SHERIFFS' PENSION & RELIEF FUND

ACTUARIAL VALUATION AS OF
JUNE 30, 2018

G. S. CURRAN & COMPANY, LTD.

Actuarial Services

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November 29, 2018

Board of Trustees
Sheriffs' Pension & Relief Fund
1225 Nicholson Drive
Baton Rouge, Louisiana 70802

Ladies and Gentlemen:

We are pleased to present our report on the actuarial valuation of the Sheriffs' Pension & Relief Fund for the fiscal year ending June 30, 2018. Our report is based on the actuarial assumptions specified and relies on the data supplied by the system's administrators and accountants. This report was prepared at the request of the Board of Trustees of the Sheriffs' Pension & Relief Fund of the State of Louisiana. The primary purpose of this report is to determine the actuarially required contribution for the retirement system for the fiscal year ending 2019, and to recommend the net direct employer contribution rate for Fiscal 2020. This report does not contain the information necessary for accounting disclosures as required by Governmental Accounting Standards Board (GASB) Statements 67 and 68; that information is included in a separate report. This report was prepared exclusively for the Sheriffs' Pension & Relief Fund 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
SHERIFFS' PENSION & RELIEF FUND

Valuation Date:		June 30, 2018	June 30, 2017
Census Summary:	Active Members	14,350	14,609
	Retired Members and Survivors	5,613	5,341
	Terminated Due a Deferred Benefit	393	383
	Terminated Due a Refund	6,355	5,951
Payroll:		$ 675,897,782	$ 682,370,194
Benefits in Payment:		$ 164,605,373	$ 149,408,905
Present Value of Future Benefits:		$ 5,288,701,651	$ 5,015,860,010
Actuarial Accrued Liability (EAN):		$ 3,998,832,755	$ 3,761,394,421
Frozen Unfunded Actuarial Accrued Liability:		$ 37,983,949	$ 44,364,331
Funding Deposit Account Credit Balance:		$ 52,683,236	$ 56,567,343
Actuarial Value of Assets (AVA):		$ 3,592,604,222	$ 3,322,151,803
Market Value of Assets (MVA):		$ 3,615,367,904	$ 3,328,367,058
Ratio of AVA to Actuarial Accrued Liability (EAN):		89.84%	88.32%

	Fiscal 2018	Fiscal 2017
Market Rate of Return:	8.5%	13.6%
Actuarial Rate of Return:	8.1%	8.3%

	Fiscal 2019	Fiscal 2018
Employers' Normal Cost (Mid-year):	$ 95,578,119	$ 96,621,955
Amortization Cost (Mid-year):	$ 9,581,796	$ 9,324,494
Estimated Administrative Cost:	$ 1,964,350	$ 1,850,159
Projected Ad Valorem Tax Contributions:	$ 21,133,926	$ 20,677,724
Projected Revenue Sharing Funds:	$ 420,757	$ 422,040
Expected Insurance Premium Taxes Due:	$ 20,587,174	$ 19,733,532
Net Direct Employer Actuarially Required Contributions:	$ 64,982,408	$ 66,963,312
Projected Payroll:	$ 696,186,684	$ 702,339,701
Board Approved Employee Contribution Rate:	10.25%	10.25%
Board Approved Net Direct Employer Contribution Rate:	12.25%	12.75%
Actuarially Required Net Direct Employer Contribution Rate:	9.33%	9.53%

	Fiscal 2020	Fiscal 2019
Minimum Recommended Net Direct Employer Cont. Rate:	9.25%	9.50%

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 in such areas as expectation of population increase and turnover for the plan 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 process 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. Fortunately, 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 level of funding and to provide for the future benefits of plan participants.

COMMENTS ON DATA

For the valuation, the administrative staff of the system furnished a census on electronic media 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, 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 IX, there are 14,350 active members in the system, of whom 4,812 members have vested retirement benefits; 5,613 former members or their beneficiaries are receiving retirement benefits. An additional 6,748 terminated members have contributions remaining on deposit with the system; of this number, 393 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, which have no corresponding current record are identified. This portion of the review indicates the annual flow of members from one status to another and is used to check some of the actuarial assumptions, such as retirement rates, rates of withdrawal, and mortality. In addition, the census is checked for reasonableness in several areas, such as age, service, salary, and current benefits. The records identified by this review as questionable are checked against data from prior valuations; those not recently verified are included in a detailed list of items sent to the system's administrator 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. For this valuation, the number of such records with imputed data is de minimis. The assigned values are based on information from similar records or based on information implied from other data in the record.

In addition to the statistical information provided on the system's participants, the system's administrator furnished general information related to other aspects of the system's expenses, benefits and funding. Valuation asset values as well as income and expenses for the fiscal year were based on information furnished by the system's auditor, the firm of Duplantier, Hrapmann, Hogan & Maher, L.L.P. As indicated in the system's audit report, the net market value of system's assets was $3,615,367,904 as of June 30, 2018. Net investment income for Fiscal 2018 measured on a market value basis was $284,279,433. Contributions to the system for the fiscal year totaled $207,583,949; benefits and expenses amounted to $203,592,258. (In addition, the prior period asset value was adjusted by subtracting $1,270,278 due to a restatement to account for a change in accounting principle.)

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 Frozen Attained Age Normal actuarial cost method with the unfunded accrued liability frozen as of June 30, 1989. Under the provisions of Louisiana R.S. 11:103 the unfunded accrued liability which was determined to be $69,702,461 as of June 30, 1989, was amortized over forty years with payments increasing at 3.50% per year. Payroll growth in excess of 3.50% per year will reduce future amortization payments as a percent of payroll; payroll growth less than 3.50% will increase future payments as a percent of payroll. Under the Frozen Attained Age Normal Cost Method, actuarial gains and losses are spread over future normal costs. Thus, favorable plan experience will lower future normal costs; unfavorable experience will cause future normal costs to increase. In addition, changes in benefits and assumptions are also spread over future normal costs as are contribution surpluses and shortfalls.

Prior to the passage of Act 247 in the 2009 legislative session, in any year in which the net direct employer contribution was scheduled to decrease, the Board of Trustees could freeze the net direct employer contribution rate and use the excess funds collected, if any, to reduce the frozen unfunded actuarial accrued liability. Notwithstanding such a decrease, payments were made according to the regular amortization schedule, thereby reducing the amortization period. In Fiscal 2008 the excess contributions collected from the frozen employer contribution rate reduced the frozen unfunded actuarial accrued liability by $22,548,024. Based upon the additional contributions collected during Fiscal 2008, the current frozen unfunded actuarial accrued liability will be fully amortized by June 30, 2023. Subsequent to June 30, 2008, any surplus contributions collected as a result of R. S. 11:2175.1 are credited to the Funding Deposit Account. The funds may then be used, at the discretion of the Board, to reduce the Unfunded Accrued Liability, reduce future normal costs, as an offset to direct employer contributions, or to provide funding for a cost of living increase.

The current year 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. In accordance with the previous decision of the Board of Trustees, the valuation interest rate was reduced from 7.40% to 7.25% as of June 30, 2018. An inflation rate of 2.6% was implicit in the lower assumed rate of return.

As a part of the ongoing review of the valuation interest rate, consideration was given to several factors. First, we considered estimates of expected rates of return, standard deviations, and correlation coefficients for asset classes derived from various asset consulting firms. These factors were used to derive a consultant average of forward estimates related to the Fund's portfolio. In addition, forward estimates were developed using Russell Investment's November 2018 Long-Term Arithmetic Gross of Fee Returns and Standard Deviations by asset class.

Assuming expected returns on the portfolio as a whole are normally distributed, using a consultant average nominal rate of return of 6.74% and long-term portfolio standard deviation of 2.05%, we estimate that there is a 40% probability that the fund will have earnings at or above 7.25% in the long term. Using Russell Investment's forward estimates, we calculate an average nominal geometric return of 7.32% for a portfolio positioned according to the fund's target asset allocations. Given a long-term portfolio standard deviation of 1.99%, we estimate that there is a 51% probability that the fund will have earnings at or above 7.25% in the long-term. Based upon our analysis, although the current assumed rate of return falls within our reasonable range, we recommend further reduction in the long-

term assumed rate of return from 7.25% to 7.00% to better position the system's assumption within the reasonable range.

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 thirty-nine through forty-three. All assumptions 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 will be required to contribution levels. Such differences will be revealed in future actuarial valuations. The net effect of the changes in plan assumptions on the normal cost accrual rate was an increase of 1.4376%.

RISK FACTORS

Defined benefit pension plans are subject to a number of risks. These can be related either to plan assets or liabilities. In order to pay benefits, the plan must have sufficient assets. Several factors can lead to asset levels which are below those required to pay promised benefits. The first risk in this regard is the failure to contribute adequate funds to the plan. In some ways, this is the greatest risk, since other risks can usually be addressed by adequate actuarial funding.

All pension plans are subject to asset performance risk. Asset performance is comprised of the real rates of return earned on the portfolio of investments plus the underlying inflation rate. High levels of inflation or deflation can present the plan with problems by either reducing the purchasing power of plan benefits or impairing asset values in the trust. Asset performance over the long run depends not only on average returns but also on the volatility of returns. Two portfolios of identical size with identical average rates of return will accumulate different levels of assets if the volatility of returns differs since increased volatility reduces the accumulation of assets. Another element of asset risk is reinvestment risk. Recent interest rate declines have subjected pension plans to an increase in this risk. As fixed income securities have matured, investment managers have been forced to reinvest funds at decreasing rates of return. For pension plans which require significant net cash flow above contributions to fund benefit payments, the risk of insufficient liquidity is another risk component which can create problems if it becomes necessary to sell securities under unfavorable market conditions in order to raise cash necessary to pay retirement benefits. Even for individual securities, insolvency and performance risk can subject a plan to stress if these investments comprise a significant portion of plan assets. Security insolvency or severe underperformance can result in steep increases in sponsor contributions where individual investments comprise more than a de minimis amount of the investment portfolio.

In addition to asset risk, the plan is also subject to risks related to liabilities. These risks include longevity risk (the risk that retirees will live longer than expected), termination risk (the risk that fewer than the anticipated number of members will terminate service prior to retirement), and other factors that may have an impact on the liability structure of the plan. Final average compensation plans are

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

Liability risk also includes items such as data errors. Significant errors in plan data can distort or disguise plan liabilities. When data corrections are made, the plan may experience unexpected increases or decreases in liabilities. Even natural disasters and dislocations in the economy or other unforeseen events can present risks to the plan. These events can affect member payroll and plan demographics, both of which impact costs.

Recommended actuarial contributions are based on expectations related to asset and liability performance; all of the above mentioned factors can produce unexpected changes in the future cost structures of the plan. For this reason, future costs may differ significantly from current levels. Ordinarily, variations in these factors will offset to some extent. However, even with the expectation that not all variations in costs will likely travel in the same direction, certain factors have the potential on their own accord to pose a significant risk to future cost levels and solvency.

Beyond identifying risk categories, it is possible to quantify some risk factors. One fairly well known risk metric is the funded ratio of the plan. The rate is given as plan assets divided by plan liabilities. However, the definition of each of these terms may vary. The two typical alternatives used for assets are the market and actuarial value of assets. There are a number of alternative measures of liability depending on the funding method employed. The Governmental Accounting Standards Board (GASB) specifies that for financial reporting purposes, the funded ratio is determined by using the market value of assets divided by the entry age normal accrued liability. This value is given in the system's financial report. Alternatively, we have calculated the ratio of the actuarial value of assets to the entry age normal accrued liability based on the funding methodology used to fund the plan. The ratio is 89.84% as of June 30, 2018. This value gives some indication of the financial strength of the plan; however, it does not guarantee the ability of the fund to pay benefits in the future or indicate that in the future, contributions are likely to be less than or greater than current contributions. In addition, the ratio cannot be used in isolation to compare the relative strength of different retirement systems. However, the trend of this ratio over time can give some insight into the financial health of the plan. Even in this regard, caution is warranted since market fluctuations in asset values and changes in plan assumptions can distort underlying trends in this value. One additional risk measure is the sensitivity of the plan's cost structure to asset gains and losses. For this plan, we have determined that based on current assets and demographics, for each percentage under (over) the assumed rate of return on the actuarial value of assets, there will be a corresponding increase (reduction) in the actuarially required contribution as a percentage of projected payroll of 0.51% for the fund.

The ability of a system to recover from adverse asset or liability performance is related to the maturity of the plan population. In general, plans with increasing active membership are less sensitive to asset and liability gains and losses than mature plans since changes in plan costs can be partially allocated to new members. If the plan has a large number of active members compared to retirees, asset or liability losses can be more easily addressed. As more members retire, contributions can only be collected from a smaller segment of the overall plan population. Often, population ratios of actives to annuitants are used to measure the plan's ability to adjust or recover from adverse events since contributions are made by or on behalf of active members but not for retirees. Thus, if the plan suffers a mortality loss through increased longevity, this will affect both actives and retirees, but the system can only fund this loss by contributions related to active members. A measure of risk related to plan maturity is the ratio

of total benefit payments to active payroll. For Fiscal 2018, this ratio is 24.35%; ten years ago this ratio was 11.97%.

