CLERKS' OF COURT
RETIREMENT & RELIEF FUND

ACTUARIAL VALUATION AS OF
JUNE 30, 2019

G. S. CURRAN & COMPANY, LTD.

Actuarial Services

10555 N. Glenstone Place • Baton Rouge, Louisiana 70810 • (225)769-4825

Gary S. Curran, FCA, MAAA, ASA, EA
Consulting Actuary

Gregory M. Curran, FCA, MAAA, ASA, EA
Consulting Actuary

November 19, 2019

Board of Trustees
Clerks' of Court Retirement and Relief Fund
10202 Jefferson Highway, Building A
Baton Rouge, Louisiana 70809

Ladies and Gentlemen:

We are pleased to present our report on the actuarial valuation of the Clerks' of Court Retirement and Relief Fund for the fiscal year ending June 30, 2019. Our report is based on the actuarial assumptions specified and relies on the data supplied by the system's administrators and accountants. This report was prepared at the request of the Board of Trustees of the Clerks' of Court Retirement and 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 June 30, 2020, and to recommend the net direct employer contribution rate for Fiscal 2021. This report does not contain the information necessary for accounting disclosures as required by Governmental Accounting Standards Board (GASB) Statements 67 and 68; that information is included in a separate report. This report was prepared exclusively for the Clerks' of Court Retirement and 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.

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

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SUMMARY OF VALUATION RESULTS
CLERKS' OF COURT RETIREMENT AND RELIEF FUND

		June 30, 2019	June 30, 2018
Valuation Date:		June 30, 2019	June 30, 2018
Census Summary:	Active Members	2,196	2,205
	Retired Members and Survivors	1,414	1,360
	Terminated Due a Deferred Benefit	78	78
	Terminated Due a Refund	618	585
Payroll:		$ 95,247,068	$ 92,738,643
Benefits in Payment:		$ 39,475,815	$ 37,248,506
Present Value of Future Benefits		$ 961,020,516	$ 928,384,337
Actuarial Accrued Liability (EAN):		$ 805,671,731	$ 777,615,742
Frozen Unfunded Actuarial Accrued Liability:		$ 70,998,546	$ 75,869,452
Funding Deposit Account Credit Balance		$ 9,429,752	$ 7,981,218
Actuarial Value of Assets (AVA):		$ 655,273,733	$ 631,612,601
Market Value of Assets (MVA):		$ 641,204,758	$ 628,437,651
Ratio of AVA to Actuarial Accrued Liability (EAN):		81.33%	81.22%

	Fiscal 2019	Fiscal 2018
Market Rate of Return:	3.2%	7.0%
Actuarial Rate of Return:	4.9%	7.1%

	Fiscal 2020	Fiscal 2019
Employers' Normal Cost (Mid-year):	$ 19,360,672	$ 18,263,233
Amortization Cost (Mid-year):	$ 9,671,027	$ 9,671,027
Estimated Administrative Cost	$ 725,075	$ 715,075
Projected Ad Valorem Tax Contributions	$ 10,953,446	$ 10,532,049
Projected Revenue Sharing Funds	$ 319,560	$ 319,513
Net Direct Employer Actuarially Required Contributions:	$ 18,483,768	$ 17,797,773
Projected Payroll:	$ 97,325,212	$ 94,333,936
Statutory Employee Contribution Rate:	8.25%	8.25%
Board Adopted Net Direct Employer Contribution Rate:	19.00% †	19.00% †
Actuarially Required Net Direct Employer Contribution Rate:	18.99%	18.87%

	Fiscal 2021	Fiscal 2020
Minimum Recommended Net Direct Employer Cont. Rate:	19.00%	18.75%

† The Board of Trustees elected to adopt a Net Direct Employer Contribution Rate in excess of the Minimum Recommended Net Direct Employer Contribution Rate.

GENERAL COMMENTS

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

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

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

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

COMMENTS ON DATA

For the valuation, the administrative staff of the system furnished a census derived from the system's master data processing file indicating each active covered employee's sex, date of birth, service credit, annual salary, and accumulated contributions. Information on retirees detailing dates of birth of retirees and beneficiaries, 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 2,196 active members in the system of whom 921 members have vested retirement benefits including 155 participants in the Deferred Retirement Option Plan (DROP); 1,414 former members or their beneficiaries are receiving retirement benefits. An additional 696 terminated members have contributions remaining on deposit with the system; of this number 78 have vested rights for future retirement benefits. All participant data is as of June 30, 2019. 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. The assigned values are based on information from similar records or based on information implied from other data in the record. For this valuation, the number of such records with imputed data is de minimis.

In addition to the statistical information provided on the system's participants, the system's administrator furnished general information related to other aspects of the system's expenses, benefits and funding. Valuation asset values as well as income and expenses for the fiscal year were based on information furnished by the system's auditor, the firm of Duplantier, Hrapmann, Hogan & Maher, L.L.P. As indicated in the system's audit report, the net market value of system assets was $641,204,758 as of June 30, 2019. Net investment income for Fiscal 2019 measured on a market value basis was $19,848,485. Contributions to the system for the fiscal year totaled $37,174,193; benefits and expenses amounted to $44,255,571.

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 $58,719,822 as of June 30, 1989, was frozen and amortized over forty years with payments increasing at 4.75% per year.

Since 1997, statutes relevant to the system have provided that the Board of Trustees could require employers to contribute at a rate higher than the minimum recommended net direct employer contribution rate under certain circumstances. For fiscal years 1999 through 2002, the Board did freeze the employer contribution rate. The additional payments of $6,660,791 and the accrued interest thereon reduced the outstanding Unfunded Accrued Liability by $9,536,353 through June 30, 2005, and shortened the remaining amortization period to June 30, 2026. However, in 2006 a statutory change re-amortized the then existing balance of the Frozen Unfunded Accrued Liability through June 30, 2029. Effective July 1, 2016, the statute was changed to amortize the remaining balance using level annual payments through June 30, 2029.

Effective in Fiscal 2009, any additional employer contributions collected due to the action of the Board of Trustees to set the employer contribution rate above the minimum recommended rate were credited to the Funding Deposit Account. In addition, the Funding Deposit Account is credited with interest each year. For Fiscal 2019, the Board adopted an employer contribution rate of 19.00%, which was above the minimum recommended rate of 18.75%. The additional funds collected, amounting to $909,802, were credited to the Funding Deposit Account. The ending balance including the additional funds and interest credited at the valuation interest rate was $9,429,752 as of June 30, 2019.

The cost method used for this valuation generally produces normal costs which are level as a percentage of payroll if assumptions are met and the composition of the active group with regard to age and service is stable. Overall costs may increase or decrease depending on payroll growth. Since payments on the Fund’s frozen unfunded actuarial accrued liability are level, any increase in payroll will cause payments to decrease as a percentage of payroll; any contraction in payroll will cause payments to increase as a percentage 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.

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 and include the reduction in valuation interest rate included in the 2018 valuation. The Fund’s target asset allocation was reviewed based upon the G. S. Curran & Company consultant average return study for 2019. The study found that the 6.75% valuation interest rate remains within the reasonable range for a long-term assumed rate of return based on the Fund’s target asset allocation. The reasonable range was set by developing 10,000 stochastic trials based on the consultant average expected long-term geometric return and standard deviation for the Fund’s target asset allocation.

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, it is probable that the costs of future COLAs will be offset with funds from the Funding Deposit Account. 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-two. All assumptions were the same as those used in the Fiscal 2018 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.

RISK FACTORS

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

All pension plans are subject to asset performance risk. Asset performance is comprised of the real rates of return earned on the portfolio of investments plus the underlying inflation rate. High levels of inflation or deflation can present the plan with problems by either reducing the purchasing power of plan benefits or impairing asset values in the trust. Asset performance over the long run depends not only on average returns but also on the volatility of returns. Two portfolios of identical size with identical average rates of return will accumulate different levels of assets if the volatility of returns differs since increased volatility reduces the accumulation of assets. Another element of asset risk is reinvestment risk. Interest rate declines subject pension plans to an increase in this risk. As fixed income securities mature, investment managers are 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 81.33% as of June 30, 2019. This value gives some indication of the financial strength of the plan; however, it does not guarantee the ability of the fund to pay benefits in the future or indicate that in the future, contributions are likely to be less than or greater than current contributions. In addition, the ratio cannot be used in isolation to compare the relative strength of different retirement systems. However, the trend of this ratio over time can give some insight into the financial health of the plan. Even in this regard, caution is warranted since market fluctuations in asset values and changes in plan assumptions can distort underlying trends in this value. One additional risk measure is the sensitivity of the plan's cost structure to asset gains and losses. For this plan, we have determined that based on current assets and demographics, for each percentage under the assumed rate of return on the actuarial value of assets, there will be a corresponding increase in the actuarially required contribution as a percentage of projected payroll of 0.74% for the fund.

The ability of a system to recover from adverse asset or liability performance is related to the maturity of the plan population. In general, plans with increasing active membership are less sensitive to asset and liability gains and losses than mature plans since changes in plan costs can be partially allocated to new members. If the plan has a large number of active members compared to retirees, asset or liability losses can be more easily addressed. As more members retire, contributions can only be collected from a smaller segment of the overall plan population. Often, population ratios of actives to annuitants are used to measure the plan's ability to adjust or recover from adverse events since contributions are made by or on behalf of active members but not for retirees. Thus, if the plan suffers a mortality loss through increased longevity, this will affect both actives and retirees, but the system can only fund this loss by contributions related to active members. A measure of risk related to plan maturity is the ratio of total benefit payments to active payroll. For Fiscal 2019, this ratio is 41%; ten years ago this ratio was 20%.

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 2020 by 11.44% of payroll.

There is a risk that future actuarial measurements may differ significantly from current measurements presented in this report due to factors such as the following: plan experience differing from that anticipated by the economic or demographic assumptions, changes in economic or demographic assumption, completion of amortization payment schedules, and changes in plan provisions or applicable law. Analysis of the effect of all these factors and additional risk metrics is beyond the scope of this report.

CHANGES IN PLAN PROVISIONS

The Fund had no changes enacted during the 2019 Regular Session of the Louisiana Legislature.

ASSET EXPERIENCE

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

	Market Value	Actuarial Value
2010	8.7%	4.1%
2011	22.1%	5.8%
2012	1.6%	1.6%
2013	12.9%	4.9%
2014	16.3%	11.7%
2015	2.7%	10.2%
2016	-0.8%	6.0%
2017	12.8%	7.6%
2018	7.0%	7.1%
2019	3.2%	4.9%

Geometric Average Market Rates of Return

5 year average	(Fiscal 2015 – 2019)	4.9%
10 year average	(Fiscal 2010 – 2019)	8.4%
15 year average	(Fiscal 2005 – 2019)	5.9%
20 year average	(Fiscal 2000 – 2019)	5.1%
25 year average	(Fiscal 1995 – 2019)	7.1%

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 2019, the fund earned $11,745,210 of dividends, interest and other recurring income. Net income was increased by realized and unrealized capital gains of $11,065,033. Investment expenses reduced income by $2,961,758.

