MUNICIPAL POLICE EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL VALUATION AS OF
JUNE 30, 2019

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November 18, 2019

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, 2019. 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, 2020 and to recommend the net direct employer contribution rate for Fiscal 2021. 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

Valuation Date:		June 30, 2019	June 30, 2018
Census Summary:	Active Members	5,729	5,685
	Retired Members and Survivors	4,770	4,736
	DROP Participants	203	180
	Terminated Due a Deferred Benefit	201	187
	Terminated Due a Refund	1,670	1,563
Payroll (excluding DROP accruals):		$ 305,445,379	$ 294,988,865
Benefits in Payment:		$ 148,972,071	$ 144,162,327
Present Value of Future Benefits:		$ 3,584,876,862	$ 3,440,269,565
Actuarial Accrued Liability (EAN):		$ 3,132,449,454	$ 3,007,181,318
Unfunded Actuarial Accrued Liability:		$ 849,165,345	$ 804,879,225
Actuarial Value of Assets (AVA):		$ 2,283,284,109	$ 2,202,302,093
Market Value of Assets (MVA):		$ 2,224,281,981	$ 2,161,775,206
Ratio of AVA to Actuarial Accrued Liability:		72.89%	73.23%

	Fiscal 2019	Fiscal 2018
Market Rate of Return:	3.8%	7.0%
Actuarial Rate of Return:	4.6%	6.9%

	Fiscal 2020	Fiscal 2019
Employers' Normal Cost (Mid-year):	$ 30,521,520	$ 29,208,909
Amortization Cost (Mid-year):	$ 91,971,624	$ 84,445,150
Estimated Administrative Cost:	$ 2,177,138	$ 3,056,885
Expected Insurance Premium Taxes Due:	$ 21,797,215	$ 20,587,174
Net Direct Employer Actuarially Required Contributions:	$ 102,873,067	$ 96,123,770
Projected Payroll:	$ 305,371,382	$ 295,352,200
Statutory Employee Contribution Rate:		
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	10.00% *	10.00% *
For Employees in the Non-Hazardous Subplan	8.00%	8.00%
Board Approved Net Direct Employer Contribution Rate:	32.50% *	32.25% *
Actuarially Required Net Direct Employer Contribution Rate:	33.69%	32.55%

	Fiscal 2021	Fiscal 2020
Minimum Recommended Net Direct Employer Cont. Rate:	33.75% *	32.50% *

* 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.

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 5,729 active contributing members in the system of whom 2,555 have vested retirement benefits; in addition, there are 203 participants in the Deferred Retirement Option Plan (DROP); 4,770 former members or their beneficiaries are receiving retirement benefits. An additional 1,871 terminated members have contributions remaining on deposit with the system; of this number 201 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 $2,224,281,981 as of June 30, 2019. Net investment income for Fiscal 2019 measured on a market value basis was $81,329,838. Contributions to the system for the fiscal year totaled $151,954,924; benefits and expenses amounted to $170,777,987.

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 consultants, New England Pension Consultants. Based on this analysis and after discussions with the Board, a plan was approved to reduce the 7.5% valuation interest rate in effect for the Fiscal 2016 actuarial valuation to 7.125% over the subsequent three actuarial valuations with reductions of 0.175% in 2017, 0.125% in 2018, and 0.075% in 2019. In addition, the inflation rate was to be reduced over the same period. Under this schedule, the Fiscal 2019 actuarial valuation was to be run at a 7.125% valuation interest rate. Prior to the completion of this valuation, a review of the valuation interest rate for Fiscal 2019 was performed based upon an update to the G. S. Curran & Company Consultant Average Capital Market Assumptions for 2019 and an update to the actuary's reasonable range for the assumed rate of return. To determine the reasonable range, the actuary computed an expected long-term portfolio return and standard deviation based upon the system's target asset allocation and a thirty year time horizon. Based upon the results of this study, ten thousand stochastic trials were run to determine a reasonable range around the plan's expected long-term portfolio rate of return. The review found that the scheduled rate of 7.125% was within the reasonable range. Therefore, the assumed rate of return for the Fiscal 2019 valuation was set at 7.125%. For 2019, an assumed rate of inflation of 2.5% was implicit in the assumed rate of return. This assumed rate of long-term inflation is below the value used in 2018. With the exception of the change in valuation interest rate and inflation rate, 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.

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-five. 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 $2,266,909 which corresponds to payments of 0.74% of Fiscal 2019 projected payroll. In addition, the change in assumptions increased the system's normal cost by $937,215, or 0.31% 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. Interest rate declines can subject pension plans to an increase in this risk. As fixed income securities mature, investment managers may be forced to reinvest funds at decreasing rates of return. For 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 72.89% as of June 30, 2019. 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 the assumed rate of return on the actuarial value of assets, there will be a corresponding increase 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 2019, this ratio is 49%; ten years ago this ratio was 33%.

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 2021 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 2019 Regular Session of the Louisiana Legislature:

Act 288 of the 2019 Regular Session of the Louisiana Legislature states that any employee who files an affidavit electing not to be a member is not only not eligible to rejoin the system while employed by the same employer but also not eligible to rejoin the system if employed by any other employer whose employees are covered by the federal Social Security program. Also, upon returning to work with any employer whose employees are not covered under the federal Social Security System no such employee may purchase credit for any period where he opted out of membership. Additionally, the act authorizes the Department of Public Safety and Corrections to provide the name, address, and social security number of each recipient of state supplemental pay to the Retirement System and the Municipal Police Employees’ Retirement System.

Act 92 of the 2019 Regular Session of the Louisiana Legislature outlines a solution for the issue surrounding the inclusion of disputed overtime by Baton Rouge in salaries reported to the Municipal Police Employees’ Retirement System. The act provides that Baton Rouge will discontinue the inclusion of disputed overtime on all employees whose employment with Baton Rouge making them eligible for membership in the Municipal Police Employees’ Retirement System began on or after January 1, 2018. It further requires that Baton Rouge pay at retirement an amount equal to the actuarial cost of including the disputed overtime less the value of contributions received by the Municipal Police Employees’ Retirement System on disputed overtime with interest for any Baton Rouge officer who became a member of the Municipal Police Employees’ Retirement System during the period from February 26, 2000 through December 31, 2017 and did not receive a refund of his accumulated contributions after December 31, 2017. The act further discusses the reimbursement of certain Municipal Police Employees’ Retirement System administrative expenses by Baton Rouge.

Act 78 of the 2019 Regular Session of the Louisiana Legislature provides authorization for the Louisiana School Employees’ Retirement System, Louisiana State Police Retirement System, and Municipal Police Employees’ Retirement System to transfer lump sum distributions to a third-party investment services provider selected by the Board of Trustees. The third party investment services provider shall act as an agent of the system to allow for participants to self-direct the investing of their lump sum balances.

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
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%
2019	3.8%	4.6%

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

Geometric Average Market Rates of Return

5 year average	(Fiscal 2015 – 2019)	4.5%
10 year average	(Fiscal 2010 – 2019)	8.6%
15 year average	(Fiscal 2005 – 2019)	5.4%
20 year average	(Fiscal 2000 – 2019)	4.6%

The market rate of return gives a measure of investment return on a total return basis and includes realized and unrealized capital gains and losses as well as interest income. 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 2019, the fund earned $35,062,704 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 $55,724,070. This income was offset by investment expenses of $9,456,936.

The actuarial rate of return is presented for comparison to the assumed long-term rate of return of 7.20% in effect for Fiscal 2019 (7.125% for Fiscal 2020). For Fiscal 2019, the actuarial rate of return adjusted for elimination of the effect of merger payments was 4.6%. DROP accounts should be credited with 4.1% (i.e. 4.6% less 0.5%). The actuarial rate of return is calculated based on the actuarial value of assets and all interest, dividends, and recognized capital gains as given in Exhibit VI. Investment income used to calculate this yield is based upon a smoothing of investment returns above or below the valuation interest rate over a five year period subject to constraints. The difference between rates of return on an actuarial and market value basis results from the smoothing of gains or losses on investments relative to the valuation interest rate. Yields in excess of the 7.125% assumption will reduce future costs; yields below 7.125% will increase future costs. For Fiscal 2019, the system experienced net actuarial investment earnings of $58,094,818 below the actuarial assumed earnings rate of 7.20% (in effect for Fiscal 2019) which produced an actuarial loss and increased the interest-adjusted amortization payments on the system's UAL by $6,211,474 or 2.03% 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 10.91 years of service credit and an annual salary of $53,316. The system's active contributing membership experienced an increase of 44 members during Fiscal 2019. The number of DROP participants increased by 23. Over the last five years active membership has increased by 261 members.

The average service retiree is 67 years old with a monthly benefit of $3,085. The number of retirees and beneficiaries receiving benefits from the system increased by 34 during the fiscal year. Over the last five years, the number of retirees increased by 326 with annual benefits in payment increasing by $30,449,794.