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 actuarially required employer contribution rate for Fiscal 2019 by 9.86% 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 assumptions, and changes in plan provisions or applicable law. Analysis of the effect of all these factors and additional risk metrics is beyond the scope of this report.

CHANGES IN PLAN PROVISIONS

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

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

Act 224 of the 2018 Regular Session of the Louisiana Legislature provides for survivor benefits for members killed in the line of duty by an intentional act of violence

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

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

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

ASSET EXPERIENCE

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

	Market Value	Actuarial Value
2009	-17.4%	-5.0% *
2010	10.9%	5.8%
2011	20.2%	5.0%
2012	-0.2%	2.3%
2013	12.9%	5.5%
2014	17.9%	11.6%
2015	3.8%	10.4%
2016	-0.4%	6.6%
2017	13.6%	8.3%
2018	8.5%	8.1%

* Includes effect of change in asset valuation method. Effective with 2009 fiscal year, the corridor limits were increased to 85% to 115% of the market value of assets and the final asset value was determined by averaging the smoothed value with the corridor limit if the smoothed value extends beyond the corridor.

Geometric Average Market Rates of Return

5 year average	(Fiscal 2014 – 2018)	8.5%
10 year average	(Fiscal 2009 – 2018)	6.4%
15 year average	(Fiscal 2004 – 2018)	6.5%
20 year average	(Fiscal 1999 – 2018)	5.4%
25 year average	(Fiscal 1994 – 2018)	6.4%

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 and dividends. This rate of return gives an indication of performance for an actively managed portfolio where securities are bought and sold with the objective of producing the highest total rate of return. During 2018, the fund earned $41,117,159 of dividends, interest and other recurring income. Net income was increased by realized and unrealized capital gains of $256,652,957. Investment expenses reduced income by $13,490,683.

The actuarial rate of return is presented for comparison to the assumed long-term rate of return. As of June 30, 2012, the valuation interest rate was 8.0%. In response to a review of the assumed long term rate of return performed in the course of the development of the 2012 valuation, a recommendation was made to lower the valuation interest rate from 8.0% to 7.5%. The Board of Trustees approved a plan to reduce the valuation interest rate over five years by reducing the assumption by 0.10% each year from Fiscal 2013 through Fiscal 2017. In 2017, the Board approved a plan to reduce the valuation interest rate over the following two fiscal years to 7.25%. The assumed rate of return for Fiscal 2019 is 7.25%. This rate 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 smoothing earnings above or below the valuation interest rate over a five-year period, subject to constraints as outlined in the section in the report describing actuarial assumptions. The amount smoothed each year was based on the valuation interest rate in effect for that year. 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 over the five-year period. Yields in excess of the valuation interest rate assumption will reduce future costs; yields below the assumption will increase future costs. For Fiscal 2018, the system experienced net actuarial investment earnings of $21,792,877 more than the actuarial assumed earnings rate of 7.40% in effect for Fiscal 2018 (Beginning with Fiscal 2019, actuarial investment gains and losses will be measured against the 7.25% valuation interest rate). This surplus in earnings produced an actuarial gain, which decreased the normal cost accrual rate by 0.3119%

DEMOGRAPHICS AND LIABILITY EXPERIENCE

A reconciliation of the census for the system is given in Exhibit IX. The average active member is 43 years old with 9.81 years of service and an average salary of $47,101. The system's active contributing membership decreased during the fiscal year by 259 members. The plan has experienced a decrease in the active plan population of 209 members over the last five years. A review of the active census by age indicates that over the last ten years the population in the under-forty age group has decreased while the proportion of active members over-forty increased. During this ten-year period the plan showed a decrease in the percentage of members with service less than ten years and a corresponding increase in all other service groups.

The average service retiree is 69 years old with a monthly benefit of $2,666. The retired population increased by 272 during the last fiscal year. Over the last five years the number of retirees has increased by 1,320. During this same period, annual benefits in payment increased by $58,773,169 (i.e. by 56%).

Plan liability experience for Fiscal 2018 was favorable. Salary increases were below projected levels while retiree deaths and withdrawals were above projected levels. These factors tend to reduce costs. Partially offsetting these factors were retirements and disabilities above expected levels. Overall, plan liability gains decreased the normal cost accrual rate by 0.6261%.

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 payment on the unfunded actuarial accrued liability. The normal cost refers to the portion of annual cost based on the salary of active participants. 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. Under the funding method used for the plan, changes in plan experience, benefits, or assumptions do not affect the frozen unfunded actuarial accrued liability. These items increase or decrease future normal costs.

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.

The derivation of the actuarially required contribution for the current fiscal year is given in Exhibit I. The normal cost for Fiscal 2019 adjusted for mid-year payment is $95,578,119. The amortization payment on the fund's frozen unfunded actuarial accrued liability, adjusted for mid-year payment, is $9,581,796. The total actuarially required contribution is determined by adding estimated administrative expenses to these two values. As given on line 16 of Exhibit I the total actuarially required contribution for Fiscal 2019 is $107,124,265. When this amount is reduced by projected ad valorem tax contributions, revenue sharing funds, and insurance premium taxes the remaining portion to be funded by direct employer contributions for Fiscal 2019 is $64,982,408 or 9.33% of projected payroll.

Liability and asset experience as well as changes in assumptions and benefits can increase or lower plan costs. In addition to these factors, any COLA granted in the prior fiscal year will increase required contributions. New entrants to the system can also increase or lower costs as a percent of payroll depending upon their demographic distribution and other factors related to prior plan experience. Finally, contributions above or below requirements may reduce or increase future costs.

The effects of various factors on the fund's cost structure are outlined below:

Employer's Normal Cost Accrual Rate – Fiscal 2018	14.2499%
Factors Increasing the Normal Cost Accrual Rate:	
Assumption Changes	1.4376%
Cost of Living Increase	0.4034%
Factors Decreasing the Normal Cost Accrual Rate:	
Plan Liability Experience Gain	0.6261%
New Members	0.5181%
FDA Offset to Fund 2019 COLA	0.4034%
Asset Experience Gain	0.3119%
Employer's Normal Cost Accrual Rate – Fiscal 2019	14.2314%

In addition to the above factors, payroll growth affects plan costs to the extent that payments on the system's unfunded liability are on a schedule that varies from actual trends in payroll growth or decline. If payroll changes at rates not consistent with the amortization schedule the result will be costs that change as a percentage of payroll. For Fiscal 2019, the net effect of the change in payroll on amortization costs will be to increase such costs by 0.05% of projected payroll. (Note: This value also includes the effect of the reduction in the valuation interest rate). Required net direct employer

contributions are also affected by the available ad valorem taxes, revenue sharing funds, and insurance premium taxes which the system receives each year. When these funds change as a percentage of payroll, net direct employer contributions are adjusted accordingly. We estimate that these funds will increase by 0.25% of payroll in Fiscal 2019.

For Fiscal 2018, the Board of Trustees set the net direct employer contribution rate to 12.75%. This exceeded the minimum recommended rate of 10.00% and produced $20,123,301 in excess contributions which were added to the system's Funding Deposit Account. In addition, a cost of living increase effective January 1, 2018 was funded by reducing the value of the Funding Deposit Account by the present value of COLA benefits, or $28,193,391. After accounting for deposits, withdrawals and interest, the balance in the Funding Deposit Account is $52,683,236 as of June 30, 2018. For Fiscal 2019, the Board of Trustees set the employer contribution rate at 12.25%, which was above the minimum recommended net direct employer contribution rate of 9.50%. If this produces a contribution excess during Fiscal 2019, the excess contributions will be deposited into the Funding Deposit Account as of June 30, 2019.

R.S. 11:103 requires that the net direct employer contributions be rounded to the nearest 0.25%, hence we are recommending a minimum net direct employer contribution rate of 9.25% for Fiscal 2020. Under the provisions of R.S. 11:105 and R.S. 11:107, the Board of Trustees may set the net direct employer contribution at any level between the minimum recommended employer contribution rate of 9.25% and the current level of 12.25%. If the Board sets the net direct employer contribution rate above the minimum rate, any excess funds collected will be deposited in the Funding Deposit Account. Funds in this account can be used to reduce either future required contributions in a particular year or the normal cost accrual rate. In addition, if the system may grant a cost of living increase to retirees, such increase may be paid from funds in the Funding Deposit Account.

COST OF LIVING INCREASES

During Fiscal 2018, the actual cost of living (as measured by the US Department of Labor CPI-U) increased by 2.9%. Cost of living provisions for the system are detailed in R.S. 11:2178, R.S. 11:246, and R.S. 11:241. R.S. 11:2178 details the provisions applicable to system retirees subject to certain limitations relative to the age and elapsed time since retirement. The permissible COLA is based on the members' current benefit and is subject to various percentage and dollar minimums and maximums. R.S. 11:246 provides cost of living increases for retirees and beneficiaries age 65 and over equal to 2% of the benefit 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.

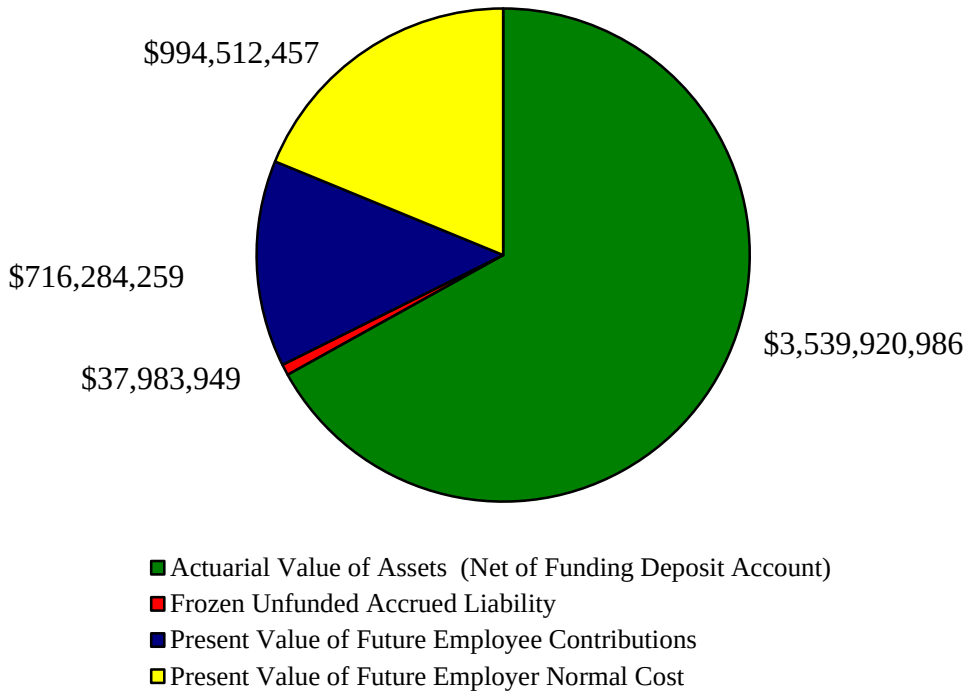
R. S. 11: 246 specifically requires that the system's investments produce sufficient excess interest earnings to fund the increase and that the Fund meets the criteria set forth in R. S. 11:243 in order to grant a cost of living increase. In the case of the cost of living increase described in R. S. 11:2178, the Fund may fund such an increase from excess interest earnings on the system's investments or out of funds from the Funding Deposit Account. If the system funds such a cost of living increase from

excess interest earnings on the system's investments, the Fund must also meet the criteria set forth in R.S. 11:243.