The actuarial rate of return is presented for comparison to the assumed long-term rate of return of 6.75%. 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 6.75% assumption will reduce future costs; yields below 6.75% will increase future costs. For Fiscal 2019, the system experienced net actuarial investment losses of $11,656,246 below the actuarial assumed earnings rate of 6.75% in effect for Fiscal 2019. This shortfall in earnings produced an actuarial loss, which increased the normal cost accrual rate by 1.3241%.

DEMOGRAPHICS AND LIABILITY EXPERIENCE

A reconciliation of the census for the system is given in Exhibit X. The average active member is 47 years old with 11.88 years of service and an annual salary of $43,373. The system's active membership decreased during the fiscal year by 9 members. The plan has experienced a decrease in the active plan population of 23 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-fifty age group has decreased significantly while the proportion of active members over-fifty increased. Over the same ten-year period, the census by service has remained relatively stable.

The average regular retiree is 70 years old with a monthly benefit of $2,393. The number of retirees and beneficiaries receiving benefits from the system increased by 54 during the fiscal year. Over the last five years, the number of retirees has increased by 306. During this same period, annual benefits in payment increased by $13,174,790.

Plan liability experience for Fiscal 2019 was nearly neutral. Most decrements were near projected levels. Salary increases were slightly above expected levels, which tends to increase costs. In aggregate, plan liability losses increased the normal cost accrual rate by 0.0887%.

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 employer normal cost for Fiscal 2020 is $19,360,672. The amortization payment on the fund's frozen unfunded actuarial accrued liability is $9,671,027. The gross employer actuarially required contribution is determined by adding to these values estimated administrative expenses. As given on line 16 of Exhibit I the gross employer actuarially required contribution for Fiscal 2020 is $29,756,774. When this amount is reduced by projected tax contributions and revenue sharing funds, the resulting employers' net direct actuarially required contribution for Fiscal 2020 is $18,483,768 or 18.99% 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 will increase required future contributions. However, to the extent that COLA's are funded by withdrawals from the Funding Deposit Account, there is no increase in future normal cost. 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 2019	19.9241%
Factors Increasing the Normal Cost Accrual Rate:	
Asset Experience Loss	1.3241%
Plan Liability Experience Loss	0.0861%
Factors Decreasing the Normal Cost Accrual Rate:	
New Members	0.7766%
Employer's Normal Cost Accrual Rate – Fiscal 2020	20.5577%

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 2020, the net effect of the change in payroll on amortization costs was to decrease such costs by 0.32% of payroll. Required net direct employer contributions are also affected by the available ad valorem taxes and revenue sharing funds 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 0.08% of payroll in Fiscal 2020.

Although the actuarially required net direct employer contribution rate for Fiscal 2019 was 18.87%, the Board of Trustees voted to maintain the employer contribution at 19.00%. For Fiscal 2019, this system experienced a contribution gain of $909,802. In accordance with R. S. 11:107, these additional contributions were credited to the system's Funding Deposit Account as of June 30, 2019. Although the actuarially required net direct employer contribution rate for Fiscal 2020 is 18.99%; the board adopted employer contribution rate for Fiscal 2020 is 19.00% of payroll. Since the contribution rate for Fiscal 2020 was held at 19.00% 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 19.00% for Fiscal 2021. 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 at any level between the minimum recommended employer contribution rate of 19.00% and 22.00%. 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 or reduce the frozen unfunded accrued liability. 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 2019, the actual cost of living (as measured by the US Department of Labor CPI-U) increased by 1.6%. Cost of living adjustment provisions for the system are detailed in R.S. 11:1549, R.S. 11:246, and R.S. 11:241. The first listed statute allows the Board to grant annual cost of living increases of 2.5% of each retiree's current benefit subject to a limit of $40 per month. R.S. 11:246 provides cost of living increases to retirees and beneficiaries over the age of 65 equal to 2% of the benefit in payment on October 1, 1977, or the date the benefit was originally received if retirement commenced after that date.

R. S. 11:241 provides for cost of living benefits payable based on a formula equal to up to $1 times the total of the number of years of credited service accrued at retirement or at death of the member or retiree plus the number of years since retirement or since death of the member or retiree to the system's fiscal year end preceding the payment of the benefit increase.

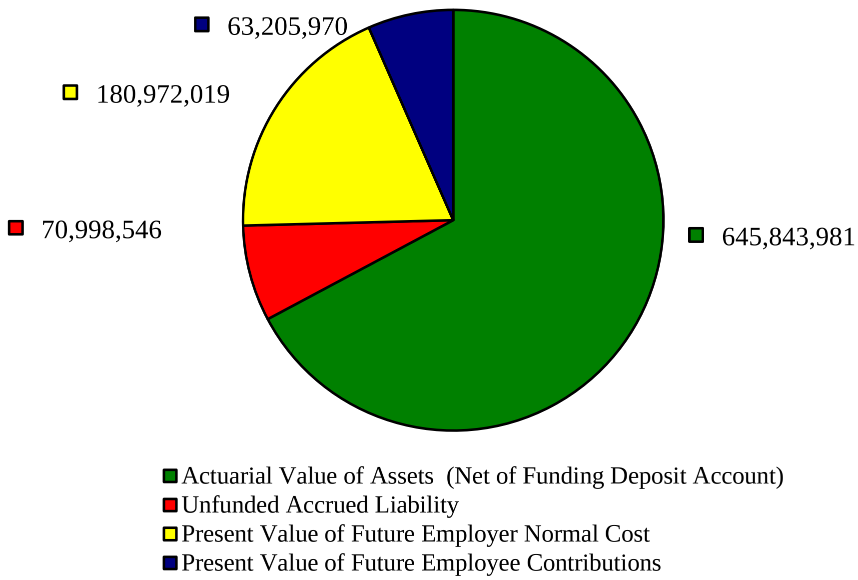
The provisions of R.S.11:1549 require that in order to grant an increase authorized by this section there must have been an increase in the CPI-U of more than 3% since the fiscal year in which the last such increase was granted. The last cost of living increase granted by the Board of Trustees was paid beginning January 1, 2018. The increase in the CPI-U since that fiscal year has not exceeded 3%.

The increase authorized by R. S. 11:246 may only be granted if the system's earnings exceed those which would be realized based on the valuation interest rate as applied to the actuarial value of assets in sufficient amount to offset the present value of the increase or by funding the lifetime cost of the increase through a withdrawal from the Funding Deposit Account balance.

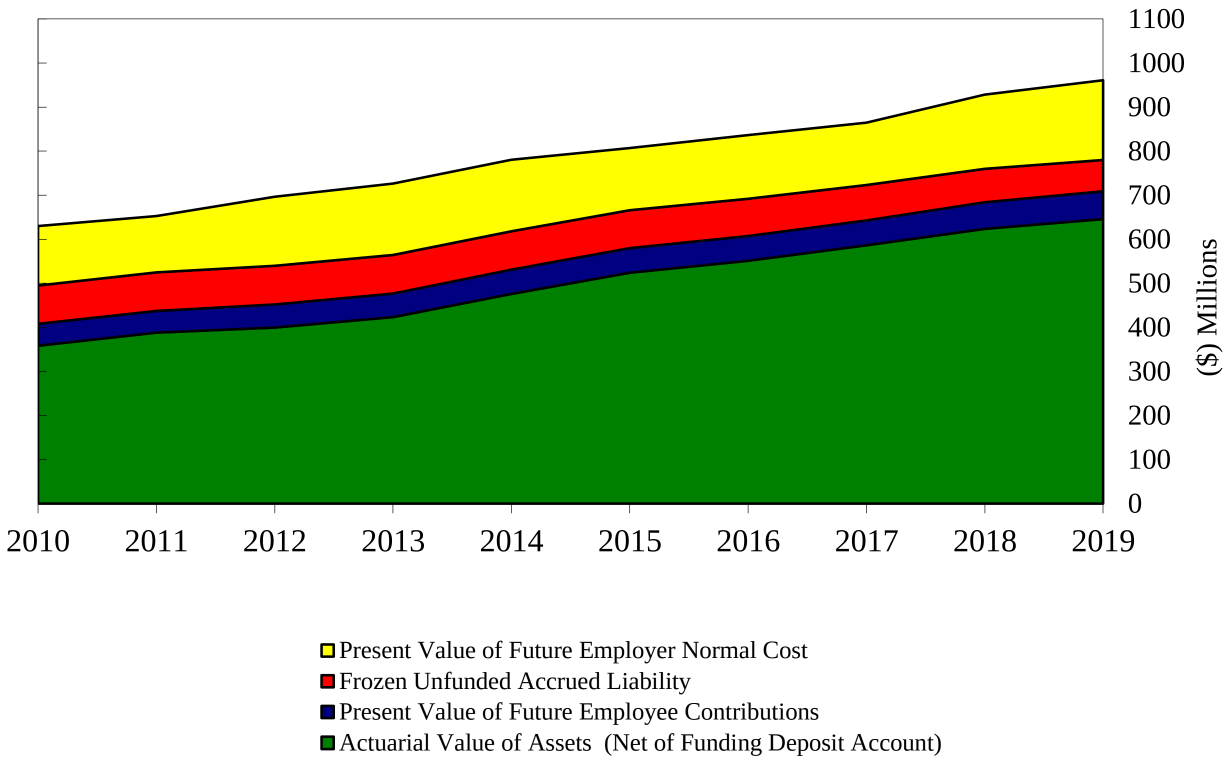
R.S. 11:243 sets forth the funding criteria necessary in order to grant cost of living adjustments to regular retirees and beneficiaries (who are neither the surviving spouse nor children of the retiree.) The criteria for the fund to qualify as eligible to grant any such increase is as follows: a funded 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.)

Because the plan's funded ratio for COLA purposes is 81.71% (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 since the fund has granted a benefit increase to retirees, survivors, and beneficiaries of the fund within the prior two fiscal years.

