	25,882	27,784	27,967	15,733	27,497
76 - 80				13,818		30,589	22,153	24,279	27,480	28,842	17,361	25,305
81 - 85						64,178	45,428	17,139	21,848	29,128	21,648	24,035
86 - 90								41,531	39,549	10,586	19,712	22,128
91 & Over								26,930	36,608	28,109	20,002	21,417
Average	48,721	46,061	48,114	47,200	49,999	42,884	34,975	28,991	27,353	28,345	19,308	36,269

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	1									3
36 - 40	2	2		1		5						10
41 - 45	1		2			8	2	2				15
46 - 50		2	2	2	2	10	8	4	1			31
51 - 55		6	1		4	6	6	8	5	2		38
56 - 60						5	7	13	3	5	1	34
61 - 65						3	11	12	13	9	4	52
66 - 70							1	7	14	13	8	43
71 - 75							1	1	4	8	12	26
76 - 80									3	2	7	12
81 - 85											1	1
86 - 90											2	2
91 & Over												0
Totals	4	11	6	3	6	37	36	47	43	39	35	267

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	23,681	18,611	20,307									20,866
36 - 40	22,587	18,201		23,278		21,587						21,279
41 - 45	28,930		22,113			18,864	14,741	11,214				18,398
46 - 50		25,528	36,348	20,944	23,451	18,780	17,842	12,101	12,133			19,471
51 - 55		24,508	11,297		25,580	27,569	17,470	13,117	10,782	19,435		19,174
56 - 60						22,211	17,859	13,583	16,431	8,473	12,200	15,192
61 - 65						14,881	19,870	24,329	15,404	13,027	11,228	17,645
66 - 70							29,764	13,154	17,464	13,927	10,852	14,749
71 - 75							13,555	8,916	20,474	17,462	14,669	16,157
76 - 80									9,232	12,732	19,859	16,015
81 - 85											12,018	12,018
86 - 90											10,333	10,333
91 & Over												0
Average	24,446	23,010	24,754	21,722	24,870	20,750	18,443	15,857	15,574	13,966	14,047	17,217

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	10	10	11	8	1	16	17	8			1	82
21 - 25			2	2		4	4	3	3	1		19
26 - 30	1	2		1								4
31 - 35	1	1							1			3
36 - 40	3	2	1	1			2			1		10
41 - 45			1	1		4	4	1			2	13
46 - 50	2	1	2	1		4	5	6	5	1	1	28
51 - 55	1		2		1	9	9	7	12	8	4	53
56 - 60	2		3		1	7	16	10	12	5	5	61
61 - 65		1		1	1	8	14	18	15	9	16	83
66 - 70		2			1	9	17	32	38	16	33	148
71 - 75	2	1	1			5	9	14	38	29	46	145
76 - 80	4		1		1	1	1	7	21	25	91	152
81 - 85						1		5	8	13	101	128
86 - 90	1			1				2		3	79	86
91 & Over							1			2	50	53
Totals	27	20	24	16	6	68	99	113	153	113	429	1,068

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	7,265	7,156	9,575	9,858	20,507	7,221	4,980	6,167			2,640	7,330
21 - 25			6,525	10,852		13,336	6,418	4,679	4,953	2,924		7,663
26 - 30	40,462	26,632		17,301								27,757
31 - 35	41,095	47,031							2,043			30,056
36 - 40	30,665	33,488	36,943	17,743			23,882			15,825		27,725
41 - 45			12,745	41,586		17,882	28,462	9,215			3,269	19,651
46 - 50	32,007	36,835	37,245	15,365		28,867	18,259	12,630	8,732	22,333	3,619	19,388
51 - 55	41,016		33,371		32,792	30,671	25,641	16,831	11,056	9,886	14,048	19,493
56 - 60	46,045		47,691		53,199	31,896	29,872	23,789	12,225	14,483	7,866	24,359
61 - 65		36,694		40,536	20,089	25,200	29,082	20,094	17,095	12,534	9,700	19,183
66 - 70		8,855			37,886	16,327	20,841	16,670	19,784	14,605	10,188	16,297
71 - 75	19,527	6,000	20,463			20,031	31,240	15,168	18,377	15,160	11,367	16,000
76 - 80	20,771		22,261		16,995	1,069	38,437	12,394	20,527	20,972	10,107	13,972
81 - 85						62,379		22,256	16,876	15,203	11,698	13,186
86 - 90	6,000			36,139				5,136		18,062	10,663	11,035
91 & Over							2,840			29,758	10,530	11,110
Average	21,165	16,804	20,629	16,828	30,245	20,108	21,776	16,105	17,075	16,056	10,706	15,184