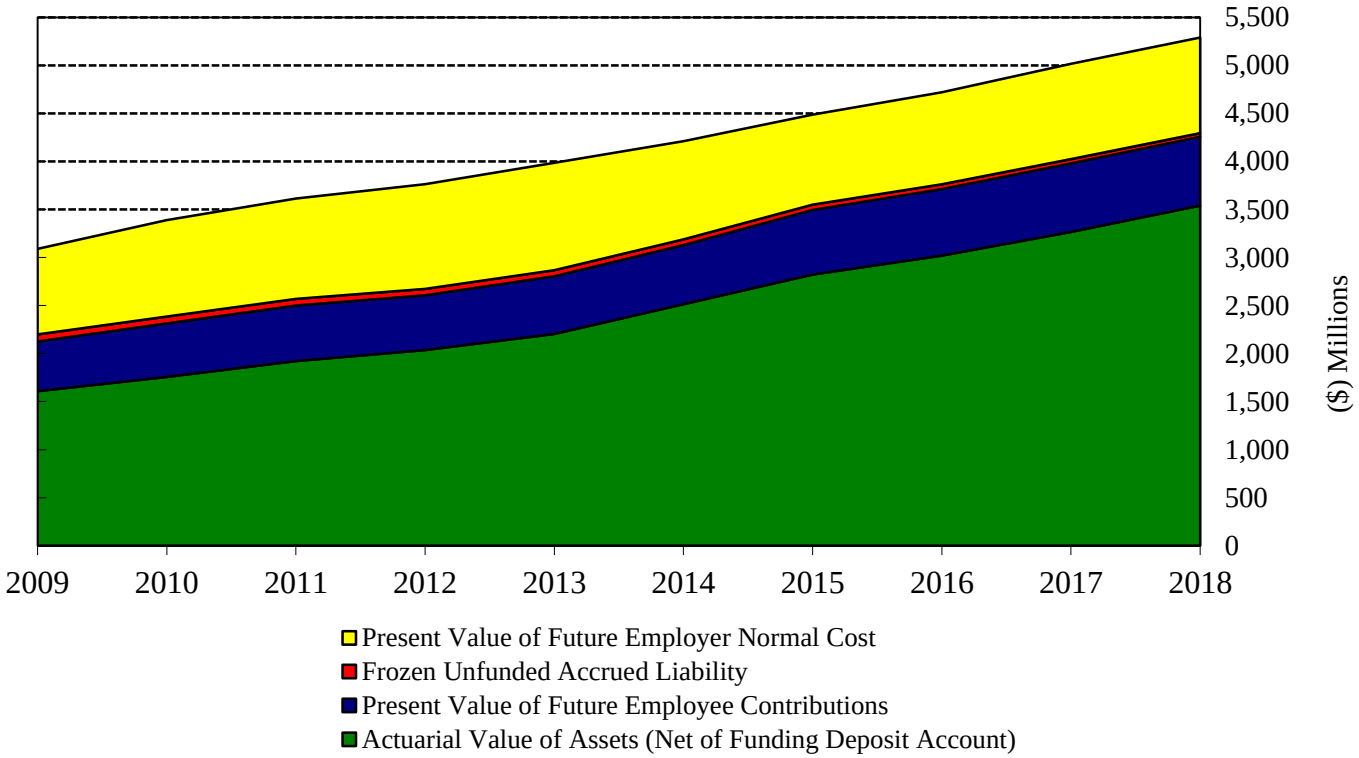
For Fiscal 2018, the fund earned excess interest of $21,792,877; in addition, the current balance in the Funding Deposit Account as of June 30, 2018 is $52,683,236. R.S. 11:243 sets forth the funding criteria necessary in order to grant cost of living adjustments to regular retirees and beneficiaries (who are neither the surviving spouse nor children of the retiree). The criteria for the fund to qualify as eligible to grant any such increase is as follows: a funded ratio of at least 70% if the system has not granted a benefit increase to retirees, survivors, or beneficiaries in any of the three most recent fiscal years; a funded ratio of at least 80% if the system has not granted such an increase in any of the two most recent fiscal years; or a funded ratio of at least 90% if the system has not granted such an increase in the most recent fiscal year. The funded ratio at any fiscal year end is the ratio of the actuarial value of assets to the actuarial accrued liability under the funding method prescribed by the legislative auditor (currently the Projected Unit Credit Method for this system).

Although the plan's funded ratio for COLA purposes is 95.23% (i.e. the actuarial value of assets divided by the pension benefit obligation), the plan does not qualify for an increase under the requirements of R.S. 11:243(G)(3) because the fund has granted a benefit increase to retirees, survivors, and beneficiaries of the fund within the prior fiscal year. Furthermore, although the system has sufficient funds in the Funding Deposit Account, the plan does not qualify for an increase under the requirements of R. S. 11:2178 since R.S. 11:2178(K)(1)(b) states that no cost of living increase may be granted pursuant to this Subsection if a cost of living increase was granted in the immediately preceding fiscal year and the Board provided a cost of living increase as of January 1, 2018.

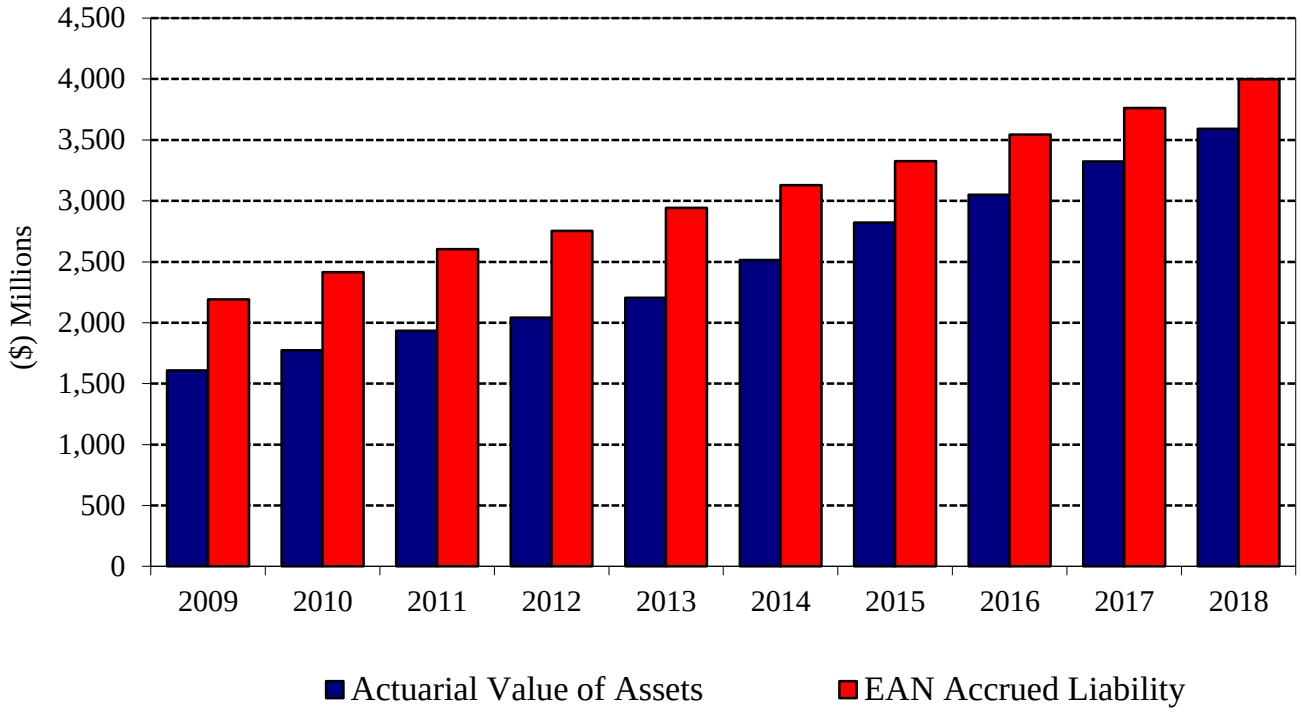
Components of Present Value of Future Benefits
June 30, 2018



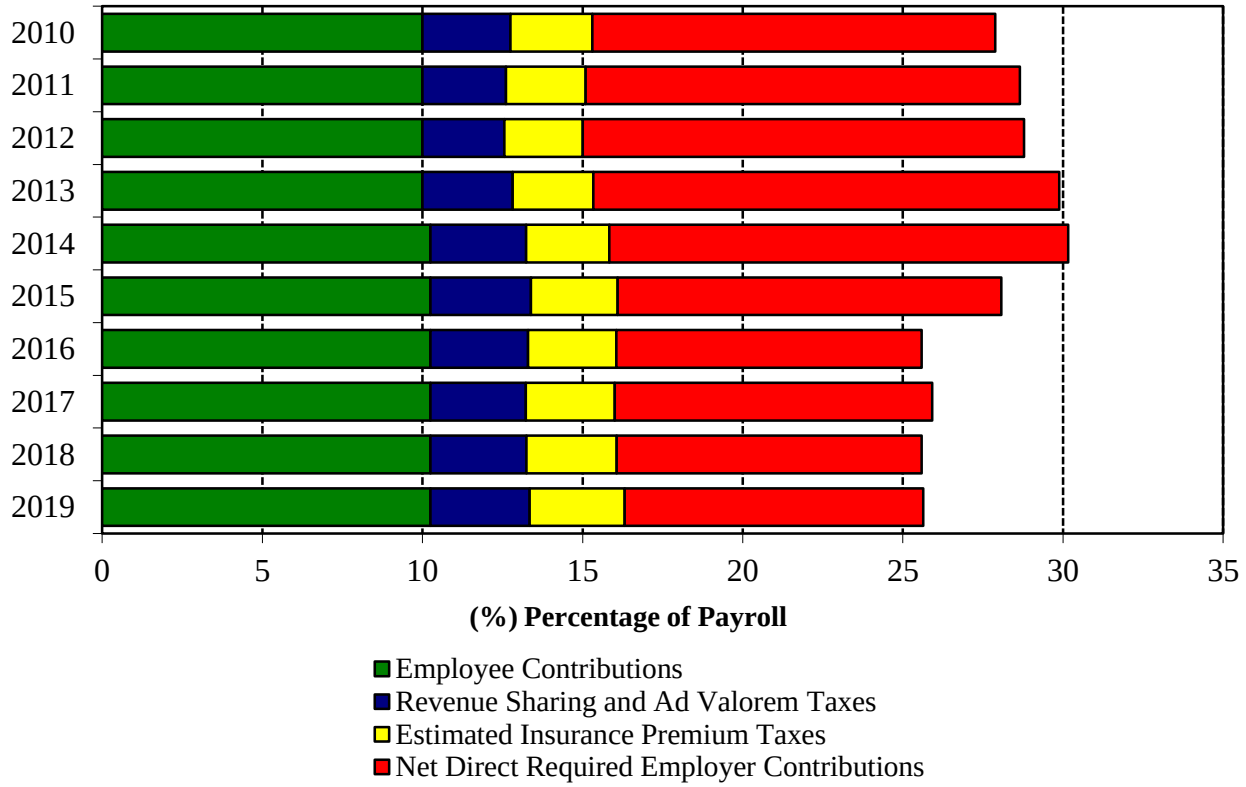
Components of Present Value of Future Benefits



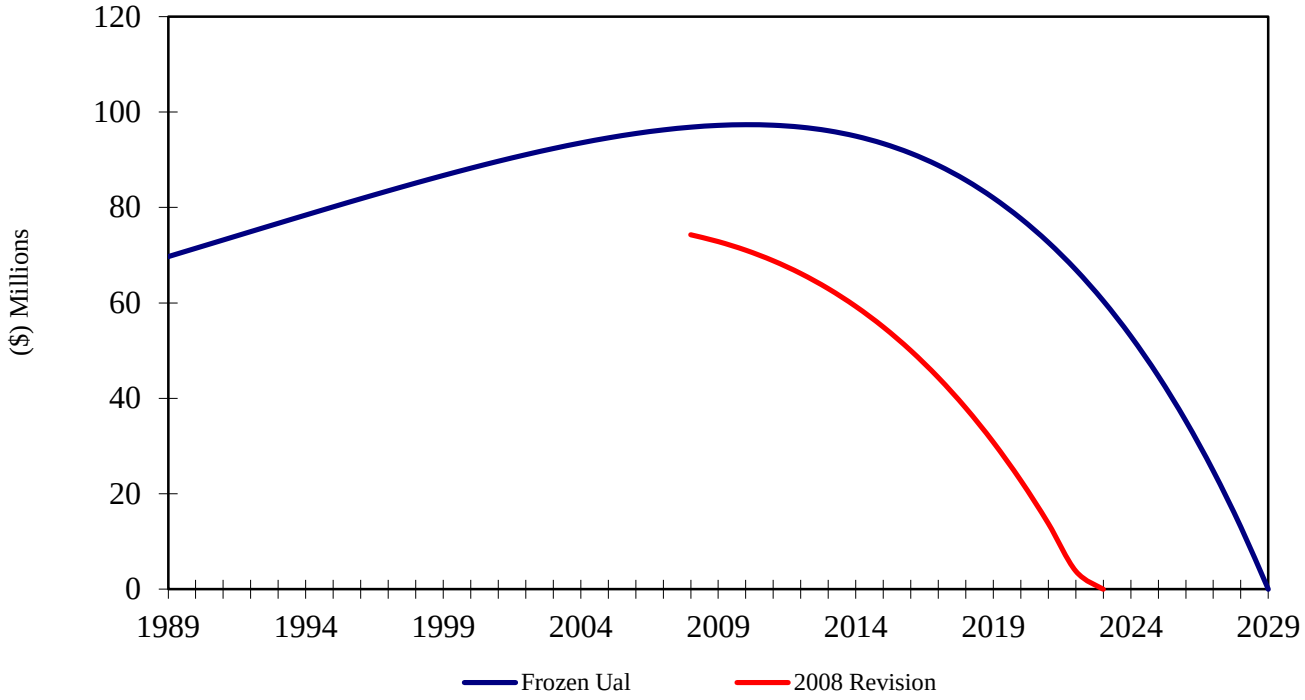
Actuarial Value of Assets vs. EAN Accrued Liability



