

**REGISTRARS OF VOTERS EMPLOYEES'  
RETIREMENT SYSTEM**

ACTUARIAL VALUATION AS OF  
JUNE 30, 2018

# G. S. CURRAN & COMPANY, LTD.

Actuarial Services

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November 8, 2018

Board of Trustees  
Registrars of Voters Employees' Retirement System  
P.O. Box 1959  
Gonzales, Louisiana 70707

Ladies and Gentlemen:

We are pleased to present our report on the actuarial valuation of the Registrars of Voters Employees' Retirement System for the fiscal year ending June 30, 2018. Our report is based on the actuarial assumptions specified and relies on the data supplied by the system's administrator and accountants. This report was prepared at the request of the Board of Trustees of the Registrars of Voters Employees' Retirement System. The primary purpose of this report is to determine the actuarially required contribution for the retirement system for the fiscal year ending June 30, 2019, and to recommend the net direct employer contribution rate for Fiscal 2020. This report does not contain the information necessary for accounting disclosures as required by Governmental Accounting Standards Board (GASB) Statements 67 and 68; that information is included in a separate report. This report was prepared exclusively for the Registrars of Voters Employees' Retirement System for a specific limited purpose. It is not for the use or benefit of any third party for any purpose.

In our opinion, all of the assumptions on which this valuation is based are reasonable individually and in the aggregate. Both economic and demographic assumptions are based on our expectations for future experience for the fund. This report has been prepared in accordance with generally accepted actuarial principles and practices, and to the best of our knowledge and belief, fairly reflects the actuarial present values and costs stated herein. The undersigned actuaries are members of the American Academy of Actuaries and have met the qualification standards for the American Academy of Actuaries to render the actuarial opinions incorporated in this report, and are available to provide further information or answer any questions with respect to this valuation.

Sincerely,

G. S. CURRAN & COMPANY, LTD.

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

  
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**SUMMARY OF VALUATION RESULTS  
REGISTRARS OF VOTERS EMPLOYEES' RETIREMENT SYSTEM**

Valuation Date:	June 30, 2018	June 30, 2017
Census Summary:		
Active Members	238	244
Retired Members and Survivors	155	163
Terminated Due a Deferred Benefit	5	4
Terminated Due a Refund	25	20
Payroll:	\$ 13,637,926	\$ 13,692,608
Benefits in Payment:	\$ 5,172,876	\$ 4,927,865
Present Value of Future Benefits	\$ 150,181,235	\$ 140,697,227
Actuarial Accrued Liability (EAN):	\$ 117,626,619	\$ 109,217,320
Funding Deposit Account Credit Balance	\$ 2,630,074	\$ 2,920,894
Actuarial Value of Assets (AVA):	\$ 99,281,861	\$ 93,125,749
Market Value of Assets (MVA):	\$ 97,863,964	\$ 90,656,567
Ratio of AVA to Actuarial Accrued Liability (EAN):	84.40%	85.27%
	Fiscal 2018	Fiscal 2017
Market Rate of Return:	6.8%	12.4%
Actuarial Rate of Return:	5.5%	5.7%
	Fiscal 2019	Fiscal 2018
Employers' Normal Cost (Mid-year):	\$ 4,977,415	\$ 4,557,537
Estimated Administrative Cost	\$ 412,134	\$ 368,024
Projected Ad Valorem Tax Contributions	\$ 2,894,150	\$ 2,787,317
Projected Revenue Sharing Funds	\$ 110,067	\$ 110,228
Net Direct Employer Actuarially Required Contributions:	\$ 2,385,332	\$ 2,028,016
Projected Payroll:	\$ 14,126,603	\$ 14,213,938
Statutory Employee Contribution Rate:	7.00%	7.00%
Board Approved Net Direct Employer Contribution Rate:	17.00%	17.00%
Actuarially Required Net Direct Employer Contribution Rate:	16.89%	14.27%
	Fiscal 2020	Fiscal 2019
Minimum Recommended Net Direct Employer Contribution Rate:	17.00%	14.25%

## GENERAL COMMENTS

The values and calculations in this report were determined by applying statistical analysis and projections to system data and the assumptions listed. There is sometimes a tendency for readers to either dismiss results as mere “guesses” or alternatively to ascribe a greater degree of accuracy to the results than is warranted. In fact, neither of these assessments is valid. Actuarial calculations by their very nature involve estimations. As such, it is likely that eventual results will differ from those presented. The degree to which such differences evolve will depend on several factors including the completeness and accuracy of the data utilized, the degree to which assumptions approximate future experience, and the extent to which the mathematical model accurately describes the plan’s design and future outcomes.

Data quality varies from system to system and year to year. The data inputs involve both asset information and census information of plan participants. In both cases, the actuary must rely on third parties; nevertheless, steps are taken to reduce the probability and degree of errors. The development of assumptions is primarily the task of the actuary; however, information and advice from plan administrators, staff, and other professionals may be factored into the formation of assumptions. The process of setting assumptions is based primarily on analysis of past trends, but modification of historical experience is often required when the actuary has reason to believe that future circumstances may vary significantly from the past. Setting assumptions includes but is not limited to collecting past plan experience and studying general population demographics and economic factors from the past. The actuary will also consider current and future macro-economic and financial expectations as well as factors that are likely to impact the particular group under consideration. Hence, assumptions will also reflect the actuary’s judgment with regard to future changes in plan population and decrements in view of the particular factors which impact participants. Thus, the process of setting assumptions is not mere “guess work” but rather a process of mathematical analysis of past experience and of those factors likely to impact the future.

One area where the actuary is limited in his ability to develop accurate estimates is the projection of future investment earnings. The difficulties here are significant. First, the future is rarely like the past, and the data points available to develop stochastic trials are far fewer than the number required for statistical significance. In this area, some guess work is inevitable. However, there are tools available to lay a foundation for making estimates with an expectation of reliability. Although past data is limited, that which is available is likely to provide some insight into the future. This data consists of general economic and financial values such as past rates of inflation, rates of return variance, and correlations of returns among various asset classes along with the actual asset experience of the plan. In addition, the actuary can review the current asset market environment as well as economic forecasts from governmental and investment research groups to form a reasonable opinion with regard to probable future investment experience for the plan.

All of the above efforts would be in vain if the assumption process was static, and the plan would have to deal with the consequences of actual experience differing from assumptions after forty or fifty years of compounded errors. However, actuarial funding methods for pension plans all allow for periodic corrections of assumptions to conform with reality as it unfolds. This process of repeated correction of estimates produces results which although imperfect are nevertheless a reasonable approach to determine the contribution levels which will provide for the future benefits of plan participants.

## COMMENTS ON DATA

For the valuation, our office electronically downloaded census information 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 238 active members, of whom, 133 members, including 27 participants in the Deferred Retirement Option Plan (DROP), have vested retirement benefits; 155 former members or their beneficiaries are receiving retirement benefits. An additional 30 former members have contributions remaining on deposit with the system; of this number 5 former members 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 administrative director 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 assets was \$97,863,964 as of June 30, 2018. Net investment income for Fiscal 2018 measured on a market value basis was \$6,241,507. Contributions to the system for the fiscal year totaled \$6,996,230; benefits and expenses amounted to \$6,030,340.

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 Aggregate Actuarial Cost Method. Under the Aggregate 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.

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. In determining the valuation interest rate, consideration was given to several factors. First, we considered estimates of rates of return, standard deviations, and correlation coefficients for asset classes derived from various asset consulting firms. An average of these factors was used to derive forward estimates of the Fund's portfolio. This interest rate assumption review was used to determine a reasonable range for the long-term assumed rate of return. Although the current long-term assumed rate of return of 6.75% remains within the reasonable range, this valuation contains a change in the assumption to 6.50%. This reduction in the assumed rate of return positions the system at a more conservative posture within the reasonable range and is consistent with the express desire of the Board to lower the embedded risk related to the long-term assumed rate of return. Also, the recent Board approved employer contribution rate of 17%, which was set above the minimum contribution rate set by the prior valuation, provided an opportunity to reduce the assumed rate of return without requiring an immediate increase in the Net Direct Employer Contribution rate. An inflation rate of 2.40% was implicit in the assumed rate of return. Additional details are given in the complete Experience Report for fiscal years 2010 through 2014.

Assuming that the expected returns on the portfolio as a whole are normally distributed, using a consultant average nominal rate of return of 6.57% and long-term portfolio standard deviation of 2.04%, we estimate that there is a 51% probability that the fund will have earnings at or above 6.50%.

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. Furthermore, the Board of Trustees elected to fund the most recent COLA from the Funding Deposit Account which offsets the impact of the COLA on plan liabilities. 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-four. With the exception of the valuation interest rate, all assumptions were the same as those used in the Fiscal 2017 valuation. All assumptions used are based on estimates of future long-term experience for the fund. All calculations, recommendations, and conclusions are based on the assumptions specified. To the extent that prospective experience differs from that assumed, adjustments to contribution levels will be required. Such differences will be revealed in future actuarial valuations. The net effect of the changes in assumptions on the normal cost accrual rate was an increase of 3.0347%.

## **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 84.40% 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 0.76% 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 38%; ten years ago this ratio was 25%.

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 12.75% of payroll.

There is a risk that future actuarial measurements may differ significantly from current measurements presented in this report due to factors such as the following: plan experience differing from that anticipated by the economic or demographic assumptions, changes in economic or demographic 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** provides that state and statewide retirement systems may invest in terror free investments outside of index fund vehicles to meet the requirements of R.S. 11:316.

**Act 225** 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 255** allows a former member to repay withdrawn contributions upon return to service.

**Act 397** 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** stipulates that the Public Retirement Systems' Actuarial Committee is established as the public retirement and pension system advisor of the Legislature of Louisiana. The act further states that the chair and vice chair shall rotate biennially between the speaker of the House of Representatives, or his designee, and the president of the Senate, or his designee, with terms beginning on the first of July. The committee shall elect any other officers as deemed advisable but no officer shall serve for more than four consecutive years.

**Act 614** clarifies the anti-spiking provisions limiting year over year salary increases within the final average compensation period to 115%. In addition, it clarifies that Tier 2 members must earn at least 20 years of creditable service in a position covered by the system in order to meet the 30 year requirement for an increase in accrual rate.

## ASSET EXPERIENCE

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

	<u>Market Value</u>	<u>Actuarial Value</u>
2009	-18.3%	-6.2% *
2010	8.7%	3.8%
2011	16.4%	4.8%
2012	-5.0%	-0.3%
2013	10.1%	1.6%
2014	13.1%	7.9%
2015	-0.2%	6.1%
2016	-2.0%	3.0%
2017	12.4%	5.7%
2018	6.8%	5.5%

\* Includes effect of change in asset valuation method.

