

**CLERKS' OF COURT  
RETIREMENT & RELIEF FUND**

ACTUARIAL VALUATION AS OF  
JUNE 30, 2016

# G. S. CURRAN & COMPANY, LTD.

Actuarial Services

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November 1, 2016

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, 2016. 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, 2017, and to recommend the net direct employer contribution rate for Fiscal 2018. 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:

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

  
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# TABLE OF CONTENTS

<b><u>SUBJECT</u></b>	<b><u>PAGE</u></b>
SUMMARY OF VALUATION RESULTS .....	1
GENERAL COMMENTS .....	2
COMMENTS ON DATA .....	3
COMMENTS ON ACTUARIAL METHODS AND ASSUMPTIONS.....	4
RISK FACTORS.....	5
CHANGES IN PLAN PROVISIONS.....	7
ASSET EXPERIENCE .....	7
DEMOGRAPHICS AND LIABILITY EXPERIENCE .....	8
FUNDING ANALYSIS AND RECOMMENDATIONS.....	8
COST OF LIVING INCREASES .....	10
GRAPHS .....	12
EXHIBIT I – Analysis of Actuarially Required Contributions.....	17
EXHIBIT II – Present Value of Future Benefits.....	18
EXHIBIT III – SCHEDULE A – Market Value of Assets .....	19
EXHIBIT III – SCHEDULE B – Actuarial Value of Assets .....	20
EXHIBIT IV – Present Value of Future Contributions.....	21
EXHIBIT V – Reconciliation of Contributions .....	21
EXHIBIT VI – Analysis of Increase In Assets .....	22
EXHIBIT VII – Funding Deposit Account.....	23
EXHIBIT VIII – SCHEDULE A – Pension Benefit Obligation.....	23
EXHIBIT VIII – SCHEDULE B – Entry Age Normal Liabilities .....	23
EXHIBIT IX – Census Data .....	24
EXHIBIT X – Year to Year Comparison.....	32
SUMMARY OF PRINCIPAL PLAN PROVISIONS .....	34
ACTUARIAL ASSUMPTIONS .....	37
GLOSSARY.....	41

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

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Valuation Date:	June 30, 2016	June 30, 2015
Census Summary:		
Active Members	2,208	2,234
Retired Members and Survivors	1,235	1,173
Terminated Due a Deferred Benefit	81	78
Terminated Due a Refund	500	471
Payroll:	\$ 90,323,689	\$ 89,814,463
Benefits in Payment:	\$ 30,727,570	\$ 28,162,472
Present Value of Future Benefits	\$ 836,522,878	\$ 807,097,425
Actuarial Accrued Liability (EAN):	\$ 700,260,558	\$ 669,774,954
Frozen Unfunded Actuarial Accrued Liability:	\$ 84,560,331	\$ 86,060,294
Funding Deposit Account Credit Balance	\$ 7,741,426	\$ 3,449,340
Actuarial Asset Value (AVA):	\$ 558,910,784	\$ 527,535,949
Market Value of Assets (MVA)	\$ 531,220,994	\$ 535,853,689
Ratio of AVA to Actuarial Accrued Liability:	79.81%	78.76%

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	Fiscal 2016	Fiscal 2015
Market Rate of Return:	-0.8%	2.7%
Actuarial Rate of Return:	6.0%	10.2%

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	Fiscal 2017	Fiscal 2016
Employers' Normal Cost (Mid-year):	\$ 16,356,644	\$ 16,055,631
Amortization Cost (Mid-year):	\$ 9,781,165	\$ 7,273,903
Estimated Administrative Cost	\$ 583,421	\$ 508,654
Projected Ad Valorem Tax Contributions	\$ 10,506,801	\$ 10,408,246
Projected Revenue Sharing Funds	\$ 319,508	\$ 319,650
Net Direct Employer Actuarially Required Contributions:	\$ 15,894,921	\$ 13,110,291
Projected Payroll:	\$ 92,056,455	\$ 91,222,867
Actual Employee Contribution Rate:	8.25%	8.25%
Actual Net Direct Employer Contribution Rate:	19.00%	19.00%
Actuarially Required Net Direct Employer Contribution Rate:	17.27%	14.37%

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	Fiscal 2018	Fiscal 2017
Minimum Recommended Net Direct Employer Cont. Rate:	17.50%	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 ascribe absolute accuracy. In fact, neither of these descriptions 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 data used; 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 and historical experience is often required when the actuary has reason to believe that future circumstances may vary significantly from the past. Setting assumptions includes but is not limited to collecting past plan experience and studying general population demographics and economic factors from the past. The actuary will also consider current and future macro-economic and financial expectations as well as factors that are likely to impact the particular group under consideration. Hence, assumptions will also reflect the actuary’s judgment in such areas as expectation of population increase and turnover for the plan in view of the particular factors which impact participants. Thus, the process of setting assumptions is not mere “guess work” but rather a process of mathematical analysis of past experience and of those factors likely to impact the future.

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

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

## COMMENTS ON DATA

For the valuation, the administrative staff of the system furnished a census on DVD 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 2,208 active members in the system of whom 979 members have vested retirement benefits including 152 participants in the Deferred Retirement Option Plan (DROP); 1,235 former members or their beneficiaries are receiving retirement benefits. An additional 581 terminated members have contributions remaining on deposit with the system; of this number 81 have vested rights for future retirement benefits. All participant data is as of June 30, 2016. All individuals submitted were included in the valuation.

Census data submitted to our office is tested for errors. Several types of census data errors are possible; to ensure that the valuation results are as accurate as possible, a significant effort is made to identify and correct these errors. In order to minimize coverage errors (i.e., missing or duplicated individual records) the records are checked for duplicates, and a comparison of the current year's records to those submitted in prior years is made. Changes in status, new records, and previous records, which have no corresponding current record, are identified. This portion of the review indicates the annual flow of members from one status to another and is used to check some of the actuarial assumptions, such as retirement rates, rates of withdrawal, and mortality. In addition, the census is checked for reasonableness in several areas, such as age, service, salary, and current benefits. The records identified by this review as questionable are checked against data from prior valuations; those not recently verified are included in a detailed list of items sent to the system's administrator for verification and/or correction. Once the identified data has been researched and verified or corrected, it is returned to us for use in the valuation. Occasionally some requested information is either unavailable or impractical to obtain. In such cases, values may be assigned to missing data. For this valuation, the number of such records with imputed data is de minimis. The assigned values are based on information from similar records or based on information implied from other data in the record.

In addition to the statistical information provided on the system's participants, the system's administrator furnished general information related to other aspects of the system's expenses, benefits and funding. Valuation asset values as well as income and expenses for the fiscal year were based on information furnished by the system's auditor, the firm of Duplantier, Hrapmann, Hogan & Maher, L.L.P. As indicated in the system's audit report, the net market value of system assets was \$531,220,994 as of June 30, 2016. Net investment income for Fiscal 2016 measured on a market value basis amounted to a loss of \$4,357,804. Contributions to the system for the fiscal year totaled \$34,908,794; benefits and expenses amounted to \$35,183,685.

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. In any year in which the net direct employer contribution is scheduled to decrease, the board of trustees may freeze the net direct employer contribution rate and deposit the excess funds, if any, into the Funding Deposit Account. For fiscal years 1999 through 2002, the board did freeze the employer contribution rates. The additional payments of \$6,660,791 and the accrued interest thereon reduced the outstanding Unfunded Accrued Liability by \$9,536,353 as of June 30, 2005, and shortened the remaining amortization period to June 30, 2026. However, in 2006 a statutory change was made to reamortize the then existing balance of the Frozen Unfunded Accrued Liability through June 30, 2029. Effective July 1, 2016, the remaining balance was amortized using level annual payments through June 30, 2029.

The cost method used for this valuation generally produces normal costs which are level as a percentage of pay if assumptions are met and the composition of the active group with regard to age and service is stable. Overall costs may increase or decrease depending on payroll growth. Since payments on the Fund's 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, unless otherwise specified in this report. In determining the valuation interest rate, consideration was given to several factors. First, consensus estimates of rates of return, standard deviations, and correlation coefficients for asset classes derived from various asset consulting firms were developed. These factors were used to derive forward estimates of the Fund's portfolio earnings rate. Consideration was also given to the March 31, 2015 report of Summit Strategies Group on future expected rates of return for the current portfolio asset allocation. This report projected future arithmetic average portfolio real returns at 5.0% with a standard deviation of 10.9%. Based on the results of this interest rate assumption review and a desire to reduce the long-term risk of the retirement fund, the assumed rate of return for the valuation was set at 7.00%. An inflation rate of 2.5% was implicit in both the assumed rate of return and rate of salary increases. Additional details are given in the complete Experience Report for fiscal years 2010 through 2014.

Although the board of trustees has authority to grant ad hoc Cost of Living Increases (COLAs) under limited circumstances, these COLAs have not been shown to have a historical pattern, the amounts of the COLAs have not been relative to a defined cost-of-living or inflation index, and there is no evidence to conclude that COLAs will be granted on a predictable basis in the future. Therefore, for purposes of determining the present value of benefits, these COLAs were deemed not to be substantively automatic and the present value of benefits excludes COLAs not previously granted by the board of trustees.

The current year actuarial assumptions utilized for the report are outlined on pages thirty-seven through forty. All assumptions were the same as those used in the Fiscal 2015 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. 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 79.81% as of June 30, 2016. 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 0.71% 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 2016, this ratio is 34%; 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 2017 by 16.59% of payroll.

There is a risk that future actuarial measurements may differ significantly from current measurements presented in this report due to factors such as the following: plan experience differing from that anticipated by the economic or demographic assumptions, changes in economic or demographic assumption, completion of amortization payment and credit schedules, and changes in plan provisions

or applicable law. Analysis of the effect of all these factors and additional risk metrics is beyond the scope of this report.