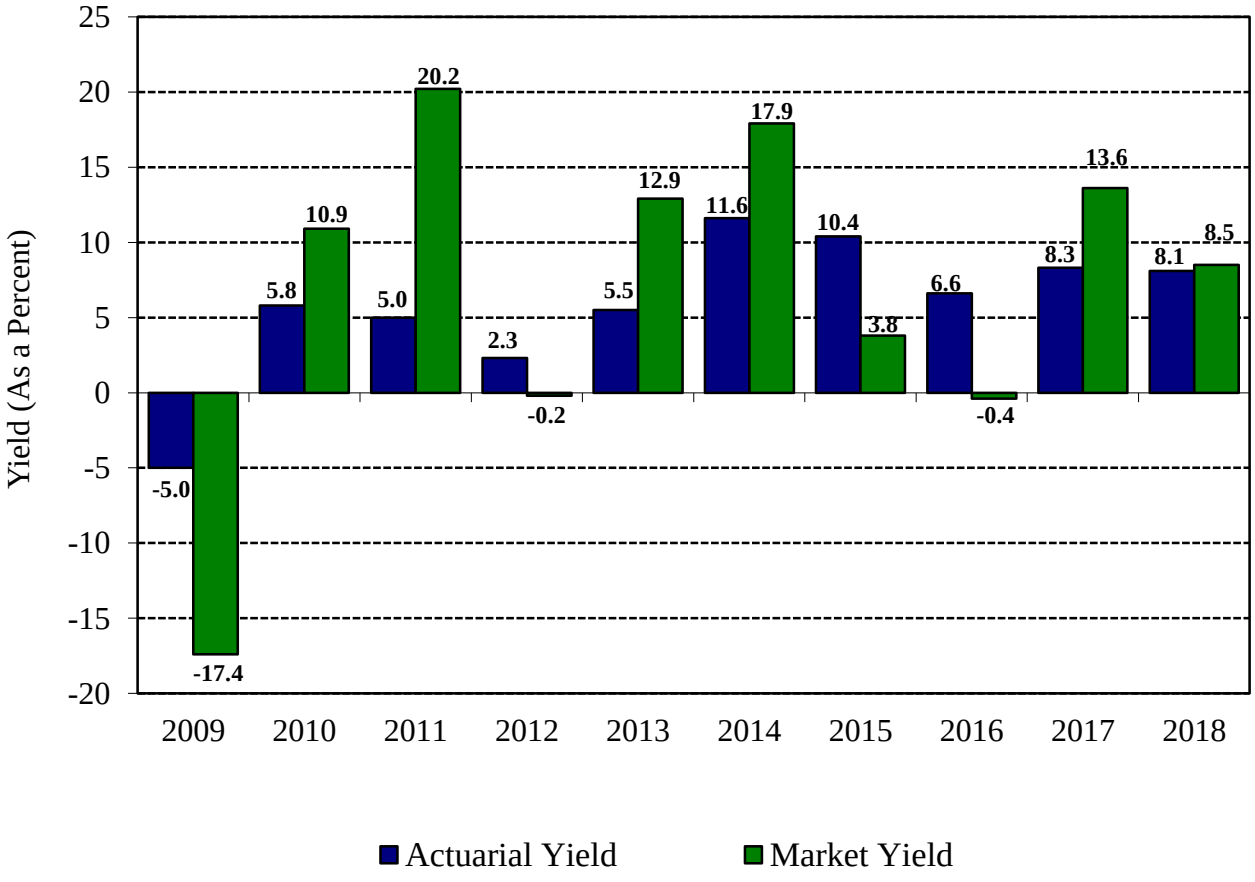
Components of Actuarial Funding



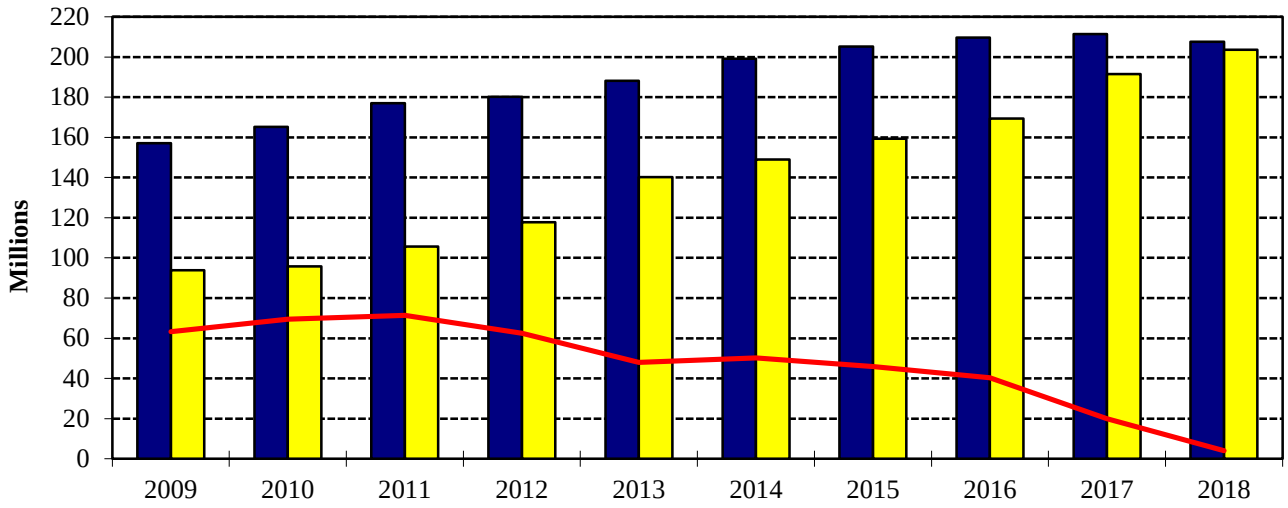
Frozen Unfunded Actuarial Accrued Liability



Historical Asset Yields

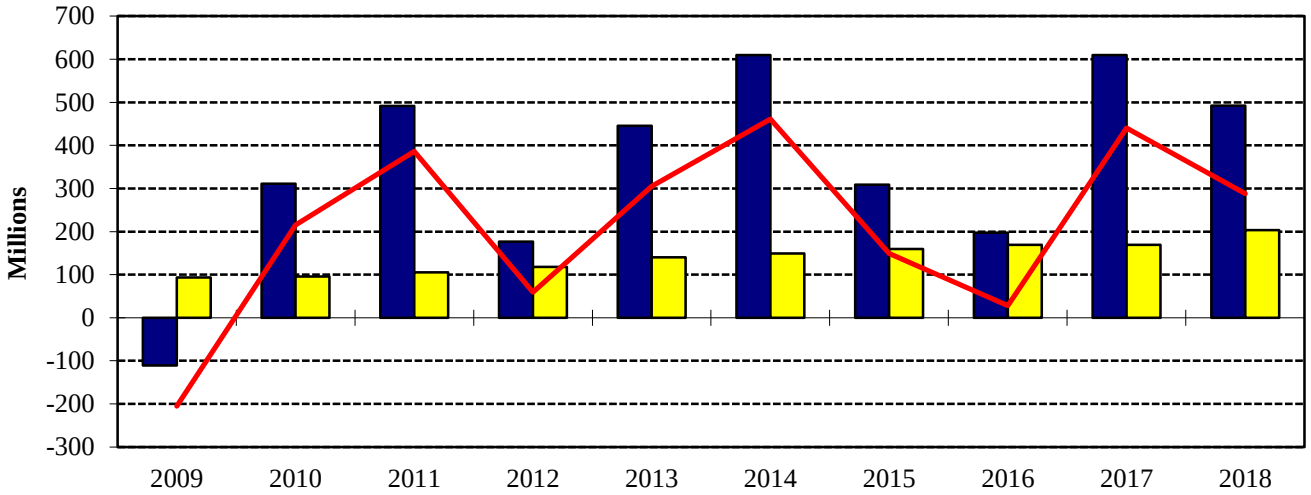


Net Non-Investment Income



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Non-Investment Income ($Mil)	157.1	165.3	177.0	180.2	188.1	199.2	205.2	209.7	211.5	207.6
Benefits and Expenses ($Mil)	93.8	95.8	105.6	117.8	140.2	149.0	159.3	169.4	191.5	203.6
Net Non-Investment Income ($Mil)	63.3	69.5	71.4	62.4	47.9	50.2	45.9	40.3	20.0	4.0

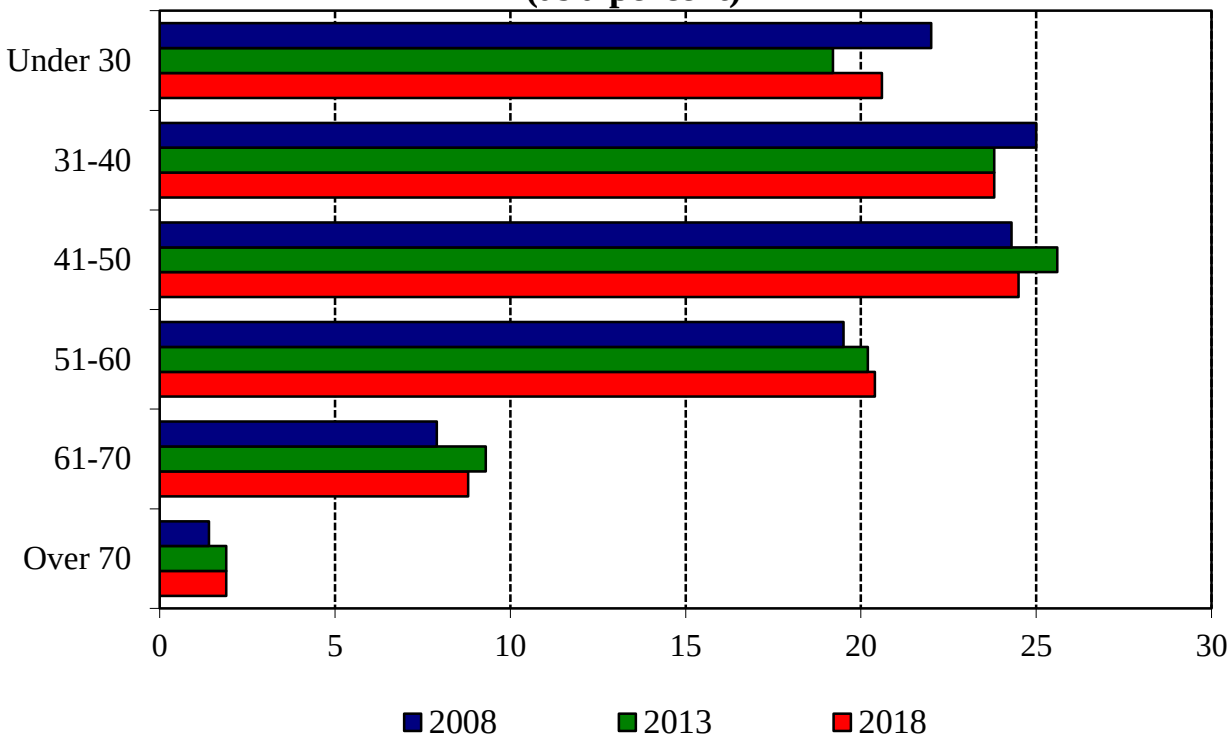
Total Income vs. Expenses
(Based on Market Value of Assets)



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total Income ($Mil)	-111.0	311.0	491.3	176.9	445.4	609.8	308.6	197.5	609.4	491.9
Benefits and Expenses ($Mil)	93.8	95.8	105.6	117.8	140.2	149.0	159.3	169.4	191.5	203.6
Net Change in MVA ($Mil)	-204.8	215.2	385.7	59.1	305.2	460.8	149.3	28.1	417.9	288.3

Active – Census by Age

(as a percent)



Active – Census by Service

(as a percent)