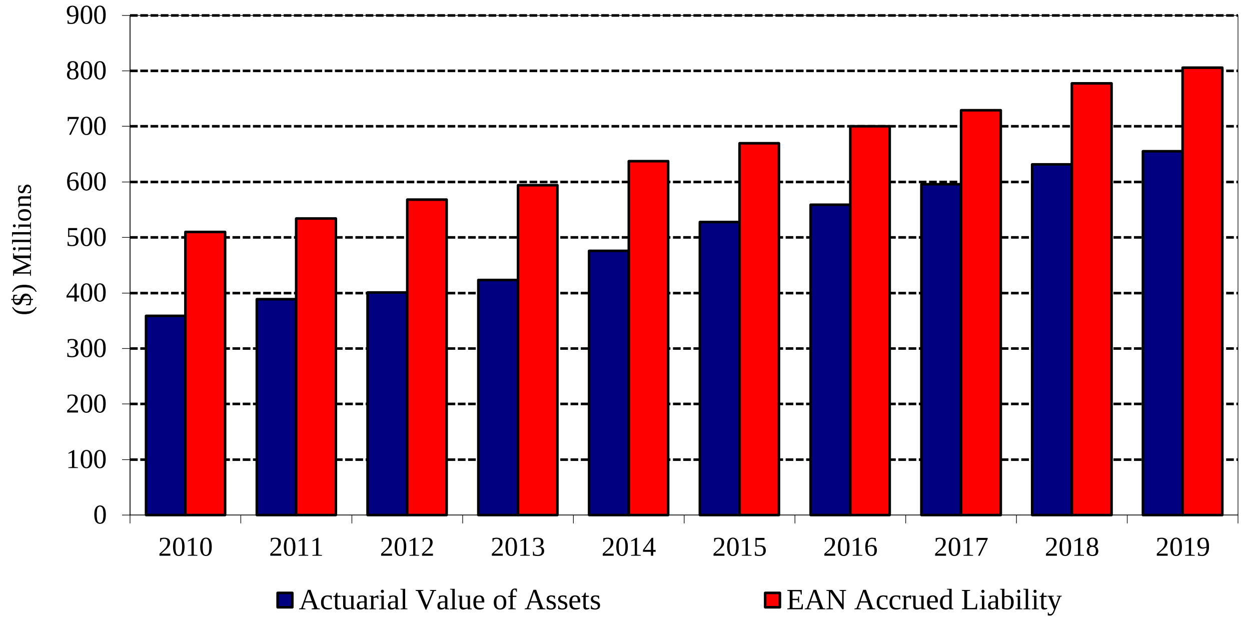
Components of Present Value of Future Benefits
June 30, 2019



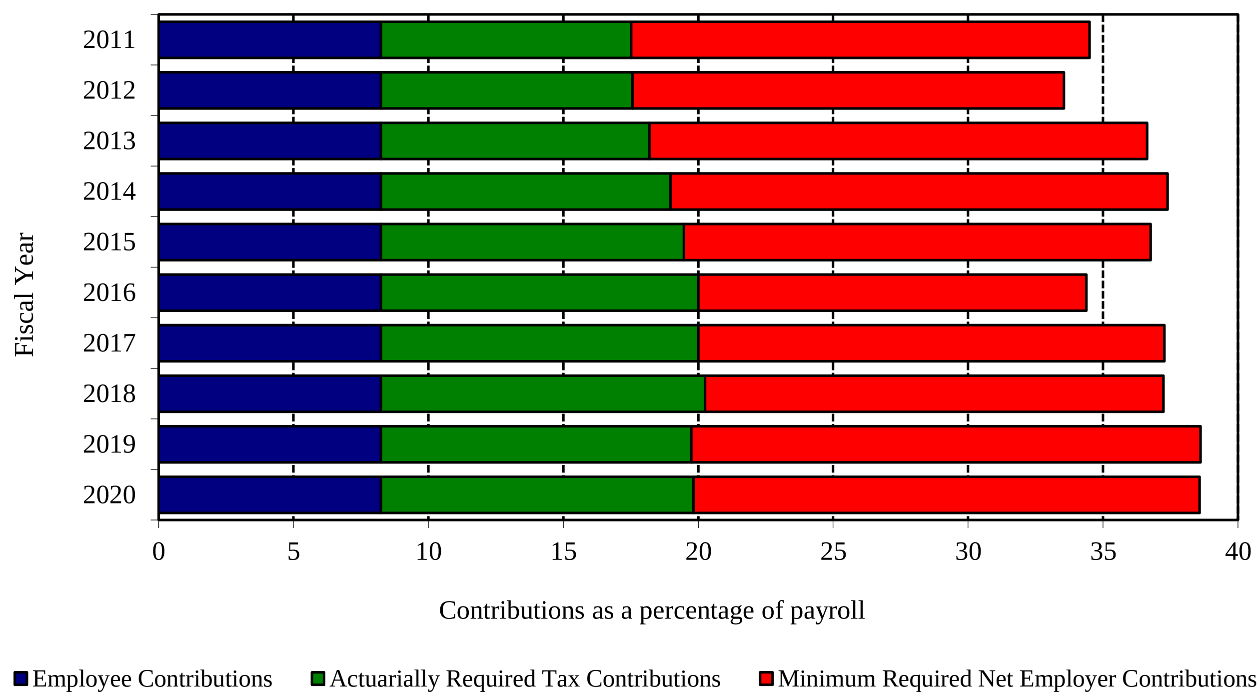
Components of Present Value of Future Benefits



Actuarial Value of Assets vs. EAN Accrued Liability

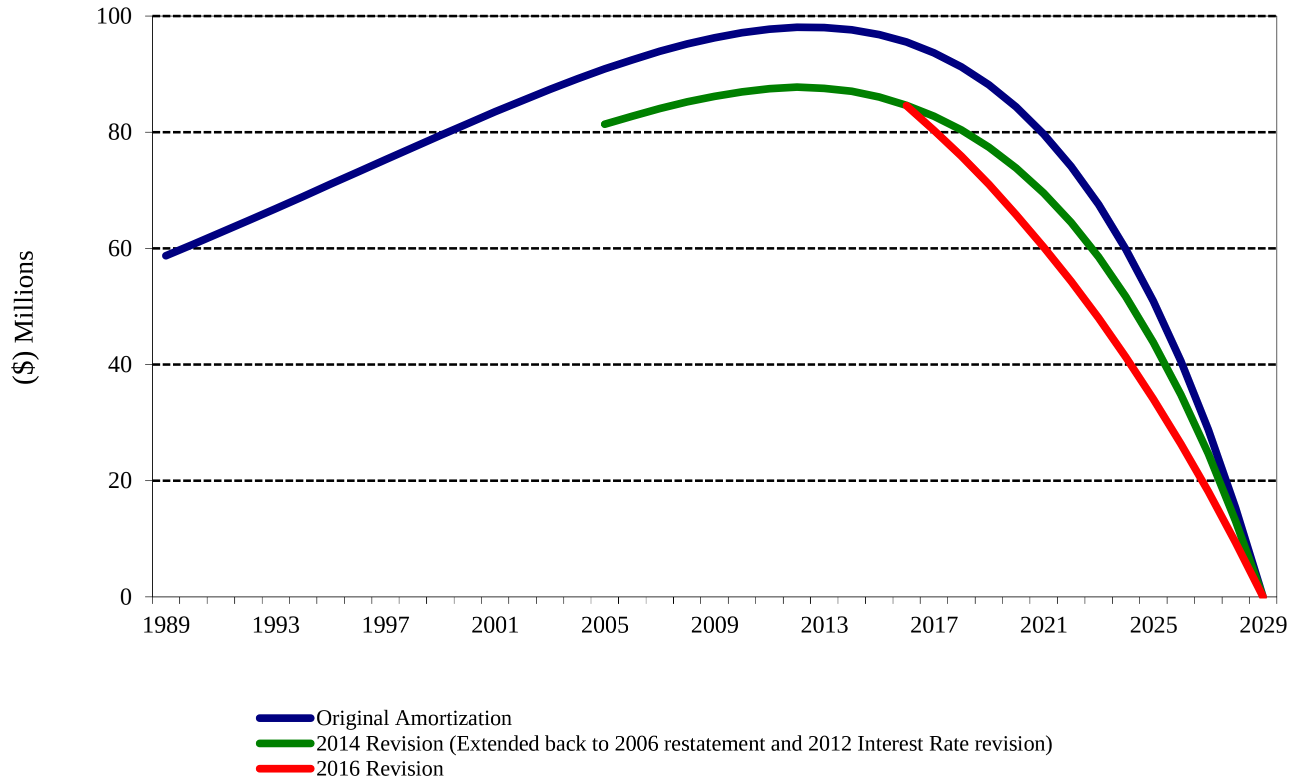


Components of Actuarial Funding

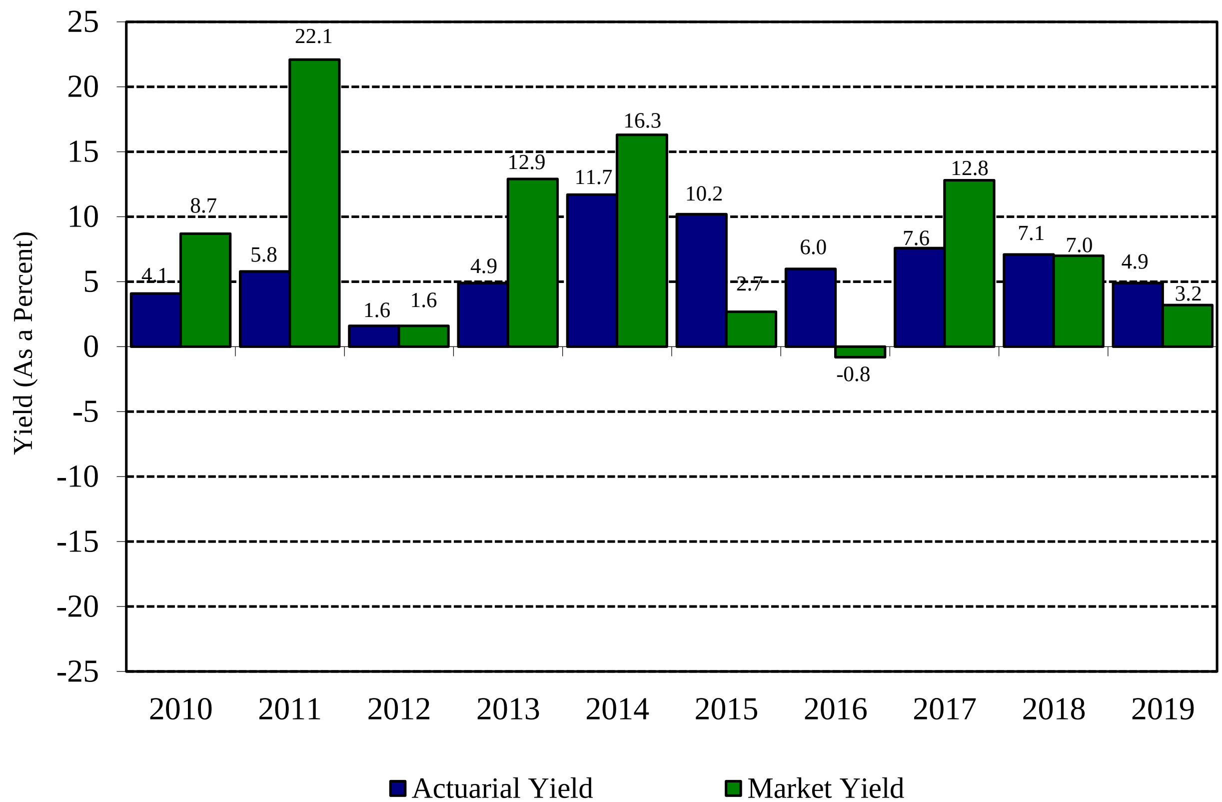


Actuarially Required Tax Contributions consist of the lesser of Actuarially Required Contributions and amount of taxes divided by the projected valuation payroll.