### Geometric Average Market Rates of Return

5 year average (Fiscal 2014 – 2018)	5.8%
10 year average (Fiscal 2009 – 2018)	3.7%
15 year average (Fiscal 2004 – 2018)	4.6%
20 year average (Fiscal 1999 – 2018)	4.0%
25 year average (Fiscal 1994 – 2018)	5.1%

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 \$2,264,925 dividends, interest and other recurring income. Net income was increased by realized and unrealized capital gains of \$4,407,027. Investment expenses reduced income by \$430,445.

The actuarial rate of return is presented for comparison to the assumed long-term rate of return of 6.75% applicable for Fiscal 2018 (6.50% beginning July 1, 2018). This rate is calculated based on the actuarial value of assets and the market value income adjusted for actuarial smoothing as given in Exhibit VI. Investment income used to calculate this yield is based upon a smoothing of investment income above or below the valuation interest rate over a five year period subject to limits as described in the section detailing actuarial assumptions. The difference between rates of return on an actuarial and market value basis results from the smoothing utilized. In the future, yields in excess of the 6.50% assumption will reduce future costs; yields below 6.50% will increase future costs. For Fiscal 2018, the system earned net actuarial investment income totaling \$1,127,833 less than the actuarial assumed earnings rate of 6.75% in effect for Fiscal 2018. This shortfall in earnings produced an actuarial loss, which increased the normal cost accrual rate by 0.8652%.

### **DEMOGRAPHICS AND LIABILITY EXPERIENCE**

A reconciliation of the census for the plan is given in Exhibit X. The average active member (including DROP participants) is 52 years old with 13.39 years of service and an annual salary of \$57,302. The system's active membership decreased by 6 members during the fiscal year. The plan has experienced a decrease in the active plan population of 3 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 41-60 age group has decreased significantly while the proportion of active members in the 61 and above age group have increased. Over the same ten-year period, the proportion of members with 10-19 years of service increased with reductions in the proportion of members with more than 20 years of service.

The average service retiree is 73 years old with a monthly benefit of \$3,238. The number of retirees and beneficiaries receiving benefits from the system decreased by 8 during the fiscal year; over the last five years the number of retirees has increased by 9. During this same period, annual benefits in payment increased by \$1,774,367.

Plan liability experience for Fiscal 2018 was somewhat favorable. Liability experience gains were produced primarily by salary increases less than projected levels. Retiree deaths were significantly above projected levels. In addition, withdrawals were also above projected levels. These tend to reduce costs. DROP entries were significantly above projected levels, which offset these positive factors. Retirements and disabilities were near projected levels. In aggregate, plan liability gains decreased the normal cost accrual rate by 0.1004%.

## **FUNDING ANALYSIS AND RECOMMENDATIONS DEFINED BENEFIT PLAN**

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 the normal cost, and the actuarially required contributions are based on the sum of this value and administrative expenses. Under the funding method used for the plan, changes in plan experience, benefits, or assumptions increase or decrease future normal costs. In addition excess or deficient contributions can decrease or increase future costs.

In order to establish the actuarially required contribution in any given year, it is necessary to define the assumptions and funding method. Thus, the determination of what contribution is actuarially required depends upon the funding method 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 is \$4,823,131. The total actuarially required contribution is determined by adjusting the value for interest (since payments are made throughout the fiscal year) and adding estimated administrative expenses. As given on line 12 of Exhibit I the total actuarially required contribution for Fiscal 2019 is \$5,389,549. When this amount is reduced by projected tax contributions and revenue sharing funds, the resulting employers' net direct actuarially required contribution for Fiscal 2019 is \$2,385,332, or 16.89% of projected payroll.

Liability and asset experience as well as changes in assumptions and benefits can increase or decrease plan costs. In addition to these factors, any COLA granted in the prior fiscal year which is not funded by withdrawals from the Funding Deposit Account would increase required contributions. New entrants to the system can also increase or decrease 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	32.3816%
Factors Increasing the Normal Cost Accrual Rate:	
Assumption Changes	3.0347%
Asset Experience Loss	0.8652%
Cost of Living Increase	0.6494%

Factors Decreasing the Normal Cost Accrual Rate:

Plan Liability Experience Gain	0.1004%
FDA offset to Fund 2018 COLA	0.6494%
New Members	0.9587%

Employer's Normal Cost Accrual Rate – Fiscal 2019 35.2224%

In addition to the above factors, required net direct employer contributions are also affected by the projected ad valorem taxes and revenue sharing funds which the system is expected to receive 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 0.88% of payroll in Fiscal 2019.

Although the actuarially required net direct employer contribution rate for Fiscal 2018 was 14.27%, the Board voted to maintain the employer contribution rate at 17.00%. For Fiscal 2018, this system experienced a contribution gain of \$358,475. In accordance with R.S. 11:107.1, these additional contributions were credited to the system's Funding Deposit Account as of June 30, 2018. Since these contributions were credited to the system's Funding Deposit Account, they have no direct impact on the system's normal cost. Although the actuarially required net direct employer contribution rate for Fiscal 2019 is 16.89%; the actual employer contribution rate for Fiscal 2019 is 17.00% of payroll. Since the contribution rate for Fiscal 2019 was held at 17.00% by the Board, any surplus in employer contributions collected during the fiscal year will be credited to the Funding Deposit Account.

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 17.00% for Fiscal 2020. Under the provisions of R.S. 11:105, R.S. 11:106 and R.S. 11:107, the Board of Trustees may set the net direct employer contribution for Fiscal 2020 at any level between the minimum recommended employer contribution rate of 17.00% and 20.00%. 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.

**FUNDING ANALYSIS AND RECOMMENDATIONS  
DEFINED CONTRIBUTION PLAN**

Funding for the retirement system's defined contribution account is contingent upon the availability of funds from ad valorem taxes and revenue sharing above the requirements of the defined benefit plan. The maximum amount of ad valorem taxes available to the system is 0.0625% of the ad valorem taxes shown to be collected each year. For Fiscal 2019, we project that the system will receive ad valorem taxes in an amount insufficient to meet the requirements of the defined benefit plan. Therefore, there is no funding available for the defined contribution account for Fiscal 2019.

## **COST OF LIVING INCREASES**

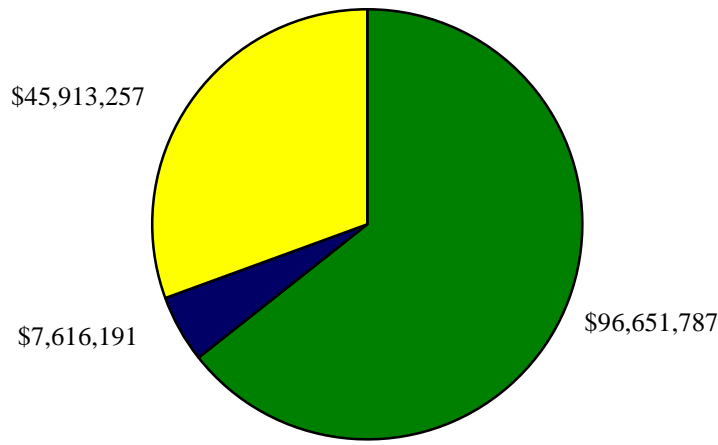
During Fiscal 2018 the actual cost of living (as measured by the US Department of Labor CPI-U) increased by 2.9%. Cost of living provisions for the system are detailed in R.S. 11:2073, R.S. 11:246, and R.S. 11:241. R.S. 11:2073 allows the Board to grant annual cost of living increases of up to 3% of each retiree's original benefit. This applies only to members who have been retired for at least two years. R.S. 11:246 provides cost of living increases to retirees and beneficiaries over the age of 65 of up to 2% of the benefit in payment on October 1, 1977, or the date the benefit was originally received if retirement commenced after that date. R. S. 11:241 provides for cost of living benefits payable based on a formula equal to up to \$1 times the total of the number of years of credited service accrued at retirement or at death of the member or retiree plus the number of years since retirement or since death of the member or retiree to the system's fiscal year end preceding the payment of the benefit increase.

Statutory requirements provide that such COLA's may be paid only when the system has investment earnings above the valuation interest rate or when sufficient funds are available in the Funding Deposit Account and the system complies with the provisions of R. S. 11:243(G)(3). For Fiscal 2018, the fund had no such excess earnings.

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). For Fiscal 2018, this funded ratio is 82.25%.

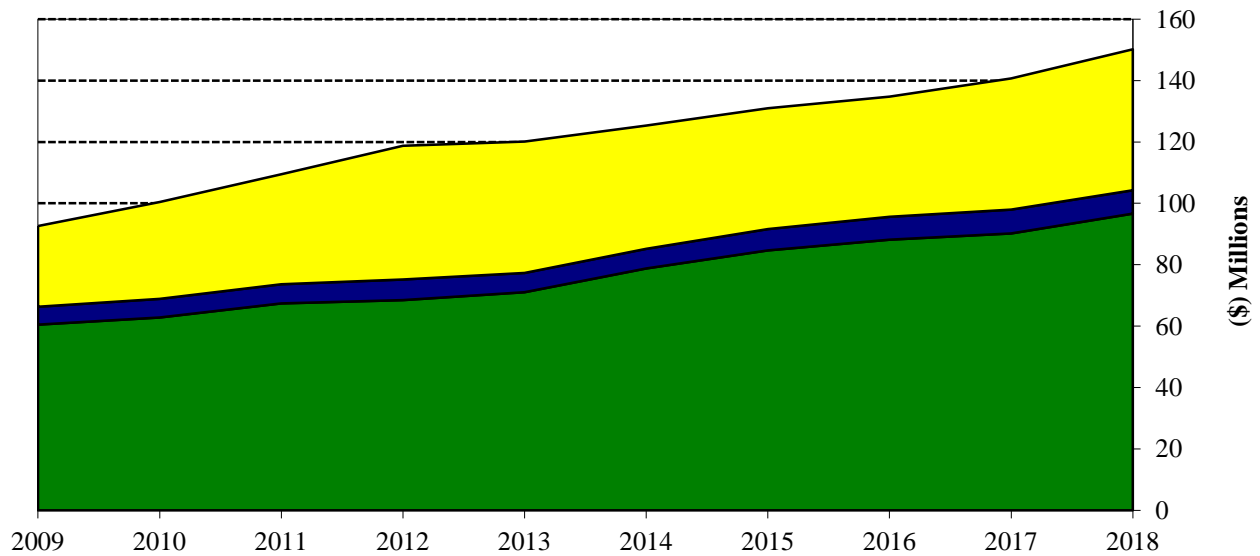
The system did not earn excess interest since the system's actuarial rate of return was below the valuation interest rate of 6.75% for Fiscal 2018. Furthermore, the system granted a cost of living increase from the Funding Deposit Account effective January 1, 2018. Therefore, since the plan's funded ratio for COLA purposes is 82.25% (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 because the Board provided a benefit increase to retirees, survivors, and beneficiaries of the system within the prior two fiscal years.