The changes in the makeup of the population and changes in members' salaries increased the interest adjusted employer normal cost over the last year by $375,396; the corresponding change in employer normal cost percentage was a reduction of 0.20% of payroll. Plan liability experience for Fiscal 2019 was favorable. Disabilities and DROP entries were below projected levels; withdrawals and retiree deaths were above projected levels. These factors tend to reduce costs. Partially offsetting these factors were retirements and salary increases at many durations above projected levels. Net plan liability experience gains totaled $788,461. These gains decreased the interest-adjusted amortization payments on the system's unfunded accrued liability by $84,302, which corresponds to payments of 0.03% of Fiscal 2020 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 2019 contributions totaled $8,114,574 more than required; the interest-adjusted amortization credit on the contribution surplus for Fiscal 2020 is $867,607, or 0.28% of projected payroll. In addition, for Fiscal 2020 the net effect of the change in payroll on amortization costs was to reduce such costs by 0.93% 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 2020, except for those items labeled Fiscal 2019.

	Dollars	Percentage of Payroll
Employer Normal Cost for Fiscal 2019	$ 29,208,909	9.89%
Cost of Demographic and Salary Changes	$ 375,396	(0.20%)
Change due to Assumption Changes	$ 937,215	0.31%
Employer Normal Cost for Fiscal 2020	$ 30,521,520	10.00%
UAL Amortization Payments for Fiscal 2019	$ 84,445,150	28.59%
Change due to change in payroll	N/A	(0.93%)
Change due to Interest Rate Change	$ (360,679)	(0.12%)
Additional Amortization Expenses for Fiscal 2020:		
Benefit Change Loss (Gain)	$ 0	0.00%
Liability Assumption Loss (Gain)	$ 2,627,588	0.86%
Asset Experience Loss (Gain)	$ 6,211,474	2.03%
Liability Experience Loss (Gain)	$ (84,302)	(0.03%)
COLA Loss	$ 0	0.00%
Contribution Loss (Gain)	$ (867,607)	(0.28%)
Total Amortization Expense (Credit) for Fiscal 2020	$ 91,971,624	30.12%
Insurance Premium Taxes	$ (21,797,215)	(7.14%)
Estimated Administrative Cost for Fiscal 2020	$ 2,177,138	0.71%
Total Employer Normal Cost & Amortization Payments	$ 102,873,067	33.69%

The derivation of the actuarially required contribution for the current fiscal year is given in Exhibit I. The employer normal cost for Fiscal 2020, interest adjusted for mid-year payment is $30,521,520. The interest adjusted amortization payments on the system's unfunded actuarial accrued liability totaled $91,971,624. 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 2020 is $124,670,282. We estimate insurance premium taxes of $21,797,215, or 7.14% of payroll, will be paid to the system in Fiscal 2020. This level of Insurance

Premium Taxes represents a 0.17% increase over the prior year as a percentage of payroll. Hence, the actuarially required net direct employer contribution for Fiscal 2020 amounts to $102,873,067 or 33.69% of payroll.

Since the actual employer contribution rate for Fiscal 2020 is 32.50% of payroll, there will be a contribution shortfall of 1.19% of payroll. This shortfall will increase the actuarially required contribution recommended for Fiscal 2021. In order to determine a minimum recommended net direct employer contribution rate for Fiscal 2021, the Employer Normal Cost and Amortization Payments were estimated for Fiscal 2021, adjusted for the impact of the estimated contribution shortfall for Fiscal 2020, and the estimated Insurance Premium Taxes for Fiscal 2021. Therefore, as given in line 25 of Exhibit I, the estimated actuarially required net direct employer contribution for Fiscal 2021 is $102,777,312, or 33.75% of projected payroll (rounded to the nearest 0.25%) for all members with earnings greater than the Department of HHS poverty guidelines. For members of the Hazardous Duty subplan and for members who were hired before January 1, 2013 who have earnings below the poverty guidelines, the employer contribution rates will be 2.5% higher and the employee contribution rates will be 2.5% lower.

COST OF LIVING INCREASES

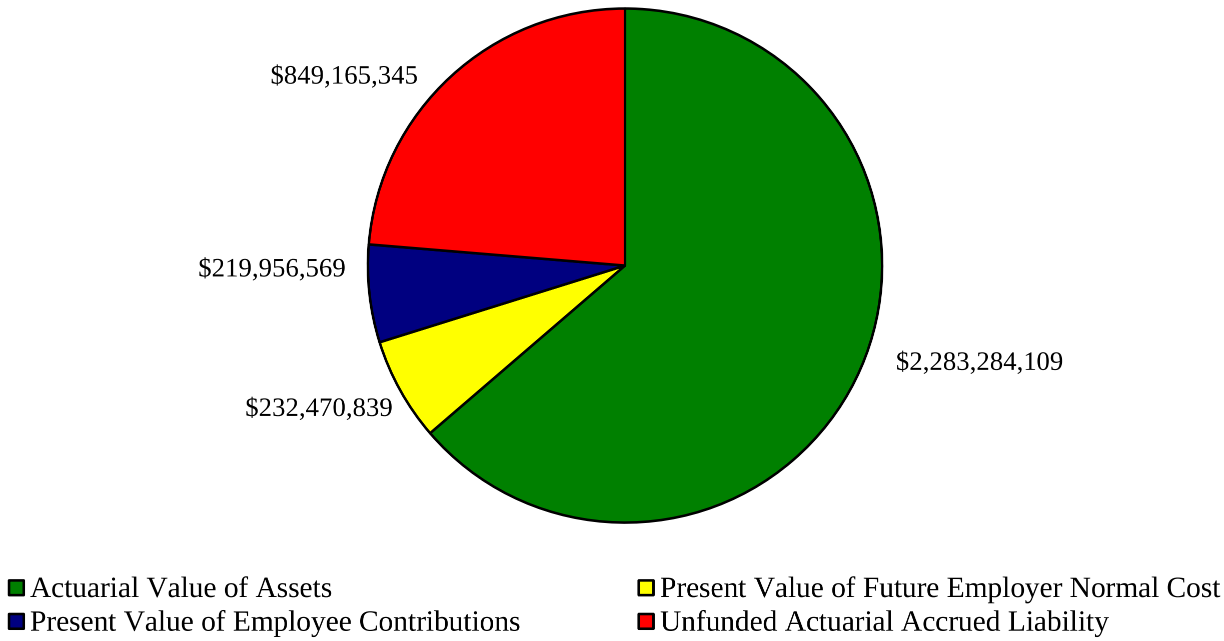
During Fiscal 2019, the actual cost of living (as measured by the US Department of Labor CPI-U) increased by 1.6%. Cost of living provisions for the system are detailed in R.S. 11:2225(A)(7)(b), R.S. 11:246, and R.S. 11:241. R.S. 11:2225(A)(7)(b) allows the Board to use interest earnings in excess of the normal requirements to grant annual cost of living increases of 3% of each retiree’s original or current benefit. R.S. 11:246 provides cost of living increases to retirees and beneficiaries over the age of 65 equal to 2% of the benefit in payment on October 1, 1977, or the date the benefit was originally received if retirement commenced after that date. R. S. 11:241 provides for cost of living benefits payable based on a formula equal to up to $1 times the total of the number of years of credited service accrued at retirement or at death of the member or retiree plus the number of years since retirement or since death of the member or retiree to the system’s fiscal year end preceding the payment of the benefit increase.

All of the above provisions require that the system’s investments produce sufficient “excess interest” earnings to fund the increases. R.S. 11:243 sets forth the funding criteria necessary in order to grant cost of living adjustments to regular retirees and beneficiaries (who are neither the surviving spouse nor children of the retiree). The criteria for the fund to qualify as eligible to grant any such increase is as follows: a funded ratio of at least 70% if the system has not granted a benefit increase to retirees, survivors, or beneficiaries in any of the three most recent fiscal years; a funded ratio of at least 80% if the system has not granted such an increase in any of the two most recent fiscal years; or a funded ratio of at least 90% if the system has not granted such an increase in the most recent fiscal year. The funded ratio at any fiscal year end is the ratio of the actuarial value of assets to the actuarial accrued liability under the funding method prescribed by the legislative auditor (currently the Entry Age Normal Method for this system).