## CHANGES IN PLAN PROVISIONS

The following changes to the system were enacted during the 2016 Regular Session of the Louisiana Legislature:

**ACT 176** provides that the actuarial note for any bill prefiled at least 45 days prior to a regular session of the legislature shall be completed and filed at least five days prior to the convening of that session.

**ACT 410** requires the executive director or person holding the equivalent position of each state or statewide retirement system to file a Tier 2.1 personal financial statement.

**ACT 460** requires that at least every five years the legislative auditor report to the legislature comparative summaries of each system's reported actuarial assumptions and funded ratio and his findings as to the appropriateness of each system's assumptions.

**ACT 621** places a member of the House Committee on Retirement appointed by the speaker of the House of Representatives as a trustee on each of the boards of the state and statewide retirement systems, instead of the chairman of the House Committee on Retirement.

**ACT 650** requires reamortization of the remaining balance of the initial frozen UAL for the Clerks of Court Retirement and Relief Fund as an annual level dollar payment over the remainder of the initial 40-year payment period.

## 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.

	<u>Market Value</u>	<u>Actuarial Value</u>
2007	14.3%	10.2%
2008	-6.3%	7.9%
2009	-19.3%	* -6.1%
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%

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

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 2016, the fund earned \$8,349,372 of dividends, interest and other recurring income. Net income was decreased by realized and unrealized capital losses of \$9,953,624. Investment expenses reduced income by \$2,753,552. The geometric mean of the market value rates of return measured over the last ten years was 4.5%. For the last twenty-five years, the geometric mean returns was 6.9%.

The actuarial rate of return is presented for comparison to the assumed long-term rate of return of 7.00%. 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 7.00% assumption will reduce future costs; yields below 7.00% will increase future costs. For Fiscal 2016, the system experienced net actuarial investment losses of \$5,268,332 below the actuarial assumed earnings rate of 7.00% in effect for Fiscal 2016. This shortfall in earnings produced an actuarial loss, which increased the normal cost accrual rate by 0.6658%.

## **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 12.84 years of service and an annual salary of \$40,907. The system's active membership decreased during the fiscal year by 26 members. The plan has experienced a decrease in the active plan population of 118 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 \$2,137. The number of retirees and beneficiaries receiving benefits from the system increased by 62 during the fiscal year. Over the last five years, the number of retirees has increased by 260. During this same period, annual benefits in payment increased by \$10,746,088.

Plan liability experience for Fiscal 2016 was unfavorable. Retirement and DROP entries were above projected levels and deaths were below expected levels. These factors tend to increase costs. Withdrawals were slightly above expected levels and salary increases were slightly below expected levels. These factors partially offset the increases in costs. In aggregate, plan liability losses increased the normal cost accrual rate by 0.3539%.

## **FUNDING ANALYSIS AND RECOMMENDATIONS**

Actuarial funding of a retirement system is a process whereby funds are accumulated over the working lifetimes of employees in such a manner as to have sufficient assets available at retirement to pay for the lifetime benefits accrued by each member of the system. The required contributions are determined by an actuarial valuation based on rates of mortality, termination, disability, and retirement, as well as

investment return and other statistical measures specific to the particular group. Each year a determination is made of two cost components, and the actuarially required contributions are based on the sum of these two components plus administrative expenses. These two components are the normal cost and the amortization payment on the unfunded actuarial accrued liability. The normal cost refers to the portion of annual cost based on the salary of active participants. The term “unfunded accrued liability” (UAL) refers to the excess of the present value of plan benefits over the sum of current assets and future normal costs. Each year the UAL grows with interest and is reduced by payments. Under the funding method used for the plan, changes in plan experience, benefits, or assumptions do not affect the frozen unfunded actuarial accrued liability. These items increase or decrease future normal costs.

In order to establish the actuarially required contribution in any given year, it is necessary to define the assumptions, funding method, and method of amortizing the UAL. Thus, the determination of what contribution is actuarially required depends upon the funding method and amortization schedules employed. Regardless of the method selected, the ultimate cost of providing benefits is dependent upon the benefits, expenses, and investment earnings. Only to the extent that some methods accumulate assets more rapidly and thus produce greater investment earnings does the funding method affect the ultimate cost.

The derivation of the actuarially required contribution for the current fiscal year is given in Exhibit I. The normal cost for Fiscal 2017 is \$16,356,644. The amortization payment on the fund’s frozen unfunded actuarial accrued liability is \$9,781,165. The total actuarially required contribution is determined by adding to these values estimated administrative expenses. As given on line 16 of Exhibit I the total actuarially required contribution for Fiscal 2017 is \$26,721,230. When this amount is reduced by projected tax contributions and revenue sharing funds, the resulting employers’ net direct actuarially required contribution for Fiscal 2017 is \$15,894,921 or 17.27% 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 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 2016	17.9005%
Factors Increasing the Normal Cost Accrual Rate:	
Asset Experience Loss	0.6658%
Plan Liability Experience Loss	0.3539%
Factors Decreasing the Normal Cost Accrual Rate:	
New Members	0.6520%
Employer’s Normal Cost Accrual Rate – Fiscal 2017	18.2682%

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 2017, the net effect of the change in payroll on amortization costs as well as the change in amortization method from increasing to level annual payments was to increase such costs by 2.66% 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 remain unchanged from the prior year.

Although the actuarially required net direct employer contribution rate for Fiscal 2016 was 14.37%, the Board voted to maintain the employer contribution at 19.00%. For Fiscal 2016, this system experienced a contribution gain of \$4,050,632. In accordance with R. S. 11:107, these additional contributions were credited to the system's Funding Deposit Account as of June 30, 2016. Although the actuarially required net direct employer contribution rate for Fiscal 2017 is 17.27%; the actual employer contribution rate for Fiscal 2017 is 19.00% of payroll. Since the contribution rate for Fiscal 2017 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 17.50% for Fiscal 2018. Note that this rate was set 0.25% higher than the actuarial required rate for 2017 to recognize that the rate of ad valorem taxes remitted by Orleans Parish to the system are scheduled to be reduced in Fiscal 2018. 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 17.50% and 20.50%. 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**

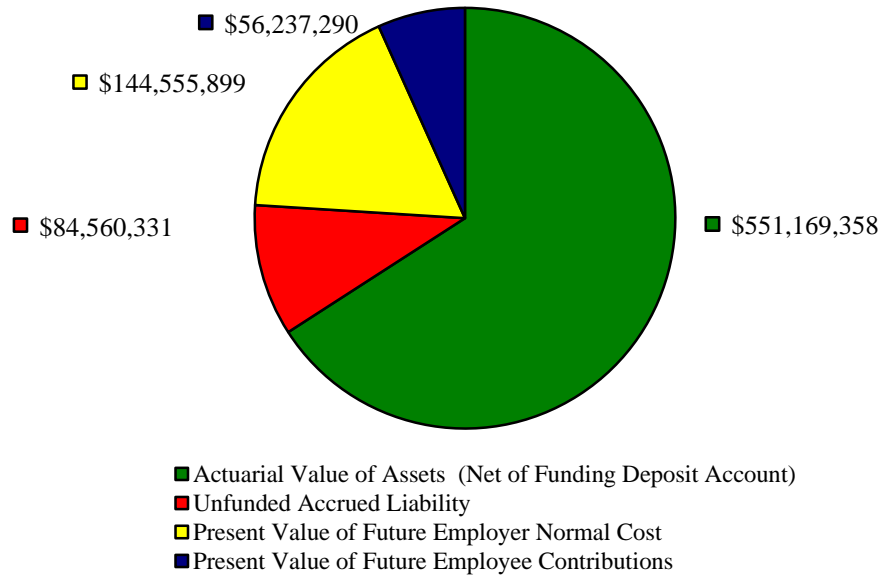
During Fiscal 2016, the actual cost of living (as measured by the US Department of Labor CPI-U) increased by 1.01%. Cost of living provisions for the system are detailed in R.S. 11:1549, R.S. 11:246, and R.S. 11:241. The first listed statute allows the board to grant annual cost of living increases of 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 that cost of living benefits shall be in the form (unless the board otherwise specifies) of  $\$X \times (A+B)$  where X is at most \$1 and "A" represents the number of years of credited service accrued at retirement or at death of the member or retiree and "B" is equal to the number of years since retirement or since death of the member or retiree to June 30<sup>th</sup> of the initial year of such increase. The provisions of this subpart do not repeal provisions relative to cost of living adjustments contained within the individual laws governing systems; however, they are to be controlling in cases of conflict.

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 last such increase. 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.