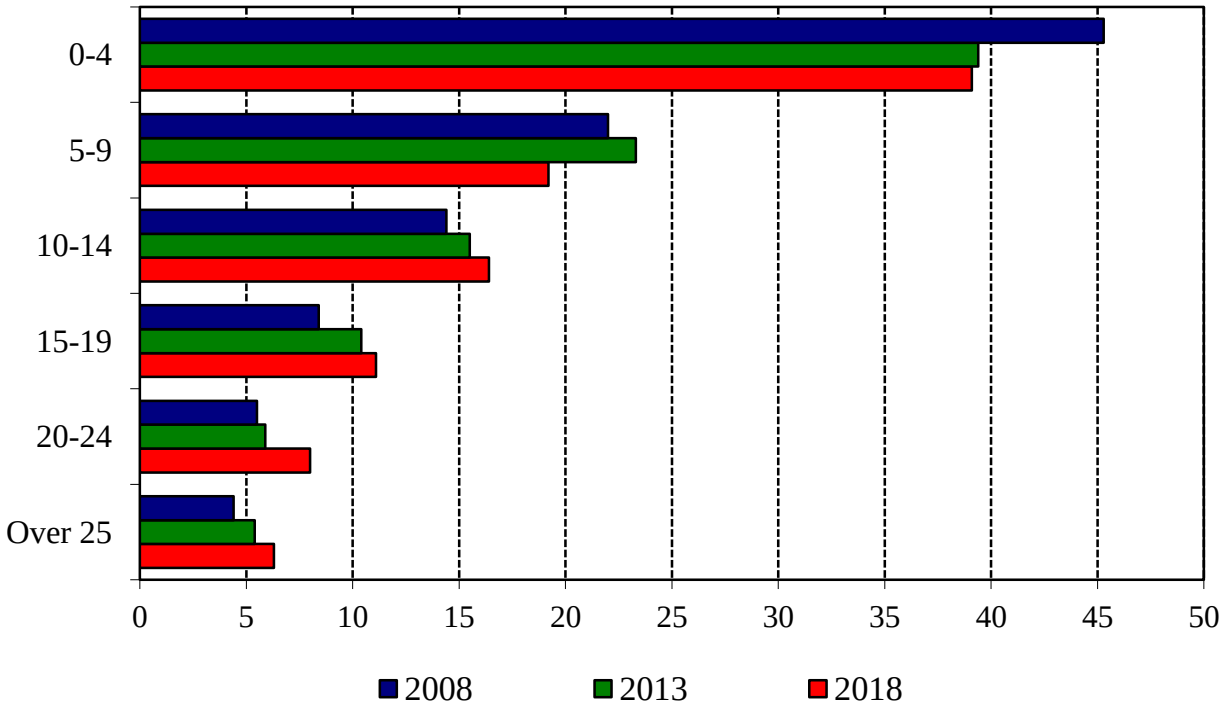


EXHIBIT I
ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS

1.	Present Value of Future Benefits	$	5,288,701,651
2.	Funding Deposit Account Credit Balance	$	52,683,236
3.	Unfunded Actuarial Accrued Liability	$	37,983,949
4.	Actuarial Value of Assets	$	3,592,604,222
5.	Present Value of Future Employee Contributions	$	716,284,259
6.	Present Value of Future Employer Normal Costs (1 + 2 – 3 – 4 – 5)	$	994,512,457
7.	Present Value of Future Salaries	$	6,988,151,983
8.	Employer Normal Cost Accrual Rate (6 ÷ 7)		14.231409%
9.	Projected Fiscal 2019 Salary for Current Membership	$	648,502,908
10.	Employer Normal Cost as of July 1, 2018 (8 × 9)	$	92,291,101
11.	Employer Normal Cost Interest Adjusted for Mid-year Payment	$	95,578,119
12.	Amortization Payment on Remaining Frozen Unfunded Accrued Liability with Payments increasing at 3.50% per year	$	9,252,269
13.	Amortization Payment Interest Adjust for Mid-year Payment	$	9,581,796
14.	TOTAL Employer Normal Cost and Amortization Payment (12 + 13)	$	105,159,915
15.	Estimated Administrative Cost for Fiscal 2019	$	1,964,350
16.	GROSS Employer Actuarially Required Contribution for Fiscal 2019 (14 + 15)	$	107,124,265
17.	Projected Ad Valorem Tax Contributions for Fiscal 2019	$	21,133,926
18.	Projected Revenue Sharing Funds for Fiscal 2019	$	420,757
19.	GROSS Employer Actuarially Required Contribution to be Funded by Direct Employer Contributions and Insurance Premium Taxes for Fiscal 2019 (16 – 17 – 18)	$	85,569,582
20.	Estimated Insurance Premium Taxes due for Fiscal 2019	$	20,587,174
21.	Employer's Net Direct Actuarially Required Contribution (19 – 20)	$	64,982,408
22.	Projected Payroll for Fiscal 2019	$	696,186,684
23.	Employers' Minimum Net Direct Actuarially Required Contribution as a % of Projected Payroll for Fiscal 2019 (21 ÷ 22)		9.33%
24.	Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2020 (23, Rounded to the nearest 0.25%)		9.25%

EXHIBIT II
PRESENT VALUE OF FUTURE BENEFITS

PRESENT VALUE OF FUTURE BENEFITS FOR ACTIVE MEMBERS:

Retirement Benefits	$ 3,193,495,172	
Survivor Benefits	122,583,880	
Disability Benefits	15,445,449	
Vested Termination Benefits	74,706,446	
Refunds of Contributions	78,317,660	
TOTAL Present Value of Future Benefits for Active Members		$ 3,484,548,607

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement	$ 73,416,867	
Terminated Members with Reciprocals Due Benefits at Retirement	984,084	
Terminated Members Due a Refund	22,252,051	
TOTAL Present Value of Future Benefits for Terminated Members		$ 96,653,002

PRESENT VALUE OF FUTURE BENEFITS FOR RETIREES:

Regular Retirees			
Maximum	$ 432,607,743		
Option 1	158,285,049		
Option 2	625,962,078		
Option 3	197,561,021		
Option 4	2,092,376		
Option 5	46,128,319		
TOTAL Regular Retirees		$ 1,462,636,586	
Disability Retirees		37,710,416	
Survivors & Widows		156,191,821	
DROP and Back-DROP Annuities Payable to Retirees		38,103,765	
DROP and Back-DROP Account Balances		12,857,454	
TOTAL Present Value of Future Benefits for Retirees & Survivors			$ 1,707,500,042
TOTAL Present Value of Future Benefits			$ 5,288,701,651

EXHIBIT III – SCHEDULE A
MARKET VALUE OF ASSETS

CURRENT ASSETS:		
Cash in Banks	$ 15,533,878	
Contributions and Taxes Receivable	12,523,664	
Accrued Interest and Dividends	5,916,880	
Investments Receivable	116,958,736	
Prepaid Expenses	11,780	
Other Income	265,656	
TOTAL CURRENT ASSETS		$ 151,210,594
Property, Plant & Equipment		$ 2,112,049
INVESTMENTS:		
Cash Equivalents	$ 145,613,277	
Equities	2,226,710,282	
Fixed Income	898,930,702	
Real Estate	240,428,027	
Alternative Investments	237,787,037	
Collateral for Securities Lending	18,395,039	
TOTAL INVESTMENTS		$ 3,767,864,364
DEFERRED OUTFLOWS OF RESOURCES		$ 1,030,998
TOTAL ASSETS		$ 3,922,218,005
CURRENT LIABILITIES:		
Accounts Payable	$ 3,532,172	
Benefits Payable	154,677	
Refunds Payable	1,078,046	
Investments Payable	278,545,294	
Securities Lending Obligations	18,395,039	
Other Post-Employment Benefits	2,497,410	
Other Current Liabilities	2,600,909	
TOTAL CURRENT LIABILITIES		$ 306,803,547
DEFERRED INFLOWS OF RESOURCES		$ 46,554
TOTAL LIABILITIES		$ 306,850,101
MARKET VALUE OF ASSETS		$ 3,615,367,904

EXHIBIT III – SCHEDULE B
ACTUARIAL VALUE OF ASSETS

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

Fiscal year 2018	$ 37,881,375
Fiscal year 2017	178,930,072
Fiscal year 2016	(232,843,968)
Fiscal year 2015	(108,809,371)
Fiscal year 2014	231,506,629
Total for five years	$ 106,664,737

Deferral of excess (shortfall) of invested income:

Fiscal year 2018 (80%)	$ 30,305,100
Fiscal year 2017 (60%)	107,358,043
Fiscal year 2016 (40%)	(93,137,587)
Fiscal year 2015 (20%)	(21,761,874)
Fiscal year 2014 (0%)	0
Total deferred for year	$ 22,763,682

Market value of plan net assets, end of year	$ 3,615,367,904
Preliminary actuarial value of plan assets, end of year	$ 3,592,604,222

Actuarial value of assets corridor

85% of market value, end of year	$ 3,073,062,718
115% of market value, end of year	$ 4,157,673,090
Final actuarial value of plan net assets, end of year	$ 3,592,604,222

EXHIBIT IV
PRESENT VALUE OF FUTURE CONTRIBUTIONS

Employee Contributions to the Annuity Savings Fund		$ 716,284,259
Employer Normal Contributions to the Pension Accumulation Fund		994,512,457
Employer Amortization Payments to the Pension Accumulation Fund		37,983,949
Funding Deposit Account Debit (Credit) Balance		(52,683,236)
TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS		$ 1,696,097,429

EXHIBIT V
CHANGE IN FROZEN UNFUNDED ACTUARIAL ACCRUED LIABILITY

Prior Year Frozen Unfunded Accrued Liability			$ 44,364,331
Interest on Frozen Unfunded Accrued Liability	$ 3,282,960		
TOTAL Interest Adjusted Cost Elements			$ 3,282,960
Amortization Payment on the Unfunded Accrued Liability	$ 8,997,526		
Interest on Amortization Payment	665,816		
Withdrawals from Funding Deposit Account	0	†	
TOTAL Interest Adjusted Employer Contributions			$ 9,663,342
NET Change in Frozen Unfunded Accrued Liability			$ (6,380,382)
CURRENT YEAR FROZEN UNFUNDED ACCRUED LIABILITY			$ 37,983,949

† Excludes withdrawals from the Funding Deposit Account to offset cost of COLAs

EXHIBIT VI
ANALYSIS OF INCREASE IN ASSETS

Actuarial Value of Assets (June 30, 2017)		$ 3,322,151,803
Prior Period Adjustment		(1,270,278)
Adjusted Actuarial Value of Assets (June 30, 2017)		$ 3,320,881,525
INCOME:		
Member Contributions	$ 70,631,946	
Employer Contributions	87,830,131	
Irregular Contributions	8,296,198	
Ad Valorem Taxes and Revenue Sharing	21,091,761	
Insurance Premium Taxes	19,733,532	
Other	381	
Total Contributions		$ 207,583,949
Net Appreciation of Investments	$ 256,652,957	
Interest & Dividends	41,114,771	
Miscellaneous Income	2,388	
Investment Expense	(13,490,683)	
Net Investment Income		$ 284,279,433
TOTAL Income		$ 491,863,382
EXPENSES:		
Retirement Benefits	$ 180,414,500	
Refunds of Contributions	19,302,400	
Transfers to Other Systems	1,854,326	
Administrative Expenses	2,021,032	
TOTAL Expenses		$ 203,592,258
Net Market Value Income for Fiscal 2018 (Income – Expenses)		$ 288,271,124
Unadjusted Fund Balance as of June 30, 2018 (Fund Balance Previous Year + Net Income)		$ 3,609,152,649
Adjustment for Actuarial Smoothing		$ (16,548,427)
Actuarial Value of Assets: (June 30, 2018)		$ 3,592,604,222

EXHIBIT VII
FUNDING DEPOSIT ACCOUNT

Funding Deposit Account Balance as of June 30, 2017	$	56,567,343
Interest on Opening Balance at 7.40%		4,185,983
Contributions to the Funding Deposit Account		20,123,301
Withdrawals from the Funding Deposit Account		(28,193,391)
Funding Deposit Account Balance as of June 30, 2018	$	52,683,236

EXHIBIT VIII – Schedule A
PENSION BENEFIT OBLIGATION

Present Value of Credited Projected Benefits Payable to Current Employees	$	1,968,401,768
Present Value of Benefits Payable to Terminated Employees		96,653,002
Present Value of Benefits Payable to Current Retirees and Beneficiaries		1,707,500,042
TOTAL PENSION BENEFIT OBLIGATION	$	3,772,554,812
NET ACTUARIAL VALUE OF ASSETS	$	3,592,604,222
Ratio of Net Actuarial Value of Assets to Pension Benefit Obligation		95.23%

EXHIBIT VIII – Schedule B
ENTRY AGE NORMAL ACCRUED LIABILITIES

Accrued Liability for Active Employees	$	2,194,679,711
Accrued Liability for Terminated Employees		96,653,002
Accrued Liability for Current Retirees and Beneficiaries		1,707,500,042
TOTAL ENTRY AGE NORMAL ACCRUED LIABILITY	$	3,998,832,755
NET ACTUARIAL VALUE OF ASSETS	$	3,592,604,222
Ratio of Net Actuarial Value of Assets to Entry Age Normal Accrued Liability		89.84%

EXHIBIT IX
CENSUS DATA

	Active	Terminated with Funds on Deposit	Retired	Total
Number of members as of June 30, 2017	14,609	6,334	5,341	26,284
Additions to Census				
Initial membership	1,477	226		1,703
Omitted in error last year			1	1
Death of another member			76	76
Adjustment for multiple records		1	13	14
Change in Status during Year				
Actives terminating service	(585)	585		
Actives who retired	(316)		316	
Actives entering DROP				
Term. members rehired	99	(99)		
Term. members who retire		(31)	31	
Retirees who are rehired	2		(2)	
Refunded who are rehired	75	29		104
DROP participants retiring				
DROP returned to work				
Omitted in error last year				
Eliminated from Census				
Refund of contributions	(969)	(291)		(1,260)
Deaths	(42)	(6)	(163)	(211)
Included in error last year				
Adjustment for multiple records				
Number of members as of June 30, 2018	14,350	6,748	5,613	26,711

ACTIVES CENSUS BY AGE:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
16 - 20	79	32	111	30,624	3,399,278
21 - 25	773	405	1,178	34,718	40,898,360
26 - 30	1,026	635	1,661	39,879	66,239,386
31 - 35	1,144	586	1,730	45,149	78,107,597
36 - 40	1,055	627	1,682	48,053	80,825,866
41 - 45	1,043	584	1,627	50,842	82,719,669
46 - 50	1,198	696	1,894	52,147	98,765,534
51 - 55	1,063	619	1,682	54,014	90,852,001
56 - 60	717	531	1,248	49,546	61,833,936
61 - 65	495	320	815	48,559	39,575,585
66 - 70	313	133	446	47,673	21,262,176
71 - 75	138	49	187	44,578	8,336,129
76 - 80	52	15	67	34,280	2,296,762
81 - 85	15	2	17	35,885	610,041
86 - 90	4	0	4	30,692	122,767
91 - 95	1	0	1	52,695	52,695
TOTAL	9,116	5,234	14,350	47,101	675,897,782

THE ACTIVE CENSUS INCLUDES 4,812 ACTIVES WITH VESTED BENEFITS, INCLUDING 2 ACTIVE FORMER DROP PARTICIPANTS.

TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
31 - 35	6	0	6	21,218	127,310
36 - 40	27	11	38	21,891	831,849
41 - 45	36	24	60	24,933	1,495,964
46 - 50	87	32	119	27,318	3,250,828
51 - 55	103	35	138	25,290	3,490,065
56 - 60	13	4	17	16,890	287,124
61 - 65	3	1	4	12,809	51,234
66 - 70	6	1	7	12,155	85,083
71 - 75	1	1	2	6,612	13,224
81 - 85	1	0	1	1,881	1,881
86 - 90	1	0	1	399	399
TOTAL	284	109	393	24,516	9,634,961

TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

Contributions Ranging From	To	Number	Total Contributions
0	99	1,413	60,779
100	499	1,739	449,357
500	999	815	586,696
1000	1999	663	939,701
2000	4999	670	2,161,359
5000	9999	412	2,940,941
10000	19999	332	4,669,936
20000	99999	311	9,609,462
TOTAL		6,355	21,418,231

REGULAR RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
46 - 50	1	3	4	54,234	216,935
51 - 55	83	39	122	48,189	5,879,051
56 - 60	395	228	623	43,884	27,339,453
61 - 65	592	334	926	36,388	33,695,689
66 - 70	700	336	1,036	31,702	32,843,341
71 - 75	597	256	853	27,118	23,131,863
76 - 80	359	135	494	23,538	11,627,787
81 - 85	200	78	278	19,752	5,491,013
86 - 90	72	26	98	21,588	2,115,602
91 - 99	17	14	31	16,929	524,786
TOTAL	3,016	1,449	4,465	31,997	142,865,520

DISABILITY RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
26 - 30	1	0	1	17,894	17,894
31 - 35	3	1	4	14,730	58,919
36 - 40	5	2	7	21,241	148,690
41 - 45	8	4	12	25,741	308,893
46 - 50	14	6	20	22,630	452,609
51 - 55	22	14	36	23,242	836,701
56 - 60	16	10	26	19,610	509,848
61 - 65	19	12	31	17,524	543,244
66 - 70	23	6	29	13,450	390,049
71 - 75	14	4	18	13,261	238,704
76 - 80	6	2	8	11,495	91,962
81 - 85	5	1	6	11,138	66,826
86 - 90	4	1	5	13,600	68,001
91 - 99	1	0	1	14,730	14,730
TOTAL	141	63	204	18,368	3,747,070

SURVIVORS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
0 - 25	13	38	51	8,404	428,593
26 - 30	2	2	4	8,177	32,706
31 - 35	0	3	3	12,758	38,275
36 - 40	0	7	7	31,328	219,295
41 - 45	3	21	24	23,973	575,349
46 - 50	0	18	18	33,235	598,236
51 - 55	4	28	32	22,067	706,129
56 - 60	3	65	68	22,849	1,553,758
61 - 65	7	85	92	23,640	2,174,847
66 - 70	3	136	139	21,581	2,999,786
71 - 75	10	159	169	19,379	3,275,030
76 - 80	10	120	130	16,754	2,178,021
81 - 85	3	96	99	15,613	1,545,735
86 - 90	1	66	67	16,102	1,078,832
91 - 99	1	40	41	14,346	588,191
TOTAL	60	884	944	19,060	17,992,783

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	92	19										111
21 - 25	458	313	192	138	54	23						1,178
26 - 30	316	231	229	266	210	381	28					1,661
31 - 35	159	167	128	151	125	587	394	19				1,730
36 - 40	130	111	97	94	84	360	504	284	18			1,682
41 - 45	109	104	78	84	52	268	307	377	240	8		1,627
46 - 50	116	99	90	68	75	303	271	297	371	196	8	1,894
51 - 55	73	81	75	51	63	224	273	222	272	245	103	1,682
56 - 60	56	67	75	55	44	226	217	186	121	102	99	1,248
61 - 65	21	34	41	46	40	183	171	118	74	47	40	815
66 - 70	16	21	18	18	14	126	120	51	35	16	11	446
71 & Over	11	17	14	11	8	76	66	37	14	9	13	276
Totals	1,557	1,264	1,037	982	769	2,757	2,351	1,591	1,145	623	274	14,350

AVERAGE ANNUAL SALARY OF ACTIVE MEMBERS:

Attained Ages	Completed Years of Service											Average Salary
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	
0 - 20	30,832	29,619										30,624
21 - 25	31,593	33,742	37,299	40,272	39,301	44,616						34,718
26 - 30	32,220	35,598	39,165	40,893	42,654	46,105	52,325					39,879
31 - 35	34,531	36,175	41,240	42,250	42,675	47,330	52,649	55,596				45,149
36 - 40	34,331	36,586	40,530	39,880	43,179	46,748	53,224	57,325	58,892			48,053
41 - 45	32,509	37,917	42,340	41,045	41,987	47,036	52,603	58,447	62,082	76,266		50,842
46 - 50	33,493	35,322	44,141	41,235	43,119	46,081	50,434	55,217	62,726	69,203	63,515	52,147
51 - 55	35,789	36,417	36,804	41,552	39,210	43,806	49,440	55,505	61,980	69,927	80,755	54,014
56 - 60	31,588	34,053	38,316	35,593	41,896	44,469	45,850	52,335	57,050	69,876	74,188	49,546
61 - 65	30,584	34,932	33,097	37,184	33,842	44,142	46,896	51,558	58,448	74,241	83,226	48,559
66 - 70	29,671	25,579	35,454	30,519	39,164	43,339	50,695	57,259	60,068	56,543	94,825	47,673
71 & Over	27,747	24,079	34,126	32,092	34,211	37,950	40,560	49,565	45,359	55,338	82,402	41,371
Average	32,546	35,012	39,270	40,229	41,544	45,723	50,649	55,729	61,183	69,543	78,883	47,101

TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Attained Ages	Years Until Retirement Eligibility											
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 30												0
31 - 35									5	1		6
36 - 40								38				38
41 - 45							58	2				60
46 - 50						118	1					119
51 - 55	24	28	29	31	24	2						138
56 - 60	14		2	1								17
61 - 65	4											4
66 - 70	7											7
71 - 75	2											2
76 - 80												0
81 - 85	1											1
86 - 90	1											1
91 & Over												0
Totals	53	28	31	32	24	120	59	40	5	1	0	393

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

Attained Ages	Years Until Retirement Eligibility											Average Benefit
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	
0 - 30												0
31 - 35									22,480	14,907		21,218
36 - 40								21,891				21,891
41 - 45							25,174	17,939				24,933
46 - 50						27,379	20,059					27,318
51 - 55	18,863	22,729	26,157	29,301	29,831	9,064						25,290
56 - 60	19,508		6,143	1,719								16,890
61 - 65	12,809											12,809
66 - 70	12,155											12,155
71 - 75	6,612											6,612
76 - 80												0
81 - 85	1,881											1,881
86 - 90	399											399
91 & Over												0
Average	16,559	22,729	24,865	28,439	29,831	27,074	25,087	21,693	22,480	14,907	0	24,516

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	4											4
51 - 55	45	29	17	15	9	5	1	1				122
56 - 60	112	126	122	102	55	98	7		1			623
61 - 65	84	100	86	81	77	397	96	4	1			926
66 - 70	51	87	70	72	76	340	286	53	1			1,036
71 - 75	26	40	34	40	43	253	240	153	23	1		853
76 - 80	4	13	11	16	21	94	127	134	60	12	2	494
81 - 85	5	6	5	5	10	43	34	62	50	44	14	278
86 - 90		1	2	1		7	12	12	16	21	26	98
91 & Over				1			1	2	2	6	19	31
Totals	331	402	347	333	291	1,237	804	421	154	84	61	4,465

AVERAGE ANNUAL BENEFITS PAYABLE TO SERVICE RETIREES:

Attained Ages	Completed Years Since Retirement											Average Benefit
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	
0 - 50	54,234											54,234
51 - 55	44,732	50,952	58,377	49,572	38,623	55,481	11,371	16,130				48,189
56 - 60	47,583	42,552	43,925	42,834	40,853	44,611	41,039		14,450			43,884
61 - 65	33,839	35,354	33,267	38,795	36,612	37,842	35,351	18,219	5,420			36,388
66 - 70	28,172	29,377	27,353	26,720	34,404	34,600	31,772	28,658	27,962			31,702
71 - 75	25,406	27,421	26,262	24,120	25,295	30,769	27,787	23,055	18,609	20,261		27,118
76 - 80	20,275	19,960	15,443	21,465	22,471	25,821	27,958	21,398	18,624	25,694	15,501	23,538
81 - 85	14,652	12,158	22,792	26,741	19,887	23,905	25,774	21,830	17,257	13,068	14,484	19,752
86 - 90		6,567	12,591	12,951		13,308	20,110	36,745	22,540	20,739	19,205	21,588
91 & Over				36,396			18,371	9,537	15,168	22,200	15,127	16,929
Average	38,228	35,737	35,530	35,045	33,632	34,575	30,018	23,316	18,488	17,527	16,730	31,997

DISABILITY RETIREES:

Attained Ages	Completed Years Since Retirement											
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 30				1								1
31 - 35	1	1	1			1						4
36 - 40	2	2	1			1	1					7
41 - 45	2	2	4		1	2	1					12
46 - 50	4	2	2	1		6	3	1	1			20
51 - 55	4	1	5	1	1	15	5	4				36
56 - 60		1			1	10	7	2	4		1	26
61 - 65	1		2	1		7	7	6	1	5	1	31
66 - 70				2	1	2	5	5	11	1	2	29
71 - 75						3	2	1	6	5	1	18
76 - 80							1			5	2	8
81 - 85							1		1	1	3	6
86 - 90							1				4	5
91 & Over										1		1
Totals	14	9	15	6	4	47	34	19	24	18	14	204

AVERAGE ANNUAL BENEFITS PAYABLE TO DISABILITY RETIREES:

Attained Ages	Completed Years Since Retirement											Average Benefit
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	
0 - 30				17,894								17,894
31 - 35	23,566	12,724	12,652			9,977						14,730
36 - 40	23,857	24,668	27,226			12,372	12,042					21,241
41 - 45	30,785	22,599	28,240		28,481	20,770	19,144					25,741
46 - 50	27,430	35,836	44,291	16,571		18,592	12,437	9,592	7,606			22,630
51 - 55	14,255	25,834	37,438	47,036	29,304	21,997	23,045	11,283				23,242
56 - 60		12,367			15,178	25,849	20,412	9,149	13,168		9,955	19,610
61 - 65	13,860		20,925	10,723		11,478	23,483	25,538	11,064	11,367	10,957	17,524
66 - 70				15,329	20,239	19,309	13,972	13,397	11,145	12,307	14,396	13,450
71 - 75						15,779	12,129	10,067	15,141	11,169	10,354	13,261
76 - 80							9,566			10,085	15,986	11,495
81 - 85							9,738		6,115	12,499	12,825	11,138
86 - 90							6,370				15,407	13,600
91 & Over										14,730		14,730
Average	22,389	24,125	31,364	20,480	23,301	19,791	17,964	15,963	12,120	11,258	13,724	18,368

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	11	3	4	5	14	4					47
21 - 25					1	3						4
26 - 30		1	1				2					4
31 - 35						2			1			3
36 - 40	2	1			1	1	2					7
41 - 45		5		1	1	8	5	4				24
46 - 50	1		1	3	2	4	3	3	1			18
51 - 55	2	1	1	1	2	7	7	6	2	1	2	32
56 - 60	5	2	5	3	3	11	18	7	10	3	1	68
61 - 65	2	3	2	3	7	32	15	12	6	5	5	92
66 - 70	3	4	1	1	5	34	27	32	16	8	8	139
71 - 75	1	2	1	4	6	31	32	42	33	5	12	169
76 - 80	2	1		1		10	24	30	36	14	12	130
81 - 85						5	7	18	22	22	25	99
86 - 90						2	3	3	10	17	32	67
91 & Over									2	7	32	41
Totals	24	31	15	21	33	164	149	157	139	82	129	944