## Components of Present Value of Future Benefits June 30, 2018



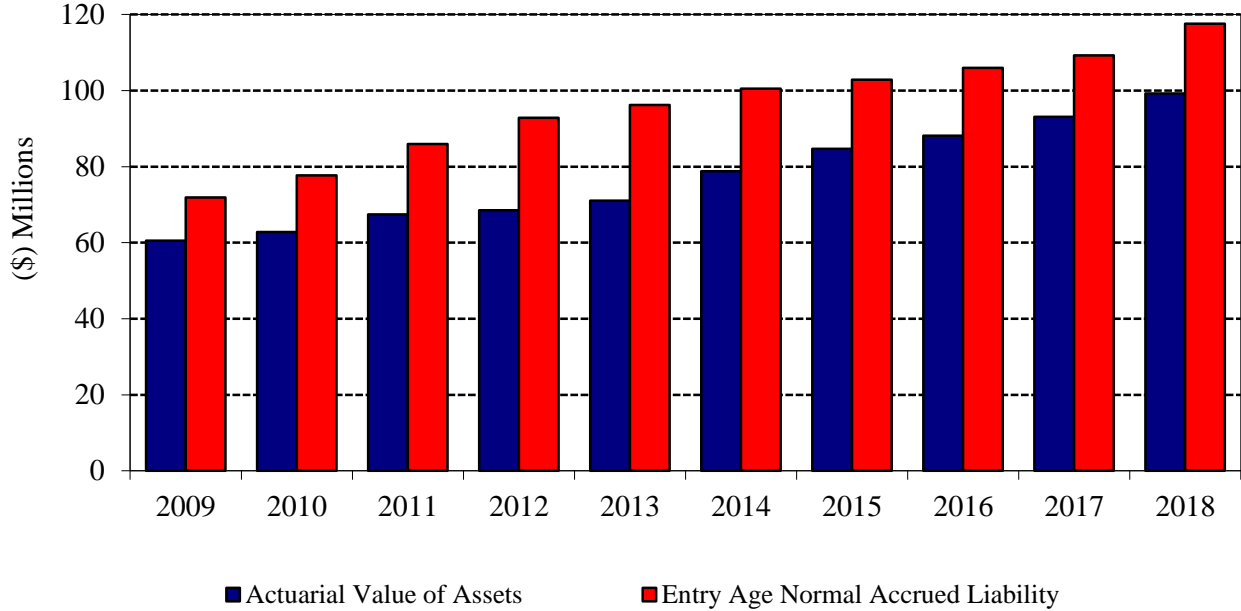
- Actuarial Value of Assets (Net of Funding Deposit Account)
- Present Value of Future Employee Contributions
- Present Value of Future Employer Normal Cost

## Components of Present Value of Future Benefits

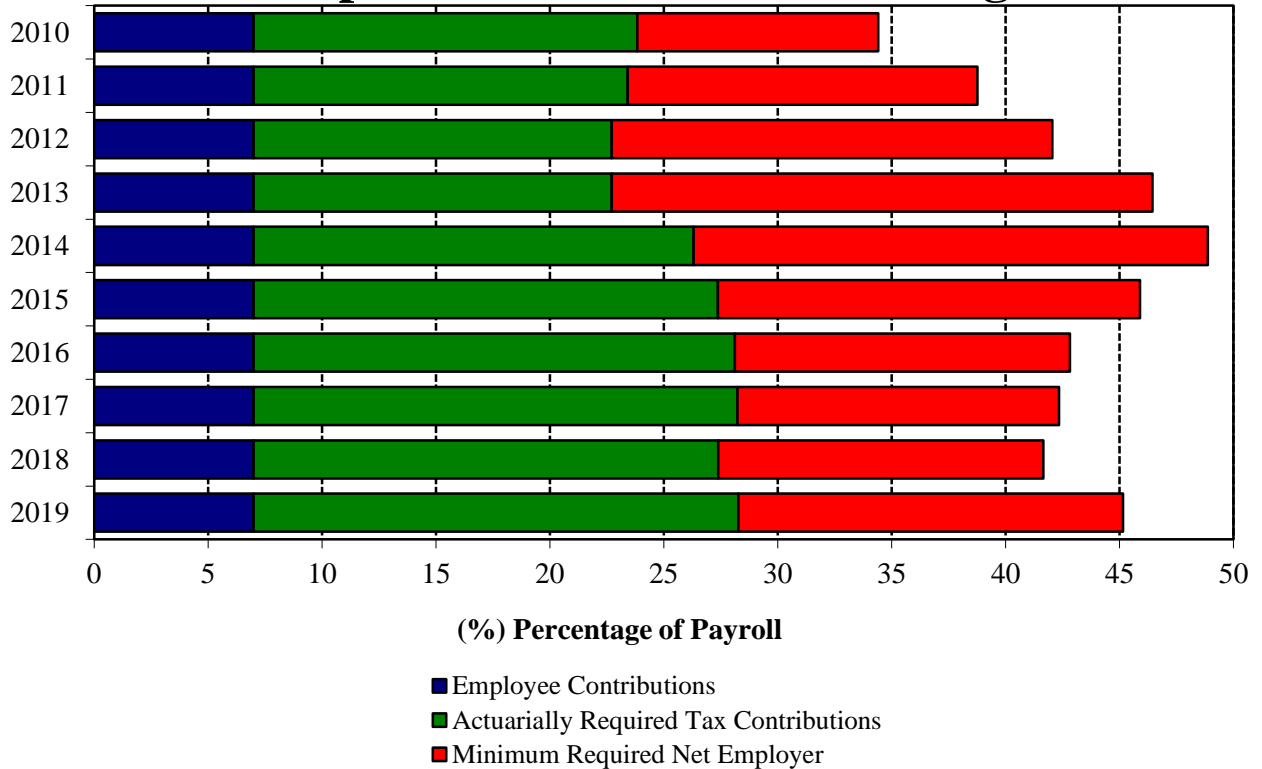


- Present Value of Future Employer Normal Cost
- Present Value of Future Employee Contributions
- Actuarial Value of Assets (Net of Funding Deposit Account)

## Actuarial Value of Assets vs. EAN Accrued Liability



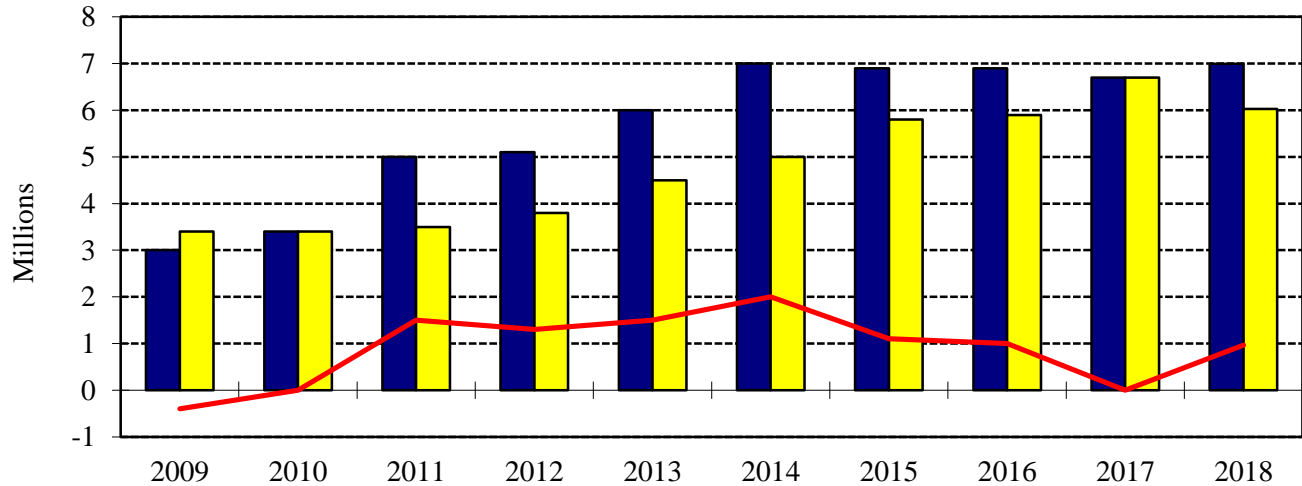
## Components of Actuarial Funding



Actuarially Required Tax Contributions consist of the lesser of Actuarially Required Contributions and amount of taxes divided by the projected valuation payroll.