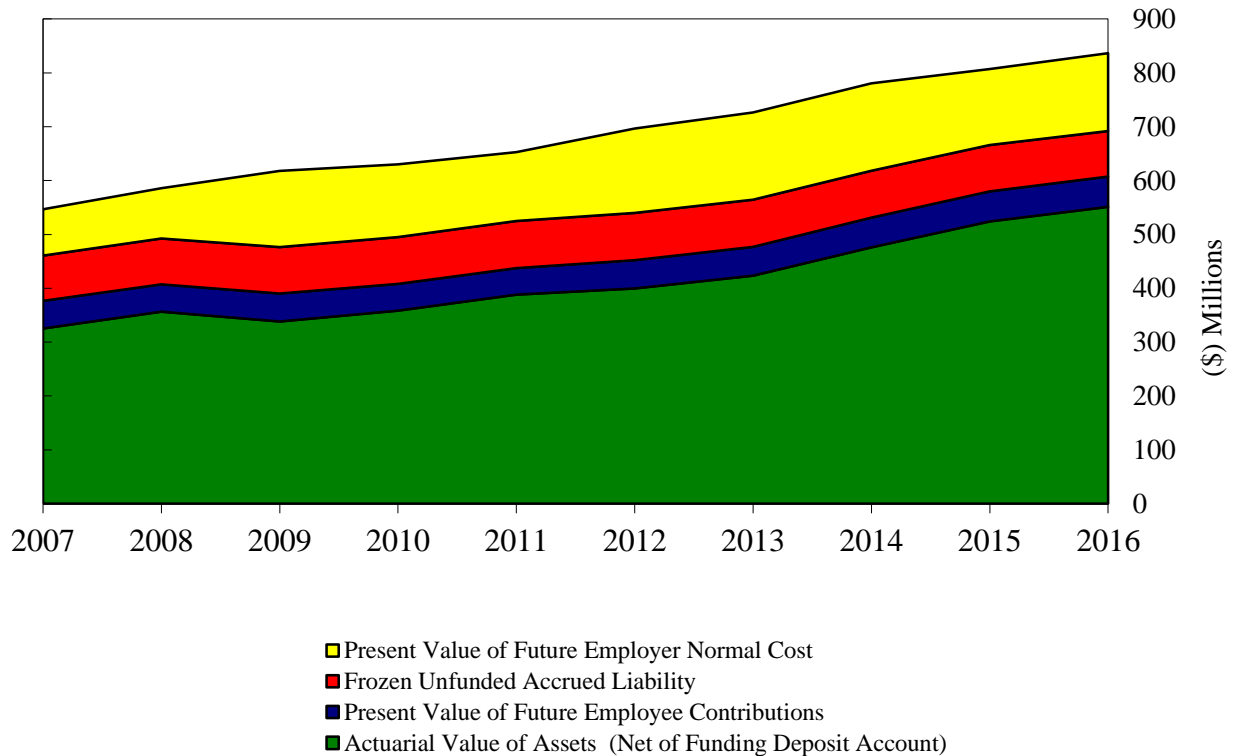
R.S. 11:243 sets forth the funding criteria necessary in order to grant cost of living adjustments to regular retirees and beneficiaries (who are neither the surviving spouse nor children of the retiree.) The criteria for the fund to qualify as eligible to grant any such increase is as follows: a funded 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 level of the CPI-U at the end of the current fiscal year is not 3% higher than the fiscal year in which the most recent cost of living increase was granted, the board is precluded from granting a COLA pursuant to R.S. 11:1549. Notwithstanding the fact that the system is precluded from granting a COLA pursuant to R. S. 11:1549, sufficient investment earnings were earned to qualify under the provisions of R.S. 11:246. However, the plan fails to qualify under the requirement of R.S. 11:243 since the plan's funded ratio for COLA purposes is 80.34% (i.e. the actuarial value of assets divided by the pension benefit obligation) and the fund granted a benefit increase to retirees, survivors, and beneficiaries of the fund during Fiscal 2014.

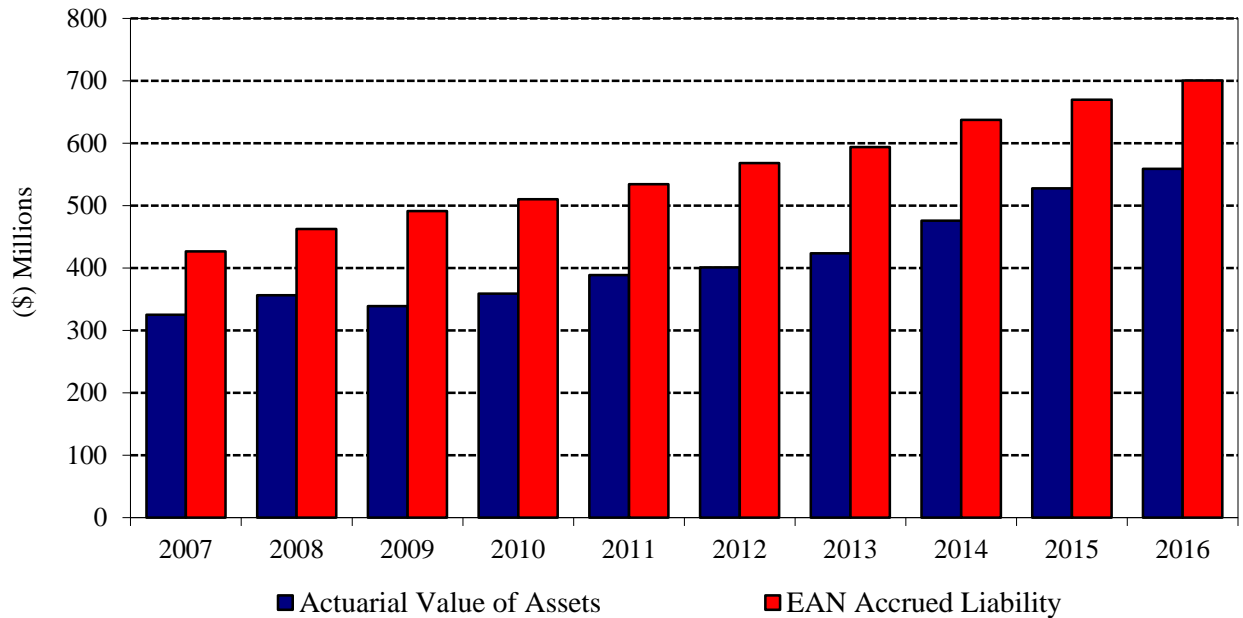
## Components of Present Value of Future Benefits June 30, 2016



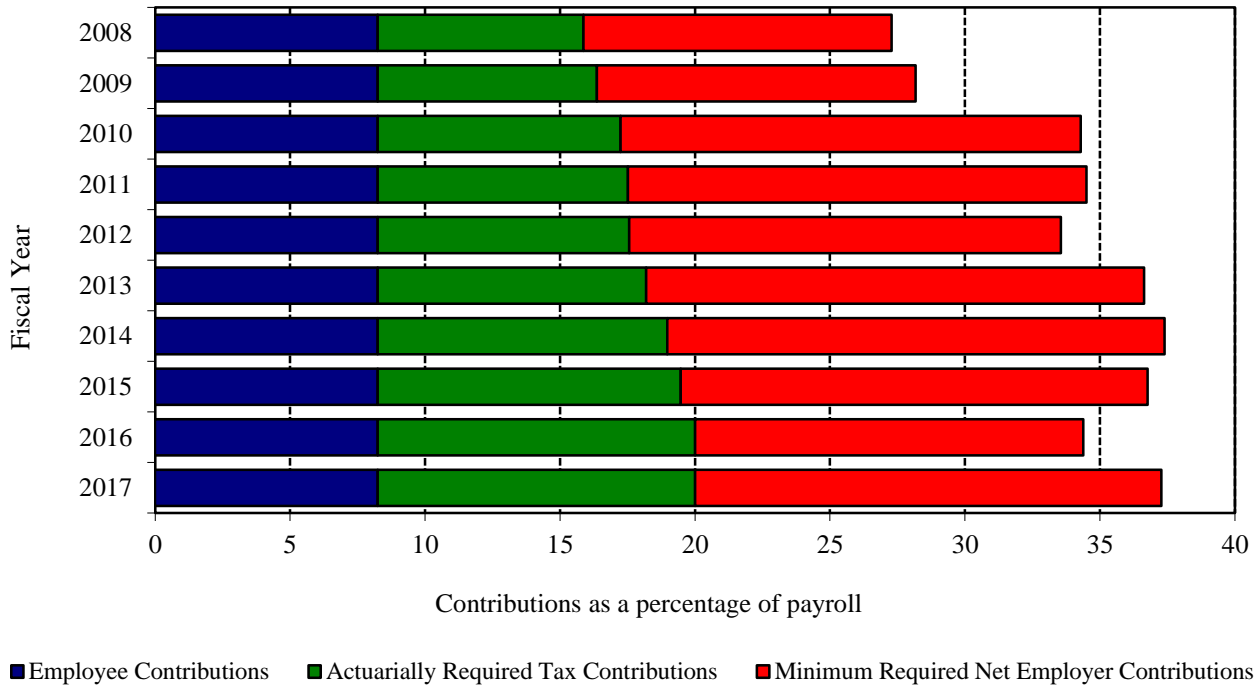
## Components of Present Value of Future Benefits