AVERAGE ANNUAL BENEFITS PAYABLE TO SURVIVORS OF FORMER MEMBERS:

Attained Ages	Completed Years Since Retirement											Average Benefit
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	
0 - 20	8,191	12,920	5,681	7,795	10,285	6,161	7,408					8,655
21 - 25					6,132	5,218						5,447
26 - 30		19,563	5,279				3,932					8,176
31 - 35						16,828			4,618			12,758
36 - 40	57,343	18,403			25,779	23,186	18,621					31,328
41 - 45		33,646		35,262	62,951	21,986	17,873	10,913				23,973
46 - 50	56,052		34,992	45,360	74,744	23,647	25,049	12,349	14,842			33,235
51 - 55	40,848	51,642	21,730	53,607	13,552	27,713	18,015	12,894	15,115	30,042	6,307	22,067
56 - 60	27,543	49,370	22,251	20,837	42,661	28,106	24,424	16,194	10,761	11,938	9,965	22,849
61 - 65	79,530	15,775	21,163	16,259	23,217	28,591	25,086	19,154	14,140	9,518	12,268	23,640
66 - 70	21,836	17,782	14,634	59,659	24,413	28,091	22,849	20,655	14,086	14,659	11,397	21,581
71 - 75	12,748	7,856	8,906	14,648	21,446	21,279	25,413	19,126	16,580	17,067	11,812	19,379
76 - 80	33,550	14,520		16,556		22,143	19,036	19,422	13,562	13,814	11,437	16,754
81 - 85						19,004	28,021	14,732	15,281	13,501	14,248	15,613
86 - 90						6,797	27,720	6,659	16,335	23,833	12,300	16,102
91 & Over									34,589	20,071	11,829	14,346
Average	30,988	20,883	17,078	23,915	26,185	23,123	22,467	18,047	14,904	16,490	12,266	19,060

EXHIBIT X
YEAR-TO-YEAR COMPARISON

	Fiscal 2018	Fiscal 2017	Fiscal 2016	Fiscal 2015
Number of Active Members	14,350	14,609	14,684	14,689
Number of Retirees & Survivors	5,613	5,341	5,014	4,766
Number of Terminated Due Deferred Benefits	393	383	389	354
Number Terminated Due Refunds	6,355	5,951	5,690	5,374
Active Lives Payroll	$ 675,897,782	$ 682,370,194	$ 669,735,563	$ 656,499,456
Retiree Benefits in Payment	$ 164,605,373	$ 149,408,905	$ 137,218,242	$ 126,604,621
Market Value of Assets	$ 3,615,367,904	$ 3,328,367,058	$ 2,910,465,956	$ 2,882,373,570
Actuarial Value of Assets	$ 3,592,604,222	$ 3,322,151,803	$ 3,049,411,053	$ 2,822,174,398
EAN Accrued Liability	$ 3,998,832,755	$ 3,761,394,421	$ 3,545,155,452	$ 3,328,125,306
Ratio of AVA to EAN Accrued Liability	89.84%	88.32%	86.02%	84.80%
Frozen Unfunded Actuarial Accrued Liability	$ 37,983,949	$ 44,364,331	$ 50,003,403	$ 54,953,449
Present Value of Future Employer Normal Cost	$ 994,512,457	$ 992,210,991	$ 987,893,018	$ 937,016,484
Present Value of Future Employee Contrib.	$ 716,284,259	$ 713,700,228	$ 692,464,530	$ 672,573,918
Funding Deposit Account Balance	$ 52,683,236	$ 56,567,343	$ 30,142,795	$ 0
Present Value of Future Benefits	$ 5,288,701,651	$ 5,015,860,010	$ 4,749,629,209	$ 4,486,718,249

	Fiscal 2019	Fiscal 2018	Fiscal 2017	Fiscal 2016
Board Approved Employee Contribution Rate	10.25%	10.25%	10.25%	10.25%
Estimated Tax Contribution as a % of Payroll	3.10%	3.00%	2.98%	3.05%
Estimated Insurance Taxes as a % of Payroll	2.96%	2.81%	2.77%	2.75%
Actuarially Required Net Direct Employer Contribution Rate	9.33%	9.53%	9.92%	9.54%
Board Approved Employer Contribution Rate	12.25%	12.75%	13.25%	13.75%

Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011	Fiscal 2010	Fiscal 2009
14,575	14,559	14,231	14,754	14,711	14,396
4,510	4,293	3,922	3,716	3,510	3,369
362	343	350	323	325	306
5,150	5,069	5,056	4,743	4,727	4,435
$ 634,536,119	$ 622,720,506	$ 611,139,881	$ 623,084,570	$ 603,250,449	$ 577,078,980
$ 114,122,739	$ 105,832,204	$ 90,894,373	$ 83,741,250	$ 76,379,208	$ 71,517,150
$ 2,733,132,117	$ 2,272,263,124	$ 1,967,024,952	$ 1,907,946,452	$ 1,522,233,162	$ 1,306,974,663
$ 2,513,293,197	$ 2,203,646,722	$ 2,042,809,526	$ 1,935,179,988	$ 1,773,450,705	$ 1,608,228,363
$ 3,129,132,635	$ 2,942,457,560	$ 2,752,868,402	$ 2,603,584,473	$ 2,415,074,197	$ 2,192,263,534
80.32%	74.89%	74.21%	74.33%	73.43%	73.36%
$ 59,264,382	$ 62,983,756	$ 66,156,793	$ 68,826,417	$ 71,042,296	$ 72,846,699
$ 1,022,657,685	$ 1,125,270,083	$ 1,089,982,874	$ 1,044,434,589	$ 1,003,967,230	$ 890,632,040
$ 616,003,094	$ 600,569,823	$ 570,327,767	$ 578,341,253	$ 557,530,584	$ 517,818,601
$ 0	$ 3,689,049	$ 6,448,956	$ 13,680,020	$ 17,151,710	$ 15,881,213
$ 4,211,218,358	$ 3,998,781,335	$ 3,762,828,004	$ 3,613,102,227	$ 3,388,839,105	$ 3,073,644,490

Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011	Fiscal 2010
10.25%	10.25%	10.00%	10.00%	10.00%	10.00%
3.04%	2.99%	2.82%	2.56%	2.61%	2.75%
2.70%	2.59%	2.51%	2.44%	2.48%	2.55%
12.07%	14.33%	14.55%	13.78%	13.56%	12.58%
14.25%	14.50% §	13.75% *	13.75% ‡	12.75% †	11.00%

† 12.00% paid directly by employers with additional 0.75% allocated from the Funding Deposit Account
‡ 12.50% paid directly by employers with additional 1.25% allocated from the Funding Deposit Account
* 13.25% paid directly by employers with additional 0.50% allocated from the Funding Deposit Account
§ 13.89% paid directly by employers with additional 0.61% allocated from the Funding Deposit Account

SUMMARY OF PRINCIPAL PLAN PROVISIONS

The Sheriffs' Pension & Relief Fund is a defined benefit pension plan that provides retirement allowances and other benefits. The following summary of plan provisions is for general informational purposes only and does not constitute a guarantee of benefits.

MEMBERSHIP – Any sheriff elected or deputy employed, who is otherwise eligible for membership must become a participating member of the fund. All salaried employees of the Sheriffs' Pension and Relief Fund and the Louisiana Sheriffs' Association who meet certain requirements are also eligible to become members of the retirement system.

CONTRIBUTION RATES – Under the provisions of R.S. 11:62, 11:82 and 11:103, the fund is financed by a combination of employee contributions, employer contributions, dedicated ad valorem taxes, revenue sharing funds, and insurance premium taxes. The employee contribution rate is determined by the Board of Trustees but cannot be less than 9.8% or more than 10.25% of earnable compensation. Gross employer contributions are determined by actuarial valuation and are subject to change each year in accordance with R. S. 11:103 and R. S. 11:105. Any excess funds resulting from additional contributions will be credited to the Funding Deposit Account defined in R.S. 11:2175.1. Also, the fund annually receives revenue sharing funds and ad valorem taxes equal to 0.5% of the aggregate amount of the tax shown to be collected by the tax roll of each respective parish, and additional funds as indicated by valuation and apportioned by the Public Retirement Systems' Actuarial Committee from available insurance premium taxes described in R.S. 22:1476(A)(3).

CONTRIBUTION REFUNDS – Upon withdrawal from service, members not entitled to a retirement allowance who have remained out of service for a period of thirty days are paid a refund of accumulated contributions upon request. Receipt of such a refund cancels all accrued benefits in the system.

NORMAL RETIREMENT BENEFITS – For members whose first employment making them eligible for membership in the system began on or before December 31, 2011: Members with twelve years of creditable service may retire at age fifty-five; members with thirty years of creditable service may retire at any 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 (after reduction for optional payment form) 100% of average final compensation.

For members whose first employment making them eligible for membership in the system began on or after January 1, 2012: Members with twelve years of creditable service may retire at age sixty-two; members with twenty years of service may retire at age sixty; members with thirty years of creditable service may retire at age fifty-five. The benefit accrual rate for such members with less than thirty years of service is three percent; for members with thirty or more years of service, the accrual rate is three and one-third percent. The retirement allowance is equal to the benefit accrual rate times the member's average final compensation multiplied by his years of creditable service, not to exceed (after reduction for optional payment form) 100% of average final compensation.

EARLY RETIREMENT BENEFITS – For members whose first employment making them eligible for membership in the system began on or before December 31, 2011: Active, contributing members with at least ten years of creditable service may retire at age sixty. The accrued normal retirement benefit is

reduced actuarially for each month or fraction thereof that retirement begins prior the member's earliest normal retirement date assuming continuous service.

For all members: Members with twenty or more years of service may retire with a reduced retirement at age fifty.

FINAL AVERAGE COMPENSATION – For a member whose first employment making him eligible for membership in the system began on or before June 30, 2006, final average compensation is based on the average monthly earnings during the highest thirty-six consecutive months or joined months if service was interrupted. The earnings to be considered for each twelve month period within the thirty-six month period shall not exceed 125% of the preceding twelve month period.

For a member whose first employment making him eligible for membership in the system began after June 30, 2006 and prior to July 1, 2013, final average compensation is based on the average monthly earnings during the highest sixty consecutive months or joined months if service was interrupted.

For a member whose first employment making him eligible for membership in the system began on or after July 1, 2013, final average compensation is based on the average monthly earnings during the highest sixty consecutive months or joined months if service was interrupted. The earnings to be considered for each twelve month period within the thirty-six month period shall not exceed 115% of the preceding twelve month period.

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 spouse to whom the member was married and living with at the time of retirement will continue to receive the same reduced benefit.

Option 2A – Upon retirement, the member receives a reduced benefit. Upon the member's death, the spouse to whom the member was married and living with at the time of retirement will continue to receive the same reduced benefit. If the member's spouse dies before the member, the member's benefit will revert to the maximum.

Option 3 – Upon retirement, the member receives a reduced benefit. Upon the member's death, the spouse to whom the member was married and living with at the time of retirement will receive one-half of the member's reduced benefit.

Option 3A – Upon retirement, the member receives a reduced benefit. Upon the member's death, the spouse to whom the member was married and living with at the time of retirement will receive one-half of the member's reduced benefit. If the member's spouse dies before the member, the member's benefit will revert to the maximum.

Option 4 – Upon retirement, the member elects to receive a Board-approved benefit that is actuarially equivalent to the maximum benefit.

Option 5 – Upon retirement, the member may receive ninety percent of the maximum benefit. Upon the member's death, if survived by a surviving spouse to whom the member was married and living with at the time of retirement, fifty percent of the member's benefit shall be paid to the spouse during said spouse's lifetime.

A member may also elect to receive an actuarially reduced benefit which provides for an automatic 2½% 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. Back-DROP participants are not eligible for this benefit.

DISABILITY BENEFITS – Ten years of creditable service are required in order to be eligible for disability benefits when a non-service related disability is incurred; there are no service requirements for a service related disability. Totally disabled members receive the lesser of their accrued retirement benefit (with a minimum of 45%) or their accrued retirement benefit assuming continued service to their earliest normal retirement age. Members who become partially disabled receive 75% of the amount payable for total disability.

SURVIVOR BENEFITS – Survivor benefits for death solely as a result of injuries received in the line of duty are based on the following. For a spouse alone, a sum equal to 50% of the member's final average compensation with a minimum of $150 per month. If a spouse is entitled to benefits and has a child or children under eighteen years of age (or over said age if physically or mentally incapacitated and dependent upon the member at the time of his death), an additional sum of 15% of the member's final average compensation is paid to each child with total benefits paid to spouse and children not to exceed 100%. If a member dies with no surviving spouse, surviving children under age eighteen receive monthly benefits of 15% of the member's final average compensation up to a maximum of 60% of final average compensation if there are more than four children. If a member is eligible for normal retirement at the time of death, the surviving spouse receives an automatic option 2 benefit; the additional benefit payable to children is the same as those available for members who die in the line of duty. In lieu of receiving option 2 benefits, the surviving spouse may receive a refund of the member's accumulated contributions. Benefits payable to surviving children are extended through age twenty-three, if the child is a full time student in good standing enrolled at a Board approved or accredited school, college, or university.