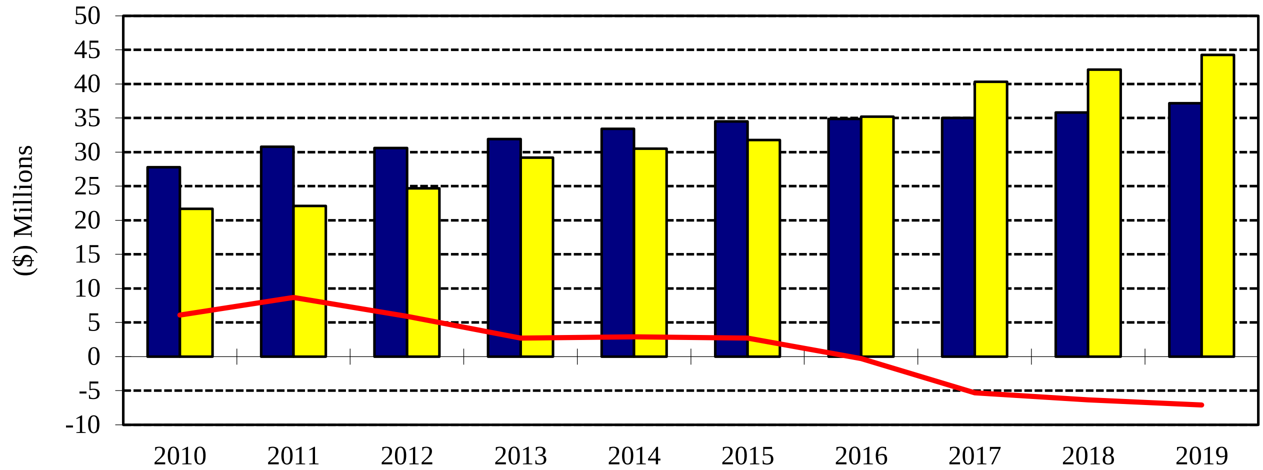
Frozen Unfunded Actuarial Accrued Liability



Historical Asset Yields

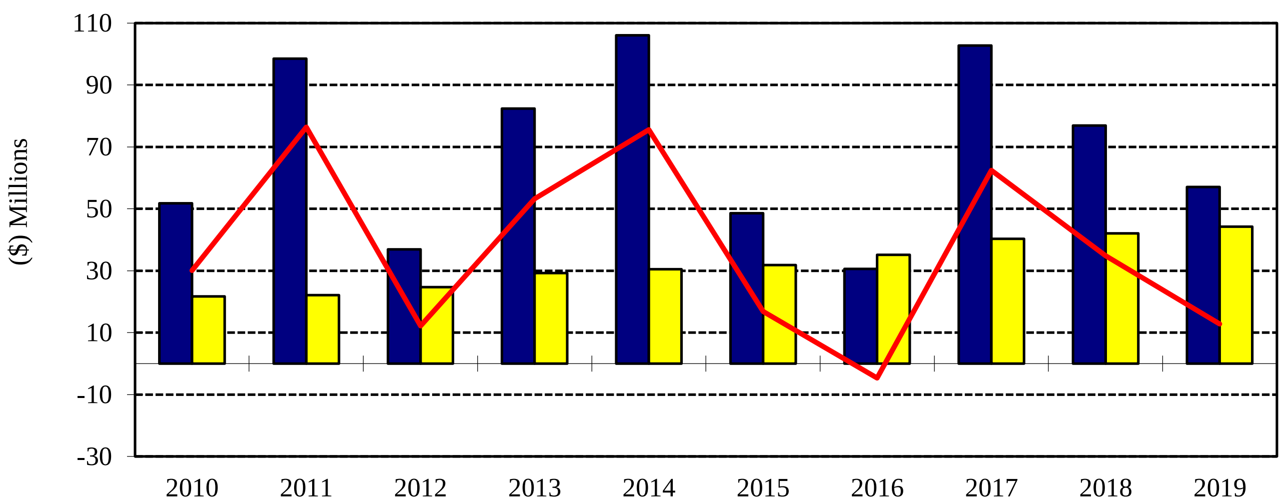


Net Non-Investment Income



		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Non-Investment Income ($Mil)		27.8	30.8	30.6	31.9	33.4	34.5	34.9	35.0	35.8	37.2
Benefits and Expenses ($Mil)		21.7	22.1	24.7	29.2	30.5	31.8	35.2	40.3	42.1	44.3
Net Non-Investment Income ($Mil)		6.1	8.7	5.9	2.7	2.9	2.7	-0.3	-5.3	-6.3	-7.1

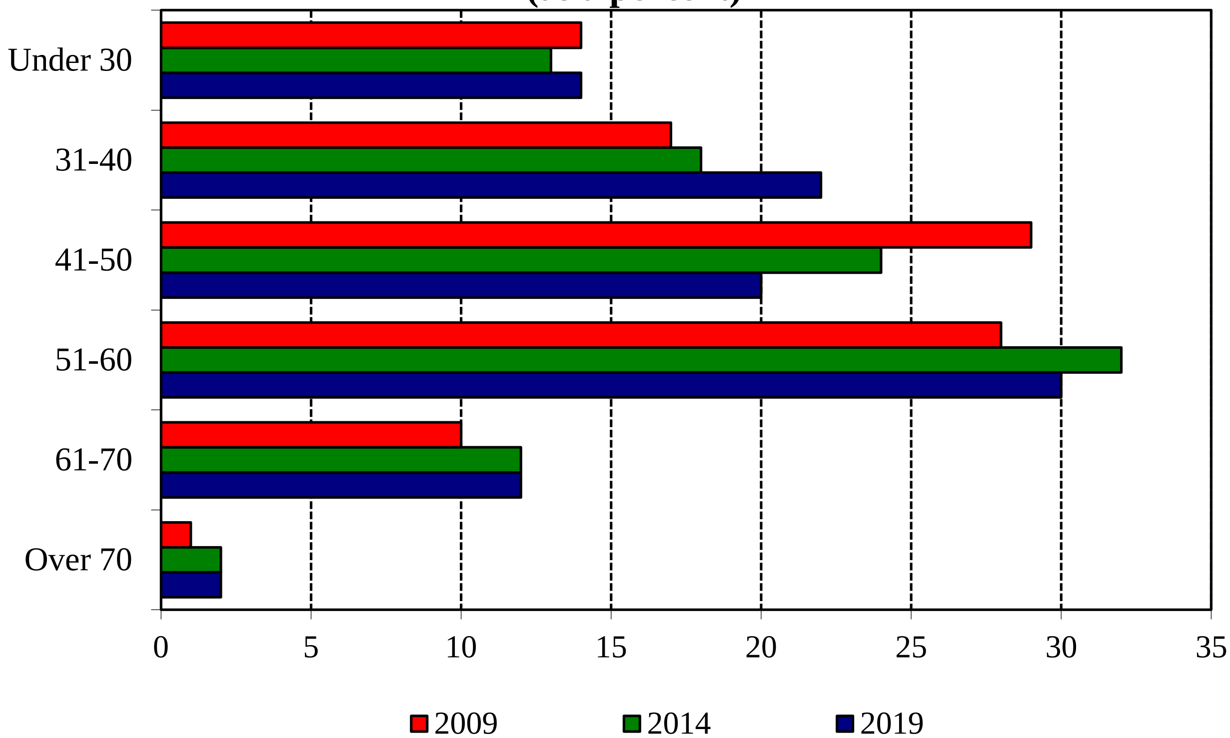
Total Income vs. Expenses
(Based on Market Value of Assets)



		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Income ($Mil)		51.8	98.5	36.9	82.4	106.1	48.6	30.6	102.7	76.9	57.0
Benefits and Expenses ($Mil)		21.7	22.1	24.7	29.2	30.5	31.8	35.2	40.3	42.1	44.3
Net Change in MVA ($Mil)		30.1	76.4	12.2	53.2	75.6	16.8	-4.6	62.4	34.8	12.7

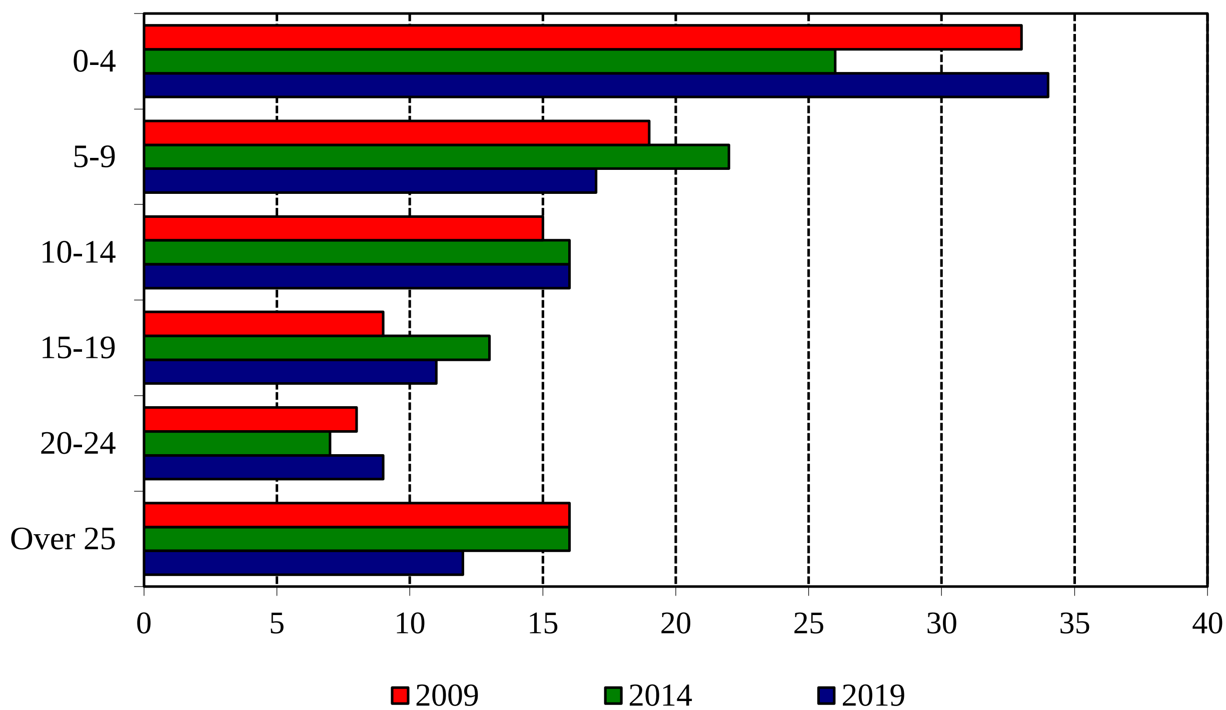
Active – Census by Age

(as a percent)