EXHIBIT VIII
YEAR-TO-YEAR COMPARISON

	Fiscal 2018	Fiscal 2017	Fiscal 2016	Fiscal 2015
Number of Active Members	5,685	5,663	5,666	5,535
Number of Retirees & Survivors	4,736	4,691	4,637	4,538
DROP Participants	180	193	191	228
Number of Terminated Due Deferred Benefits	187	181	175	168
Number Terminated Due Refunds	1,563	1,443	1,324	1,320
Active Lives Payroll (excludes DROP participants)	$ 294,988,865	$ 293,792,282	$ 281,546,022	$ 265,089,428
Retiree Benefits in Payment	$ 144,162,327	$ 139,782,252	$ 134,868,070	$ 128,050,009
Market Value of Assets	$ 2,161,775,206	$ 2,045,022,309	$ 1,822,858,397	$ 1,893,077,295
Ratio of Actuarial Value of Assets to Actuarial Accrued Liability	73.23%	71.39%	70.64%	69.91%
Actuarial Accrued Liability (EAN)	$ 3,007,181,318	$ 2,918,064,612	$ 2,760,140,132	$ 2,676,472,766
Actuarial Value of Assets	$ 2,202,302,093	$ 2,083,240,809	$ 1,949,755,816	$ 1,871,160,542
UAL (Funding Excess)	$ 804,879,225	$ 834,823,803	$ 810,384,316	$ 805,312,224

	Fiscal 2019	Fiscal 2018	Fiscal 2017	Fiscal 2016
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	6.97%	6.69%	6.71%	6.93%
Actuarially Required Employer Contribution Rate:				
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	32.55% †	32.22% †	31.14% †	31.63% †
For Employees in the Non-Hazardous Subplan:	32.55%	32.22%	31.14%	33.63%
Board Approved Employer Contribution Rate				
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	32.25% †	30.75% †	31.75% †	29.50% †
For Employees in the Non-Hazardous Subplan:	32.25%	30.75%	33.75%	31.50%

† 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 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011	Fiscal 2010	Fiscal 2009
5,468	5,602	5,779	5,933	6,197	6,071
4,444	4,340	4,230	4,165	4,028	3,984
271	314	284	231	194	185
159	145	130	128	112	112
1,272	1,252	1,176	1,251	1,198	1,197
$ 259,594,435	$ 264,711,491	$ 272,606,934	$ 273,348,634	$ 280,977,278	$ 270,236,561
$ $118,522,277 *	$ 110,735,234	$ 104,998,503	$ 99,863,547	$ 93,382,980	$ 90,285,300
$ 1,887,019,463	$ 1,600,532,779	$ 1,406,662,003	$ 1,440,795,586	$ 1,175,083,706	$ 1,084,169,309
68.11%	64.15%	59.75%	58.05%	59.87%	65.23%
$ 2,512,627,665	$ 2,399,375,820	$ 2,313,751,839	$ 2,215,674,343	$ 2,083,809,321	$ 1,988,394,358
$ 1,711,268,285	$ 1,539,218,085	$ 1,382,503,860	$ 1,286,287,651	$ 1,247,546,395	$ 1,297,128,398
$ 801,359,380	$ 860,157,735	$ 931,247,979	$ 929,386,692	$ 836,262,926	$ 691,265,960

Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011	Fiscal 2010
10.00% †	10.00%	10.00%	10.00%	7.50%	7.50%
8.00%	N/A	N/A	N/A	N/A	N/A
6.77%	6.19%	5.75%	5.65%	5.36%	5.52%
29.80% †	31.53%	31.03%	30.52%	27.84%	24.13%
31.80%	N/A	N/A	N/A	N/A	N/A
31.50% †	31.00%	31.00%	26.50%	25.00%	11.00%
33.50%	N/A	N/A	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, 2018.

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%. 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 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 or enters 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: 7.20% (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: 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.

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 2.6% 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.

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 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.

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

SERVICE RELATED DEATH: 20% of Total Deaths

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

SERVICE RELATED DISABILITY: 20% of Total Disabilities

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.