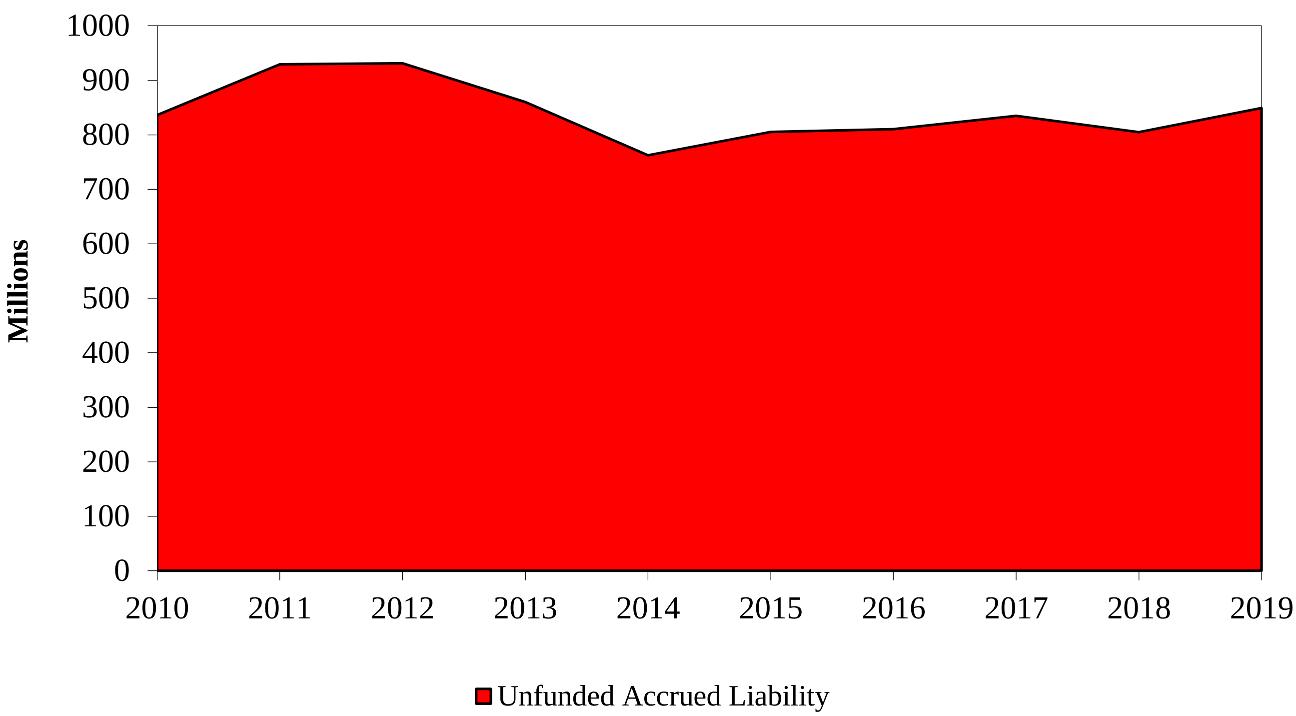
Although the system’s funded ratio as of the end of Fiscal 2019 is 72.89% based on the Actuarial Value of Assets divided by the Entry Age Normal Accrued Liability and the system has not granted a COLA in any of the three most recent fiscal years, the system is not eligible to grant a COLA in Fiscal 2020 because the system did not earn the necessary “excess interest” in Fiscal 2019.