Active – Census by Service

(as a percent)



EXHIBITS

EXHIBIT I
ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS

1. Present Value of Future Benefits	$	961,020,516
2. Funding Deposit Account Credit Balance	$	9,429,752
3. Unfunded Actuarial Accrued Liability	$	70,998,546
4. Actuarial Value of Assets	$	655,273,733
5. Present Value of Future Employee Contributions	$	63,205,970
6. Present Value of Future Employer Normal Costs (1 + 2 – 3 – 4 – 5)	$	180,972,019
7. Present Value of Future Salaries	$	880,310,785
8. Employer Normal Cost Accrual Rate (6 ÷ 7)		20.557742%
9. Projected Fiscal 2020 Salary for Current Membership	$	91,150,927
10. Employer Normal Cost as of July 1, 2019 (8 × 9)	$	18,738,572
11. Employer Normal Cost Interest Adjusted for Mid-year Payment	$	19,360,672
12. Amortization Payment on Remaining Frozen Unfunded Accrued Liability with Level Annual Payments	$	9,360,276
13. Amortization Payment Interest Adjusted for Mid-year Payment	$	9,671,027
14. TOTAL Employer Normal Cost and Amortization Payment (11 + 13)	$	29,031,699
15. Estimated Administrative Cost for Fiscal 2020	$	725,075
16. GROSS Employer Actuarially Required Contribution for Fiscal 2020 (14 + 15)	$	29,756,774
17. Projected Ad Valorem Tax Contributions for Fiscal 2020	$	10,953,446
18. Projected Revenue Sharing Funds for Fiscal 2020	$	319,560
19. Net Direct Employer Actuarially Required Contribution for Fiscal 2020 (16 – 17 – 18)	$	18,483,768
20. Projected Payroll for Fiscal 2020	$	97,325,212
21. Employers' Minimum Net Direct Actuarially Required Contribution as a % of Projected Payroll for Fiscal 2020 (19 ÷ 20)		18.99%
22. Board Adopted Employer Contribution Rate for Fiscal 2020		19.00%
23. Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2021 (21, Rounded to nearest 0.25%)		19.00%

EXHIBIT II
PRESENT VALUE OF FUTURE BENEFITS

PRESENT VALUE OF FUTURE BENEFITS FOR ACTIVE MEMBERS:

Retirement Benefits	$ 483,128,850	
Survivor Benefits	5,710,770	
Disability Benefits	5,458,212	
Vested Termination Benefits	23,561,540	
Refunds of Contributions	6,661,571	
TOTAL Present Value of Future Benefits for Active Members		$ 524,520,943

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement	$ 15,307,802	
Terminated Members with Reciprocals Due Benefits at Retirement	24,293	
Terminated Members Due a Refund	2,836,070	
TOTAL Present Value of Future Benefits for Terminated Members		$ 18,168,165

PRESENT VALUE OF FUTURE BENEFITS FOR RETIREES:

Regular Retirees			
Maximum	$ 197,074,225		
Option 1	0		
Option 2	115,144,933		
Option 3	46,830,559		
Option 4	11,740,726		
Option 5	2,351,811		
TOTAL Regular Retirees		$ 373,142,254	
Disability Retirees		2,184,959	
Survivors & Widows		21,062,777	
DROP Annuities		62,845	
DROP Account Balances Payable to Retirees		21,878,573	
TOTAL Present Value of Future Benefits for Retirees & Survivors			$ 418,331,408

TOTAL Present Value of Future Benefits .... $ 961,020,516

EXHIBIT III – Schedule A
MARKET VALUE OF ASSETS

CURRENT ASSETS:		
Cash in Banks	$ 1,162,376	
Contributions and Taxes Receivable	1,673,800	
Accrued Interest and Dividends	89,254	
Investments Receivable	1,399,982	
TOTAL CURRENT ASSETS		$ 4,325,412
Property Plant & Equipment		$ 723,532
INVESTMENTS:		
Equities	$ 342,507,718	
Alternative Investments	76,800,612	
Fixed Income	89,215,438	
Real Estate	55,154,171	
Tactical Allocation	33,558,840	
Cash Equivalents	12,267,563	
DROP Account Assets at Contract Value	23,878,569	
DROP Account Assets Held Outside System Assets	4,433,798	
TOTAL INVESTMENTS		$ 637,816,709
TOTAL ASSETS		$ 642,865,653
CURRENT LIABILITIES:		
Accounts Payable	$ 536,228	
Investments Payable	1,057,319	
Other Current Liabilities	67,348	
TOTAL CURRENT LIABILITIES		$ 1,660,895
MARKET VALUE OF ASSETS		$ 641,204,758

EXHIBIT III – Schedule B
ACTUARIAL VALUE OF ASSETS

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

Fiscal year 2019	$	(22,335,962)
Fiscal year 2018		(226,356)
Fiscal year 2017		30,768,074
Fiscal year 2016		(41,858,104)
Fiscal year 2015		(23,557,336)
Total for five years	$	(57,209,684)

Deferral of excess (shortfall) of invested income:

Fiscal year 2019 (80%)	$	(17,868,770)
Fiscal year 2018 (60%)		(135,814)
Fiscal year 2017 (40%)		12,307,230
Fiscal year 2016 (20%)		(8,371,621)
Fiscal year 2015 (0%)		0
Total deferred for year	$	(14,068,975)

Market value of plan net assets, end of year	$	641,204,758
Preliminary actuarial value of plan assets, end of year	$	655,273,733

Actuarial value of assets corridor

85% of market value, end of year	$	545,024,044
115% of market value, end of year	$	737,385,472

Final actuarial value of plan net assets, end of year	$	655,273,733

EXHIBIT IV
PRESENT VALUE OF FUTURE CONTRIBUTIONS

Employee Contributions to the Annuity Savings Fund	$	63,205,970
Employer Normal Contributions to the Pension Accumulation Fund		180,972,019
Employer Amortization Payments to the Pension Accumulation Fund		70,998,546
Funding Deposit Account Credit Balance		(9,429,752)
TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS	$	305,746,783

EXHIBIT V – Schedule A
CHANGE IN FROZEN UNFUNDED ACTUARIAL ACCRUED LIABILITY

Prior Year Frozen Unfunded Accrued Liability			$	75,869,452
Interest on Frozen Unfunded Accrued Liability	$	5,121,188		
TOTAL Increase in Unfunded Accrued Liability			$	5,121,188
Amortization Payment on Unfunded Accrued Liability	$	9,360,276		
Interest on Amortization Payment		631,818		
Withdrawals From Funding Deposit Account		0		
TOTAL Decrease in Unfunded Accrued Liability			$	9,992,094
NET Change in Frozen Unfunded Accrued Liability			$	(4,870,906)
CURRENT YEAR FROZEN UNFUNDED ACCRUED LIABILITY			$	70,998,546

EXHIBIT V – Schedule B
RECONCILIATION OF CONTRIBUTIONS

Interest Adjusted Prior Year Employer Normal Cost	$	18,869,553		
Interest Adjusted Amortization Payment on Remaining UAL		9,992,095		
Interest Adjusted Administrative Expenses		689,405		
TOTAL Interest Adjusted Actuarially Required Contributions			$	29,551,053
Interest Adjusted Direct Employer Contributions	$	19,100,026		
Interest Adjusted Ad Valorem Taxes and Revenue Sharing		11,360,829		
TOTAL Interest Adjusted Employer Contributions			$	30,460,855
CONTRIBUTION SHORTFALL (SURPLUS)			$	(909,802)

EXHIBIT VI
ANALYSIS OF CHANGE IN ASSETS

Actuarial Value of Assets (June 30, 2018)			$	631,612,601
INCOME:				
Member Contributions	$	7,169,254		
Employer Contributions		18,486,301		
Tax Revenue		10,995,780		
Other Income		522,858		
Total Contributions			$	37,174,193
Net Appreciation of Investments	$	11,065,033		
Interest & Dividends		11,745,210		
Investment Expense		(2,961,758)		
Net Investment Income			$	19,848,485
TOTAL Income			$	57,022,678
EXPENSES:				
Retirement Benefits	$	38,427,011		
DROP Disbursements		3,803,712		
Refunds of Contributions		803,328		
Transfers to Other Systems		554,267		
Administrative Expenses		667,253		
TOTAL Expenses			$	44,255,571
Net Market Value Income for Fiscal 2019 (Income – Expenses)			$	12,767,107
Unadjusted Fund Balance as of June 30, 2019 (Fund Balance Previous Year + Net Income)			$	644,379,708
Adjustment for Actuarial Smoothing			$	10,894,025
Actuarial Value of Assets: (June 30, 2019)			$	655,273,733

EXHIBIT VII
FUNDING DEPOSIT ACCOUNT

Funding Deposit Account Balance as of June 30, 2018	$	7,981,218
Interest on Opening Balance at 6.75%		538,732
Contributions to the Funding Deposit Account		909,802
Withdrawals from the Funding Deposit Account		0
Funding Deposit Account Balance as of June 30, 2019	$	9,429,752

EXHIBIT VIII – Schedule A
PENSION BENEFIT OBLIGATION

Present Value of Credited Projected Benefits Payable to Current Employees	$	365,474,986
Present Value of Benefits Payable to Terminated Employees		18,168,165
Present Value of Benefits Payable to Current Retirees and Beneficiaries		418,331,408
TOTAL PENSION BENEFIT OBLIGATION	$	801,974,559
NET ACTUARIAL VALUE OF ASSETS	$	655,273,733
Ratio of Net Actuarial Value of Assets to Pension Benefit Obligation		81.71%

