

**FIREFIGHTERS'
RETIREMENT SYSTEM**

ACTUARIAL VALUATION AS OF
JUNE 30, 2015

G. S. CURRAN & COMPANY, LTD.

Actuarial Services

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October 26, 2015

Board of Trustees
Firefighters' Retirement System
3100 Brentwood Drive
Baton Rouge, LA 70809

Gentlemen:

We are pleased to present our report on the actuarial valuation of the Firefighters' Retirement System for the fiscal year ending June 30, 2015. 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 Firefighters' Retirement System 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, 2016 and to recommend the net direct employer contribution rate for fiscal 2017. 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 Firefighters' Retirement System for a specific limited purpose. It is not for the use or benefit of any third party for any purpose.

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

Sincerely,

G. S. CURRAN & COMPANY, LTD.

By:



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



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

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SUMMARY OF VALUATION RESULTS FIREFIGHTERS' RETIREMENT SYSTEM

Valuation Date:		June 30, 2015	June 30, 2014
Census Summary:	Active Members (excluding DROP)	4,192	4,098
	Retired Members and Survivors	2,139	2,057
	DROP Participants	166	185
	Terminated Due a Deferred Benefit	81	79
	Terminated Due a Refund	523	472

Payroll (excluding DROP accruals):	\$ 211,963,892	\$ 203,333,976
Benefits in Payment:	\$ 79,924,818	\$ 73,404,453
Unfunded Actuarial Accrued Liability:	\$ 468,441,496	\$ 470,163,334
Actuarial Asset Value (AVA):	\$ 1,490,408,510	\$ 1,385,135,204
Market Value of Assets (MVA):	\$ 1,419,138,769	\$ 1,410,307,198
Actuarial Accrued Liability (Entry Age Normal):	\$ 1,958,850,006	\$ 1,855,298,538
Funded Ratio (AVA/Entry Age Normal Accrued Liability):	76.09%	74.66%

	FISCAL 2016	FISCAL 2015
Employers' Normal Cost (July 1):	\$ 49,088,056	\$ 50,473,976
Amortization Cost (July 1):	\$ 48,252,172	\$ 46,842,972
Interest Adjusted Actuarially Required Contributions Including Estimated Administrative Costs:	\$ 102,481,157	\$ 102,715,436
Expected Insurance Premium Taxes	\$ 24,825,521	\$ 23,924,457
Net Direct Employer Actuarially Required Contributions	\$ 77,655,636	\$ 78,790,979
Actuarially Required Net Direct Combined Contribution Rate	35.44%	37.50%
Actual Net Direct Combined Contribution Rate:	37.25%	39.25%

Minimum Recommended Net Direct Employer Cont. Rate :		
For Employees with Earnings Below Poverty Level-	Fiscal 2017: 27.25%	Fiscal 2016: 29.25%
For Employees with Earnings Above Poverty Level -	Fiscal 2017: 25.25%	Fiscal 2016: 27.25%

Employee Contribution Rate: 8.00% of payroll below poverty level/10.00% of payroll above poverty level

Actuarial Cost Method: Individual Entry Age Normal with allocation of cost based on earnings. Unfunded Accrued Liability (exclusive of liability for mergers) as of June 30, 2002 amortized through June 30, 2029 with level dollar payments. Unfunded Accrued Liability resulting from merged systems amortized over thirty years.

Valuation Interest Rate: 7.50% (Net of Investment Expense)

Census Exclusions: None

Basis of Actuarial Asset Value: The actuarial value of assets is based on the market value of assets adjusted to phase in asset earnings above or below the assumed rate of return over a five-year period with limits set at 85% and 115% of the market value of assets. When the adjusted value falls outside of the limits, the actuarial value is set equal to the average of the limited and adjusted value.

Changes in Valuation Methods, Assumptions, and/or Amortization Periods: Changes were made to the salary scale, mortality, retirement, DROP entry, and withdrawal rates. In addition, family statistics were updated.

Method of Recognizing Gains and Losses: Amortized over 15 years prior to fiscal 2010; amortized over 20 years for fiscal 2010 and one less year each year thereafter, but not less than fifteen years.

COMMENTS ON DATA

For the valuation, the administrator 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 4,192 active contributing members in the system of whom 1,945 have vested retirement benefits; in addition, there are 166 participants in the Deferred Retirement Option Plan (DROP); 2,139 former members or their beneficiaries are receiving retirement benefits. An additional 604 terminated members have contributions remaining on deposit with the system; of this number, 81 have vested rights for future retirement benefits. All individuals submitted were included in the valuation.