# Actuarial Value of Assets vs. EAN Accrued Liability



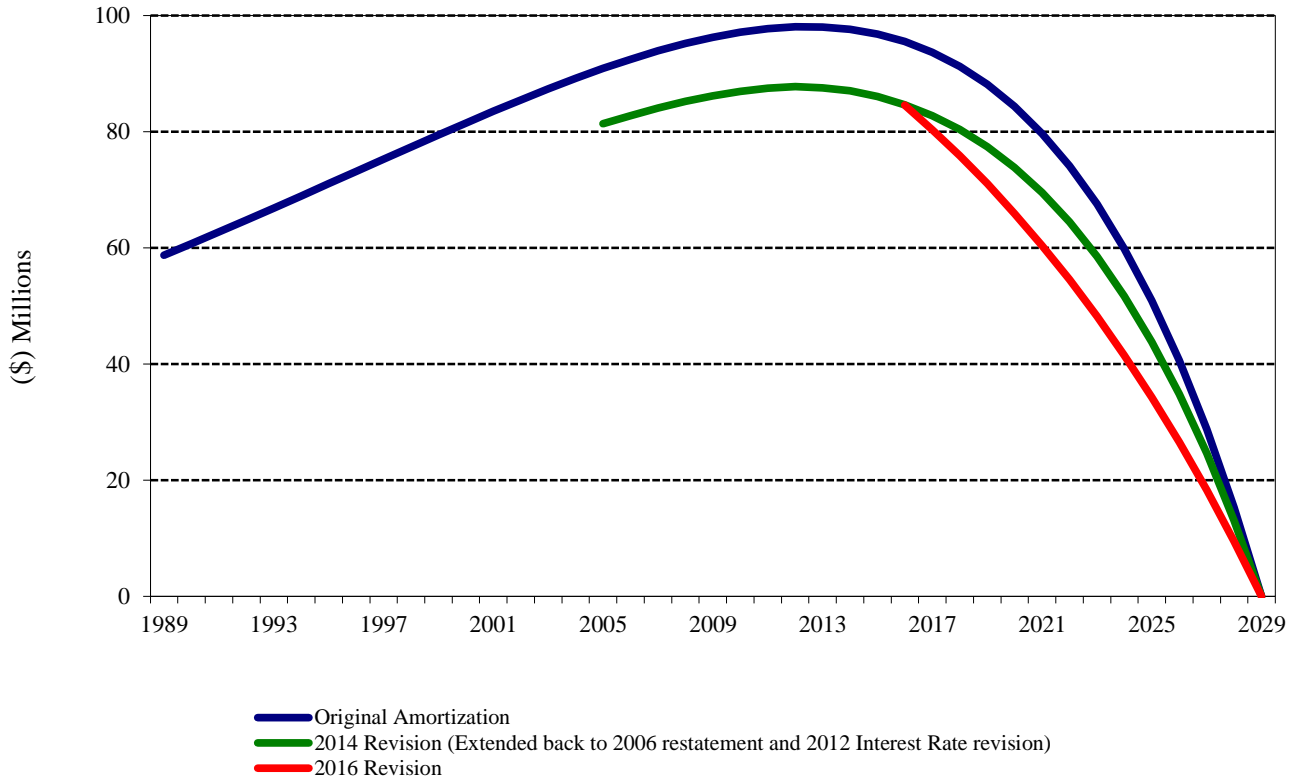
## Components of Actuarial Funding



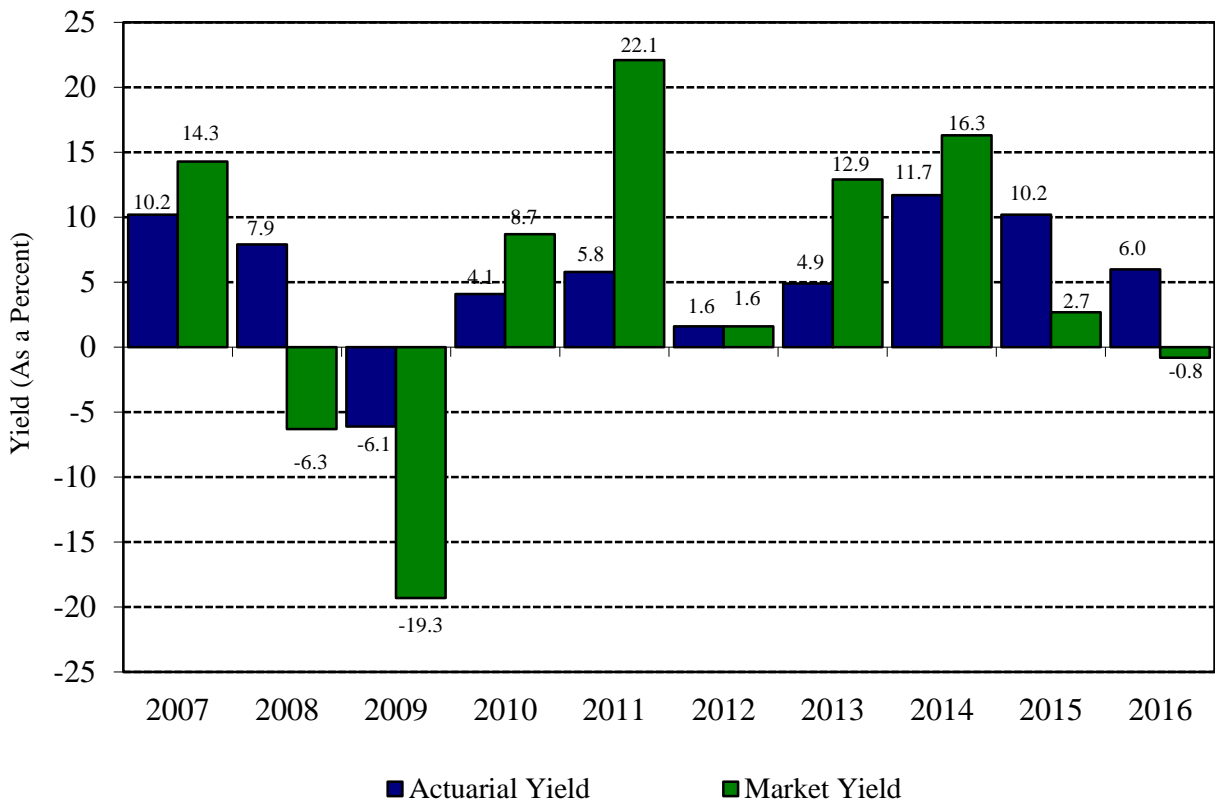
Actuarially Required Tax Contributions consist of the lesser of Actuarially Required Contributions and amount of taxes divided by the projected valuation payroll.



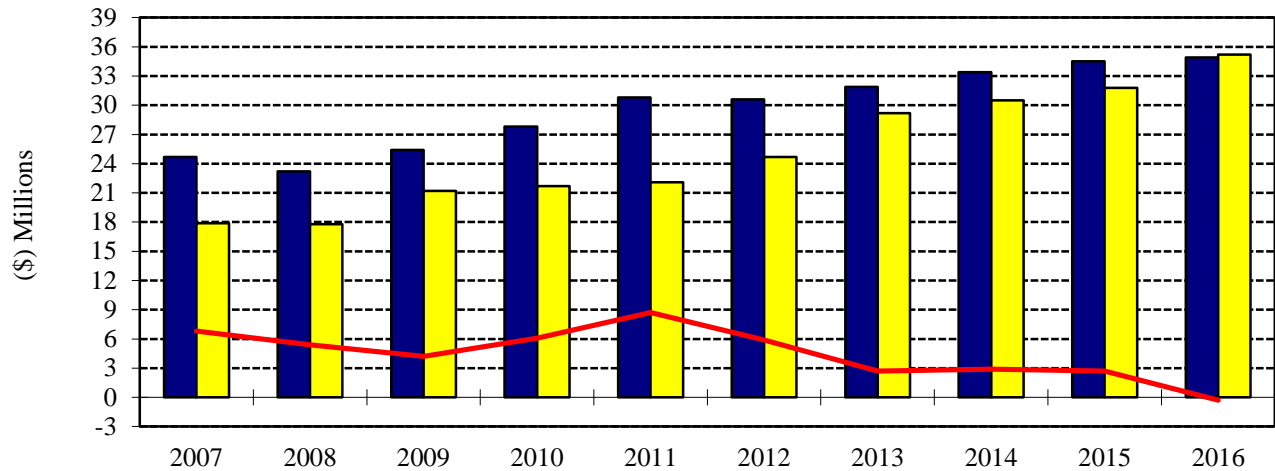
# Frozen Unfunded Actuarial Accrued Liability