ACTUARIAL TABLES AND RATES

Age	Disability Rates	Retirement Rates	DROP Entry Rates	Withdrawal Rates	Remarriage Rates
18	0.00083	0.00000	0.00000	0.04750	0.06124
19	0.00083	0.00000	0.00000	0.04750	0.06124
20	0.00083	0.00000	0.00000	0.04750	0.06124
21	0.00083	0.00000	0.00000	0.04750	0.05818
22	0.00083	0.00000	0.00000	0.04750	0.05524
23	0.00083	0.00000	0.00000	0.04750	0.05242
24	0.00083	0.00000	0.00000	0.04500	0.04971
25	0.00083	0.00000	0.00000	0.04500	0.04566
26	0.00083	0.00000	0.00000	0.04500	0.04335
27	0.00083	0.00000	0.00000	0.04000	0.04114
28	0.00083	0.00000	0.00000	0.04000	0.03902
29	0.00083	0.00000	0.00000	0.04000	0.03698
30	0.00083	0.00000	0.00000	0.04000	0.03502
31	0.00083	0.00000	0.00000	0.03500	0.03314
32	0.00083	0.00000	0.00000	0.03500	0.03134
33	0.00083	0.00000	0.00000	0.03500	0.02961
34	0.00083	0.00000	0.00000	0.03500	0.02795
35	0.00094	0.00000	0.00000	0.03500	0.02636
36	0.00105	0.00000	0.00000	0.03000	0.02483
37	0.00116	0.00000	0.00000	0.03000	0.02336
38	0.00132	0.00000	0.00000	0.03000	0.02195
39	0.00149	0.00000	0.00000	0.02300	0.02060
40	0.00171	0.00000	0.00000	0.02300	0.01930
41	0.00193	0.08000	0.23000	0.02300	0.01805
42	0.00215	0.08000	0.23000	0.02300	0.01686
43	0.00242	0.08000	0.23000	0.02300	0.01571
44	0.00275	0.08000	0.23000	0.02300	0.01461
45	0.00314	0.08000	0.23000	0.02300	0.01355
46	0.00358	0.08000	0.23000	0.02300	0.01253
47	0.00402	0.08000	0.23000	0.02500	0.01156
48	0.00457	0.08000	0.23000	0.02500	0.01063
49	0.00517	0.08000	0.23000	0.02500	0.00973
50	0.00589	0.08000	0.15000	0.03000	0.00887
51	0.00671	0.08000	0.23000	0.03000	0.00804
52	0.00759	0.08000	0.23000	0.03000	0.00725
53	0.00864	0.08000	0.23000	0.03000	0.00649
54	0.00979	0.08000	0.23000	0.03000	0.00576
55	0.01111	0.08000	0.20000	0.03000	0.00000
56	0.01265	0.05000	0.20000	0.03000	0.00000
57	0.01436	0.05000	0.20000	0.03000	0.00000
58	0.01628	0.05000	0.20000	0.03000	0.00000
59	0.01854	0.05000	0.20000	0.03000	0.00000
60	0.02684	0.12000	0.20000	0.03000	0.00000
61	0.02684	0.12000	0.20000	0.03000	0.00000
62	0.02684	0.12000	0.20000	0.03000	0.00000
63	0.02684	0.12000	0.20000	0.03000	0.00000
64	0.02684	0.12000	0.20000	0.03000	0.00000
65	0.02684	0.12000	0.20000	0.03000	0.00000
66	0.02684	0.12000	0.20000	0.03000	0.00000
67	0.02684	0.12000	0.20000	0.03000	0.00000
68	0.02684	0.12000	0.20000	0.03000	0.00000
69	0.02684	0.12000	0.20000	0.03000	0.00000
70	0.02684	0.12000	0.20000	0.03000	0.00000
71	0.02684	0.12000	0.20000	0.03000	0.00000
72	0.02684	0.12000	0.20000	0.03000	0.00000
73	0.02684	0.12000	0.20000	0.03000	0.00000
74	0.02684	0.12000	0.20000	0.03000	0.00000
75	0.02684	1.00000	0.00000	0.03000	0.00000

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

PRIOR YEAR ASSUMPTIONS

VALUATION INTEREST RATE:	7.325% (Net of investment expense)
ASSUMED LONG TERM INFLATION RATE:	2.7%

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.