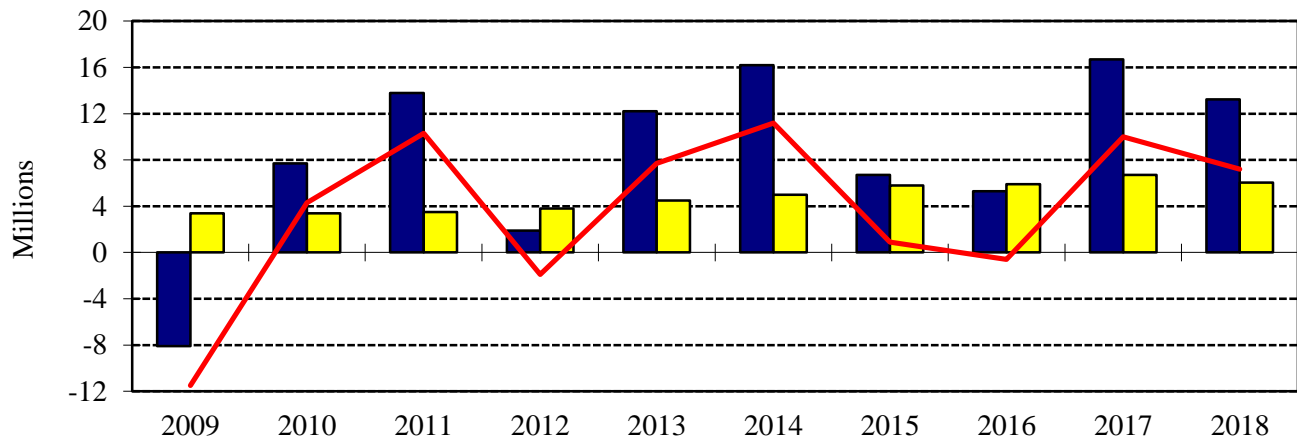


## Net Non-Investment Income



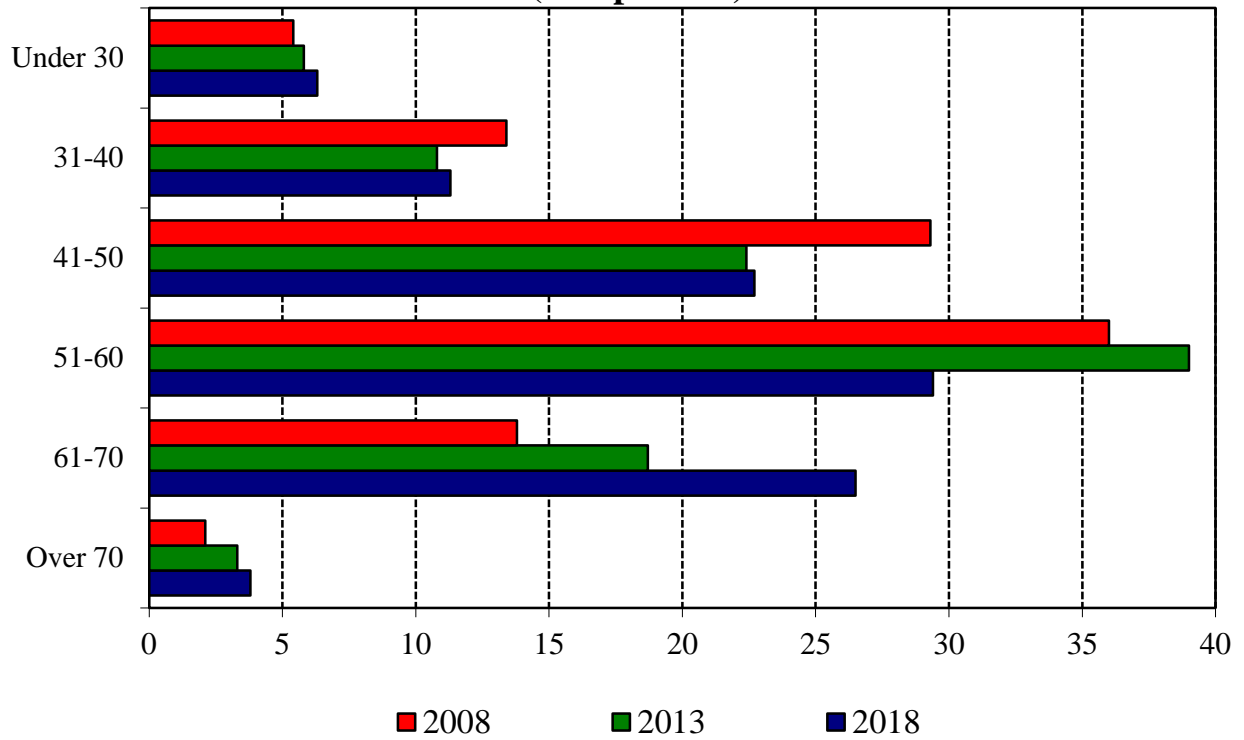
		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Non-Investment Income (\$Mil)	■	3.0	3.4	5.0	5.1	6.0	7.0	6.9	6.9	6.7	7.0
Benefits and Expenses (\$Mil)	■	3.4	3.4	3.5	3.8	4.5	5.0	5.8	5.9	6.7	6.0
Net Non-Investment Income (\$Mil)	—	-0.4	0.0	1.5	1.3	1.5	2.0	1.1	1.0	0.0	1.0

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

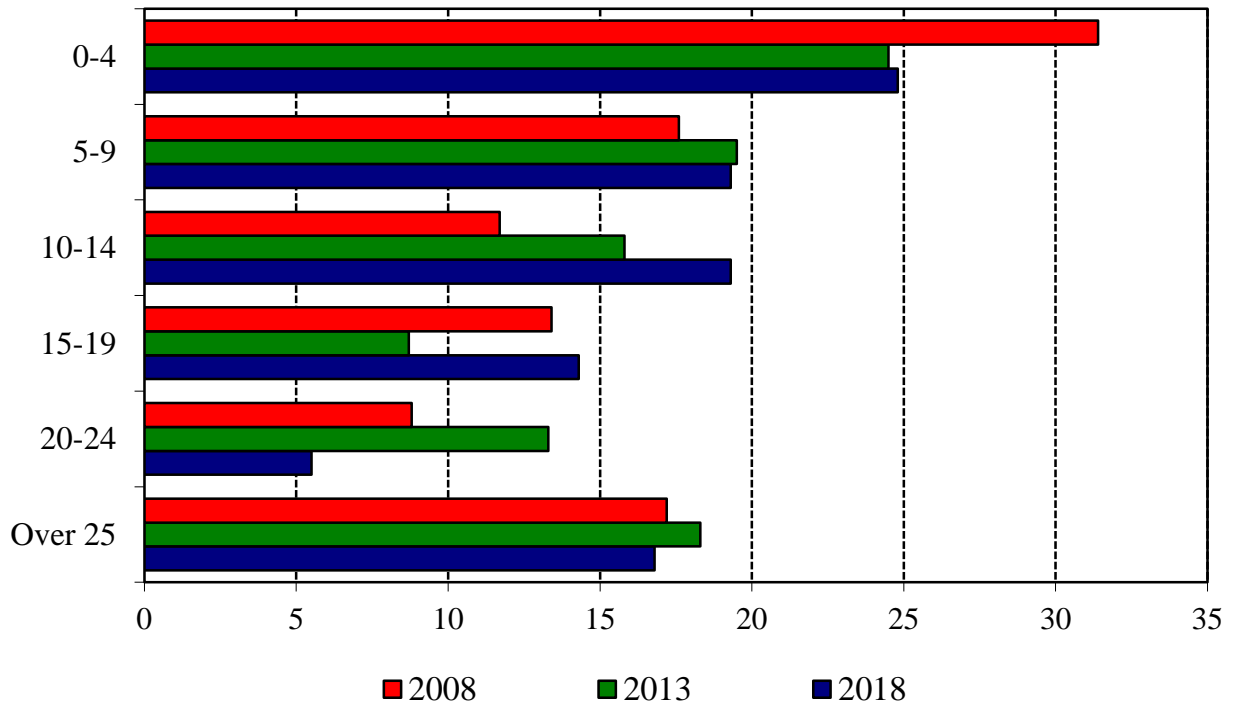


		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total Income (\$Mil)	■	-8.1	7.7	13.8	1.9	12.2	16.2	6.7	5.3	16.7	13.2
Benefits and Expenses (\$Mil)	■	3.4	3.4	3.5	3.8	4.5	5.0	5.8	5.9	6.7	6.0
Net Change in MVA (\$Mil)	—	-11.5	4.3	10.3	-1.9	7.7	11.2	0.9	-0.6	10.0	7.2

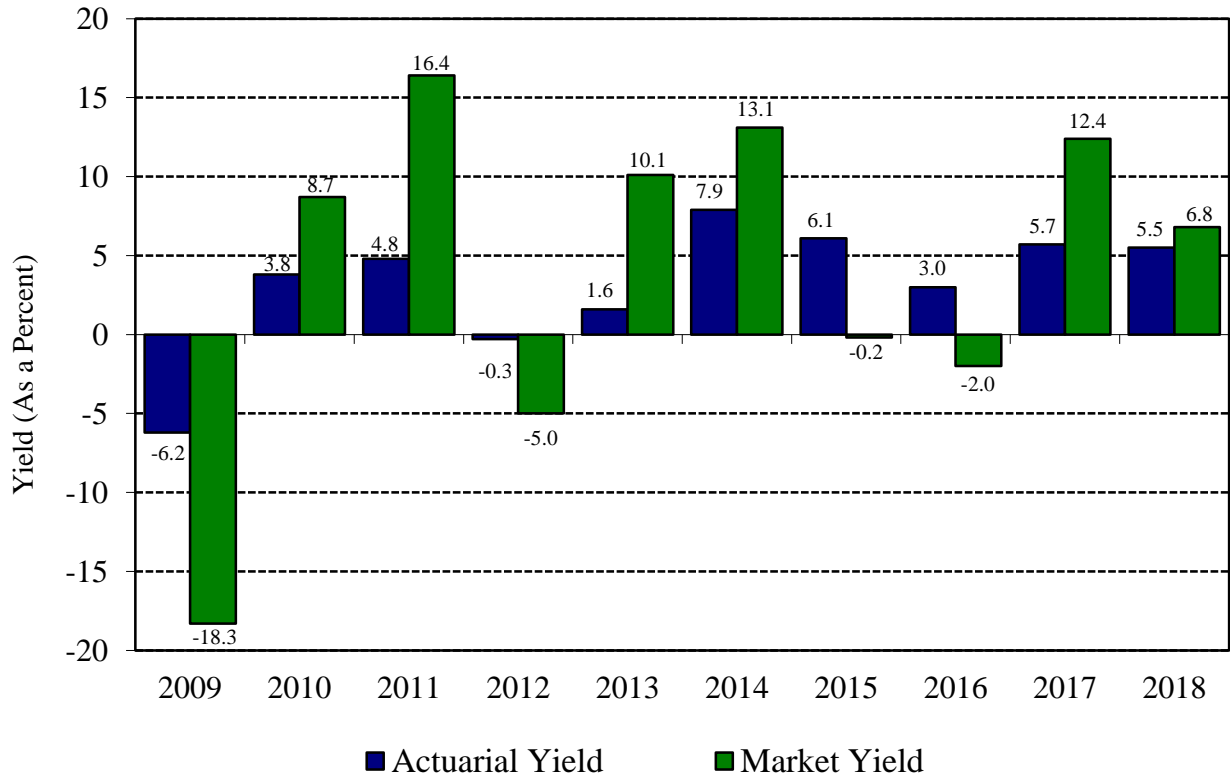
## Active – Census By Age (as a percent)