EXHIBIT VIII – Schedule B
ENTRY AGE NORMAL ACCRUED LIABILITIES

Accrued Liability for Active Employees	$	369,172,158
Accrued Liability for Terminated Employees		18,168,165
Accrued Liability for Current Retirees and Beneficiaries		418,331,408
TOTAL ENTRY AGE NORMAL ACCRUED LIABILITY	$	805,671,731
ACTUARIAL VALUE OF ASSETS	$	655,273,733
Ratio of Net Actuarial Value of Assets to Entry Age Normal Accrued Liability		81.33%

EXHIBIT IX
CENSUS DATA

	Active	Terminated with Funds on Deposit	DROP	Retired	Total
Number of members as of June 30, 2018	2,046	663	159	1,360	4,228
Additions to Census					
Initial membership	184	11			195
Omitted in error last year					
Death of another member				4	4
Adjustment for multiple records					
Change in Status during Year					
Actives terminating service	(83)	83			
Actives who retired	(32)			32	
Actives entering DROP	(53)		53		
Term. members rehired	6	(6)			
Term. members who retire		(12)		12	
Retirees who are rehired					
Refunded who are rehired	6	0			6
DROP participants retiring			(44)	44	
DROP returned to work	13		(13)		
Omitted in error last year					
Eliminated from Census					
Refund of contributions	(45)	(43)			(88)
Deaths	(1)			(38)	(39)
Included in error last year					
Adjustment for multiple records					
Number of members as of June 30, 2019	2,041	696	155	1,414	4,306

ACTIVES CENSUS BY AGE:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
16 - 20	3	10	13	23,875	310,374
21 - 25	18	83	101	26,911	2,717,979
26 - 30	26	157	183	28,902	5,289,084
31 - 35	35	198	233	34,854	8,121,029
36 - 40	29	218	247	38,009	9,388,121
41 - 45	34	164	198	44,516	8,814,125
46 - 50	32	205	237	45,778	10,849,430
51 - 55	55	267	322	49,979	16,093,377
56 - 60	42	304	346	49,081	16,982,058
61 - 65	35	135	170	49,619	8,435,203
66 - 70	19	76	95	52,673	5,003,926
71 - 75	14	24	38	58,134	2,209,092
76 - 80	3	6	9	71,252	641,265
81 - 85	1	2	3	115,829	347,488
86 - 90	0	1	1	44,517	44,517
TOTAL	346	1,850	2,196	43,373	95,247,068

THE ACTIVE CENSUS INCLUDES 921 ACTIVES WITH VESTED BENEFITS, INCLUDING 155 DROP PARTICIPANTS AND 62 ACTIVE FORMER DROP PARTICIPANTS.

TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
31 - 35	0	1	1	12,680	12,680
36 - 40	1	5	6	12,798	76,790
41 - 45	0	8	8	18,008	144,066
46 - 50	3	28	31	21,022	651,674
51 - 55	5	25	30	24,576	737,278
56 - 60	0	1	1	44,640	44,640
76 - 80	0	1	1	2,970	2,970
TOTAL	9	69	78	21,412	1,670,098

TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

Contributions Ranging From	To	Number	Total Contributions
0	99	61	2,439
100	499	114	32,063
500	999	78	58,119
1000	1999	83	118,134
2000	4999	114	371,270
5000	9999	82	574,377
10000	19999	57	821,919
20000	99999	29	857,749
	TOTAL	618	2,836,070

REGULAR RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
51 - 55	0	6	6	26,487	158,919
56 - 60	15	136	151	34,475	5,205,720
61 - 65	30	254	284	34,873	9,903,934
66 - 70	37	227	264	29,152	7,696,140
71 - 75	42	178	220	26,195	5,762,980
76 - 80	28	140	168	25,225	4,237,877
81 - 85	17	84	101	21,403	2,161,711
86 - 90	13	43	56	15,332	858,569
91 - 99	1	23	24	24,815	595,553
TOTAL	183	1,091	1,274	28,714	36,581,403

DISABILITY RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
46 - 50	0	1	1	10,156	10,156
51 - 55	0	6	6	14,680	88,078
56 - 60	1	2	3	13,855	41,564
61 - 65	0	3	3	11,585	34,755
71 - 75	0	1	1	7,977	7,977
76 - 80	0	1	1	9,475	9,475
TOTAL	1	14	15	12,800	192,005

SURVIVORS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
0 - 25	1	2	3	1,283	3,848
26 - 30	1	0	1	4,408	4,408
31 - 35	1	1	2	11,484	22,967
41 - 45	1	1	2	8,589	17,177
46 - 50	3	1	4	15,110	60,439
51 - 55	1	2	3	17,667	53,001
56 - 60	3	2	5	13,372	66,859
61 - 65	3	4	7	22,840	159,877
66 - 70	10	10	20	33,419	668,378
71 - 75	11	2	13	20,158	262,053
76 - 80	4	11	15	23,291	349,372
81 - 85	4	18	22	17,354	381,787
86 - 90	3	11	14	26,501	371,016
91 - 99	3	11	14	20,088	281,225
TOTAL	49	76	125	21,619	2,702,407

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	8	5										13
21 - 25	38	34	6	14	7	2						101
26 - 30	30	34	32	18	22	43	4					183
31 - 35	21	33	16	17	20	68	55	3				233
36 - 40	25	23	19	16	12	52	61	36	3			247
41 - 45	10	18	11	6	16	27	36	39	33	2		198
46 - 50	17	17	14	16	3	29	37	39	39	25	1	237
51 - 55	13	11	13	14	8	46	54	46	45	24	48	322
56 - 60	15	14	14	13	7	41	46	45	45	36	70	346
61 - 65	10	3	6	3	12	32	32	18	21	13	20	170
66 - 70		2	3	4	5	17	22	20	7	5	10	95
71 & Over		1		2	2	6	15	4	5	4	12	51
Totals	187	195	134	123	114	363	362	250	198	109	161	2,196

AVERAGE ANNUAL SALARY OF ACTIVE MEMBERS:

Attained Ages	Completed Years of Service											
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Salary
0 - 20	24,316	23,169										23,875
21 - 25	26,004	25,606	31,307	29,864	27,712	29,641						26,911
26 - 30	28,750	27,099	27,200	29,935	31,073	29,741	33,382					28,902
31 - 35	30,541	30,474	32,188	34,972	31,345	34,914	39,951	55,383				34,854
36 - 40	33,579	31,525	30,668	36,133	31,575	40,221	39,398	45,575	49,453			38,009
41 - 45	34,635	37,370	47,041	35,106	34,259	36,120	47,551	51,374	49,691	94,215		44,516
46 - 50	29,414	31,112	30,656	39,497	54,830	36,749	40,077	57,469	57,379	60,781	47,700	45,778
51 - 55	38,810	37,503	38,467	47,155	45,393	45,995	43,122	47,403	55,632	64,893	61,816	49,979
56 - 60	41,106	30,953	29,971	49,554	30,696	43,263	45,188	49,068	50,364	52,497	63,381	49,081
61 - 65	28,300	39,285	32,906	30,658	35,134	38,127	46,091	63,346	48,693	62,954	82,359	49,619
66 - 70		23,993	30,990	39,750	29,515	35,199	47,672	57,669	57,346	69,171	100,858	52,673
71 & Over		23,758		36,678	35,700	39,035	55,141	48,528	42,162	102,427	99,825	63,576
Average	30,891	30,131	32,184	37,405	33,461	37,981	43,334	51,712	52,680	61,736	70,219	43,373

TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

	Years Until Retirement Eligibility											
Attained Ages	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 30												0
31 - 35									1			1
36 - 40								6				6
41 - 45							8					8
46 - 50						31						31
51 - 55	7	4	9	7	3							30
56 - 60	1											1
61 - 65												0
66 - 70												0
71 - 75												0
76 - 80	1											1
81 & Over												0
Totals	9	4	9	7	3	31	8	6	1	0	0	78

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

	Years Until Retirement Eligibility											
Attained Ages	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 30												0
31 - 35									12,680			12,680
36 - 40								12,798				12,798
41 - 45							18,008					18,008
46 - 50						21,022						21,022
51 - 55	23,749	37,985	19,675	23,571	25,674							24,576
56 - 60	44,640											44,640
61 - 65												0
66 - 70												0
71 - 75												0
76 - 80	2,970											2,970
81 & Over												0
Average	23,761	37,985	19,675	23,571	25,674	21,022	18,008	12,798	12,680	0	0	21,412

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												0
51 - 55	6											6
56 - 60	36	38	35	16	18	8						151
61 - 65	14	19	42	28	31	142	7	1				284
66 - 70	18	7	22	14	13	89	99	2				264
71 - 75	11	6	9	17	9	50	61	52	4	1		220
76 - 80	1	3	8	4	3	24	28	50	42	3	2	168
81 - 85	1				2	9	13	24	24	26	2	101
86 - 90					1		6	9	7	9	24	56
91 & Over						2		2	5	1	14	24
Totals	87	73	116	79	77	324	214	140	82	40	42	1,274

AVERAGE ANNUAL BENEFITS PAYABLE TO SERVICE RETIREES:

Attained Ages	Completed Years Since Retirement 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 50												0
51 - 55	26,486											26,486
56 - 60	40,021	36,364	33,119	31,018	28,941	25,846						34,475
61 - 65	43,591	35,794	40,873	46,279	30,075	31,766	19,056	24,558				34,873
66 - 70	26,801	23,435	43,471	28,248	23,947	29,863	27,240	15,942				29,152
71 - 75	23,183	23,423	32,626	34,369	24,962	26,003	28,736	20,849	27,078	19,368		26,195
76 - 80	18,679	62,082	37,219	38,904	24,656	36,592	24,678	23,216	17,246	11,388	8,571	25,225
81 - 85	17,115				63,127	24,117	25,553	19,646	17,056	21,362	16,418	21,403
86 - 90					15,415		15,983	13,417	11,709	14,852	17,120	15,332
91 & Over						68,997		24,762	33,569	8,434	16,554	24,815
Average	34,289	34,969	38,134	37,056	28,635	30,583	26,645	21,023	18,192	18,776	16,491	28,714

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 - 45												0
46 - 50		1										1
51 - 55				3		1	2					6
56 - 60				1		1		1				3
61 - 65			1			1			1			3
66 - 70												0
71 - 75									1			1
76 - 80								1				1
81 & Over												0
Totals	0	1	1	4	0	3	2	2	2	0	0	15

AVERAGE ANNUAL BENEFITS PAYABLE TO DISABILITY RETIREES:

Attained Ages	Completed Years Since Retirement 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 45												0
46 - 50		10,156										10,156
51 - 55				18,551		11,993	10,216					14,680
56 - 60				19,170		10,014		12,379				13,855
61 - 65			15,362			11,095			8,298			11,585
66 - 70												0
71 - 75									7,977			7,977
76 - 80								9,475				9,475
81 & Over												0
Average	0	10,156	15,362	18,706	0	11,034	10,216	10,927	8,138	0	0	12,800