Components of Present Value of Future Benefits

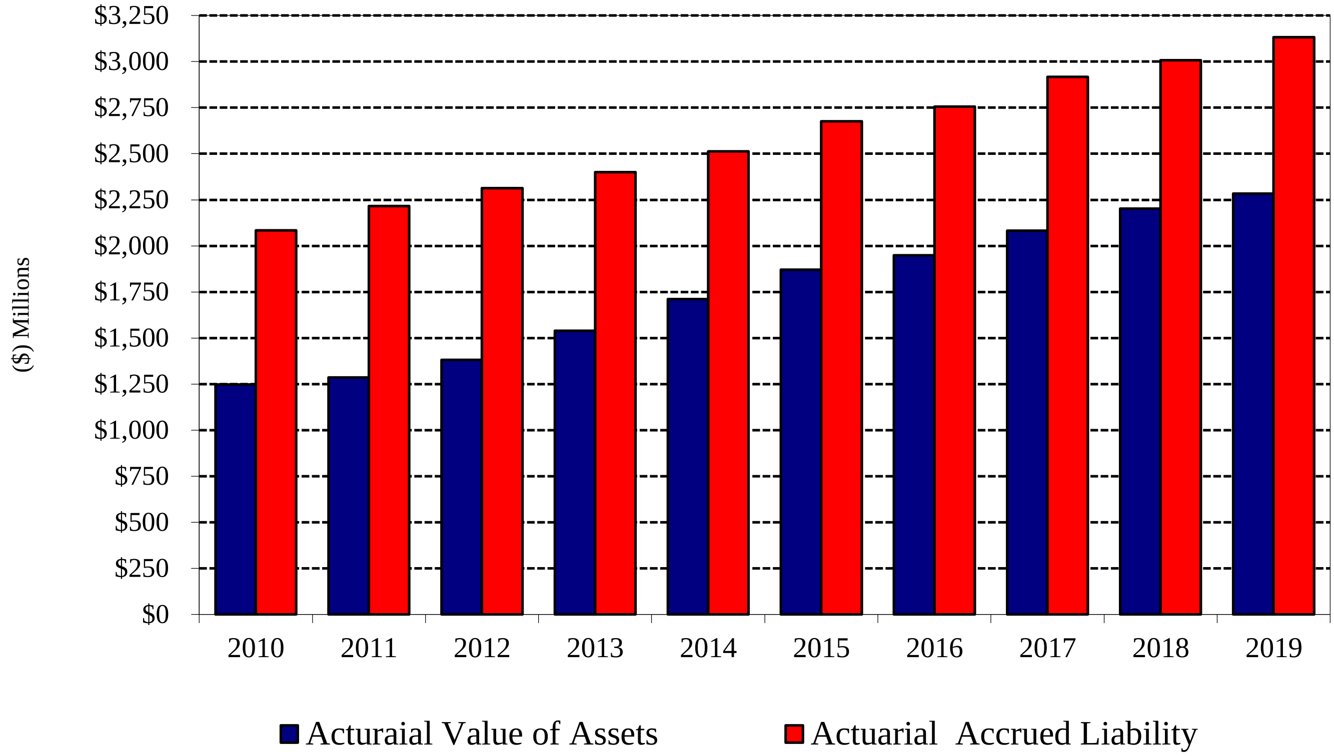
June 30, 2019



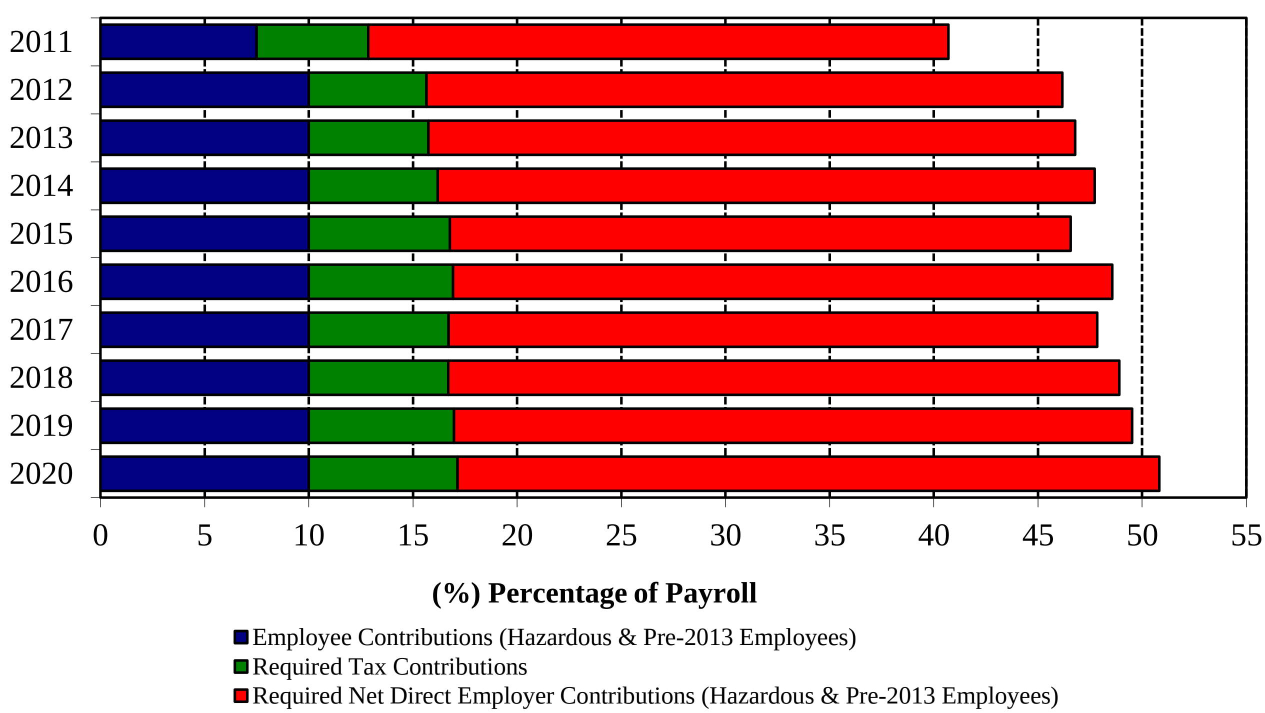
Unfunded Accrued Liability



Actuarial Value of Assets vs. Actuarial Accrued Liability

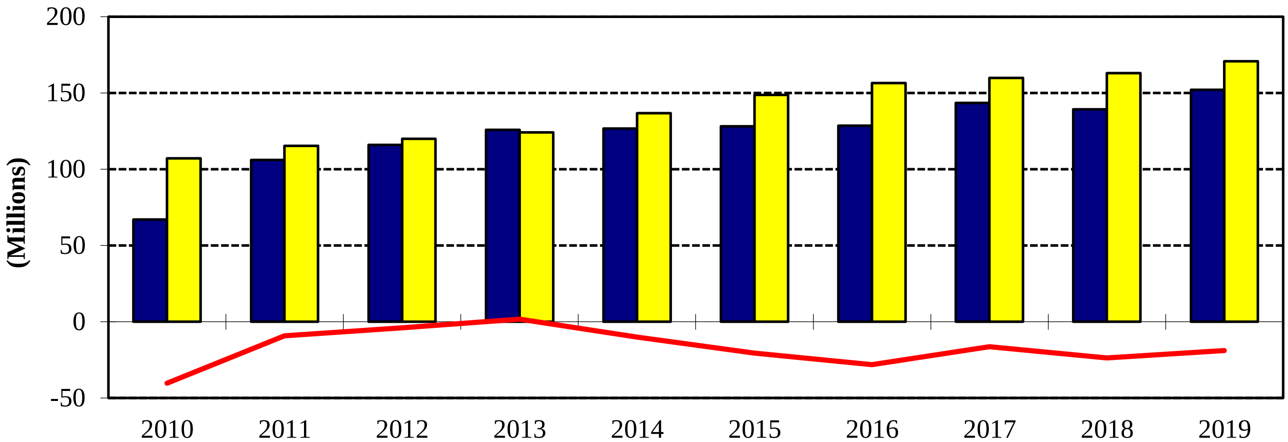


Components of Actuarial Funding



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

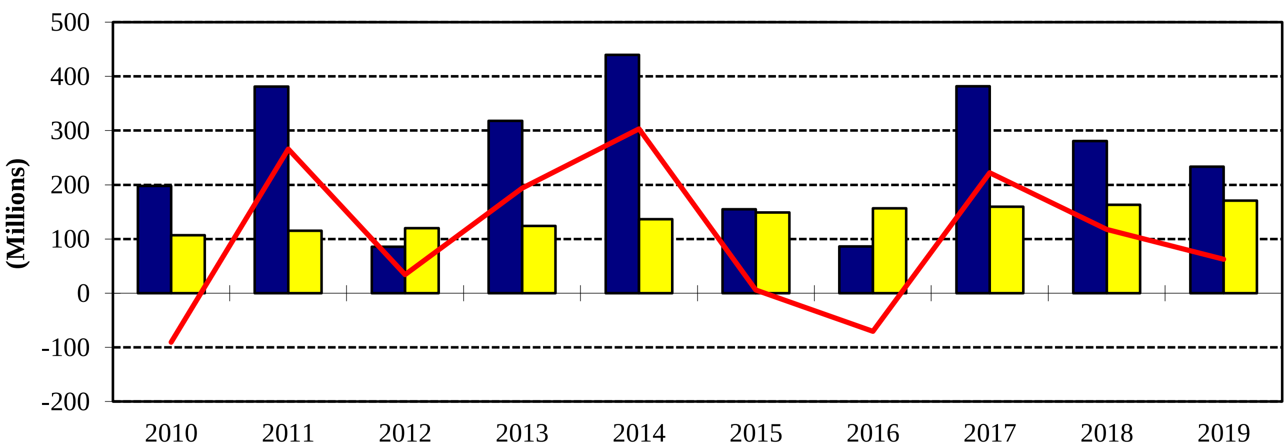
Net Non-Investment Income



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Non-Investment Income ($Mil)	67.0	106.1	116.0	125.9	126.6	128.2	128.6	143.4	139.3	152.0
Benefits and Expenses ($Mil)	107.2	115.3	120.0	124.2	136.7	148.7	156.6	159.8	163.0	170.8
Net Non-Investment Income ($Mil)	-40.2	-9.2	-4.0	1.7	-10.1	-20.5	-28.0	-16.4	-23.7	-18.8

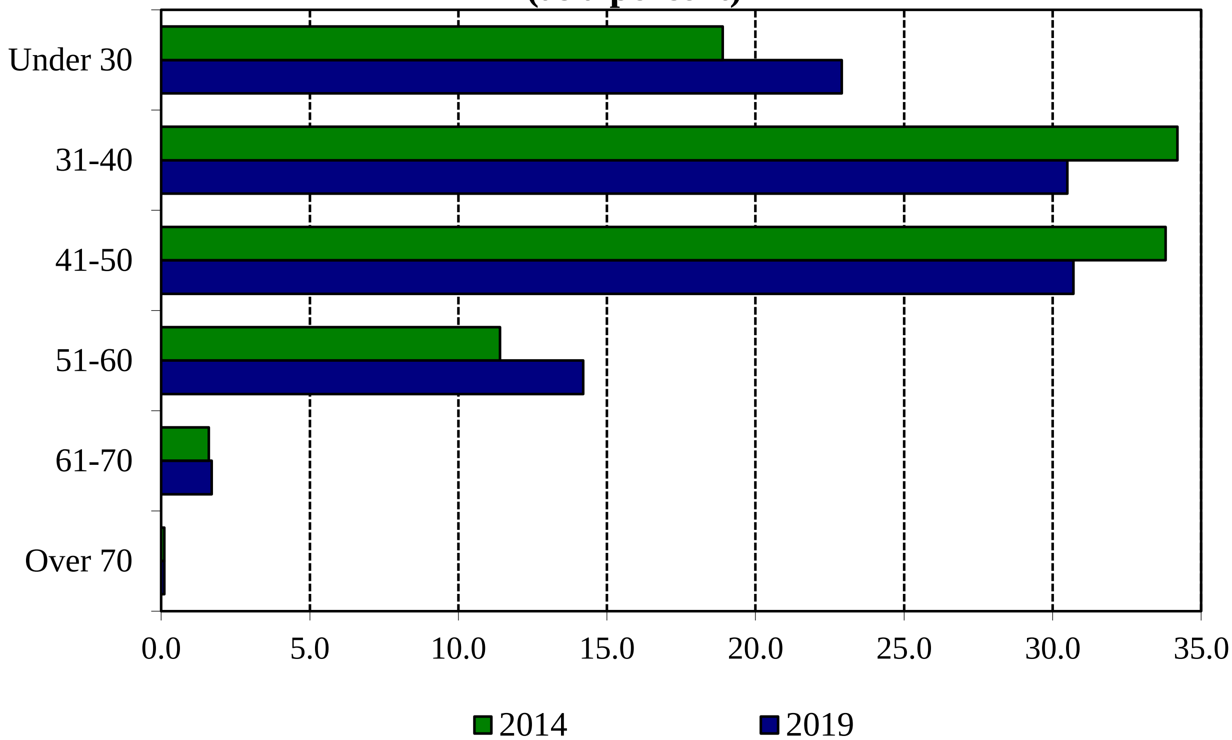
Total Income vs. Expenses

(Based on Market Value of Assets)

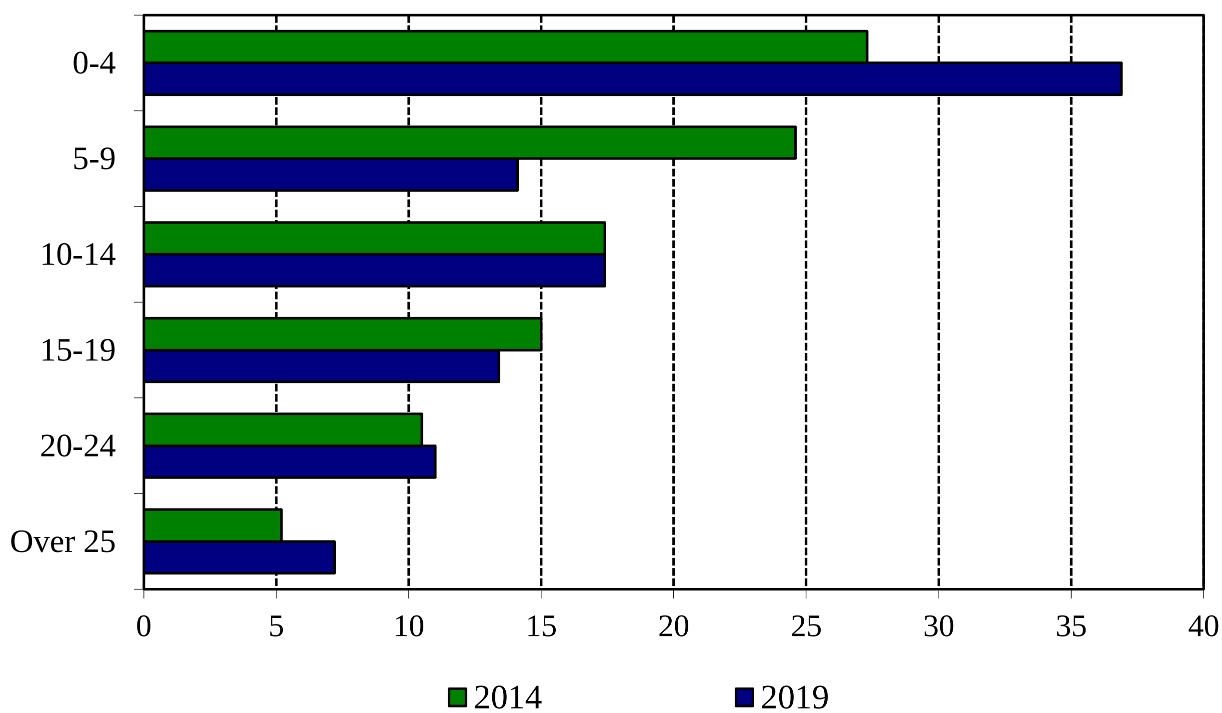


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Income ($Mil)	198.1	381.0	85.9	318.0	439.9	154.8	86.4	382.0	280.9	233.3
Benefits and Expenses ($Mil)	107.2	115.3	120.0	124.2	136.7	148.7	156.6	159.8	163.0	170.8
Net Change in MVA ($Mil)	90.9	265.7	34.1	193.8	303.2	6.1	-70.2	222.2	117.9	62.5