## Active – Census By Service (as a percent)



# Historical Asset Yield



## **EXHIBITS**

**EXHIBIT I**  
**ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS**  
**TO THE DEFINED BENEFIT PLAN**

1. Present Value of Future Benefits .....	\$ 150,181,235
2. Funding Deposit Account Credit Balance .....	\$ 2,630,074
3. Actuarial Value of Assets .....	\$ 99,281,861
4. Present Value of Future Employee Contributions .....	\$ 7,616,191
5. Present Value of Future Employer Normal Costs (1 + 2 – 3 – 4) .....	\$ 45,913,257
6. Present Value of Future Salaries.....	\$ 130,352,472
7. Employer Normal Cost Accrual Rate (5 ÷ 6) .....	35.222391%
8. Projected Fiscal 2019 Salary for Current Membership .....	\$ 13,693,367
9. Employer Normal Cost as of July 1, 2018 (7 × 8).....	\$ 4,823,131
10. Employer Normal Cost Interest Adjusted for Mid-year Payment .....	\$ 4,977,415
11. Estimated Administrative Cost for Fiscal 2019.....	\$ 412,134
12. GROSS Employer Actuarially Required Contribution for Fiscal 2019 (10 + 11) .....	\$ 5,389,549
13. Projected Ad Valorem Tax Contributions for Fiscal 2019 .....	\$ 2,894,150
14. Projected Revenue Sharing Funds for Fiscal 2019.....	\$ 110,067
15. Net Direct Employer Actuarially Required Contribution for Fiscal 2019 (12 – 13 – 14) .....	\$ 2,385,332
16. Projected Payroll for Fiscal 2019 .....	\$ 14,126,603
17. Employers' Minimum Net Direct Actuarially Required Contribution as a percentage of Projected Payroll for Fiscal 2019 (15 ÷ 16).....	16.89%
18. Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2020 (17, Rounded to nearest 0.25%) .....	17.00%

**EXHIBIT II**  
**PRESENT VALUE OF FUTURE BENEFITS**

PRESENT VALUE OF FUTURE BENEFITS FOR ACTIVE MEMBERS:

Retirement Benefits .....	\$ 94,184,285
Survivor Benefits.....	1,272,140
Disability Benefits .....	570,142
Vested Termination Benefits.....	1,526,295
Refunds of Contributions .....	378,960

TOTAL Present Value of Future Benefits for Active Members..... \$ 97,931,822

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement.....	\$ 587,879
Terminated Members with Reciprocals	
Due Benefits at Retirement .....	0
Terminated Members Due a Refund .....	25,201

TOTAL Present Value of Future Benefits for Terminated Members ..... \$ 613,080

PRESENT VALUE OF FUTURE BENEFITS FOR RETIREES:

Regular Retirees

Maximum.....	\$ 9,038,557
Option 1 .....	10,544,460
Option 2 .....	6,805,698
Option 3 .....	5,796,885
Option 4 .....	13,459,115

TOTAL Regular Retirees ..... \$ 45,644,715

Disability Retirees..... 641,360

Survivors & Widows..... 4,767,797

DROP Account Balances Payable to Retirees ..... 499,211

Annuities Certain Payable to Retirees..... 83,250

TOTAL Present Value of Future Benefits for Retirees & Survivors..... \$ 51,636,333

TOTAL Present Value of Future Benefits..... \$ 150,181,235

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

CURRENT ASSETS:

Cash in Banks .....	\$	3,503,436
Contributions and Taxes Receivable.....		307,107
Accrued Interest and Dividends.....		125,433
Investments Receivable .....		39,759

TOTAL CURRENT ASSETS..... \$ 3,975,735

Property, Plant & Equipment..... \$ 45,952

INVESTMENTS:

Cash Equivalents.....	\$	1,324,236
Equities .....		61,787,049
Fixed Income .....		23,918,554
Real Estate .....		6,689,924
Alternative Investments .....		379,877

TOTAL INVESTMENTS..... \$ 94,099,640

TOTAL ASSETS .....

\$ 98,121,327

CURRENT LIABILITIES:

Accounts Payable .....	\$	77,434
Investments Payable.....		179,929

TOTAL CURRENT LIABILITIES .....

\$ 257,363

MARKET VALUE OF ASSETS..... \$ 97,863,964

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

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

Fiscal year 2018.....	\$	90,122
Fiscal year 2017.....		4,354,921
Fiscal year 2016.....		(7,321,613)
Fiscal year 2015.....		(5,871,517)
Fiscal year 2014.....		3,942,281
Total for Five Years.....	\$	(4,805,806)

Deferral of Excess (Shortfall) of Invested Income:

Fiscal year 2018 (80%).....	\$	72,098
Fiscal year 2017 (60%).....		2,612,953
Fiscal year 2016 (40%).....		(2,928,645)
Fiscal year 2015 (20%).....		(1,174,303)
Fiscal year 2014 ( 0%).....		0
Total Deferred for Year.....	\$	(1,417,897)

Market Value of Plan Net Assets, End of Year..... \$ 97,863,964

Preliminary Actuarial Value of Plan Assets, End of Year..... \$ 99,281,861

Actuarial Value of Assets Corridor

85% of market value, end of year.....	\$	83,184,369
115% of market value, end of year.....	\$	112,543,559

Final Actuarial Value of Plan Net Assets, End of Year..... \$ 99,281,861



**EXHIBIT IV  
PRESENT VALUE OF FUTURE CONTRIBUTIONS**

Employee Contributions to the Annuity Savings Fund .....	\$	7,616,191
Employer Normal Contributions to the Pension Accumulation Fund.....		45,913,257
Funding Deposit Account Credit Balance .....		(2,630,074)
<b>TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS .....</b>	<b>\$</b>	<b>50,899,374</b>

**EXHIBIT V  
RECONCILIATION OF CONTRIBUTIONS**

Employer Normal Cost for Prior Year.....	\$	4,411,093
Interest on the Normal Cost.....		297,749
Administrative Expenses .....		392,086
Interest on Expenses .....		13,017
<b>TOTAL Interest Adjusted Actuarially Required Contributions .....</b>	<b>\$</b>	<b>5,113,945</b>
Direct Employer Contributions.....	\$	2,364,781
Interest on Employer Contributions.....		78,509
Ad Valorem Taxes and Revenue Sharing.....		2,931,797
Interest on Ad Valorem Taxes and Revenue Sharing Funds.....		97,333
<b>TOTAL Interest Adjusted Employer Contributions .....</b>	<b>\$</b>	<b>5,472,420</b>
<b>CONTRIBUTION SURPLUS.....</b>	<b>\$</b>	<b>358,475</b>

**EXHIBIT VI**  
**ANALYSIS OF CHANGE IN ASSETS**

Actuarial Value of Assets (June 30, 2017) .....	\$	93,125,749
<b>INCOME:</b>		
Member Contributions .....	\$	845,571
Employer Contributions .....		2,364,781
Irregular Contributions .....		854,081
Ad Valorem Taxes .....		2,818,671
Revenue Sharing Funds.....		113,126
 Total Contributions .....	 \$	 6,996,230
Net Appreciation (Depreciation) of Investments.....	\$	4,143,207
Interest & Dividends .....		2,010,942
Alternative Investment Income .....		253,983
Class Action Settlement .....		263,820
Investment Expense.....		(430,445)
 Net Investment Income.....	 \$	 6,241,507
 TOTAL Income .....	 \$	 13,237,737
<b>EXPENSES:</b>		
Retirement Benefits .....	\$	4,969,659
DROP Disbursements.....		575,468
Refunds of Contributions.....		93,127
Administrative Expenses .....		392,086
 TOTAL Expenses .....	 \$	 6,030,340
 Net Market Value Income for Fiscal 2018 (Income – Expenses) .....	 \$	 7,207,397
 Unadjusted Fund Balance as of June 30, 2018 (Fund Balance Previous Year + Net Income).....	 \$	 100,333,146
 Adjustment for Actuarial Smoothing.....	 \$	 (1,051,285)
 Actuarial Value of Assets: (June 30, 2018).....	 \$	 99,281,861

**EXHIBIT VII  
FUNDING DEPOSIT ACCOUNT**

Funding Deposit Account Balance as of June 30, 2017 .....	\$ 2,920,894
Interest on Opening Balance at 6.75% .....	197,160
Contributions to the Funding Deposit Account .....	358,475
Withdrawals from the Funding Deposit Account .....	(846,455)
Funding Deposit Account Balance as of June 30, 2018 .....	\$ 2,630,074

**EXHIBIT VIII – Schedule A  
PENSION BENEFIT OBLIGATION**

Present Value of Credited Projected Benefits Payable to Current Employees.....	\$ 68,459,079
Present Value of Benefits Payable to Terminated Employees .....	613,080
Present Value of Benefits Payable to Current Retirees and Beneficiaries .....	51,636,333
TOTAL PENSION BENEFIT OBLIGATION .....	\$ 120,708,492
NET ACTUARIAL VALUE OF ASSETS .....	\$ 99,281,861
Ratio of Net Actuarial Value of Assets to Pension Benefit Obligation.....	82.25%

**EXHIBIT VIII – Schedule B  
ENTRY AGE NORMAL ACCRUED LIABILITIES**

Accrued Liability for Active Employees .....	\$ 65,377,206
Accrued Liability for Terminated Employees .....	613,080
Accrued Liability for Current Retirees and Beneficiaries .....	51,636,333
TOTAL ENTRY AGE NORMAL ACCRUED LIABILITY .....	\$ 117,626,619
NET ACTUARIAL VALUE OF ASSETS .....	\$ 99,281,861
Ratio of Net Actuarial Value of Assets to Entry Age Normal Accrued Liability .....	84.40%

**EXHIBIT IX  
CENSUS DATA**

	<b>Active</b>	<b>Terminated with Funds on Deposit</b>	<b>DROP</b>	<b>Retired</b>	<b>Total</b>
Number of members as of June 30, 2017	229	24	15	163	431
Additions to Census					
Initial membership	13	4			17
Omitted in error last year					
Death of another member				3	3
Adjustment for multiple records					
Change in Status during Year					
Actives terminating service	(7)	7			
Actives who retired	(8)			8	
Actives entering DROP	(13)		13		
Term. members rehired	1	(1)			
Term. members who retire		(1)		1	
Retirees who are rehired	1			(1)	
Refunded who are rehired					
DROP participants retiring					
DROP returned to work	1		(1)		
Omitted in error last year					
Eliminated from Census					
Refund of contributions	(6)	(3)			(9)
Deaths				(16)	(16)
Included in error last year				(1)	(1)
Adjustment for multiple records				(2)	(2)
Number of members as of June 30, 2018	211	30	27	155	423

ACTIVES CENSUS BY AGE:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
21 - 25	0	1	1	39,351	39,351
26 - 30	3	11	14	36,647	513,052
31 - 35	2	12	14	48,441	678,172
36 - 40	0	13	13	39,769	517,002
41 - 45	4	20	24	49,342	1,184,197
46 - 50	3	27	30	51,726	1,551,772
51 - 55	1	35	36	58,526	2,106,951
56 - 60	5	29	34	64,741	2,201,198
61 - 65	3	42	45	56,681	2,550,664
66 - 70	3	15	18	76,677	1,380,190
71 - 75	5	3	8	104,150	833,198
76 - 80	0	1	1	82,179	82,179
TOTAL	29	209	238	57,302	13,637,926

THE ACTIVE CENSUS INCLUDES 133 ACTIVES WITH VESTED BENEFITS, INCLUDING 27 DROP PARTICIPANTS AND 16 ACTIVE FORMER DROP PARTICIPANTS.

TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
36 - 40	0	1	1	18,621	18,621
46 - 50	0	2	2	24,350	48,700
56 - 60	1	1	2	12,907	25,814
TOTAL	1	4	5	18,627	93,135

TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

Contributions Ranging From	To	Number	Total Contributions
0	99	10	440
100	499	7	1,746
500	999	4	2,988
1000	1999	1	1,894
2000	4999	1	2,437
5000	9999	2	15,696
TOTAL		25	25,201

## REGULAR RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
51 - 55	0	1	1	56,199	56,199
56 - 60	2	8	10	60,535	605,351
61 - 65	1	17	18	48,263	868,730
66 - 70	3	21	24	38,396	921,493
71 - 75	1	17	18	42,998	773,955
76 - 80	2	22	24	35,841	860,177
81 - 85	2	9	11	24,862	273,478
86 - 90	0	5	5	20,689	103,443
91 - 99	1	6	7	17,462	122,233
TOTAL	12	106	118	38,856	4,585,059

## DISABILITY RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
51 - 55	1	0	1	36,164	36,164
71 - 75	0	1	1	14,832	14,832
TOTAL	1	1	2	25,498	50,996

## SURVIVORS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
41 - 45	0	1	1	3,004	3,004
51 - 55	1	0	1	15,055	15,055
56 - 60	0	1	1	6,185	6,185
61 - 65	3	2	5	15,751	78,756
66 - 70	3	5	8	20,373	162,987
71 - 75	2	2	4	13,914	55,657
76 - 80	1	6	7	16,744	117,208
81 - 85	2	2	4	12,364	49,457
86 - 90	0	2	2	12,392	24,783
91 - 99	0	2	2	11,865	23,729
TOTAL	12	23	35	15,338	536,821

ACTIVE MEMBERS:

Attained Ages	Completed Years of Service											Total	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over		
0 - 20													0
21 - 25	1												1
26 - 30	5	2	2	1	1	3							14
31 - 35	1	1	3		1	7	1						14
36 - 40	2	2				4	5						13
41 - 45		1	4	1	2	6	4	5	1				24
46 - 50	2	1	4	1	1	8	5	5	1	2			30
51 - 55		1	1	1	3	5	10	6	2	7			36
56 - 60	2	2	1	1	3	3	6	2	5	9	4		34
61 - 65	1	1	2	1	3	9	9	7	4	5	3		45
66 - 70					1	1	4	5		1			18
71 & Over							2	4			3		9
Totals	14	11	17	5	12	46	46	34	13	24	16		238

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													0
21 - 25	39,351												39,351
26 - 30	31,380	30,885	40,705	39,071	27,494	48,802	48,564						36,647
31 - 35	31,250	34,515	31,398		63,749	57,986	48,564						48,441
36 - 40	37,604	35,137				43,172	39,767						39,769
41 - 45		88,015	32,556	27,322	40,584	49,620	48,796	61,979	54,668				49,342
46 - 50	33,363	80,392	35,386	25,011	41,177	39,919	61,845	59,768	72,674	98,416			51,726
51 - 55		38,100	32,796	110,416	44,144	39,254	48,153	69,574	69,214	79,933			58,526
56 - 60	37,284	56,750	24,239			40,442	70,262	41,983	74,845	77,503			64,741
61 - 65	49,589	37,084	25,189	46,333	52,340	39,775	59,729	47,127	86,451	70,143			56,681
66 - 70					24,638	92,478	59,250	70,708		191,165			76,677
71 & Over							113,258	100,092					101,709
Average	35,257	47,604	32,634	49,631	43,973	45,872	57,739	64,528	75,831	83,157			57,302

TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Attained Ages	Years Until Retirement Eligibility										Total	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29		30&Over
0 - 35												0
36 - 40									1			1
41 - 45												0
46 - 50							2					2
51 - 55												0
56 - 60			1	1								2
61 & Over												0
Totals	0	0	1	1	0	0	2	0	1	0	0	5

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 - 35												0
36 - 40									18,621			18,621
41 - 45												0
46 - 50							24,350					24,350
51 - 55												0
56 - 60			19,584	6,230								12,907
61 & Over												0
Average	0	0	19,584	6,230	0	0	24,350	0	18,621	0	0	18,627



SERVICE RETIREES:

Attained Ages	Completed Years Since Retirement											Total			
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over				
0 - 50															0
51 - 55		1	1	2	2	2									1
56 - 60	1	2	2	5	4	2	1								10
61 - 65	2	2	2	1	2	6	6	1							18
66 - 70	3	4	1	1	2	7	5	2							24
71 - 75		1	2	1	1	7	5	2							18
76 - 80	2	1	1	1	1	6	5	4	3	1					24
81 - 85						1	3	1	5	1					11
86 - 90							1	1	1	1					5
91 & Over							1	1	1	2	2	4			7
Totals	8	11	6	10	9	24	21	9	9	5	6				118

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															0
51 - 55		56,199	60,663	51,175	78,199	49,038									56,199
56 - 60	60,367	63,749	40,402	45,928	44,008	49,195	33,268								60,535
61 - 65	64,463	60,835	41,724	103,130	44,787	32,544	29,792	84,843							48,263
66 - 70	30,415	34,239	41,724	103,130	44,787	30,593	32,869	21,242							38,396
71 - 75		58,691	96,797	100,694	57,739	36,287	28,907	13,238	21,292	13,401					42,998
76 - 80	97,858	37,534		76,704		55,096	28,661	19,798	16,093	32,135					35,841
81 - 85							28,661	19,798	16,093	25,050					24,862
86 - 90							25,247	13,803	14,195	17,235	19,671				20,689
91 & Over											18,392				17,462
Average	59,532	48,959	62,797	61,252	53,305	36,612	30,101	23,765	17,615	21,012	18,818				38,856

DISABILITY RETIREES:

Attained Ages	Completed Years Since Retirement										Total	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29		30&Over
0 - 50												0
51 - 55	1											1
56 - 60												0
61 - 65												0
66 - 70												0
71 - 75							1					1
76 & Over												0
Totals	1	0	0	0	0	0	0	1	0	0	0	2

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 - 50												0
51 - 55	36,164											36,164
56 - 60												0
61 - 65												0
66 - 70												0
71 - 75							14,832					14,832
76 & Over												0
Average	36,164	0	0	0	0	0	0	14,832	0	0	0	25,498

SURVIVING BENEFICIARIES OF FORMER MEMBERS:

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

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 - 40													0
41 - 45													3,004
46 - 50													0
51 - 55													15,055
56 - 60					6,185								6,185
61 - 65						54,444	12,903						15,751
66 - 70					27,582	12,996	49,191		5,534	7,441			20,373
71 - 75							21,923				5,905		13,914
76 - 80			76,787				7,155				2,675		16,744
81 - 85								10,380					12,364
86 - 90								7,933					12,392
91 & Over						13,622					10,107		11,865
Average	0	0	76,787	3,004	16,883	27,020	24,206	9,565	5,534	9,662	7,324		15,338

**EXHIBIT X**  
**YEAR-TO-YEAR COMPARISON**

	Fiscal 2018	Fiscal 2017	Fiscal 2016	Fiscal 2015
Number of Active Members	238	244	246	231
Number of Retirees & Survivors	155	163	154	156
Number of Terminated Due Deferred Benefits	5	4	5	5
Number Terminated Due Refunds	25	20	33	32
Active Lives Payroll	\$ 13,637,926	\$ 13,692,608	\$ 13,643,192	\$ 13,071,698
Retiree Benefits in Payment	\$ 5,172,876	\$ 4,927,865	\$ 4,564,062	\$ 4,231,309
Market Value of Assets	\$ 97,863,964	\$ 90,656,567	\$ 80,683,761	\$ 81,330,087
Entry Age Normal Accrued Liability	\$ 117,626,619	\$ 109,217,320	\$ 105,994,592	\$ 102,837,754
Ratio of AVA to EAN Accrued Liability	84.40%	85.27%	83.18%	82.35%
Actuarial Value of Assets	\$ 99,281,861	\$ 93,125,749	\$ 88,165,103	\$ 84,688,309
Present Value of Future Employer Normal Cost	\$ 45,913,257	\$ 42,728,816	\$ 41,455,694	\$ 39,380,381
Present Value of Future Employee Contrib.	\$ 7,616,191	\$ 7,763,556	\$ 7,454,359	\$ 6,934,846
Funding Deposit Account Balance	\$ 2,630,074	\$ 2,920,894	\$ 2,068,558	\$ 882,567
Present Value of Future Benefits	\$ 150,181,235	\$ 140,697,227	\$ 135,006,598	\$ 130,120,969
<hr/>				
	Fiscal 2019	Fiscal 2018	Fiscal 2017	Fiscal 2016
Statutory Employee Contribution Rate	7.00%	7.00%	7.00%	7.00%
Estimated Tax Contribution as a % of Payroll	21.27%	20.39%	21.23%	21.12%
Actuarially Required Net Direct Employer Contribution Rate	16.89%	14.27%	14.12%	14.70%
Board Approved Employer Contribution Rate	17.00%	17.00%	20.00%	22.50%

Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011	Fiscal 2010	Fiscal 2009
241	241	245	248	247	247
151	146	143	147	140	138
5	5	6	6	6	5
30	35	29	29	20	19
\$ 13,079,549	\$ 13,086,633	\$ 13,386,956	\$ 13,027,410	\$ 12,333,966	\$ 11,753,384
\$ 3,715,197	\$ 3,398,509	\$ 3,145,379	\$ 3,112,965	\$ 2,877,232	\$ 2,777,346
\$ 80,478,691	\$ 69,206,200	\$ 61,490,163	\$ 63,415,774	\$ 53,081,300	\$ 48,785,175
\$ 100,506,025	\$ 96,236,913	\$ 92,853,873	\$ 85,924,089	\$ 77,674,661	\$ 71,914,060
78.40%	73.83%	73.75%	78.45%	80.88%	84.12%
\$ 78,797,020	\$ 71,052,280	\$ 68,481,599	\$ 67,405,502	\$ 62,823,395	\$ 60,492,753
\$ 40,146,082	\$ 42,794,452	\$ 43,553,440	\$ 35,835,681	\$ 31,548,014	\$ 26,292,445
\$ 6,396,240	\$ 6,278,416	\$ 6,721,009	\$ 6,237,947	\$ 6,064,371	\$ 5,826,743
\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
\$ 125,339,342	\$ 120,125,148	\$ 118,756,048	\$ 109,479,130	\$ 100,435,780	\$ 92,611,941

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Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011	Fiscal 2010
7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
20.38%	19.30%	15.71%	15.71%	16.41%	16.84%
18.52%	22.58%	23.73%	19.34%	15.35%	10.57%
24.25%	24.25%	19.75%	15.50%	14.25%	3.50%

## **SUMMARY OF PRINCIPAL PLAN PROVISIONS**

The Registrars of Voters Employees' Retirement System was established as of the first day of January nineteen hundred and fifty-five for the purpose of providing 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** – Membership should include the Registrars of Voters in each parish of the State of Louisiana, their deputies, and their permanent employees. In addition, membership should include any qualifying employee of the retirement system or the Louisiana Registrars of Voters Association. Elected or appointed officials who have retired from service under any publicly funded retirement system within the state and who are currently receiving benefits are not eligible to become members of the system.