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

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 financial statements, the net market value of system's assets was \$1,419,138,769 as of June 30, 2015. Net investment income for fiscal 2015 measured on a market value basis amounted to a loss of \$3,172,845. Contributions to the system for the fiscal year totaled \$107,802,198; benefits and expenses amounted to \$95,797,781.

Notwithstanding our efforts to review both census and financial data for apparent errors, we must rely upon the system's administrative staff and accountants to provide accurate information. Our review of submitted information is limited to validation of reasonableness and consistency. Verification of submitted data to source information is beyond the scope of our efforts.

COMMENTS ON ACTUARIAL METHODS AND ASSUMPTIONS

This valuation is based on the Entry Age Normal actuarial cost method. Under the provisions of Louisiana R.S. 11:103 the funding excess for the plan which was determined to be \$239,425 as of June 30, 1989 was amortized over thirty years. Subsequent experience gains and losses were amortized over fifteen years. Contribution gains or losses arising from contributions in excess of or less than the required contributions are amortized over the same period as experience gains and losses. Further changes in the unfunded accrued liability generated by mergers of groups of firefighters into the system are amortized over thirty years. All non-merger amortization bases in existence on June 30, 2002, were combined, offset, and re-amortized through June 30, 2029, in accordance with R.S. 11:103(D). The aggregate value of the bases as of that date was \$175,578,584. Beginning with fiscal 2010, actuarial gains and losses, as well as contribution gains and losses, are amortized over a 20 year period. Each year thereafter, the amortization period will decrease by one year until attaining a 15 year amortization period. All changes in assumptions or the method of valuing assets are amortized over 15 years. All amortization payments are on a level dollar basis.

The cost method used for this valuation generally produces normal costs which are level as a percentage of pay if assumptions are met and the composition of the active group with regard to age, sex, and service is stable. Overall costs may increase or decrease depending on payroll growth. Since payments on all of the funds amortization bases are level any payroll growth will reduce future amortization payments as a percentage of payroll. Should overall payroll contract, amortization payments will increase as a percentage of payroll.

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. Based on the results of the actuarial experience study and expectations of future experience, retirement, DROP entry, and withdrawal rates were changed. Family statistics were also updated based on more recent measures available from the United States Census Bureau. The new assumptions are listed in the back of this report. In the case of mortality, the data was assigned credibility weighting and combined with a standard table to produce current levels of mortality. This mortality was then projected forward to a period equivalent to the estimated duration of the fund's liabilities. The RP-2000 Combined Healthy with Blue Collar Adjustment Sex Distinct Tables projected to 2031 were selected for employee, annuitant, and beneficiary mortality. The RP-2000 Disabled Lives Mortality Table set back 5 years for males and set back 3 years for females was selected for disabled annuitants. Setbacks in these tables were used to approximate mortality improvement.

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 2015 report of New England Pension Consultants on future expected rates of return for the current portfolio asset allocation. Based on the results of this interest rate assumption review, the assumed rate of return for the valuation was left unchanged. Finally, the salary increase rate for the valuation was reduced based on forward estimates of future increases in pay resulting from three sources; inflation, merit, and productivity. An inflation rate of 2.875% 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-eight through forty-one. All assumptions used are based on estimates of future long-term experience for the fund. All calculations, recommendations, and conclusions are based on the assumptions specified. To the extent that prospective experience differs from that assumed, adjustments to contribution levels will be required. Such differences will be revealed in future actuarial valuations. The net effect of the changes in assumptions increased the interest-adjusted amortization payments on the system's UAL by \$862,290 which corresponds to payments of 0.39% of fiscal 2016 projected payroll

CHANGES IN PLAN PROVISIONS

There were no changes to the system enacted during the 2015 Regular Session of the Louisiana Legislature.

ASSET EXPERIENCE

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

	<u>Market Value</u>	<u>Actuarial Value</u>
2006	12.3%	9.9% *
2007	17.2%	11.6%
2008	- 5.0%	9.0%
2009	-20.8%	-4.9% **
2010	12.2%	6.1%
2011	17.4%	4.5%
2012	-4.1% †	-0.2% †
2013	10.5%	2.5%
2014	11.4%	8.8%
2015	-0.2%	6.7%

* Based on the actuarial value of assets and income and expense including the effect of a change in the method for calculating the actuarial value of assets under a 5-year smoothing of investment earnings above or below the assumed 7.5% rate of return subject to a corridor of 90% to 110% of the market value of assets. Returns for years 1998 through 2005 were based on a 2-year smoothing of recognized realized and unrealized capital gains (losses) on all securities.