# Historical Asset Yields

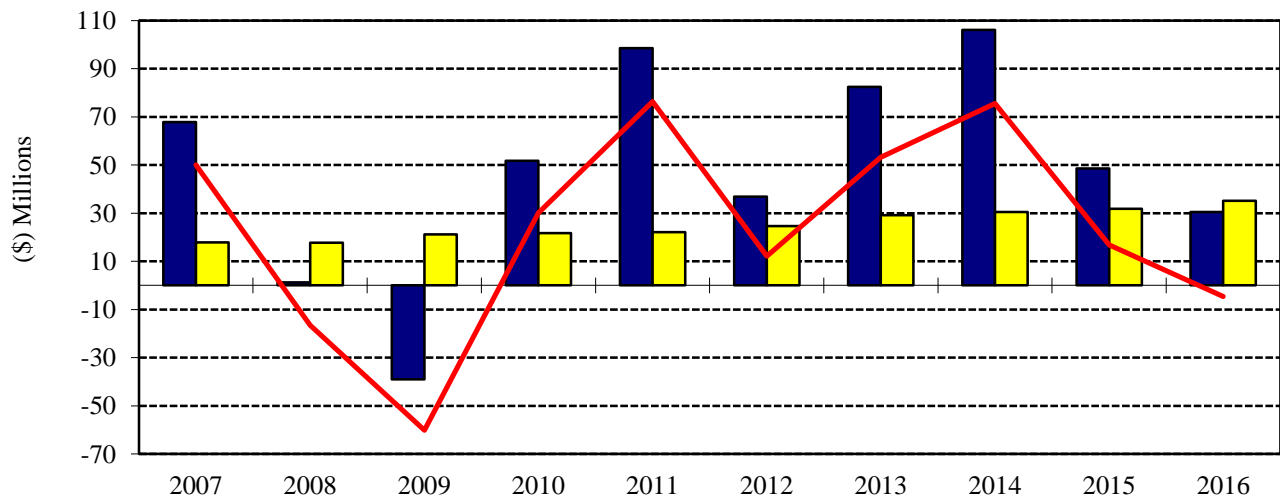


## Net Non-Investment Income



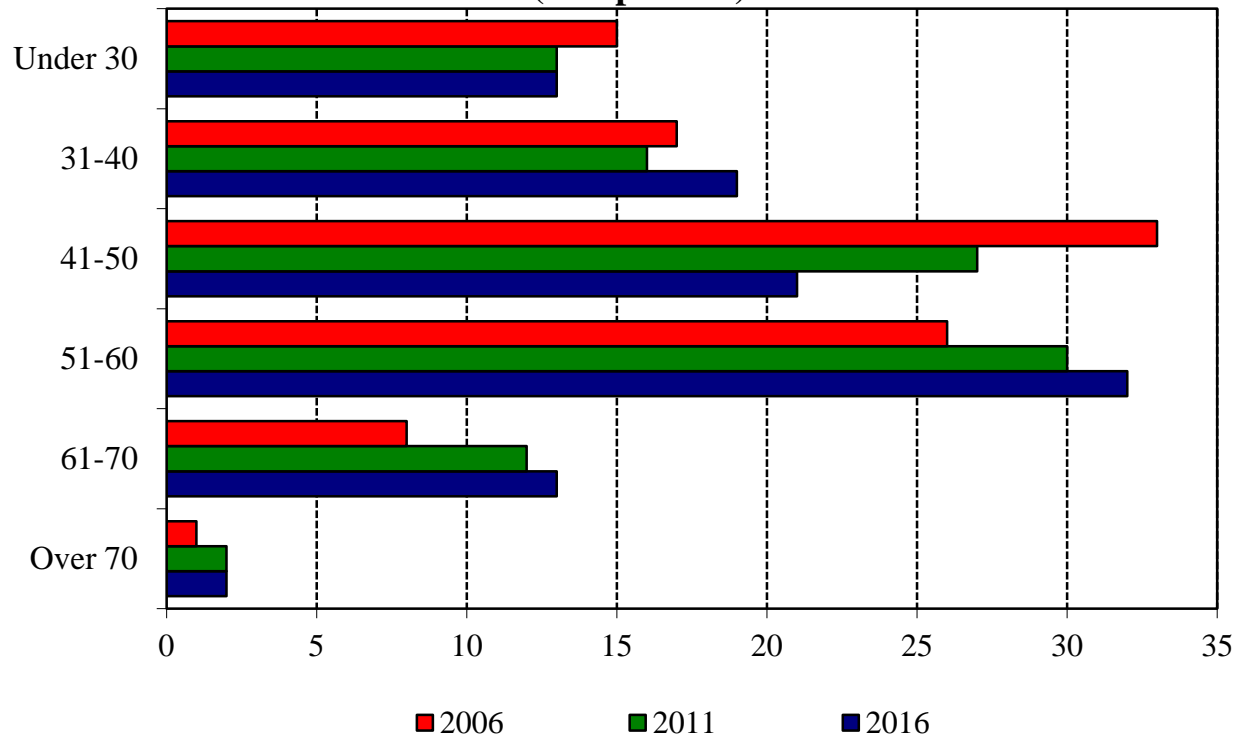
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Non-Investment Income (\$Mil) <span style="color: blue;">■</span>	24.7	23.2	25.4	27.8	30.8	30.6	31.9	33.4	34.5	34.9
Benefits and Expenses (\$Mil) <span style="color: yellow;">■</span>	17.9	17.8	21.2	21.7	22.1	24.7	29.2	30.5	31.8	35.2
Net Non-Investment Income (\$Mil) <span style="color: red;">—</span>	6.8	5.4	4.2	6.1	8.7	5.9	2.7	2.9	2.7	-0.3

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

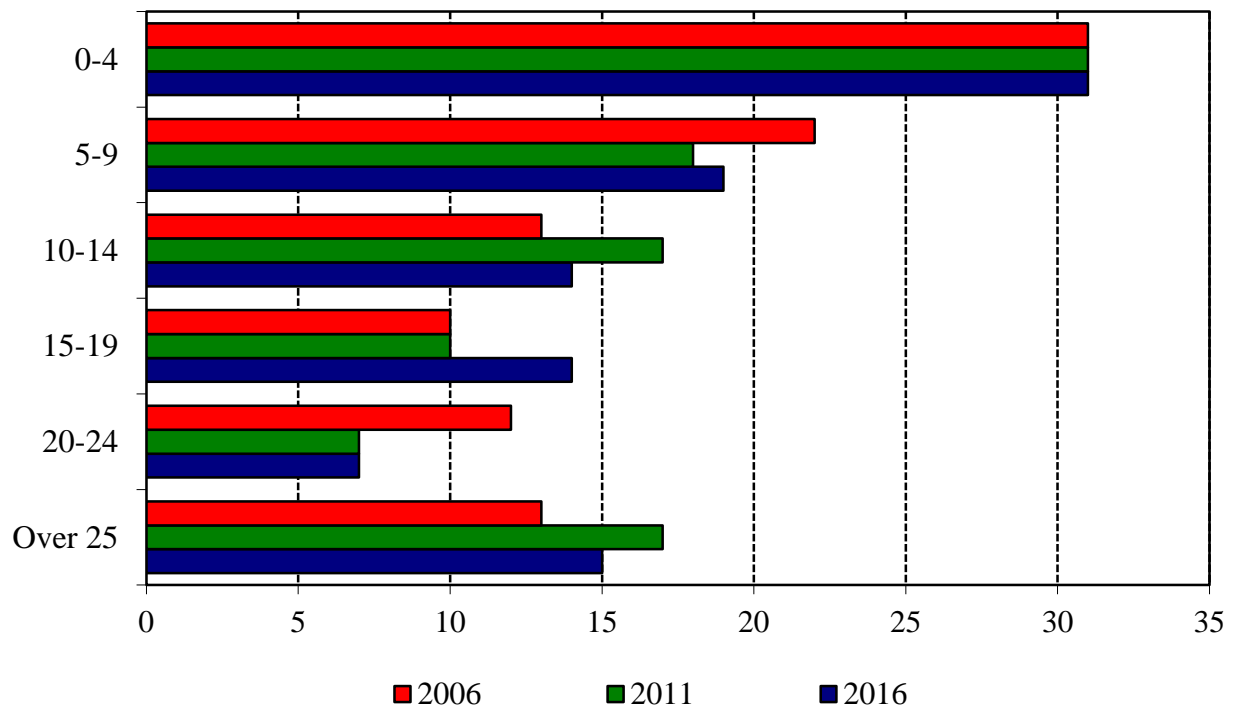


	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Income (\$Mil) <span style="color: blue;">■</span>	67.9	1.2	-39.0	51.8	98.5	36.9	82.4	106.1	48.6	30.6
Benefits and Expenses (\$Mil) <span style="color: yellow;">■</span>	17.9	17.8	21.2	21.7	22.1	24.7	29.2	30.5	31.8	35.2
Net Change in MVA (\$Mil) <span style="color: red;">—</span>	50.0	-16.6	-60.2	30.1	76.4	12.2	53.2	75.6	16.8	-4.6

## 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.....	\$	836,522,878
2. Funding Deposit Account Credit Balance .....	\$	7,741,426
3. Unfunded Actuarial Accrued Liability .....	\$	84,560,331
4. Actuarial Value of Assets .....	\$	558,910,784
5. Present Value of Future Employee Contributions .....	\$	56,237,290
6. Present Value of Future Employer Normal Costs (1 + 2 – 3 – 4 – 5) .....	\$	144,555,899
7. Present Value of Future Salaries.....	\$	791,300,003
8. Employer Normal Cost Accrual Rate (6 ÷ 7) .....		18.268153%
9. Projected Fiscal 2017 Salary for Current Membership .....	\$	86,558,094
10. Employer Normal Cost as of July 1, 2016 (8 × 9).....	\$	15,812,565
11. Employer Normal Cost Interest Adjusted for Mid-year Payment .....	\$	16,356,644
12. Amortization Payment on Remaining Frozen Unfunded Accrued Liability with Level Annual Payments.....	\$	9,455,809
13. Amortization Payment Interest Adjust for Mid-year Payment.....	\$	9,781,165
14. TOTAL Employer Normal Cost and Amortization Payment (11 + 13).....	\$	26,137,809
15. Estimated Administrative Cost for Fiscal 2017.....	\$	583,421
16. GROSS Employer Actuarially Required Contribution for Fiscal 2017 (14 + 15) .....	\$	26,721,230
17. Projected Ad Valorem Tax Contributions for Fiscal 2017 .....	\$	10,506,801
18. Projected Revenue Sharing Funds for Fiscal 2017.....	\$	319,508
19. Net Direct Employer Actuarially Required Contribution for Fiscal 2017 (16 – 17 – 18) .....	\$	15,894,921
20. Projected Payroll for Fiscal 2017 .....	\$	92,056,455
21. Employers' Minimum Net Direct Actuarially Required Contribution as a % of Projected Payroll for Fiscal 2017 (19 ÷ 20).....		17.27%
22. Employer Contribution Rate for Fiscal 2017.....		19.00%
23. Adjustment for Anticipated Reduction in the Rate of Ad Valorem Taxes Payable from Orleans Parish in 2018 .....		0.25%
24. Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2018 (21 + 23, Rounded to nearest 0.25%) .....		17.50%

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

PRESENT VALUE OF FUTURE BENEFITS FOR ACTIVE MEMBERS:

Retirement Benefits .....	\$ 470,351,252
Survivor Benefits.....	5,275,612
Disability Benefits .....	4,499,953
Vested Termination Benefits.....	20,788,635
Refunds of Contributions .....	5,666,845

TOTAL Present Value of Future Benefits for Active Members..... \$ 506,582,297

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement.....	\$ 13,733,761
Terminated Members with Reciprocals	
Due Benefits at Retirement .....	26,238
Terminated Members Due a Refund .....	2,210,787

TOTAL Present Value of Future Benefits for Terminated Members..... \$ 15,970,786

PRESENT VALUE OF FUTURE BENEFITS FOR RETIREES:

Regular Retirees	
Maximum.....	\$ 153,221,449
Option 1 .....	0
Option 2 .....	82,491,763
Option 3 .....	38,444,110
Option 4 .....	6,698,941
Option 5 .....	1,060,852

TOTAL Regular Retirees..... \$ 281,917,115

Disability Retirees..... 3,584,165

Survivors & Widows..... 16,892,114

DROP Account Balances Payable to Retirees ..... 11,576,401

TOTAL Present Value of Future Benefits for Retirees & Survivors..... \$ 313,969,795

TOTAL Present Value of Future Benefits..... \$ 836,522,878

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

CURRENT ASSETS:

Cash in Banks .....	\$ 9,339,731
Contributions and Taxes Receivable.....	1,790,948
Accrued Interest and Dividends.....	81,721
Investments Receivable .....	1,200,584
Other Income .....	2,017

TOTAL CURRENT ASSETS..... \$ 12,415,001

Property Plant & Equipment..... \$ 810,799

INVESTMENTS:

Equities .....	\$ 271,831,874
Alternative Investments .....	69,244,882
Fixed Income .....	72,780,758
Real Estate .....	53,284,848
Tactical Allocation.....	24,671,511
DROP Balances Held Outside System Assets .....	22,196,734
Cash Equivalents.....	5,403,865

TOTAL INVESTMENTS..... \$ 519,414,472

TOTAL ASSETS .....