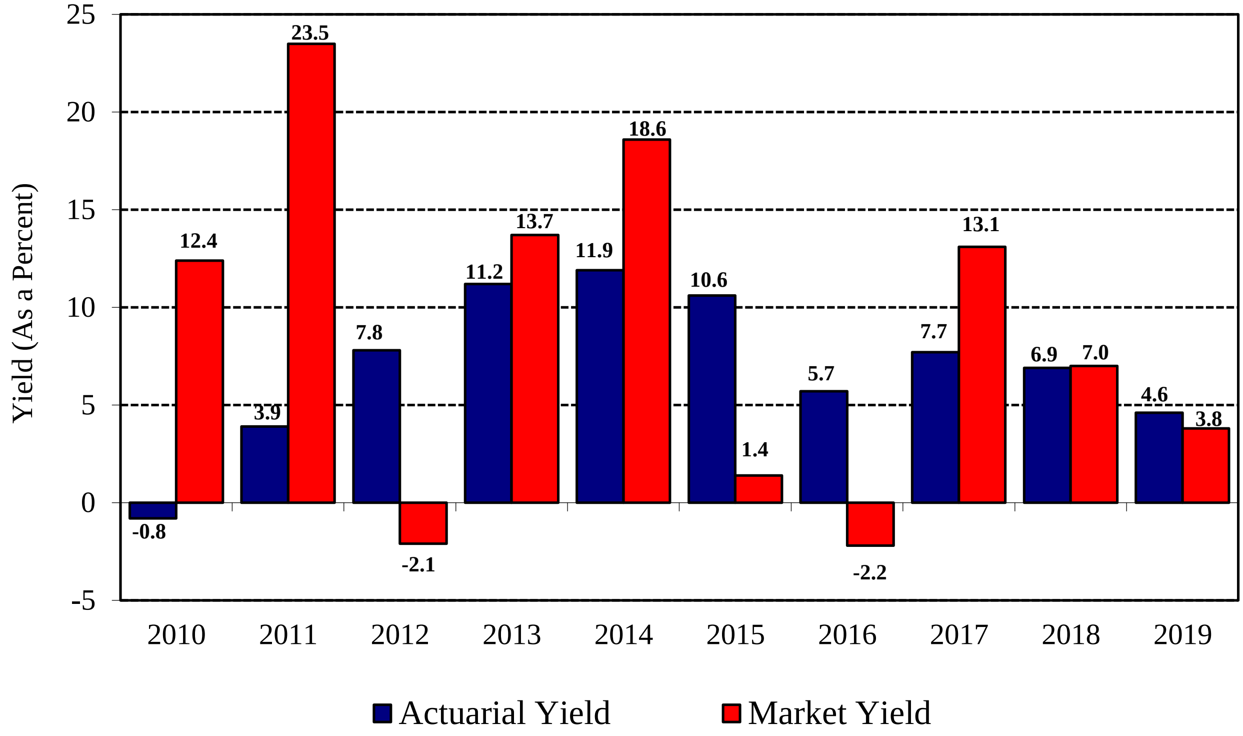
Active – Census by Age
(as a percent)



Active – Census by Service
(as a percent)



Historical Asset Yields



EXHIBITS

EXHIBIT I
ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS

1.	Normal Cost of Retirement Benefits	$	42,582,404
2.	Normal Cost of Death Benefits	$	1,348,940
3.	Normal Cost of Disability Benefits	$	3,868,146
4.	Normal Cost of Deferred Retirement Benefits	$	4,222,473
5.	Normal Cost of Contribution Refunds	$	5,868,661
6.	TOTAL Normal Cost as of July 1, 2019 (1 + 2 + 3 + 4 + 5)	$	57,890,624
7.	TOTAL Normal Cost Interest Adjusted for Mid-year Payment	$	59,917,495
8.	Adjustment to Total Normal Cost for Employee Portion	$	29,395,975
9.	Employer Normal Cost, Adjusted for Midyear Payment (7 – 8)	$	30,521,520
10.	Amortization Payments on Unfunded Accrued Liability at Midyear	$	91,971,624
11.	Projected Administrative Expenses for Fiscal 2020	$	2,177,138
12.	TOTAL Employer Cost (9 + 10 + 11)	$	124,670,282
13.	Expected Insurance Premium Taxes due in Fiscal 2020	$	21,797,215
14.	Net Direct Actuarially Required Employer Contribution for Fiscal 2020 (12 – 13)	$	102,873,067
15.	Projected Payroll for Contributing Members (Fiscal 2020)	$	305,371,382
16.	Net Direct Actuarially Required Employer Contribution as a Percentage of Projected Payroll for Fiscal 2020 (14 ÷ 15)		33.69% *
17.	Board Approved Net Direct Employer Contribution Rate for Fiscal 2020		32.50% *
18.	Projected Fiscal 2020 Contribution Loss (Gain) as a % of Payroll (16 – 17)		1.19%
19.	Projected Fiscal 2020 Employer Contribution Shortfall (Surplus) (15 × 18)	$	3,633,919
20.	Amortization of Interest Adjusted Fiscal 2020 Employer Contribution Shortfall (Surplus) Based on Midyear Payment in Fiscal 2021	$	402,141
21.	Estimated Fiscal 2021 Employer Normal Cost Adjusted for Midyear Payment	$	30,514,126
22.	Estimated Fiscal 2021 Amortization Payments	$	91,971,624
23.	Estimated Fiscal 2021 Administrative Expenses	$	2,231,566
24.	Estimated Insurance Premium Taxes due in Fiscal 2021	$	22,342,145
25.	Estimated Actuarially Required Net Direct Employer Contributions for Fiscal 2021 (20 + 21 + 22 + 23 – 24)	$	102,777,312
26.	Projected Payroll for Contributing Members (Fiscal 2021)	$	305,297,403
27.	Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2021 (25 ÷ 26, Rounded to nearest 0.25%)		33.75% *

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

EXHIBIT II
PRESENT VALUE OF FUTURE BENEFITS

PRESENT VALUE OF FUTURE BENEFITS FOR ACTIVE MEMBERS:

Retirement Benefits	$ 1,648,581,677	
Survivor Benefits	18,803,656	
Disability Benefits	82,931,096	
Vested Termination Benefits	80,944,294	
Refunds of Contributions	37,679,862	
TOTAL Present Value of Future Benefits for Active Members		$ 1,868,940,585

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement	$ 38,336,009	
Terminated Members with Reciprocals Due Benefits at Retirement	0	
Terminated Members Due a Refund	8,385,594	
TOTAL Present Value of Future Benefits for Terminated Members		$ 46,721,603

PRESENT VALUE OF FUTURE BENEFITS FOR RETIREES:

Regular Retirees			
Maximum	$ 544,448,012		
Option 1	1,195,795		
Option 2	613,726,501		
Option 3	226,859,945		
Option 4	1,146,180		
Option 5	0		
TOTAL Regular Retirees		$ 1,387,376,433	
Disability Retirees		46,847,137	
Survivors & Widows		150,709,664	
DROP Account Balances Payable to Retirees		83,069,944	
IBO Retirees' Account Balance		1,211,496	
TOTAL Present Value of Future Benefits for Retirees & Survivors			$ 1,669,214,674

TOTAL PRESENT VALUE OF FUTURE BENEFITS	$ 3,584,876,862

EXHIBIT III – SCHEDULE A
MARKET VALUE OF ASSETS

CURRENT ASSETS:		
Cash in Banks	$ 21,707,370	
Contributions Receivable	11,622,980	
Accrued Interest and Dividends	5,526,455	
Investments Receivable	1,941,734	
TOTAL CURRENT ASSETS		$ 40,798,539
Property, Plant & Equipment		$ 2,697,192
INVESTMENTS:		
Cash Equivalents	$ 102,923,216	
Equities	1,087,817,523	
Fixed Income	658,769,563	
Real Estate	184,037,719	
Alternative Investments	151,691,940	
Collateral for Securities Lending	7,307,257	
Other Investments	520	
TOTAL INVESTMENTS		$ 2,192,547,738
DEFERRED OUTFLOWS OF RESOURCES		$ 190,500
TOTAL ASSETS		$ 2,236,233,969
CURRENT LIABILITIES:		
Accounts Payable	$ 184,030	
Benefits Payable	66,851	
Refunds Payable	350,025	
Investments Payable	1,937,214	
Securities Lending Obligations	7,307,257	
Other Post-Employment Benefits	1,958,439	
TOTAL CURRENT LIABILITIES		$ 11,803,816
DEFERRED INFLOWS OF RESOURCES		$ 148,172
TOTAL LIABILITIES		$ 11,951,988
MARKET VALUE OF ASSETS		$ 2,224,281,981