Back-DROP – In lieu of receiving a service retirement allowance any member of the fund who has more than sufficient service for a regular service retirement may elect to receive a "Back-DROP" benefit. The Back-DROP benefit is based upon the Back-DROP period selected and the final average compensation prior to the period selected. The Back-DROP period is the lesser of three years or the service accrued between the time a member first becomes eligible for retirement and his actual date of retirement. Members who have thirty or more years of service may elect a Back-DROP period not to exceed the lesser of forty-eight months or the number of months of creditable service accrued after the member first became eligible for regular retirement. At retirement the member's maximum monthly retirement benefit is based upon his service, final average compensation, and plan provisions in effect on the last day of creditable service immediately prior to the commencement of the Back-DROP period. In addition to the monthly benefit at retirement, the member receives a lump-sum payment equal to the maximum monthly benefit as calculated above multiplied by the number of months in the Back-DROP period. In addition, the member's Back-DROP account is credited with employee contributions received by the retirement fund during the Back-DROP period.

FUNDING DEPOSIT ACCOUNT – If the contribution rate is set above the minimum recommended rate pursuant to R.S. 11:105, the surplus contributions collected, if any, are credited to the Funding Deposit Account defined in R.S. 11:2175.1. For any fiscal year ending on or after December 31, 2008, in which the Board of Trustees elects or previously elected to set the net direct employer contribution rate higher than the minimum recommended rate, all surplus funds collected by the system shall be credited to the system's funding deposit account. The funds in the account earn interest annually at the Board-approved actuarial valuation interest rate, and such interest is credited to the account at least once a year. The Board of Trustees may in any fiscal year direct that funds from the account be charged for the following purposes: (1) to reduce the unfunded accrued liability; (2) to reduce the present value of future normal costs; (3) to pay all or a portion of any future net direct employer contributions; and (4) to provide for permanent benefit increases as provided for in R.S. 11.2178(K). In no event shall the funds charged from the account exceed the outstanding account balance. If the Board of Trustees of the system elects to utilize funds from the funding deposit account to pay all or a portion of any future net direct employer contributions, the percent reduction in the minimum recommended employer contribution rate otherwise applicable is determined by dividing the interest-adjusted value of the charges from the funding deposit account by the projected payroll for the fiscal year for which the contribution rate is to be reduced. For funding purposes, any asset value utilized in the calculation of the actuarial value of assets of a system excludes the funding deposit account balance as of the asset determination date for such calculation. For all purposes other than funding, the funds in the account are considered assets of the system.

COST OF LIVING INCREASES – The Board of Trustees is authorized to grant retired members and widows of members who have retired an annual cost of living increase of up to 2½% of their current benefit, not to exceed five percent of the average monthly benefit in payment to service retirees at the end of the preceding fiscal year. Members retiring on or after July 1, 2007, who have not attained the age of sixty years, may not receive this cost-of-living increase until they have been retired for three years. Those who have attained the age of sixty years may not receive this cost-of-living increase until they have been retired for one year. Different waiting periods applied to retirements prior to July 1, 2007. In addition, the Board may grant retired members and widows who are sixty-five years of age and older a 2% increase in their original benefit (or the benefit being received on October 1, 1977 if retirement had commenced prior to that date). In order for the Board to grant either of these increases the system must meet certain criteria in the statutes related to funding status and interest earnings. In lieu of granting the above cost of living increases, the Board of trustees may grant a cost of living increase based on a formula equal to up to $1 times the total of the number of years of credited service accrued at retirement or at death of the member or retiree plus the number of years since retirement or since death of the member or retiree to the system's fiscal year end preceding the payment of the benefit increase.

ACTUARIAL ASSUMPTIONS

In determining actuarial costs, certain assumptions must be made regarding future experience under the plan. These assumptions include the rate of investment return, mortality of plan members, rates of salary increase, rates of retirement, rates of termination, rates of disability, and various other factors that have an impact on the cost of the plan. To the extent that future experience varies from the assumptions selected for valuation, future costs will be either higher or lower than anticipated. The following chart illustrates the effect of emerging experience on the plan.

Factor	Increase in Factor Results in
Investment Earnings Rate	Decrease in Cost
Annual Rate of Salary Increase	Increase in Cost
Rates of Retirement	Increase in Cost
Rates of Termination	Decrease in Cost
Rates of Disability	Increase in Cost
Rates of Mortality	Decrease in Cost

ACTUARIAL COST METHOD:	Frozen Attained Age Normal actuarial cost method with allocation based on earnings. The frozen actuarial accrued liabilities were calculated on the projected unit credit cost method.
VALUATION INTEREST RATE:	7.25%
ACTUARIAL ASSET VALUES:	Invested 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.
ANNUAL SALARY INCREASE RATE:	5.5% (including 2.6% inflation)
ACTIVE MEMBER, ANNUTITANT, AND BENEFICIARY MORTALITY:	RP-2000 Combined Healthy with Blue Collar Adjustment Sex Distinct Tables Projected to 2028 for males and set forward 1 year and Projected to 2028 for females. (Projections based on Scale AA as published by the Society of Actuaries)

Back-DROP: Members eligible for Back-DROP are assumed to elect benefits which have a present value of ½% less than the maximum possible present value based on a comparison to available back DROP benefits and regular retirement benefits.

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.

RATES OF RETIREMENT: The table of these rates is included later in the report. These rates apply only to those individuals eligible to retire. Retirement rates for members who have completed DROP participation and are currently active are 0.3.

RETIREMENT LIMITATIONS: Projected retirement benefits are not subjected to IRS Section 415 limits.

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

Service	Factor
<1	0.210
1	0.160
2	0.120
3	0.110
4	0.090
5	0.080
6-7	0.060
8-9	0.040
10-15	0.030
16-18	0.020
>18	0.010

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

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

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

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

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

SERVICE RELATED DEATHS: 15% of total deaths

RATES OF DISABILITY: 12% of the disability rates used for the 21st valuation of the Railroad Retirement System for individuals with 10 – 19 years of service.

SERVICE RELATED DISABILITIES: 20% of Total Disabilities

VESTING ELECTING PERCENTAGE: 60% of those members under age 50 who are terminated vested elect deferred benefits in lieu of contribution refunds. 80% of those who are at least age 50 who are terminated vested elect deferred benefits in lieu of contribution refunds.

ACTUARIAL TABLES AND RATES

Age	Disability Rates	Retirement Rates – Tier 1 & 2	Retirement Rates – Tier 3	Remarriage Rates	Male Mortality Rates	Female Mortality Rates	Male Disabled Mortality Rates	Female Disabled Mortality Rates
18	0.00018	0.00000	0.00000	0.06124	0.00018	0.00012	0.02257	0.00745
19	0.00018	0.00000	0.00000	0.06124	0.00019	0.00012	0.02257	0.00745
20	0.00018	0.00000	0.00000	0.06124	0.00020	0.00012	0.02257	0.00745
21	0.00018	0.00000	0.00000	0.05818	0.00021	0.00012	0.02257	0.00745
22	0.00018	0.00000	0.00000	0.05524	0.00023	0.00013	0.02257	0.00745
23	0.00018	0.00000	0.00000	0.05242	0.00024	0.00013	0.02257	0.00745
24	0.00018	0.00000	0.00000	0.04971	0.00026	0.00014	0.02257	0.00745
25	0.00018	0.00000	0.00000	0.04566	0.00028	0.00015	0.02257	0.00745
26	0.00018	0.00000	0.00000	0.04335	0.00032	0.00016	0.02257	0.00745
27	0.00018	0.00000	0.00000	0.04114	0.00033	0.00017	0.02257	0.00745
28	0.00018	0.00000	0.00000	0.03902	0.00034	0.00018	0.02257	0.00745
29	0.00018	0.00000	0.00000	0.03698	0.00036	0.00022	0.02257	0.00745
30	0.00018	0.00000	0.00000	0.03502	0.00063	0.00026	0.02257	0.00745
31	0.00018	0.00000	0.00000	0.03314	0.00070	0.00029	0.02257	0.00745
32	0.00018	0.00000	0.00000	0.03134	0.00076	0.00032	0.02257	0.00745
33	0.00018	0.00000	0.00000	0.02961	0.00082	0.00035	0.02257	0.00745
34	0.00018	0.00000	0.00000	0.02795	0.00089	0.00038	0.02257	0.00745
35	0.00020	0.00000	0.00000	0.02636	0.00094	0.00041	0.02257	0.00745
36	0.00023	0.00000	0.00000	0.02483	0.00100	0.00045	0.02257	0.00745
37	0.00025	0.00000	0.00000	0.02336	0.00105	0.00048	0.02257	0.00745
38	0.00029	0.00000	0.00000	0.02195	0.00107	0.00052	0.02257	0.00745
39	0.00032	0.00000	0.00000	0.02060	0.00108	0.00058	0.02257	0.00745
40	0.00037	0.00000	0.00000	0.01930	0.00109	0.00064	0.02257	0.00745
41	0.00042	0.00000	0.00000	0.01805	0.00111	0.00070	0.02257	0.00745
42	0.00047	0.00000	0.00000	0.01686	0.00114	0.00077	0.02257	0.00745
43	0.00053	0.00000	0.00000	0.01571	0.00117	0.00084	0.02257	0.00745
44	0.00060	0.00000	0.00000	0.01461	0.00120	0.00088	0.02257	0.00745
45	0.00068	0.00000	0.00000	0.01355	0.00124	0.00092	0.02257	0.00745
46	0.00078	0.14000	0.00000	0.01253	0.00128	0.00096	0.02257	0.00745
47	0.00088	0.14000	0.00000	0.01156	0.00131	0.00103	0.02257	0.00745
48	0.00100	0.14000	0.00000	0.01063	0.00135	0.00110	0.02257	0.00745
49	0.00113	0.14000	0.00000	0.00973	0.00140	0.00121	0.02257	0.00818
50	0.00128	0.05000	0.04500	0.00887	0.00145	0.00134	0.02257	0.00896
51	0.00146	0.05000	0.04500	0.00804	0.00160	0.00151	0.02385	0.00978
52	0.00166	0.05000	0.04500	0.00725	0.00170	0.00172	0.02512	0.01063
53	0.00188	0.05000	0.04500	0.00649	0.00187	0.00195	0.02640	0.01154
54	0.00214	0.05000	0.04500	0.00576	0.00207	0.00223	0.02769	0.01248
55	0.00242	0.14000	0.12600	0.00000	0.00245	0.00258	0.02897	0.01346
56	0.00276	0.14000	0.12600	0.00000	0.00299	0.00295	0.03027	0.01446
57	0.00313	0.14000	0.12600	0.00000	0.00348	0.00330	0.03156	0.01550
58	0.00355	0.14000	0.12600	0.00000	0.00407	0.00374	0.03286	0.01654
59	0.00404	0.14000	0.12600	0.00000	0.00462	0.00430	0.03415	0.01760
60	0.00586	0.14000	0.12600	0.00000	0.00526	0.00504	0.03544	0.01865
61	0.00586	0.14000	0.12600	0.00000	0.00617	0.00589	0.03673	0.01971
62	0.00586	0.14000	0.12600	0.00000	0.00706	0.00693	0.03803	0.02077
63	0.00586	0.14000	0.12600	0.00000	0.00829	0.00794	0.03933	0.02184
64	0.00586	0.14000	0.12600	0.00000	0.00931	0.00904	0.04067	0.02294
65	0.00586	0.21000	0.18900	0.00000	0.01047	0.01029	0.04204	0.02408
66	0.00586	0.21000	0.18900	0.00000	0.01217	0.01149	0.04347	0.02529
67	0.00586	0.21000	0.18900	0.00000	0.01355	0.01279	0.04498	0.02660
68	0.00586	0.21000	0.18900	0.00000	0.01461	0.01424	0.04658	0.02803
69	0.00586	0.21000	0.18900	0.00000	0.01613	0.01619	0.04831	0.02959
70	0.00586	0.21000	0.18900	0.00000	0.01753	0.01752	0.05017	0.03132
71	0.00586	0.21000	0.18900	0.00000	0.01921	0.01949	0.05221	0.03323
72	0.00586	0.21000	0.18900	0.00000	0.02108	0.02100	0.05445	0.03533
73	0.00586	0.21000	0.18900	0.00000	0.02319	0.02315	0.05691	0.03764
74	0.00586	0.21000	0.18900	0.00000	0.02558	0.02467	0.05961	0.04014
75	0.00586	0.21000	0.18900	0.00000	0.02906	0.02698	0.06258	0.04285

PRIOR YEAR ASSUMPTIONS

VALUATION INTEREST RATE:	7.4%
ASSUMED LONG-TERM INFLATION RATE:	2.775%

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 final average 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.