SURVIVING BENEFICIARIES OF FORMER MEMBERS:

Completed Years Since Retirement

Attained Ages	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 20		3										3
21 - 25												0
26 - 30							1					1
31 - 35							2					2
36 - 40												0
41 - 45						1	1					2
46 - 50			1			2		1				4
51 - 55		1						2				3
56 - 60			1	1			2	1				5
61 - 65					1	3	1	1	1			7
66 - 70			2	3	1	5	5	1	1	2		20
71 - 75					1	3	3	4	1	1		13
76 - 80					1	2	3	3	4	1	1	15
81 - 85						2	2	5	3	4	6	22
86 - 90						2		3	2		7	14
91 & Over						1		2	1	2	8	14
Totals	0	4	4	4	4	21	20	23	13	10	22	125

AVERAGE ANNUAL BENEFITS PAYABLE TO SURVIVORS OF FORMER MEMBERS:

Completed Years Since Retirement

Attained Ages	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 20		1,283										1,283
21 - 25												0
26 - 30							4,408					4,408
31 - 35							11,483					11,483
36 - 40												0
41 - 45						6,714	10,463					8,589
46 - 50			29,197			12,215		6,813				15,110
51 - 55		42,625						5,188				17,667
56 - 60			5,373	19,649			19,230	3,378				13,372
61 - 65					75,397	18,480	17,416	7,000	4,625			22,840
66 - 70			98,669	23,664	19,140	28,126	27,539	40,052	31,661	15,434		33,419
71 - 75					10,893	19,281	41,751	10,176	19,687	7,674		20,158
76 - 80					27,533	39,823	34,081	9,948	18,345	33,674	3,053	23,291
81 - 85						7,978	57,883	10,233	26,506	11,232	12,409	17,354
86 - 90						83,885		25,418	13,279		14,348	26,501
91 & Over						25,359		25,135	24,657	17,498	18,243	20,087
Average	0	11,618	57,977	22,660	33,241	27,323	28,733	13,733	20,007	15,214	14,722	21,619

EXHIBIT X
YEAR-TO-YEAR COMPARISON

	Fiscal 2019	Fiscal 2018	Fiscal 2017	Fiscal 2016
Number of Active Members	2,196	2,205	2,164	2,208
Number of Retirees & Survivors	1,414	1,360	1,311	1,235
Number of Terminated Due Deferred Benefits	78	78	78	81
Number Terminated Due Refunds	618	585	550	500
Active Lives Payroll	$ 95,247,068	$ 92,738,643	$ 89,180,971	$ 90,323,689
Retiree Benefits in Payment	$ 39,475,815	$ 37,248,506	$ 34,679,675	$ 30,727,570
Market Value of Assets	$ 641,204,758	$ 628,437,651	$ 593,677,582	$ 531,220,994
Entry Age Normal Accrued Liability	$ 805,671,731	$ 777,615,742	$ 729,009,277	$ 700,260,558
Ratio of AVA to EAN Accrued Liability	81.33%	81.22%	81.72%	79.81%
Actuarial Value of Assets	$ 655,273,733	$ 631,612,601	$ 595,749,559	$ 558,910,784
Frozen Unfunded Actuarial Accrued Liability	$ 70,998,546	$ 75,869,452	$ 80,361,839	$ 84,560,331
Present Value of Future Employer Normal Cost	$ 180,972,019	$ 168,433,783	$ 141,532,146	$ 144,555,899
Present Value of Future Employee Contrib.	$ 63,205,970	$ 60,449,719	$ 56,483,625	$ 56,237,290
Funding Deposit Account Balance	$ 9,429,752	$ 7,981,218	$ 9,388,977	$ 7,741,426
Present Value of Future Benefits	$ 961,020,516	$ 928,384,337	$ 864,738,192	$ 836,522,878

	Fiscal 2020	Fiscal 2019	Fiscal 2018	Fiscal 2017
Employee Contribution Rate	8.25%	8.25%	8.25%	8.25%
Estimated Tax Contribution as a % of Payroll	11.58%	11.50%	12.00%	11.76%
Actuarially Required Net Direct Employer Contribution Rate	18.99%	18.87%	16.99%	17.27%
Actual Employer Contribution Rate	19.00%	19.00%	19.00%	19.00%

† Exceeds minimum recommended employer contribution rate in years where Board elected to hold the rate higher.

Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011	Fiscal 2010
2,234	2,219	2,248	2,269	2,326	2,330
1,173	1,108	1,064	1,000	975	929
78	88	97	92	88	97
471	444	410	387	372	360
$ 89,814,463	$ 88,522,141	$ 86,935,230	$ 87,238,557	$ 87,403,148	$ 86,484,686
$ 28,162,472	$ 26,301,025	$ 23,983,008	$ 21,372,677	$ 19,981,482	$ 18,640,843
$ 535,853,689	$ 518,993,448	$ 443,430,781	$ 390,272,342	$ 378,083,955	$ 301,692,473
$ 669,774,954	$ 637,131,442	$ 593,967,044	$ 568,108,691	$ 534,191,730	$ 510,100,152
78.76%	74.70%	71.28%	70.61%	72.77%	70.37%
$ 527,535,949	$ 475,945,220	$ 423,354,992	$ 401,136,469	$ 388,757,787	$ 358,981,529
$ 86,060,294	$ 87,052,600	$ 87,579,997	$ 87,771,278	$ 87,493,460	$ 86,953,999
$ 141,097,058	$ 162,356,479	$ 161,988,761	$ 156,709,315	$ 127,887,962	$ 135,032,044
$ 55,853,464	$ 55,197,088	$ 53,537,913	$ 52,501,678	$ 49,250,744	$ 49,677,464
$ 3,449,340	$ 1,739,546	$ 1,618,182	$ 1,505,286	$ 603,658	$ 558,943
$ 807,097,425	$ 778,811,841	$ 724,843,481	$ 696,613,454	$ 652,786,295	$ 630,086,093

Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011
8.25%	8.25%	8.25%	8.25%	8.25%	8.25%
11.76%	11.22%	10.72%	9.94%	9.31%	9.27%
14.37%	17.30%	18.43%	18.45%	16.21%	16.98%
19.00%	19.00%	18.50%	17.25%	17.25%	17.25%

SUMMARY OF PRINCIPAL PLAN PROVISIONS

The Clerks' of Court Retirement and Relief Fund is a defined benefit pension plan which 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 – Members include the clerk of the supreme court, the clerks of each of the courts of appeal, each of the district courts, and each of the city and traffic courts in cities having a population in excess of four hundred thousand, and the employees of such clerks, who work an average of more than twenty hours per week, and the employees of the Louisiana Clerks of Court Association, the Louisiana Clerks' of Court Retirement and Relief Fund, and the Louisiana Clerks of Court Insurance Fund.

CONTRIBUTION RATES – Under the provisions of R.S. 11:62 and 11:103, the fund is financed by statutory employee contributions of 8.25 % of earnable compensation. (Under R.S. 11:1562(C), the employer may elect to pay all or a portion of the employee contributions). 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 plan up to a maximum of 0.25% 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. 11:207, 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.

RETIREMENT BENEFITS – Members with twelve or more years of creditable service may retire at age fifty-five (age sixty if they are hired on or after January 1, 2011). The retirement allowance is equal to three percent of the member's monthly average final compensation multiplied by the number of years of creditable service, not to exceed one hundred percent of monthly average final compensation. The retirement benefit accrual rate is increased to 3 1/3% for all service credit accrued after June 30, 1999 (for members hired prior to January 1, 2011). For members whose first employment making them eligible for system membership began before July 1, 2006 and who retire prior to January 1, 2011, monthly average final compensation is based on the highest thirty-six consecutive months, with a limit of increase of 10% in each of the last three years of measurement. For members whose first employment making them eligible for system membership began on or after July 1, 2006, monthly average final compensation is based on the highest compensated sixty consecutive months or successive joined months if service was interrupted, with a limit increase of 10% in each of the last five years of measurement. For members who were employed prior to July 1, 2006 and who

retire after December 31, 2010, the period of final average compensation is thirty-six months plus the number of whole months elapsed since January 1, 2011, not to exceed sixty months.
OPTIONAL ALLOWANCES – Members may receive their benefits as a life annuity, or in lieu of such receive a reduced benefit according to the option selected which is the actuarial equivalent of the maximum benefit.

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

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

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

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

Option 5 – Upon retirement, the member receives 90% of the maximum benefit. Upon the death of the member, the spouse receives one-half of the reduced 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 – Disability benefits are awarded to active members who are totally and permanently disabled as a result of injuries sustained in the line of duty or to active members with ten or more years of creditable service who are totally disabled due to any cause. A member who is officially certified as totally and permanently disabled by the State Medical Disability Board will be paid monthly disability retirement benefits equal to the greater of forty percent of their monthly average final compensation or seventy-five percent of their monthly regular retirement benefit computed as per R.S. 11:1521(C).

SURVIVOR BENEFITS – Upon the death of any active contributing member with less than five years of creditable service, his accumulated contributions are paid to his designated beneficiary. Upon the death of any active contributing member with five or more years of service, automatic option 2 benefits are payable to the surviving spouse. These benefits are based on the retirement benefits accrued at the member's date of death with option factors used as if the member had continued in service to earliest normal retirement age. Benefit payments commence on the date a member would have first become eligible for normal retirement assuming continued service until that time. In lieu of a deferred survivor benefit, the surviving spouse may elect benefits payable immediately with benefits reduced one-quarter of 1% for each month by which payments commence in advance of member's earliest normal retirement age. If a member has no surviving spouse, the surviving minor children under eighteen or disabled children are paid one-half of the member's accrued retirement benefit in equal shares. Upon the death of any former member with less than twelve years of service, the designated beneficiary may receive his accumulated contributions. Upon the death of any former member with twelve or more years of service, automatic option 2 benefits are payable to the surviving spouse with payments to commence on the member's retirement eligibility date. In lieu of periodic payments, the surviving spouse or children may receive a refund of the member's accumulated contributions.