EXHIBIT III – SCHEDULE B
ACTUARIAL VALUE OF ASSETS

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

Fiscal year 2019	$	(73,652,124)
Fiscal year 2018		(7,361,314)
Fiscal year 2017		102,423,689
Fiscal year 2016		(183,165,585)
Fiscal year 2015		(114,129,074)
Total for five years	$	(275,884,408)

Deferral of Excess (Shortfall) of Invested Income:

Fiscal year 2019 (80%)	$	(58,921,699)
Fiscal year 2018 (60%)		(4,416,788)
Fiscal year 2017 (40%)		40,969,476
Fiscal year 2016 (20%)		(36,633,117)
Fiscal year 2015 (0%)		0
Total Deferred for Year	$	(59,002,128)

Market Value of Plan Net Assets, End of Year	$	2,224,281,981
Preliminary Actuarial Value of Plan Assets, End of Year	$	2,283,284,109

Actuarial Value of Assets Corridor

85% of market value, end of year	$	1,890,639,684
115% of market value, end of year	$	2,557,924,278

Final Actuarial Value of Plan Net Assets, End of Year	$	2,283,284,109

EXHIBIT IV
PRESENT VALUE OF FUTURE CONTRIBUTIONS

Employee Contributions to the Annuity Savings Fund	$	219,956,569
Employer Normal Contributions to the Pension Accumulation Fund		232,470,839
Employer Amortization Payments to the Pension Accumulation Fund		849,165,345
TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS	$	1,301,592,753

EXHIBIT V – SCHEDULE A
ACTUARIAL ACCRUED LIABILITIES

LIABILITY FOR ACTIVE MEMBERS				
Accrued Liability for Retirement Benefits	$	1,318,814,194		
Accrued Liability for Survivor Benefits		8,616,352		
Accrued Liability for Disability Benefits		53,234,541		
Accrued Liability for Vested Termination Benefits		47,256,503		
Accrued Liability for Refunds of Contributions		(11,408,413)		
TOTAL Actuarial Accrued Liability for Active Members			$	1,416,513,177
LIABILITY FOR TERMINATED MEMBERS			$	46,721,603
LIABILITY FOR RETIREES AND SURVIVORS			$	1,669,214,674
TOTAL ACTUARIAL ACCRUED LIABILITY			$	3,132,449,454
ACTUARIAL VALUE OF ASSETS			$	2,283,284,109
UNFUNDED ACTUARIAL ACCRUED LIABILITY			$	849,165,345
Ratio of Actuarial Value of Assets to Entry Age Normal Accrued Liability				72.89%

EXHIBIT V – SCHEDULE B
CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY

PRIOR YEAR UNFUNDED ACCRUED LIABILITY			$	804,879,225
Interest on Unfunded Accrued Liability	$	57,951,304		
Asset Experience Loss		58,094,818		
Liability Assumption Loss		24,575,373		
TOTAL Additions to UAL			$	140,621,495
Liability Experience Gain	$	788,461		
Contribution Excess with Accrued Interest		8,114,574		
Interest Adjusted Amortization Payments		87,432,340		
TOTAL Reductions to UAL			$	96,335,375
NET Change in Unfunded Accrued Liability			$	44,286,120
CURRENT YEAR UNFUNDED ACCRUED LIABILITY			$	849,165,345

EXHIBIT V – SCHEDULE C
AMORTIZATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY
JUNE 30, 2019

FISCAL YEAR	DESCRIPTION	AMORT. PERIOD	INTIAL BALANCE	YEARS REMAINING	REMAINING BALANCE	AMORT. PAYMENTS
2014	Cumulative Bases	20	$801,359,380	15	$692,894,176	$71,577,866
2015	Asset Experience Gain	15	(52,886,689)	11	(43,759,295)	(5,481,438)
2015	Liability Experience Gain	15	(9,412,440)	11	(7,788,004)	(975,552)
2015	Contribution Gain	15	(6,385,205)	11	(5,283,221)	(661,794)
2015	Liability Assumption Loss	15	91,142,323	11	75,412,621	9,446,442
2016	Asset Experience Loss	15	32,707,657	12	28,617,446	3,385,795
2016	Liability Experience Gain	15	(8,714,512)	12	(7,624,731)	(902,099)
2016	Contribution Loss	15	1,831,833	12	1,602,756	189,626
2017	Asset Experience Gain	15	(4,227,464)	13	(3,885,747)	(437,090)
2017	Liability Experience Loss	15	7,622,189	13	7,006,068	788,080
2017	Contribution Gain	15	(8,105,382)	13	(7,450,203)	(838,039)
2017	Liability Assumption Loss	15	52,448,263	13	48,208,734	5,422,779
2018	Asset Experience Loss	15	7,852,432	14	7,544,730	811,370
2018	Liability Experience Gain	15	(54,697,789)	14	(52,554,422)	(5,651,769)
2018	Contribution Loss	15	5,491,975	14	5,276,769	567,470
2018	Liability Assumption Loss	15	38,696,875	14	37,180,514	3,998,440
2019	Asset Experience Loss	15	58,094,818	15	58,094,818	6,001,354
2019	Liability Experience Gain	15	(788,461)	15	(788,461)	(81,450)
2019	Contribution Gain	15	(8,114,574)	15	(8,114,574)	(838,258)
2019	Liability Assumption Loss	15	24,575,373	15	24,575,373	2,538,703

TOTAL Unfunded Actuarial Accrued Liability	$849,165,345	*
TOTAL Fiscal 2020 Amortization Payments at Beginning of Year		$ 88,860,436
TOTAL Fiscal 2020 Amortization Payments Adjusted to Mid-Year		$91,971,624

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

EXHIBIT VI
ANALYSIS OF CHANGE IN ASSETS

Actuarial Value of Assets (June 30, 2018)		$	2,202,302,093
INCOME:			
Member Contributions	$ 30,427,910		
Employer Contributions	100,818,492		
Irregular Contributions	1,880		
Insurance Premium Taxes	20,587,174		
Other Income	119,468		
Total Contributions		$	151,954,924
Net Appreciation of Investments	$ 55,703,875		
Interest & Dividends	27,230,473		
Securities Litigation Income	20,195		
Alternative Investment Income	7,832,231		
Investment Expense	(9,456,936)		
Net Investment Income		$	81,329,838
TOTAL Income		$	233,284,762
EXPENSES:			
Retirement Benefits	$ 146,175,074		
DROP Disbursements	13,011,519		
Refunds of Contributions	4,195,787		
Transfers to Other Systems	5,496,668		
Other Post-Employment Benefits	53,111		
Administrative Expenses (Including Depreciation)	1,845,828		
TOTAL Expenses		$	170,777,987
Net Market Value Income for Fiscal 2019 (Income – Expenses)		$	62,506,775
Unadjusted Fund Balance as of June 30, 2019 (Fund Balance Previous Year + Net Income)		$	2,264,808,868
Adjustment for Actuarial Smoothing		$	18,475,241
Actuarial Value of Assets: (June 30, 2019)		$	2,283,284,109

EXHIBIT VII
CENSUS DATA

	Active	Terminated with Funds on Deposit	DROP	Retired	Total
Number of members as of June 30, 2018	5,685	1,750	180	4,736	12,351
Additions to Census					
Initial membership	592	100			692
Omitted in error last year				1	1
Death of another member			(1)	48	47
Adjustment for multiple records				3	3
Change in Status during Year					
Actives terminating service	(263)	263			
Actives who retired	(97)			97	
Actives entering DROP	(82)		82		
Term. members rehired	64	(64)			
Term. members who retire		(10)		10	
Retirees who are rehired	2			(2)	
Refunded who are rehired	24	7			31
DROP participants retiring			(41)	41	
DROP returned to work	17		(17)		
Omitted in error last year					
Eliminated from Census					
Refund of contributions	(205)	(170)			(375)
Deaths	(8)	(5)		(164)	(177)
Included in error last year					
Adjustment for multiple records					
Number of members as of June 30, 2019	5,729	1,871	203	4,770	12,573

ACTIVES CENSUS BY AGE:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
16 - 20	11	6	17	32,495	552,409
21 - 25	330	112	442	36,531	16,146,734
26 - 30	632	220	852	42,475	36,188,833
31 - 35	666	194	860	47,894	41,189,219
36 - 40	649	236	885	53,133	47,022,461
41 - 45	660	217	877	57,843	50,728,529
46 - 50	697	185	882	61,530	54,269,102
51 - 55	461	118	579	64,566	37,383,700
56 - 60	175	57	232	64,673	15,004,236
61 - 65	46	23	69	65,761	4,537,542
66 - 70	17	12	29	68,884	1,997,632
71 - 75	2	0	2	114,521	229,041
76 - 80	2	0	2	50,559	101,118
86 - 90	1	0	1	94,823	94,823
TOTAL	4,349	1,380	5,729	53,316	305,445,379

THE ACTIVE CENSUS INCLUDES 2,555 ACTIVES WITH VESTED BENEFITS, INCLUDING 118 ACTIVE FORMER DROP PARTICIPANTS. THE 203 CURRENT DROP PARTICIPANTS ARE EXCLUDED.