**CONTRIBUTION RATES** – Under the provisions of R.S. 11:62 and 11:103, the fund is financed by employee contributions of at least 7% but not more than 9% of earnable compensation as determined by the Board of Trustees. In addition, the fund receives revenue sharing funds as appropriated each year by the legislature. Also, under R.S. 11:82, each sheriff and ex-officio tax collector remits the employers' share of the actuarially required contribution to fund the system's defined benefit and defined contribution plans up to a maximum of one-sixteenth of one percent of the aggregate amount of the tax shown to be collected by the tax roll of each respective parish. Should employee contributions and tax funds collected from ad valorem taxes and revenue sharing funds be insufficient to provide for the gross employer actuarially required contribution, the employer is required to make direct contributions as determined by the Public Retirement Systems' Actuarial Committee. Under R.S. 11:106, the Board of Trustees is authorized to require a net direct contribution rate of up to three percent more than the rate determined under R.S. 11:103. Under R.S. 11:105 and R.S. 11:107, in any fiscal year during which the net direct employer contribution rates would otherwise be decreased, the Board of Trustees is authorized to set the employer contribution rate at any point between the previous year's employer contribution rate and the decreased rate that would otherwise occur. Any excess funds resulting from the additional contributions will be credited to the Funding Deposit Account defined in R.S. 11:107.1.

**CONTRIBUTION REFUNDS** – Upon withdrawal from service, members not entitled to a retirement allowance are paid a refund of accumulated contributions upon request. Receipt of such a refund cancels all accrued rights in the system.

**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 sixty consecutive months or joined months if service was interrupted, subject to certain transition rules. For those who retire on or before December 31, 2012, a thirty six month final average compensation period shall be used. For those retiring between January 1, 2013 and December 31, 2014 the number of months to be used in determining the final average compensation will be thirty-six plus the number of completed months since January 1, 2013. In no case shall the monthly final average compensation be less than the average monthly earnings during the member's highest thirty-six consecutive or joined months of service earned for employment before January 1, 2013. The earnings to be considered for each twelve month period within the sixty month period shall not exceed 115% 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, final average compensation is based on the average monthly earnings during the highest sixty consecutive months or joined months if service was interrupted.

**RETIREMENT BENEFITS** – Members whose first employment making them eligible for membership occurred prior to January 1, 2013 with ten years of creditable service may retire at age sixty; such members with twenty years of service may retire at age fifty-five; such members with thirty years of service may retire regardless of age. The annual retirement allowance for such members is equal to three and one-third percent of the member's average final compensation for each year of creditable service. Creditable service at retirement includes membership service, service as certified on prior service certificates, and any unused sick leave and any unused annual leave in excess of 300 hours at the date of retirement.

Members whose first employment making them eligible for membership occurred on or after January 1, 2013 with ten years of creditable service may retire at age sixty-two; such members with twenty years of service may retire at age sixty; such members with thirty years of service may retire at age fifty-five. The annual retirement allowance for such members is equal to three percent of the member's average final compensation for each year of creditable service. The annual amount of the retirement allowance for any member, who has at least thirty years of total creditable service, with at least twenty years of creditable service in this system, is three and one-third percent of the average final compensation for each year of creditable service. Creditable service at retirement includes membership service, service as certified on prior service certificates, and any unused sick leave and any unused annual leave in excess of 300 hours at the date of retirement.

**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 that is the actuarial equivalent of the maximum benefit.

**Option 1** – If the member dies before he has received in annuity payments the present value of his member's annuity as it was at the time of retirement the balance is paid to his beneficiary.

**Option 2** – Upon retirement, the member receives a reduced benefit. Upon the member's death, the designated beneficiary will continue to receive the same reduced benefit.

**Option 3** – Upon retirement, the member receives a reduced benefit. Upon the member's death, the designated beneficiary will receive one-half of the member's reduced benefit.

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

A member may also elect to receive an actuarially reduced benefit which provides for an automatic 2 ½% annual compound increase in monthly retirement benefits based on the reduced benefit and commencing on the later of age fifty-five or retirement anniversary; this COLA is in addition to any ad hoc COLAs which are payable.

**DISABILITY BENEFITS** – Ten years of creditable service are required in order to be eligible for disability benefits. Disabled members receive a normal retirement allowance if eligible. Otherwise, the member whose first employment making them eligible for membership occurred prior to January 1,

2013 receives the lesser of three and one-third percent of average final compensation multiplied by the number of years of creditable service (not to be less than fifteen years), or three and one-third percent of average final compensation multiplied by years of service assuming continued service to age sixty. Any member whose first employment making them eligible for membership occurred after January 1, 2013 receives the lesser of three percent of average final compensation multiplied by the number of years of creditable service (not to be less than fifteen years), or three percent of average final compensation multiplied by years of service assuming continued service to age sixty-two. Disability benefits may not exceed two-thirds of earnable compensation.

**SURVIVOR BENEFITS** – If a member has less than five years of service credit, the surviving spouse or minor children receive a refund of the member's contributions. If the member has at least five years of service credit and is not eligible to retire, the spouse receives an automatic option 2 benefit based on the accrued benefits at the time of death with option 2 factors based on the age that the member and spouse would have been had the member survived, continued in service, and then retired on earliest normal retirement date. If the member is eligible to retire at the date of death, the surviving spouse receives automatic option 2 benefits. If there are surviving minor or handicapped children with no surviving spouse and the member has five or more years of service credit the children receive eighty percent of the accrued retirement benefit in equal portions until the age of majority or for the duration of the handicap for a handicapped child. The retirement system pays a lump sum refund equal to the difference between total monthly survivor benefits paid and total accrued contributions, if any, upon the cessation of all eligible monthly payments.

**DEFERRED RETIREMENT OPTION PLAN** – In lieu of terminating employment and accepting a service retirement allowance, any member who is eligible for normal retirement may elect to participate in the Deferred Retirement Option Plan (DROP) for up to three years and defer the receipt of benefits. Upon commencement of participation in the plan, membership in the system terminates. During participation in the plan, monthly retirement benefits that would have been payable, had the person elected to cease employment and receive a service retirement allowance, are paid into the DROP fund. This fund does not earn interest. In addition, no cost of living increases are payable to participants until employment which made them eligible to become members of the system has been terminated for at least one full year.

Upon termination of employment prior to or at the end of the specified period of participation, a participant in the plan may receive, at his option, a lump sum from the account equal to the payments into the account, a true annuity based upon his account balance in that fund, or any other method of payment if approved by the Board of Trustees. The monthly benefits that were being paid into the DROP fund will begin to be paid to the retiree. If a participant dies during the participation in the plan, a lump sum equal to his account balance in the plan fund shall be paid to his named beneficiary or, if none, to his estate. If employment is not terminated at the end of the three years, payments into the plan fund cease and the person resumes active contributing membership in the system.

**COST OF LIVING INCREASES** – Under the provisions of 11:2073, the Board of Trustees is authorized to grant retired members and widows of members who have retired at least two years, an annual cost of living increase of up to 3% of their original benefit. In addition, R.S. 11:246 provides for a 2% increase in the original benefit (or the benefit being received on October 1, 1977 if they retired prior to that time) for retired members and widows who are sixty-five years of age and older. In order for the Board to grant either of these increases the system must meet certain criteria detailed in the statute related to funding status and interest earnings. In lieu of the prior provisions, R.S. 11:241 provides for cost of living benefits payable based on a formula equal to up to \$1 times the total of the



number of years of credited service accrued at retirement or at death of the member or retiree plus the number of years since retirement or since death of the member or retiree to the system's fiscal year end preceding the payment of the benefit increase.

**DEFINED CONTRIBUTION PLAN** – In accordance with R. S. 11:2139, dedicated taxes and revenue sharing funds contributed to the system in excess of those required contributions to the Pension Accumulation Fund, as established by the Public Retirement Systems Actuarial Committee, are deposited in the Members' Supplemental Savings Fund. The amount of funds deposited with the members' supplemental savings fund is three percent of the salaries paid to active contributing members during the prior fiscal year unless the Public Retirement Systems' Actuarial Committee recommends a lesser percentage based on available funds and the requirements of the Defined Benefit Plan. A member is entitled to payment of all contributions and interest credited to his account upon termination of employment. Payment to the member is made at the end of the calendar quarter following the quarter in which the member terminates. Interest and other earnings or losses are allocated at least once each year on the valuation date of the fund. Earnings or losses are allocated to members in proportion to their account balances as of the first day of the period for which earnings are credited.

The funds in the Member's Supplemental Savings Fund are invested separately from other funds held by the system and the funds constitute a separate trust. Payments, accruals, and allocations due to be made at the end of the fiscal year may be delayed until such time as the necessary financial information is available to the system's administrator, but in no event later than 6 months after the close of the fiscal year.

## 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 which 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:	The Aggregate Actuarial Cost Method with allocation based on earnings.
VALUATION INTEREST RATE:	6.50% (Net of Investment Expense)
ACTUARIAL ASSET VALUES:	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:	6.00% (2.40% inflation / 3.60% merit)
ACTIVE MEMBER MORTALITY:	RP 2000 Employee Table set back 4 years for males and set back 3 years for females
ANNUITANT AND BENEFICIARY MORTALITY:	RP 2000 Healthy Annuitant Table set forward 1 year and projected to 2030 using Scale AA for males and projected to 2030 using Scale AA for females.

RETIREE COST OF LIVING INCREASE: 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. The rate of retirement for persons who have completed DROP participation and have remained employed is 0.17.