\$ 532,640,272

CURRENT LIABILITIES:

Accounts Payable .....	\$ 491,776
Investments Payable.....	765,232
Other Current Liabilities .....	162,270

TOTAL CURRENT LIABILITIES .....

\$ 1,419,278

MARKET VALUE OF ASSETS..... \$ 531,220,994

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

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

Fiscal year 2016.....	\$ (41,858,104)
Fiscal year 2015.....	(23,557,336)
Fiscal year 2014.....	39,256,798
Fiscal year 2013.....	21,141,882
Fiscal year 2012.....	<u>(24,236,117)</u>
Total for five years .....	\$ (29,252,877)

Deferral of excess (shortfall) of invested income:

Fiscal year 2016 (80%).....	\$ (33,486,483)
Fiscal year 2015 (60%).....	(14,134,402)
Fiscal year 2014 (40%).....	15,702,719
Fiscal year 2013 (20%).....	4,228,376
Fiscal year 2012 ( 0%).....	<u>0</u>
Total deferred for year .....	\$ (27,689,790)

Market value of plan net assets, end of year..... \$ 531,220,994

Preliminary actuarial value of plan assets, end of year ..... \$ 558,910,784

Actuarial value of assets corridor

85% of market value, end of year.....	\$ 451,537,845
115% of market value, end of year.....	\$ 610,904,143

Final actuarial value of plan net assets, end of year ..... \$ 558,910,784



**EXHIBIT IV**  
**PRESENT VALUE OF FUTURE CONTRIBUTIONS**

Employee Contributions to the Annuity Savings Fund .....	\$ 56,237,290
Employer Normal Contributions to the Pension Accumulation Fund.....	144,555,899
Employer Amortization Payments to the Pension Accumulation Fund .....	84,560,331
Funding Deposit Account Credit Balance .....	(7,741,426)
<b>TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS .....</b>	<b>\$ 277,612,094</b>

**EXHIBIT V**  
**CHANGE IN FROZEN UNFUNDED ACTUARIAL ACCRUED LIABILITY**

Prior Year Frozen Unfunded Accrued Liability .....	\$ 86,060,294
Interest on Frozen Unfunded Accrued Liability .....	\$ 6,024,221
<b>TOTAL Increase in Unfunded Accrued Liability .....</b>	<b>\$ 6,024,221</b>
Amortization Payment on Unfunded Accrued Liability.....	\$ 7,031,947
Interest on Amortization Payment .....	492,237
Withdraw From Funding Deposit Account .....	0
<b>TOTAL Decrease in Unfunded Accrued Liability .....</b>	<b>\$ 7,524,184</b>
<b>NET Change in Frozen Unfunded Accrued Liability.....</b>	<b>\$ (1,499,963)</b>
<b>CURRENT YEAR FROZEN UNFUNDED ACCRUED LIABILITY .....</b>	<b>\$ 84,560,331</b>

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

Actuarial Value of Assets (June 30, 2015) .....	\$ 527,535,949
<b>INCOME:</b>	
Member Contributions .....	\$ 6,907,304
Employer Contributions .....	17,325,010
Irregular Contributions .....	186,934
Tax Revenue .....	10,489,546
<b>Total Contributions</b> .....	<b>\$ 34,908,794</b>
Net Depreciation of Investments .....	\$ (9,953,624)
Interest & Dividends .....	8,349,372
Investment Expense .....	(2,753,552)
<b>Net Investment Income</b> .....	<b>\$ (4,357,804)</b>
<b>TOTAL Income</b> .....	<b>\$ 30,550,990</b>
<b>EXPENSES:</b>	
Retirement Benefits .....	\$ 29,553,665
DROP Disbursements .....	3,478,740
Refunds of Contributions .....	1,068,211
Transfers to Other Systems .....	513,941
Administrative Expenses .....	569,128
<b>TOTAL Expenses</b> .....	<b>\$ 35,183,685</b>
<b>Net Market Value Income for Fiscal 2016 (Income – Expenses)</b> .....	<b>\$ (4,632,695)</b>
<b>Unadjusted Fund Balance as of June 30, 2016</b> <b>(Fund Balance Previous Year + Net Income)</b> .....	<b>\$ 522,903,254</b>
<b>Adjustment for Actuarial Smoothing</b> .....	<b>\$ 36,007,530</b>
<b>Actuarial Value of Assets: (June 30, 2016)</b> .....	<b>\$ 558,910,784</b>

**EXHIBIT VII  
FUNDING DEPOSIT ACCOUNT**

Funding Deposit Account Balance as of June 30, 2015 .....	\$ 3,449,340
Contributions to the Funding Deposit Account .....	4,050,632
Withdrawals from the Funding Deposit Account .....	0
Interest on Opening Balance at 7.00% .....	241,454
Funding Deposit Account Balance as of June 30, 2016 .....	\$ 7,741,426

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

Present Value of Credited Projected Benefits Payable to Current Employees.....	\$ 365,708,511
Present Value of Benefits Payable to Terminated Employees .....	15,970,786
Present Value of Benefits Payable to Current Retirees and Beneficiaries .....	313,969,795
TOTAL PENSION BENEFIT OBLIGATION .....	\$ 695,649,092
NET ACTUARIAL VALUE OF ASSETS .....	\$ 558,910,784
Ratio of Net Actuarial Value of Assets to Pension Benefit Obligation.....	80.34%

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

Accrued Liability for Active Employees .....	\$ 370,319,977
Accrued Liability for Terminated Employees .....	15,970,786
Accrued Liability for Current Retirees and Beneficiaries .....	313,969,795
TOTAL ENTRY AGE NORMAL ACCRUED LIABILITY .....	\$ 700,260,558
ACTUARIAL VALUE OF ASSETS .....	\$ 558,910,784
Ratio of Net Actuarial Value of Assets to Entry Age Normal Accrued Liability .....	79.81%

**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, 2015	2,099	549	135	1,173	3,956
Additions to Census					
Initial membership	179	15			194
Omitted in error last year					
Death of another member				7	7
Adjustment for multiple records					
Change in Status during Year					
Actives terminating service	(68)	68			
Actives who retired	(53)			53	
Actives entering DROP	(56)		56		
Term. members rehired	8	(8)			
Term. members who retire		(6)		6	
Retirees who are rehired					
Refunded who are rehired	9	1			10
DROP participants retiring			(27)	27	
DROP returned to work	12		(12)		
Omitted in error last year					
Eliminated from Census					
Refund of contributions	(74)	(38)			(112)
Deaths				(31)	(31)
Included in error last year					
Adjustment for multiple records					
Number of members as of June 30, 2016	2,056	581	152	1,235	4,024

ACTIVES CENSUS BY AGE:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
16 - 20	1	7	8	20,979	167,835
21 - 25	15	78	93	22,769	2,117,513
26 - 30	27	164	191	27,642	5,279,545
31 - 35	30	180	210	31,340	6,581,336
36 - 40	33	186	219	37,327	8,174,538
41 - 45	22	166	188	40,118	7,542,182
46 - 50	41	226	267	40,705	10,868,193
51 - 55	48	339	387	45,685	17,680,151
56 - 60	41	271	312	47,846	14,927,805
61 - 65	38	153	191	49,710	9,494,552
66 - 70	20	71	91	48,521	4,415,398
71 - 75	14	26	40	57,637	2,305,492
76 - 80	3	7	10	72,772	727,720
86 - 90	0	1	1	41,429	41,429
TOTAL	333	1,875	2,208	40,907	90,323,689

THE ACTIVE CENSUS INCLUDES 979 ACTIVES WITH VESTED BENEFITS, INCLUDING 152 DROP PARTICIPANTS AND 84 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	6	6	13,688	82,129
41 - 45	0	8	8	15,656	125,245
46 - 50	6	21	27	18,780	507,067
51 - 55	5	33	38	21,125	802,754
56 - 60	0	1	1	27,568	27,568
71 - 75	0	1	1	2,970	2,970
TOTAL	11	70	81	19,108	1,547,733

TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

Contributions Ranging From To	Number	Total Contributions
0 - 99	59	2,309
100 - 499	96	27,829
500 - 999	64	47,629
1000 - 1999	66	94,166
2000 - 4999	79	249,378
5000 - 9999	65	477,278
10000 - 19999	48	653,117
20000 - 99999	23	659,081
TOTAL	500	2,210,787

## REGULAR RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
51 - 55	1	8	9	35,840	322,561
56 - 60	18	145	163	31,921	5,203,120
61 - 65	24	198	222	28,966	6,430,557
66 - 70	33	188	221	25,915	5,727,257
71 - 75	39	147	186	25,072	4,663,389
76 - 80	19	108	127	20,439	2,595,809
81 - 85	27	73	100	18,354	1,835,370
86 - 90	7	46	53	18,253	967,412
91 - 99	1	16	17	24,576	417,795
TOTAL	169	929	1,098	25,650	28,163,270