DEFERRED RETIREMENT OPTION PLAN – In lieu of terminating employment and accepting a service retirement allowance, any member of the system who is eligible for a service retirement allowance may elect to participate in the Deferred Retirement Option Plan for up to thirty-six months and defer the receipt of benefits. Upon commencement of participation in the plan, active membership in the system terminates and the participant's contributions cease; however, employer contributions continue. Compensation and creditable service remain as they existed on the effective date of commencement of participation in the plan. The monthly retirement benefits that would have been payable, had the member elected to cease employment and receive a service retirement allowance, are paid into the Deferred Retirement Option Plan account. Upon termination of employment at the end of the specified period of participation, a participant in the program may receive, at his option, a lump sum payment from the account equal to the payments to the account, or a true annuity based upon his account (subject to approval by the Board of Trustees); in addition, the member receives the monthly benefits that were paid into the fund during the period of participation. If employment is not terminated at the end of the participation period, payments into the account cease and the member resumes active contributing membership in the system. Interest is paid on DROP account balances for members who complete their DROP participation but do not terminate employment. The interest earnings are based on the actual rate of return on funds in such accounts. These interest accruals cease upon termination of employment. Upon termination, the member receives a lump sum payment from the DROP fund equal to the payments made to that fund on his behalf, or a true annuity based on his account (subject to approval by the Board of Trustees). The monthly benefit payments that were being paid into the DROP fund are paid to the retiree and an additional benefit based on his additional service rendered since termination of DROP participation is calculated using the normal method of benefit computation. Prior to January 1, 2011, the average compensation used to calculate the additional benefit is that used to calculate the original benefit unless his period of additional service is at least thirty-six months; effective January 1, 2011 the average compensation for members whose additional service is less than thirty-six months is equal to the lesser of the amount used to calculate his original benefit or the compensation earned in the period of additional service divided by the number of months of additional service. For former DROP participants who retire after December 31, 2010, the period used to determine final average compensation for post-DROP service is thirty-six months plus the number of whole months elapsed from January 1, 2011 to the date of DROP entry. In no event can the entire monthly benefit amount paid to the retiree exceed 100% of the average compensation used to compute the additional benefit. If a participant dies during the period of participation in the program, a lump sum payment equal to his account balance is paid to his named beneficiary or, if none, to his estate.

COST OF LIVING INCREASES (COLAs) – The Board of trustees is authorized to grant retired members and widows of members who have been retired for at least one full calendar year an annual cost of living increase of 2.50% of their benefit (not to exceed forty dollars per month), and all retired members and widows who are sixty-five years of age and older a 2% increase in their original benefit (or their benefit as of October 1, 1977, if they retired prior to that time). In order to grant the 2.50% COLA the increase in the Consumer Price Index must have exceeded 3% since the last COLA granted. In order for the Board to grant either of these increases, the system must meet certain other criteria detailed in the statute related to funding status. 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. In order for the board to grant any of these increases, the system must meet certain criteria detailed in the statutes related to funding status and interest earnings.

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: Frozen Attained Age Normal Actuarial Method with allocation based on earnings. The actuarial accrued liabilities utilized to calculate the frozen unfunded accrued liability were calculated on the Projected Unit Credit Cost Method. Changes in assumptions and plan benefits are funded through adjustments to future normal costs.

VALUATION INTEREST RATE: 6.75% (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.

Note: All deferrals are based on the valuation interest rate in effect as of the beginning of the fiscal year for each individual year.

ANNUAL SALARY INCREASE RATE: 5.00% (2.5% inflation / 2.5% 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 assumed rate of retirement for members at first eligibility is 3.2 times the relevant rate listed in the table of these rates.

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 Duration (≤)	Factor	Service Duration (≤)	Factor
1	0.140	11	0.030
2	0.120	12	0.030
3	0.110	13	0.030
4	0.100	14	0.030
5	0.090	15	0.030
6	0.060	16	0.030
7	0.060	17	0.030
8	0.050	18	0.015
9	0.030	19	0.015
10	0.030	>19	0.015

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

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

DROP PARTICIPATION: All persons who enter the DROP are assumed to participate for the full 3 year period and 2/3 are assumed to retire at the end of DROP participation with 1/3 assumed to work 4 years post DROP and then retire.

RETIREMENT RATES FOR ACTIVE FORMER DROP PARTICIPANTS: The rate for all ages is assumed to be 17%.

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	Remarriage Rates
25	70%	1.84	5	0.04566
35	86%	2.13	9	0.02636
45	75%	1.70	12	0.01355
55	22%	1.42	14	N/A
65	4%	1.45	15	N/A

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

DISABILITY RATES: 20% of the disability rates used for the 21st valuation of the Railroad Retirement System for individuals with 10-19 years of service. The table of these rates is included later in the report.

SERVICE RELATED DISABILITIES: 10% of total disabilities

VESTING ELECTING PERCENTAGE: 80% of those vested elect deferred benefits in lieu of contribution refunds.

ACTUARIAL TABLES AND RATES

Age	Male Employee Mortality Rates	Female Employee Mortality Rates	Male Retiree Mortality Rates	Female Retiree Mortality Rates	Male Disability Mortality Rates	Female Disability Mortality Rates	Pre 1/1/2011 Hires Retirement Rates	Post 1/1/2011 Hires Retirement Rates	Pre 1/1/2011 Hires DROP Entry Rates	Post 1/1/2011 Hires DROP Entry Rates	Disability Rates
18	0.00025	0.00017	0.00019	0.00012	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00030
19	0.00027	0.00018	0.00019	0.00012	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00030
20	0.00028	0.00018	0.00020	0.00012	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00030
21	0.00030	0.00019	0.00021	0.00011	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00030
22	0.00032	0.00019	0.00022	0.00012	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00030
23	0.00033	0.00019	0.00024	0.00012	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00030
24	0.00035	0.00019	0.00025	0.00013	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00030
25	0.00036	0.00019	0.00028	0.00014	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00030
26	0.00037	0.00020	0.00032	0.00015	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00030
27	0.00037	0.00020	0.00034	0.00016	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00030
28	0.00038	0.00021	0.00035	0.00016	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00030
29	0.00038	0.00021	0.00038	0.00017	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00030
30	0.00038	0.00022	0.00043	0.00020	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00030
31	0.00038	0.00024	0.00048	0.00024	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00030
32	0.00039	0.00025	0.00054	0.00028	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00030
33	0.00041	0.00026	0.00060	0.00030	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00030
34	0.00044	0.00031	0.00067	0.00032	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00030
35	0.00050	0.00035	0.00072	0.00034	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00034
36	0.00056	0.00039	0.00078	0.00036	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00038
37	0.00063	0.00044	0.00083	0.00037	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00042
38	0.00070	0.00047	0.00085	0.00039	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00048
39	0.00077	0.00051	0.00087	0.00041	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00054
40	0.00084	0.00055	0.00090	0.00045	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00062
41	0.00090	0.00060	0.00093	0.00049	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00070
42	0.00096	0.00065	0.00096	0.00054	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00078
43	0.00102	0.00071	0.00100	0.00060	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00088
44	0.00108	0.00077	0.00105	0.00065	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00100
45	0.00114	0.00085	0.00109	0.00069	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00114
46	0.00122	0.00094	0.00114	0.00073	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00130
47	0.00130	0.00103	0.00118	0.00077	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00146
48	0.00140	0.00112	0.00123	0.00083	0.02257	0.00745	0.00000	0.00000	0.00000	0.00000	0.00166
49	0.00151	0.00122	0.00320	0.00090	0.02257	0.00818	0.00000	0.00000	0.00000	0.00000	0.00188
50	0.00162	0.00133	0.00321	0.00140	0.02257	0.00896	0.00000	0.00000	0.00000	0.00000	0.00214
51	0.00173	0.00143	0.00317	0.00152	0.02385	0.00978	0.00000	0.00000	0.00000	0.00000	0.00244
52	0.00186	0.00155	0.00312	0.00173	0.02512	0.01063	0.00000	0.00000	0.00000	0.00000	0.00276
53	0.00200	0.00168	0.00316	0.00202	0.02640	0.01154	0.00000	0.00000	0.00000	0.00000	0.00314
54	0.00214	0.00181	0.00322	0.00236	0.02769	0.01248	0.00000	0.00000	0.00000	0.00000	0.00356
55	0.00229	0.00197	0.00344	0.00277	0.02897	0.01346	0.05000	0.00000	0.40000	0.00000	0.00404
56	0.00245	0.00213	0.00374	0.00328	0.03027	0.01446	0.05000	0.00000	0.20000	0.00000	0.00460
57	0.00262	0.00232	0.00412	0.00377	0.03156	0.01550	0.05000	0.00000	0.20000	0.00000	0.00522
58	0.00281	0.00253	0.00461	0.00423	0.03286	0.01654	0.05000	0.00000	0.20000	0.00000	0.00592
59	0.00303	0.00276	0.00505	0.00476	0.03415	0.01760	0.05000	0.00000	0.20000	0.00000	0.00674
60	0.00331	0.00301	0.00555	0.00533	0.03544	0.01865	0.05000	0.05000	0.20000	0.40000	0.00976
61	0.00363	0.00329	0.00630	0.00595	0.03673	0.01971	0.05000	0.05000	0.20000	0.20000	0.00976
62	0.00400	0.00360	0.00696	0.00662	0.03803	0.02077	0.05000	0.05000	0.20000	0.20000	0.00976
63	0.00441	0.00393	0.00794	0.00732	0.03933	0.02184	0.05000	0.05000	0.20000	0.20000	0.00976
64	0.00488	0.00429	0.00879	0.00808	0.04067	0.02294	0.05000	0.05000	0.20000	0.20000	0.00976
65	0.00538	0.00466	0.00974	0.00892	0.04204	0.02408	0.10000	0.10000	0.20000	0.20000	0.00976
66	0.00592	0.00504	0.01112	0.00982	0.04347	0.02529	0.10000	0.10000	0.20000	0.20000	0.00976
67	0.00647	0.00543	0.01229	0.01079	0.04498	0.02660	0.10000	0.10000	0.20000	0.20000	0.00976
68	0.00703	0.00582	0.01317	0.01185	0.04658	0.02803	0.10000	0.10000	0.20000	0.20000	0.00976
69	0.00757	0.00621	0.01455	0.01304	0.04831	0.02959	0.10000	0.10000	0.20000	0.20000	0.00976
70	0.00810	0.00658	0.01561	0.01440	0.05017	0.03132	0.10000	0.10000	0.20000	0.20000	0.00976
71	0.00860	0.00695	0.01734	0.01551	0.05221	0.03323	0.10000	0.10000	0.20000	0.20000	0.00976
72	0.00907	0.00729	0.01931	0.01725	0.05445	0.03533	0.10000	0.10000	0.20000	0.20000	0.00976
73	0.00951	0.00761	0.02154	0.01861	0.05691	0.03764	0.10000	0.10000	0.20000	0.20000	0.00976
74	0.00992	0.01858	0.02404	0.02062	0.05961	0.04014	0.10000	0.10000	0.20000	0.20000	0.00976
75	0.02457	0.02067	0.02762	0.02209	0.06258	0.04285	0.10000	0.10000	0.20000	0.20000	0.00976

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.

NOTES