DROP PARTICIPANTS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
46 - 50	21	2	23	55,808	1,283,579
51 - 55	58	11	69	62,821	4,334,644
56 - 60	55	20	75	49,067	3,680,050
61 - 65	16	14	30	37,678	1,130,328
66 - 70	5	1	6	34,851	209,108
TOTAL	155	48	203	52,403	10,637,709

TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
31 - 35	2	1	3	22,648	67,943
36 - 40	20	5	25	22,443	561,087
41 - 45	45	10	55	27,675	1,522,120
46 - 50	65	16	81	26,665	2,159,905
51 - 55	30	7	37	23,677	876,067
TOTAL	162	39	201	25,807	5,187,122

TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

Contributions Ranging From		To	Number	Total Contributions
0	-	99	228	9,879
100	-	499	424	109,709
500	-	999	209	149,752
1000	-	1999	169	241,688
2000	-	4999	195	629,749
5000	-	9999	163	1,165,759
10000	-	19999	153	2,170,271
20000	-	99999	129	3,819,702
	TOTAL		1,670	8,296,509

REGULAR RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
41 - 45	2	1	3	34,237	102,710
46 - 50	50	4	54	48,071	2,595,818
51 - 55	209	35	244	49,689	12,124,005
56 - 60	478	92	570	47,358	26,994,042
61 - 65	585	136	721	41,684	30,054,479
66 - 70	630	101	731	34,967	25,561,141
71 - 75	526	62	588	28,937	17,014,774
76 - 80	293	32	325	25,159	8,176,826
81 - 85	120	9	129	24,420	3,150,212
86 - 90	53	1	54	25,900	1,398,584
91 - 99	29	4	33	19,006	627,208
TOTAL	2,975	477	3,452	37,022	127,799,799

DISABILITY RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
26 - 30	1	0	1	9,516	9,516
36 - 40	6	5	11	22,257	244,830
41 - 45	8	7	15	20,739	311,086
46 - 50	20	9	29	19,416	563,062
51 - 55	25	12	37	18,657	690,301
56 - 60	25	6	31	16,064	497,992
61 - 65	35	13	48	18,298	878,311
66 - 70	31	9	40	14,613	584,523
71 - 75	24	4	28	15,570	435,950
76 - 80	12	3	15	15,506	232,592
81 - 85	1	0	1	12,018	12,018
86 - 90	2	0	2	10,334	20,667
TOTAL	190	68	258	17,368	4,480,848

SURVIVORS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
0 - 25	42	53	95	7,205	684,457
26 - 30	0	4	4	26,453	105,813
31 - 35	0	3	3	42,863	128,588
36 - 40	2	6	8	28,070	224,563
41 - 45	0	17	17	19,733	335,455
46 - 50	1	26	27	19,481	525,976
51 - 55	1	47	48	21,859	1,049,210
56 - 60	1	59	60	25,368	1,522,065
61 - 65	10	69	79	20,827	1,645,349
66 - 70	6	140	146	16,253	2,372,958
71 - 75	7	146	153	16,887	2,583,644
76 - 80	4	147	151	13,965	2,108,641
81 - 85	5	134	139	14,041	1,951,675
86 - 90	6	68	74	11,257	833,011
91 - 99	3	53	56	11,072	620,019
TOTAL	88	972	1,060	15,747	16,691,424

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	15	2										17
21 - 25	217	113	71	32	7	2						442
26 - 30	172	173	119	112	128	144	4					852
31 - 35	95	90	73	86	71	274	164	7				860
36 - 40	53	43	53	35	44	163	367	125	2			885
41 - 45	34	32	29	30	34	97	210	284	127			877
46 - 50	30	21	23	19	19	78	135	182	284	90	1	882
51 - 55	3	3	9	9	8	35	78	114	145	155	20	579
56 - 60	2	2	1			15	32	41	52	57	30	232
61 - 65						1	6	12	15	16	19	69
66 - 70					1		1	5	4	5	13	29
71 & Over										1	4	5
Totals	621	479	378	323	312	809	997	770	629	324	87	5,729

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	32,804	30,176										32,495
21 - 25	33,556	37,879	40,759	41,142	40,842	44,200						36,531
26 - 30	34,571	40,762	44,151	46,497	46,981	45,289	48,549					42,475
31 - 35	35,023	40,785	45,085	47,823	47,994	49,983	56,875	50,983				47,894
36 - 40	34,878	41,007	41,903	49,898	47,180	49,404	57,877	63,414	73,531			53,133
41 - 45	33,610	39,038	45,148	43,961	50,267	49,558	58,032	63,128	71,474			57,843
46 - 50	37,504	44,981	47,353	44,188	47,104	46,092	56,139	60,889	70,600	77,634	82,708	61,530
51 - 55	32,055	33,594	52,097	38,392	40,606	45,953	52,262	56,914	71,523	76,504	82,287	64,566
56 - 60	69,586	52,788	45,092			40,741	45,608	54,677	68,786	73,504	87,850	64,673
61 - 65						45,572	51,027	55,131	63,215	70,448	76,255	65,761
66 - 70					61,979		84,969	46,704	50,175	64,078	84,313	68,884
71 & Over										23,375	100,402	84,996
Average	34,459	40,139	43,842	46,091	47,352	48,239	56,625	60,933	70,542	75,635	84,028	53,316

TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Attained Ages	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
	Years Until Retirement Eligibility											
0 - 30												0
31 - 35									3			3
36 - 40								25				25
41 - 45						4	51					55
46 - 50	3	4	5		2	67						81
51 - 55	4	11	11	6	5							37
56 & Over												0
Totals	7	15	16	6	7	71	51	25	3	0	0	201

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

Attained Ages	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
	Years Until Retirement Eligibility											
0 - 30												0
31 - 35									22,648			22,648
36 - 40								22,443				22,443
41 - 45						41,277	26,608					27,675
46 - 50	45,018	42,355	38,437		40,374	23,619						26,665
51 - 55	16,184	22,965	25,113	22,184	29,873							23,677
56 & Over												0
Average	28,542	28,136	29,277	22,184	32,873	24,614	26,608	22,443	22,648	0	0	25,807

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	18	16	10	6	3	4						57
51 - 55	42	44	45	40	30	42	1					244
56 - 60	45	40	56	59	61	244	58	6	1			570
61 - 65	22	24	22	42	34	263	244	64	6			721
66 - 70	6	15	5	14	14	134	229	237	69	8		731
71 - 75	3		2	3	5	38	83	173	226	34	21	588
76 - 80			1		1	7	24	36	85	113	58	325
81 - 85						1	3	4	9	22	90	129
86 - 90						1		1	8	7	37	54
91 & Over								1	1	1	30	33
Totals	136	139	141	164	148	734	642	522	405	185	236	3,452

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	58,252	44,649	47,767	36,446	42,677	27,807						47,343
51 - 55	50,279	54,256	50,817	50,183	47,616	44,588	29,734					49,689
56 - 60	45,653	52,042	44,899	46,933	50,632	49,942	37,292	20,733	12,905			47,358
61 - 65	38,704	47,510	42,156	49,324	47,067	44,513	39,416	32,235	12,634			41,684
66 - 70	36,872	37,137	36,179	47,894	38,267	42,532	33,879	33,620	25,732	24,345		34,967
71 - 75	41,305		50,327	48,230	32,568	37,039	32,039	26,937	28,360	28,410	18,118	28,937
76 - 80			49,741		13,818	25,116	26,106	27,759	25,614	28,044	16,644	25,159
81 - 85						45,875	44,202	20,417	17,748	32,716	22,340	24,420
86 - 90						82,481		13,301	33,913	27,758	22,627	25,900
91 & Over								6,605	36,608	30,058	18,465	19,006
Average	47,142	49,501	46,365	48,060	47,012	45,351	35,805	30,491	26,959	28,507	20,117	37,022

DISABILITY RETIREES:

Attained Ages	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
	Completed Years Since Retirement											
0 - 30	1											1
31 - 35												0
36 - 40	1	3	2	1		3	1					11
41 - 45	1	1	1	2	1	6	3					15
46 - 50	2		2	2	1	10	7	4	1			29
51 - 55			5			10	5	9	7	1		37
56 - 60			1	1		5	5	11	2	5	1	31
61 - 65						3	10	10	14	5	6	48
66 - 70							2	6	9	13	10	40
71 - 75							1	2	5	11	9	28
76 - 80									2	2	11	15
81 - 85											1	1
86 - 90											2	2
91 & Over												0
Totals	5	4	11	6	2	37	34	42	40	37	40	258

AVERAGE ANNUAL BENEFITS PAYABLE TO DISABILITY RETIREES:

Attained Ages	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
	Completed Years Since Retirement											
0 - 30	9,516											9,516
31 - 35												0
36 - 40	24,891	24,753	16,053	20,307		17,237	41,555					22,257
41 - 45	35,126	28,930	22,907	22,113	23,278	18,784	14,639					20,739
46 - 50	30,011		26,883	36,348	17,486	19,401	15,206	11,628	12,133			19,416
51 - 55			24,237			23,095	26,512	12,817	11,458	10,044		18,657
56 - 60			25,859	11,297		20,013	26,524	12,207	9,539	12,518	12,200	16,064
61 - 65						20,456	21,051	24,053	16,006	15,637	10,605	18,298
66 - 70							10,950	15,905	17,341	16,285	9,942	14,613
71 - 75							13,555	10,923	17,414	17,157	13,862	15,570
76 - 80									7,678	12,732	17,434	15,506
81 - 85											12,018	12,018
86 - 90											10,333	10,333
91 & Over												0
Average	25,911	25,797	23,257	24,754	20,382	20,292	20,678	15,570	14,850	15,587	13,112	17,368

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	6	10	11	10	7	13	16	6			1	80
21 - 25				2	1	5	3	2	2			15
26 - 30	1		2		1							4
31 - 35		2	1									3
36 - 40		1	2	1			1	1	1	1		8
41 - 45	1	2		1	2	3	5	1			2	17
46 - 50	1		1	2		3	7	5	7		1	27
51 - 55	1	2		2	3	7	7	7	6	7	6	48
56 - 60	1			4	1	6	13	11	15	5	4	60
61 - 65	1	1	2		1	8	15	18	12	9	12	79
66 - 70						8	17	26	33	25	37	146
71 - 75			1	1		4	8	18	45	31	45	153
76 - 80				2	1	2	1	8	25	26	86	151
81 - 85							2	4	7	14	112	139
86 - 90					1			3		2	68	74
91 & Over							1			2	53	56
Totals	12	18	20	25	18	59	96	110	153	122	427	1,060

AVERAGE ANNUAL BENEFITS PAYABLE TO SURVIVORS OF FORMER MEMBERS:

Attained Ages	Completed Years Since Retirement 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 20	6,314	7,265	6,821	8,696	9,116	7,358	4,941	4,255			2,640	6,740
21 - 25				12,383	15,054	11,816	4,760	13,052	2,978			9,683
26 - 30	35,248		26,632		17,301							26,453
31 - 35		40,779	47,031									42,863
36 - 40		60,471	31,754	36,943			36,150	9,622	2,043	15,825		28,070
41 - 45	30,777	27,323		12,745	29,664	19,037	21,019	9,215			3,269	19,733
46 - 50	30,687		36,835	37,245		27,177	22,839	14,702	9,348		3,619	19,481
51 - 55	60,638	32,007		54,695	26,711	30,825	28,184	14,995	10,199	10,753	13,424	21,859
56 - 60	64,269			39,059	26,576	50,866	31,138	25,845	13,327	10,827	6,663	25,368
61 - 65	52,021	59,382	34,701		40,536	22,546	27,543	22,537	13,257	16,544	9,739	20,827
66 - 70						18,580	21,490	16,728	19,283	15,756	10,644	16,253
71 - 75			6,000	49,239		22,167	24,819	20,672	19,481	14,999	11,722	16,887
76 - 80				21,362	23,517	9,032	36,701	13,479	16,585	20,343	10,887	13,965
81 - 85							50,408	24,405	15,852	18,797	12,313	14,041
86 - 90					36,139			11,165		15,141	10,781	11,257
91 & Over							2,840			29,758	10,522	11,072
Average	25,960	21,818	17,553	23,739	20,133	21,188	22,020	18,044	16,550	16,679	11,158	15,747

EXHIBIT VIII
YEAR-TO-YEAR COMPARISON

	Fiscal 2019	Fiscal 2018	Fiscal 2017	Fiscal 2016
Number of Active Members	5,729	5,685	5,663	5,666
Number of Retirees & Survivors	4,770	4,736	4,691	4,637
DROP Participants	203	180	193	191
Number of Terminated Due Deferred Benefits	201	187	181	175
Number Terminated Due Refunds	1,670	1,563	1,443	1,324
Active Lives Payroll (excludes DROP participants)	$ 305,445,379	$ 294,988,865	$ 293,792,282	$ 281,546,022
Retiree Benefits in Payment	$ 148,972,071	$ 144,162,327	$ 139,782,252	$ 134,868,070
Market Value of Assets	$ 2,224,281,981	$ 2,161,775,206	$ 2,045,022,309	$ 1,822,858,397
Ratio of Actuarial Value of Assets to Actuarial Accrued Liability	72.89%	73.23%	71.39%	70.64%
Actuarial Accrued Liability (EAN)	$ 3,132,449,454	$ 3,007,181,318	$ 2,918,064,612	$ 2,760,140,132
Actuarial Value of Assets	$ 2,283,284,109	$ 2,202,302,093	$ 2,083,240,809	$ 1,949,755,816
UAL (Funding Excess)	$ 849,165,345	$ 804,879,225	$ 834,823,803	$ 810,384,316

	Fiscal 2020	Fiscal 2019	Fiscal 2018	Fiscal 2017
Employee Contribution Rate:				
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	10.00% †	10.00% †	10.00% †	10.00% †
For Employees in the Non-Hazardous Subplan:	8.00%	8.00%	8.00%	8.00%
Required Tax Contributions as a Percentage of Projected Payroll	7.14%	6.97%	6.69%	6.71%
Actuarially Required Employer Contribution Rate:				
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	33.69% †	32.55% †	32.22% †	31.14% †
For Employees in the Non-Hazardous Subplan:	33.69%	32.55%	32.22%	31.14%
Board Approved Net Direct Employer Contribution Rate				
For Employees in the Hazardous Subplan or Hired prior to January 1, 2013:	32.50% †	32.25% †	30.75% †	31.75% †
For Employees in the Non-Hazardous Subplan:	32.50%	32.25%	30.75%	33.75%

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

Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011	Fiscal 2010
5,535	5,468	5,602	5,779	5,933	6,197
4,538	4,444	4,340	4,230	4,165	4,028
228	271	314	284	231	194
168	159	145	130	128	112
1,320	1,272	1,252	1,176	1,251	1,198
$ 265,089,428	$ 259,594,435	$ 264,711,491	$ 272,606,934	$ 273,348,634	$ 280,977,278
$ 128,050,009	$ 118,522,277 *	$ 110,735,234	$ 104,998,503	$ 99,863,547	$ 93,382,980
$ 1,893,077,295	$ 1,887,019,463	$ 1,600,532,779	$ 1,406,662,003	$ 1,440,795,586	$ 1,175,083,706
69.91%	68.11%	64.15%	59.75%	58.05%	59.87%
$ 2,676,472,766	$ 2,512,627,665	$ 2,399,375,820	$ 2,313,751,839	$ 2,215,674,343	$ 2,083,809,321
$ 1,871,160,542	$ 1,711,268,285	$ 1,539,218,085	$ 1,382,503,860	$ 1,286,287,651	$ 1,247,546,395
$ 805,312,224	$ 801,359,380	$ 860,157,735	$ 931,247,979	$ 929,386,692	$ 836,262,926

Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011
10.00% †	10.00% †	10.00%	10.00%	10.00%	7.50%
8.00%	8.00%	N/A	N/A	N/A	N/A
6.93%	6.77%	6.19%	5.75%	5.65%	5.36%
31.63% †	29.80% †	31.53%	31.03%	30.52%	27.84%
33.63%	31.80%	N/A	N/A	N/A	N/A
29.50% †	31.50% †	31.00%	31.00%	26.50%	25.00%
31.50%	33.50%	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, 2019.

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

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

CONTRIBUTION RATES – The fund is financed by employee and employer contributions together with funds from dedicated insurance premium taxes as allocated by the Public Retirement Systems' Actuarial Committee in accordance with R.S. 11:62, R.S 11:103, and R.S. 22:1476A(3). For employees hired prior to January 1, 2013, the employee contribution rate is at least 7.5% but not greater than 10% based on the total contribution expressed as a percentage of payroll after applying all required tax contributions. The employee rate, when such contributions total 25% or less, is set at 7.5%. The employee rate then increases 0.25% for each 0.75% increase in the total rate, and an additional 0.25% when the rate exceeds 28.75%, subject to a maximum rate of 10%. Regardless of the total contribution rate, members whose earnable compensation is less than or equal to the poverty guidelines issued by the U.S. Department of Health and Human Services have an employee contribution rate of 7.5%. Where members qualify for discounted employee contributions due to the poverty guidelines, the employer must make up the difference through an increased employer contribution rate. Net direct employer contributions are nine percent (9.0%) of earnable compensation unless the funds allocated from dedicated taxes are insufficient to provide the actuarially required contributions or the actuarially required contributions are less than 9.0%. Members 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: 7.125% (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 2.5% inflation and merit increases. The gross rates including inflation and merit increases are as follows:

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

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

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:	7.20% (Net of investment expense)
ASSUMED LONG TERM INFLATION RATE:	2.60%

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.