## DISABILITY RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
46 - 50	0	4	4	17,785	71,140
51 - 55	3	6	9	20,224	182,018
56 - 60	0	2	2	11,446	22,891
61 - 65	0	1	1	7,842	7,842
66 - 70	0	1	1	7,571	7,571
71 - 75	0	1	1	9,164	9,164
TOTAL	3	15	18	16,701	300,626

## SURVIVORS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
0 - 25	1	0	1	4,176	4,176
26 - 30	1	0	1	4,176	4,176
31 - 35	0	1	1	18,202	18,202
36 - 40	0	1	1	10,120	10,120
41 - 45	1	0	1	6,523	6,523
46 - 50	2	1	3	7,107	21,320
51 - 55	3	2	5	10,730	53,649
56 - 60	1	2	3	28,439	85,316
61 - 65	6	6	12	23,761	285,129
66 - 70	7	2	9	24,652	221,867
71 - 75	7	8	15	20,540	308,097
76 - 80	5	13	18	14,039	252,704
81 - 85	6	14	20	21,053	421,058
86 - 90	3	16	19	22,446	426,468
91 - 99	3	7	10	14,487	144,865
TOTAL	46	73	119	19,022	2,263,670

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	7	1													8
21 - 25	31	33	13	8	6	2									93
26 - 30	39	31	24	23	23	46	5								191
31 - 35	19	25	21	18	14	78	33	2							210
36 - 40	17	16	8	11	16	48	52	47	4						219
41 - 45	14	15	6	9	4	39	25	46	27	3					188
46 - 50	17	6	10	14	10	58	53	45	34	18	2				267
51 - 55	13	14	16	15	10	50	43	59	36	41	90				387
56 - 60	7	15	11	14	7	46	42	48	22	34	66				312
61 - 65	6	4	7	4	8	34	35	32	16	12	33				191
66 - 70	3	6	1	1	1	15	17	16	9	9	13				91
71 & Over	1	1	1	1	1	9	9	6	6	2	14				51
Totals	174	167	118	118	100	425	314	301	154	119	218				2,208

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	21,126	19,950														20,979
21 - 25	24,140	21,674	22,165	23,033	22,863	22,179										22,769
26 - 30	25,986	25,594	26,298	27,632	27,838	30,019	36,970									27,642
31 - 35	28,085	25,067	30,804	31,701	26,509	32,773	36,734	31,945								31,340
36 - 40	28,215	26,506	29,166	26,478	36,228	36,665	39,365	45,902	50,559							37,327
41 - 45	31,360	29,261	24,404	27,410	26,324	32,453	44,757	49,444	46,251	86,007						40,118
46 - 50	33,472	27,917	36,705	37,706	30,494	31,861	43,568	42,868	47,980	60,410	63,502					40,705
51 - 55	36,322	28,357	29,273	42,392	60,092	35,740	40,807	43,958	49,190	54,211	55,301					45,685
56 - 60	31,036	29,753	32,251	41,060	50,009	36,623	41,443	47,631	53,224	61,598	60,723					47,846
61 - 65	30,903	29,316	30,147	29,103	29,727	37,926	51,949	44,736	54,494	63,280	74,428					49,710
66 - 70	30,059	23,144	22,422	32,248	25,524	35,685	42,429	39,217	56,538	69,114	83,943					48,521
71 & Over	95,253	31,500	34,195	70,000	26,340	34,804	58,210	38,541	57,495	108,282	84,818					60,287
Average	28,685	25,849	28,845	32,929	33,791	34,035	42,773	45,166	50,324	61,011	63,517					40,907

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								6				6
41 - 45							8					8
46 - 50						27						27
51 - 55	6	9	10	10	3							38
56 - 60	1											1
61 - 65												0
66 - 70												0
71 - 75	1											1
76 & Over												0
Totals	8	9	10	10	3	27	8	6	0	0	0	81

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								13,688				13,688
41 - 45							15,656					15,656
46 - 50						18,780						18,780
51 - 55	17,860	22,017	19,848	22,230	25,555							21,125
56 - 60	27,568											27,568
61 - 65												0
66 - 70												0
71 - 75			2,970									2,970
76 & Over												0
Average	17,212	22,017	19,848	22,230	25,555	18,780	15,656	13,688	0	0	0	19,108



SERVICE RETIREES:

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 - 50												0
51 - 55	8	43	37	22	20	10	1					9
56 - 60	29	18	19	26	23	107	2					163
61 - 65	16	10	11	15	15	61	13					222
66 - 70	21	6	6	14	6	45	83	5				221
71 - 75	6	1	2	4	6	15	39	58	4	1	1	186
76 - 80		2	2	3		8	27	43	27	7	1	127
81 - 85		2	1	3		15	15	21	12	33	5	100
86 - 90	1			1		3		12	6	9	21	53
91 & Over				1			1	1	1	5	8	17
Totals	81	80	76	86	64	249	181	140	50	55	36	1,098

AVERAGE ANNUAL BENEFITS PAYABLE TO SERVICE RETIREES:

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 - 50												0
51 - 55	38,172	30,393	33,563	25,412	30,999	24,331	17,188					35,840
56 - 60	41,222	24,595	35,477	34,388	27,685	28,476	18,313					31,921
61 - 65	29,594	20,853	23,409	28,416	28,402	25,057	20,189					28,966
66 - 70	30,068	24,788	20,266	41,479	50,333	24,930	25,494	26,612				25,915
71 - 75	41,303	116,211	20,043	26,569		27,714	22,502	20,369	17,639	1,104	10,045	25,072
76 - 80		12,229	17,371	57,193		15,770	21,578	16,855	16,737	20,908	5,901	20,439
81 - 85				24,906		39,505	17,047	17,051	19,821	17,052	16,292	18,354
86 - 90	57,463			118,339			8,119	19,614	10,811	19,156	13,995	18,253
91 & Over								59,376	22,148	18,712	14,532	24,576
Average	35,938	28,094	31,032	33,502	31,012	26,510	22,963	19,229	16,946	17,748	14,099	25,650

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 - 45												0
46 - 50	2		1			1						4
51 - 55	3	1		1	1	2	1					9
56 - 60						1	1					2
61 - 65									1			1
66 - 70									1			1
71 - 75							1					1
76 & Over												0
Totals	5	1	1	1	1	4	3	0	2	0	0	18

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 - 45												0
46 - 50	23,237		11,729			12,936						17,785
51 - 55	18,461	38,448		28,414	9,824	21,510	6,931					20,224
56 - 60						10,844	12,047					11,446
61 - 65									7,842			7,842
66 - 70									7,571			7,571
71 - 75							9,164					9,164
76 & Over												0
Average	20,371	38,448	11,729	28,414	9,824	16,700	9,381	0	7,706	0	0	16,701

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												0
21 - 25							1					1
26 - 30							1					1
31 - 35							1					1
36 - 40						1						1
41 - 45			1									1
46 - 50							1					1
51 - 55						2	1	1				3
56 - 60		1	1				1	1				5
61 - 65		1	1			1	3	2	1			3
66 - 70						3	4	2	2			12
71 - 75		2	1			2	5	2	2			9
76 - 80					2	2	4	5	2	1	1	15
81 - 85						1	2	3	4	4	5	18
86 - 90							2	6	5	2	6	19
91 & Over								1		3	6	10
Totals	0	4	4	7	2	12	23	21	16	10	20	119

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												0
21 - 25							4,176					4,176
26 - 30							4,176					4,176
31 - 35							18,202					18,202
36 - 40						10,120						10,120
41 - 45			6,523									6,523
46 - 50							12,160	3,160				7,107
51 - 55						18,932	6,624	3,160				10,730
56 - 60		74,902	6,143						4,271			28,438
61 - 65		18,872	3,952						14,897			23,761
66 - 70						16,992	23,995	18,925				24,652
71 - 75		18,887	30,000			35,046	19,154	25,871	9,365		2,487	20,540
76 - 80					7,769	40,985	17,079	13,481	22,167	1,421	13,515	14,039
81 - 85						25,534	11,477	20,172	21,345	11,288	12,310	21,053
86 - 90						77,193	12,167	37,097	13,277	15,161	17,863	22,446
91 & Over								8,020		18,040	13,787	14,487
Average	0	32,887	11,654	32,104	7,769	31,696	15,199	21,640	15,556	13,102	14,048	19,022

## EXHIBIT X YEAR-TO-YEAR COMPARISON

	Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013
Number of Active Members	2,208	2,234	2,219	2,248
Number of Retirees & Survivors	1,235	1,173	1,108	1,064
Number of Terminated Due Deferred Benefits	81	78	88	97
Number Terminated Due Refunds	500	471	444	410
Active Lives Payroll	\$ 90,323,689	\$ 89,814,463	\$ 88,522,141	\$ 86,935,230
Retiree Benefits in Payment	\$ 30,727,570	\$ 28,162,472	\$ 26,301,025	\$ 23,983,008
Market Value of Assets	\$ 531,220,994	\$ 535,853,689	\$ 518,993,448	\$ 443,430,781
Entry Age Normal Accrued Liability	\$ 700,260,558	\$ 669,774,954	\$ 637,131,442	\$ 593,967,044
Ratio of AVA to EAN Accrued Liability	79.81%	78.76%	74.70%	71.28%
Actuarial Value of Assets	\$ 558,910,784	\$ 527,535,949	\$ 475,945,220	\$ 423,354,992
Frozen Unfunded Actuarial Accrued Liability	\$ 84,560,331	\$ 86,060,294	\$ 87,052,600	\$ 87,579,997
Present Value of Future Employer Normal Cost	\$ 144,555,899	\$ 141,097,058	\$ 162,356,479	\$ 161,988,761
Present Value of Future Employee Contrib.	\$ 56,237,290	\$ 55,853,464	\$ 55,197,088	\$ 53,537,913
Funding Deposit Account Balance	\$ 7,741,426	\$ 3,449,340	\$ 1,739,546	\$ 1,618,182
Present Value of Future Benefits	\$ 836,522,878	\$ 807,097,425	\$ 778,811,841	\$ 724,843,481
	Fiscal 2017	Fiscal 2016	Fiscal 2015	Fiscal 2014
Employee Contribution Rate	8.25%	8.25%	8.25%	8.25%
Estimated Tax Contribution as a % of Payroll	11.76%	11.76%	11.22%	10.72%
Actuarially Required Net Direct Employer Contribution Rate	17.27%	14.37%	17.30%	18.43%
Actual Employer Contribution Rate	19.00%	19.00%	19.00%	18.50%