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	Service	Factor
<1	0.100	7	0.030
1	0.080	8	0.030
2	0.060	9	0.020
3	0.050	10	0.020
4	0.040	11	0.020
5	0.040	12	0.020
6	0.030	>12	0.010

Note: Withdrawal rates for members eligible to retire are assumed to be zero.

RATES OF DROP ENTRY: A table of these rates is included later in the report. These rates apply only to those individuals eligible to enter DROP.

DROP PARTICIPATION: All persons who enter DROP are assumed to participate for the full three-year period and retire after completing 1 year of Post-DROP service.

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

FAMILY STATISTICS: Assumptions utilized in determining the costs of various survivor benefits as listed below, are derived from the information provided in the 2015 U. S. Census:

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

**RATES OF DISABILITY:** 15% of the disability rates used for the 21<sup>st</sup> valuation of the Railroad Retirement System for individuals with 10-19 years of service. The table of these rates is included later in the report.

**DISABLED LIVES MORTALITY:** RP-2000 Disabled Lives Mortality Tables set back 5 years for Males and set back 3 years for Females

**VESTING ELECTING PERCENTAGE:** 70% of those vested elect deferred benefits in lieu of contribution refunds.

**SICK AND ANNUAL LEAVE:** Members are assumed to accrue one year of unused sick and annual leave to be credited for retirement benefit accrual purposes for each 16.67 years of Pre-DROP creditable service. Members are assumed to convert 0.22 years of sick and annual leave for every year of DROP Participation service and Post-DROP service in their Post-DROP benefit.

# ACTUARIAL TABLES AND RATES

Age	Disability Rates	Pre 2013	Pre 2013	Post 2012	Post 2012
		Hire Retirement Rates	Hire DROP Entry Rates	Hire Retirement Rates	Hire DROP Entry Rates
18	0.00023	0.00000	0.00000	0.00000	0.00000
19	0.00023	0.00000	0.00000	0.00000	0.00000
20	0.00023	0.00000	0.00000	0.00000	0.00000
21	0.00023	0.00000	0.00000	0.00000	0.00000
22	0.00023	0.00000	0.00000	0.00000	0.00000
23	0.00023	0.00000	0.00000	0.00000	0.00000
24	0.00023	0.00000	0.00000	0.00000	0.00000
25	0.00023	0.00000	0.00000	0.00000	0.00000
26	0.00023	0.00000	0.00000	0.00000	0.00000
27	0.00023	0.00000	0.00000	0.00000	0.00000
28	0.00023	0.00000	0.00000	0.00000	0.00000
29	0.00023	0.00000	0.00000	0.00000	0.00000
30	0.00023	0.00000	0.00000	0.00000	0.00000
31	0.00023	0.00000	0.00000	0.00000	0.00000
32	0.00023	0.00000	0.00000	0.00000	0.00000
33	0.00023	0.00000	0.00000	0.00000	0.00000
34	0.00023	0.00000	0.00000	0.00000	0.00000
35	0.00025	0.00000	0.00000	0.00000	0.00000
36	0.00029	0.00000	0.00000	0.00000	0.00000
37	0.00031	0.00000	0.00000	0.00000	0.00000
38	0.00036	0.00000	0.00000	0.00000	0.00000
39	0.00041	0.00000	0.00000	0.00000	0.00000
40	0.00047	0.00000	0.00000	0.00000	0.00000
41	0.00053	0.00000	0.00000	0.00000	0.00000
42	0.00058	0.00000	0.00000	0.00000	0.00000
43	0.00066	0.00000	0.00000	0.00000	0.00000
44	0.00075	0.00000	0.00000	0.00000	0.00000
45	0.00086	0.00000	0.00000	0.00000	0.00000
46	0.00098	0.12000	0.40000	0.00000	0.00000
47	0.00110	0.12000	0.40000	0.00000	0.00000
48	0.00125	0.12000	0.40000	0.00000	0.00000
49	0.00141	0.12000	0.40000	0.00000	0.00000
50	0.00161	0.12000	0.40000	0.00000	0.00000
51	0.00183	0.12000	0.40000	0.00000	0.00000
52	0.00207	0.12000	0.40000	0.00000	0.00000
53	0.00236	0.12000	0.40000	0.00000	0.00000
54	0.00267	0.12000	0.40000	0.00000	0.00000
55	0.00303	0.06000	0.20000	0.12000	0.30000
56	0.00345	0.06000	0.20000	0.12000	0.30000
57	0.00392	0.06000	0.20000	0.12000	0.30000
58	0.00444	0.06000	0.20000	0.12000	0.30000
59	0.00505	0.06000	0.20000	0.12000	0.30000
60	0.00732	0.06000	0.20000	0.06000	0.20000
61	0.00732	0.06000	0.20000	0.06000	0.20000
62	0.00732	0.06000	0.20000	0.06000	0.20000
63	0.00732	0.06000	0.20000	0.06000	0.20000
64	0.00732	0.06000	0.20000	0.06000	0.20000
65	0.00732	0.06000	0.20000	0.06000	0.20000
66	0.00732	0.06000	0.20000	0.06000	0.20000
67	0.00732	0.06000	0.20000	0.06000	0.20000
68	0.00732	0.06000	0.20000	0.06000	0.20000
69	0.00732	0.06000	0.20000	0.06000	0.20000
70	0.00732	0.06000	0.20000	0.06000	0.20000
71	0.00732	0.06000	0.20000	0.06000	0.20000
72	0.00732	0.06000	0.20000	0.06000	0.20000
73	0.00732	0.06000	0.20000	0.06000	0.20000
74	0.00732	0.06000	0.20000	0.06000	0.20000
75	0.00732	0.06000	0.20000	0.06000	0.20000

## ACTUARIAL TABLES AND RATES (Continued)

Age	Male Employee Mortality Rates	Female Employee Mortality Rates	Male Retired Mortality Rates	Female Retired Mortality Rates	Male Disabled Mortality Rates	Female Disabled Mortality Rates
18	0.00025	0.00017	0.00019	0.00012	0.02257	0.00745
19	0.00027	0.00018	0.00019	0.00012	0.02257	0.00745
20	0.00028	0.00018	0.00020	0.00012	0.02257	0.00745
21	0.00030	0.00019	0.00021	0.00011	0.02257	0.00745
22	0.00032	0.00019	0.00022	0.00012	0.02257	0.00745
23	0.00033	0.00019	0.00024	0.00012	0.02257	0.00745
24	0.00035	0.00019	0.00025	0.00013	0.02257	0.00745
25	0.00036	0.00019	0.00028	0.00014	0.02257	0.00745
26	0.00037	0.00020	0.00032	0.00015	0.02257	0.00745
27	0.00037	0.00020	0.00034	0.00016	0.02257	0.00745
28	0.00038	0.00021	0.00035	0.00016	0.02257	0.00745
29	0.00038	0.00021	0.00038	0.00017	0.02257	0.00745
30	0.00038	0.00022	0.00043	0.00020	0.02257	0.00745
31	0.00038	0.00024	0.00048	0.00024	0.02257	0.00745
32	0.00039	0.00025	0.00054	0.00028	0.02257	0.00745
33	0.00041	0.00026	0.00060	0.00030	0.02257	0.00745
34	0.00044	0.00031	0.00067	0.00032	0.02257	0.00745
35	0.00050	0.00035	0.00072	0.00034	0.02257	0.00745
36	0.00056	0.00039	0.00078	0.00036	0.02257	0.00745
37	0.00063	0.00044	0.00083	0.00037	0.02257	0.00745
38	0.00070	0.00047	0.00085	0.00039	0.02257	0.00745
39	0.00077	0.00051	0.00087	0.00041	0.02257	0.00745
40	0.00084	0.00055	0.00090	0.00045	0.02257	0.00745
41	0.00090	0.00060	0.00093	0.00049	0.02257	0.00745
42	0.00096	0.00065	0.00096	0.00054	0.02257	0.00745
43	0.00102	0.00071	0.00100	0.00060	0.02257	0.00745
44	0.00108	0.00077	0.00105	0.00065	0.02257	0.00745
45	0.00114	0.00085	0.00109	0.00069	0.02257	0.00745
46	0.00122	0.00094	0.00114	0.00073	0.02257	0.00745
47	0.00130	0.00103	0.00118	0.00077	0.02257	0.00745
48	0.00140	0.00112	0.00123	0.00083	0.02257	0.00745
49	0.00151	0.00122	0.00320	0.00090	0.02257	0.00818
50	0.00162	0.00133	0.00321	0.00140	0.02257	0.00896
51	0.00173	0.00143	0.00317	0.00152	0.02385	0.00978
52	0.00186	0.00155	0.00312	0.00173	0.02512	0.01063
53	0.00200	0.00168	0.00316	0.00202	0.02640	0.01154
54	0.00214	0.00181	0.00322	0.00236	0.02769	0.01248
55	0.00229	0.00197	0.00344	0.00277	0.02897	0.01346
56	0.00245	0.00213	0.00374	0.00328	0.03027	0.01446
57	0.00262	0.00232	0.00412	0.00377	0.03156	0.01550
58	0.00281	0.00253	0.00461	0.00423	0.03286	0.01654
59	0.00303	0.00276	0.00505	0.00476	0.03415	0.01760
60	0.00331	0.00301	0.00555	0.00533	0.03544	0.01865
61	0.00363	0.00329	0.00630	0.00595	0.03673	0.01971
62	0.00400	0.00360	0.00696	0.00662	0.03803	0.02077
63	0.00441	0.00393	0.00794	0.00732	0.03933	0.02184
64	0.00488	0.00429	0.00879	0.00808	0.04067	0.02294
65	0.00538	0.00466	0.00974	0.00892	0.04204	0.02408
66	0.00592	0.00504	0.01112	0.00982	0.04347	0.02529
67	0.00647	0.00543	0.01229	0.01079	0.04498	0.02660
68	0.00703	0.00582	0.01317	0.01185	0.04658	0.02803
69	0.00757	0.00621	0.01455	0.01304	0.04831	0.02959
70	0.00810	0.00658	0.01561	0.01440	0.05017	0.03132
71	0.00860	0.00695	0.01734	0.01551	0.05221	0.03323
72	0.00907	0.00729	0.01931	0.01725	0.05445	0.03533
73	0.00951	0.00761	0.02154	0.01861	0.05691	0.03764
74	0.00992	0.01858	0.02404	0.02062	0.05961	0.04014
75	0.02457	0.02067	0.02762	0.02209	0.06258	0.04285

## **PRIOR YEAR ASSUMPTIONS**

VALUATION INTEREST RATE: 6.75% (Net of Investment Expense)  
ASSUMED LONG TERM INFLATION: 2.50%

## 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.