Fiscal 2012	Fiscal 2011	Fiscal 2010	Fiscal 2009	Fiscal 2008	Fiscal 2007
2,269	2,326	2,330	2,371	2,408	2,364
1,000	975	929	894	849	825
92	88	97	101	101	102
387	372	360	338	303	266
\$ 87,238,557	\$ 87,403,148	\$ 86,484,686	\$ 85,840,893	\$ 83,637,009	\$ 78,384,249
\$ 21,372,677	\$ 19,981,482	\$ 18,640,843	\$ 17,431,083	\$ 15,861,293	\$ 15,032,502
\$ 390,272,342	\$ 378,083,955	\$ 301,692,473	\$ 271,624,094	\$ 331,865,504	\$ 348,448,803
\$ 568,108,691	\$ 534,191,730	\$ 510,100,152	\$ 491,201,447	\$ 462,678,491	\$ 426,870,491
70.61%	72.77%	70.37%	68.96%	77.05%	76.20%
\$ 401,136,469	\$ 388,757,787	\$ 358,981,529	\$ 338,755,452	\$ 356,502,864	\$ 325,278,452
\$ 87,771,278	\$ 87,493,460	\$ 86,953,999	\$ 86,185,073	\$ 85,215,896	\$ 84,072,966
\$ 156,709,315	\$ 127,887,962	\$ 135,032,044	\$ 141,512,187	\$ 93,305,942	\$ 85,994,867
\$ 52,501,678	\$ 49,250,744	\$ 49,677,464	\$ 51,983,870	\$ 50,730,673	\$ 51,293,939
\$ 1,505,286	\$ 603,658	\$ 558,943	\$ 517,540	\$ 0	\$ 0
\$ 696,613,454	\$ 652,786,295	\$ 630,086,093	\$ 617,919,042	\$ 585,755,375	\$ 546,640,224

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Fiscal 2013	Fiscal 2012	Fiscal 2011	Fiscal 2010	Fiscal 2009	Fiscal 2008
8.25%	8.25%	8.25%	8.25%	8.25%	8.25%
9.94%	9.31%	9.27%	8.99%	8.12%	7.62%
18.45%	16.21%	16.98%	17.05%	11.80%	11.41%
17.25%	17.25%	17.25%	14.75%	11.75%	11.75%

## **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 employee contributions of 8.25 % of earnable compensation. 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 granting the above cost of living increases, the board of trustees may grant a cost of living increase in the form of  $\$X \times (A+B)$ . In this formula, X is any amount up to one dollar per month. "A" represents the number of years of credited service at



retirement or death, and “B” is equal to the number of years since retirement or since death of the member or retiree through June 30<sup>th</sup> of the initial year of such increase.

## ACTUARIAL ASSUMPTIONS

In determining actuarial costs, certain assumptions must be made regarding future experience under the plan. These assumptions include the rate of investment return, mortality of plan members, rates of salary increase, rates of retirement, rates of termination, rates of disability, and various other factors 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:	7.00% (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	Factor	Service	Factor
<1	0.140	10	0.030
1	0.120	11	0.030
2	0.110	12	0.030
3	0.100	13	0.030
4	0.090	14	0.030
5	0.060	15	0.030
6	0.060	16	0.030
7	0.050	17	0.015
8	0.030	18	0.015
9	0.030	>18	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:

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

**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 Mortality Rates	Female Mortality Rates	Retirement Rates	DROP Entry Rates	Disability Rates	Post 1/1/2011 Hires Retirement Rates	Post 1/1/2011 Hires DROP Entry Rates
18	0.00019	0.00012	0.00000	0.00000	0.00030	0.00000	0.00000
19	0.00019	0.00012	0.00000	0.00000	0.00030	0.00000	0.00000
20	0.00020	0.00012	0.00000	0.00000	0.00030	0.00000	0.00000
21	0.00021	0.00011	0.00000	0.00000	0.00030	0.00000	0.00000
22	0.00022	0.00012	0.00000	0.00000	0.00030	0.00000	0.00000
23	0.00024	0.00012	0.00000	0.00000	0.00030	0.00000	0.00000
24	0.00025	0.00013	0.00000	0.00000	0.00030	0.00000	0.00000
25	0.00028	0.00014	0.00000	0.00000	0.00030	0.00000	0.00000
26	0.00032	0.00015	0.00000	0.00000	0.00030	0.00000	0.00000
27	0.00034	0.00016	0.00000	0.00000	0.00030	0.00000	0.00000
28	0.00035	0.00016	0.00000	0.00000	0.00030	0.00000	0.00000
29	0.00038	0.00017	0.00000	0.00000	0.00030	0.00000	0.00000
30	0.00043	0.00020	0.00000	0.00000	0.00030	0.00000	0.00000
31	0.00048	0.00024	0.00000	0.00000	0.00030	0.00000	0.00000
32	0.00054	0.00028	0.00000	0.00000	0.00030	0.00000	0.00000
33	0.00060	0.00030	0.00000	0.00000	0.00030	0.00000	0.00000
34	0.00067	0.00032	0.00000	0.00000	0.00030	0.00000	0.00000
35	0.00072	0.00034	0.00000	0.00000	0.00034	0.00000	0.00000
36	0.00078	0.00036	0.00000	0.00000	0.00038	0.00000	0.00000
37	0.00083	0.00037	0.00000	0.00000	0.00042	0.00000	0.00000
38	0.00085	0.00039	0.00000	0.00000	0.00048	0.00000	0.00000
39	0.00087	0.00041	0.00000	0.00000	0.00054	0.00000	0.00000
40	0.00090	0.00045	0.00000	0.00000	0.00062	0.00000	0.00000
41	0.00093	0.00049	0.00000	0.00000	0.00070	0.00000	0.00000
42	0.00096	0.00054	0.00000	0.00000	0.00078	0.00000	0.00000
43	0.00100	0.00060	0.00000	0.00000	0.00088	0.00000	0.00000
44	0.00105	0.00065	0.00000	0.00000	0.00100	0.00000	0.00000
45	0.00109	0.00069	0.00000	0.00000	0.00114	0.00000	0.00000
46	0.00114	0.00073	0.00000	0.00000	0.00130	0.00000	0.00000
47	0.00118	0.00077	0.00000	0.00000	0.00146	0.00000	0.00000
48	0.00123	0.00083	0.00000	0.00000	0.00166	0.00000	0.00000
49	0.00320	0.00090	0.00000	0.00000	0.00188	0.00000	0.00000
50	0.00321	0.00140	0.00000	0.00000	0.00214	0.00000	0.00000
51	0.00317	0.00152	0.00000	0.00000	0.00244	0.00000	0.00000
52	0.00312	0.00173	0.00000	0.00000	0.00276	0.00000	0.00000
53	0.00316	0.00202	0.00000	0.00000	0.00314	0.00000	0.00000
54	0.00322	0.00236	0.00000	0.00000	0.00356	0.00000	0.00000
55	0.00344	0.00277	0.05000	0.40000	0.00404	0.00000	0.00000
56	0.00374	0.00328	0.05000	0.20000	0.00460	0.00000	0.00000
57	0.00412	0.00377	0.05000	0.20000	0.00522	0.00000	0.00000
58	0.00461	0.00423	0.05000	0.20000	0.00592	0.00000	0.00000
59	0.00505	0.00476	0.05000	0.20000	0.00674	0.00000	0.00000
60	0.00555	0.00533	0.05000	0.20000	0.00976	0.05000	0.40000
61	0.00630	0.00595	0.05000	0.20000	0.00976	0.05000	0.20000
62	0.00696	0.00662	0.05000	0.20000	0.00976	0.05000	0.20000
63	0.00794	0.00732	0.05000	0.20000	0.00976	0.05000	0.20000
64	0.00879	0.00808	0.05000	0.20000	0.00976	0.05000	0.20000
65	0.00974	0.00892	0.10000	0.20000	0.00976	0.10000	0.20000
66	0.01112	0.00982	0.10000	0.20000	0.00976	0.10000	0.20000
67	0.01229	0.01079	0.10000	0.20000	0.00976	0.10000	0.20000
68	0.01317	0.01185	0.10000	0.20000	0.00976	0.10000	0.20000
69	0.01455	0.01304	0.10000	0.20000	0.00976	0.10000	0.20000
70	0.01561	0.01440	0.10000	0.20000	0.00976	0.10000	0.20000
71	0.01734	0.01551	0.10000	0.20000	0.00976	0.10000	0.20000
72	0.01931	0.01725	0.10000	0.20000	0.00976	0.10000	0.20000
73	0.02154	0.01861	0.10000	0.20000	0.00976	0.10000	0.20000
74	0.02404	0.02062	0.10000	0.20000	0.00976	0.10000	0.20000
75	0.02762	0.02209	0.10000	0.20000	0.00976	0.10000	0.20000

## 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