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

† Based upon asset values which include an unaudited “best estimate” of the value of a receivable related to the FIA Leveraged Fund.

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. (Asset and income values for merger notes were excluded from calculations in order to provide a measurement of the return on the portion of the portfolio under management.) 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 2015, the fund earned \$12,929,561 of dividends, interest and other recurring income. During the same period, the Fund had net realized and unrealized capital losses and non-recurring income on investments of \$9,617,167. This income was offset by investment expenses of \$6,485,239. The geometric mean of the market value rates of return measured over the last ten years was 4.4%. For the last twenty years, the geometric mean return was 5.5%.

The actuarial rate of return is presented for comparison to the assumed long-term rate of return of 7.5% used for the valuation. 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 constraints. The difference between rates of return on an actuarial and market value basis results from the smoothing utilized. Yields in excess of the 7.5% assumption will reduce future costs; yields below 7.5% will increase future costs. For fiscal 2015, the system experienced net actuarial investment earnings of \$11,058,278 less than the actuarial assumed earnings rate of 7.5%. This decrease in earnings produced an actuarial loss, which increased the interest-adjusted amortization payments on the system’s UAL by \$1,208,271 which corresponds to payments of 0.55% of fiscal 2016 projected payroll.

DEMOGRAPHICS AND LIABILITY EXPERIENCE

A reconciliation of the census for the system is given in Exhibit X. The average active contributing member is 38 years old with 11.49 years of service credit and an annual salary of \$50,564. The system’s active contributing membership experienced an increase during fiscal 2015 of 94 members. The number of DROP participants decreased by 19. Over the last five years active membership has increased by 203 members. A review of the active census by age indicates that over the last ten years the population in the thirty-one to fifty age group has decreased while the proportion of active members over fifty increased. Over the same ten-year period the system’s active census by service remained relatively stable.

The average service retiree is 65 years old with a monthly benefit of \$3,532. The number of retirees and beneficiaries receiving benefits from the system increased by 82 during the fiscal year. Over the last five years, the number has increased by 390; during the same period, the annual benefits in payment increased by \$23,868,264.

The changes in the makeup of the population and changes in members’ salaries decreased the interest adjusted normal cost over the last year by \$1,436,952; the normal cost percentage decreased by 1.67% of payroll. Plan liability experience for fiscal 2015 was favorable. Salary increase rates at most durations were below projections. Retirements, disabilities, and DROP entries were below projections. Withdrawals were above projections. These factors decreased costs. Retiree deaths were below projected levels. This tends to increase costs. Net plan liability experience gains totaled \$18,187,590.

These gains decreased the interest-adjusted amortization payments on the system's unfunded accrued liability by \$1,987,247, which corresponds to payments of 0.91% of fiscal 2016 payroll.

FUNDING ANALYSIS AND RECOMMENDATIONS

Actuarial funding of a retirement system is a process whereby funds are accumulated over the working lifetimes of employees in such a manner as to have sufficient assets available at retirement to pay for the lifetime benefits accrued by each member of the system. The required contributions are determined by an actuarial valuation based on rates of mortality, termination, disability, and retirement, as well as investment return and other statistical measures specific to the particular group. Each year a determination is made of two cost components, and the actuarially required contributions are based on the sum of these two components plus administrative expenses. These two components are the normal cost and the amortization payments on the unfunded actuarial accrued liability. The normal cost refers to the annual cost for active members allocated to each year by the particular cost method utilized. The term unfunded accrued liability (UAL) refers to the excess of the present value of plan benefits over the sum of current assets and future normal costs. Each year the UAL grows with interest and is reduced by payments. In addition it may be increased or diminished by plan experience, changes in assumptions, or changes in benefits including COLA's. Contributions in excess of or less than the actuarially required amount can also decrease or increase the UAL balance. New entrants to the system can also increase or lower costs as a percent of payroll depending upon their demographic distribution. Finally, payroll growth affects plan costs since payments on the system's unfunded liability are on a fixed, level schedule. If payroll increases, these costs are reduced as a percentage of payroll.

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

An explanation of the change in costs related to asset and liability gains and losses as well as changes in demographics and assumptions is given in prior sections of the report. In addition to these components, variances in contribution levels and payroll also affect costs. For fiscal 2015 contributions totaled \$5,158,272 more than required; the interest-adjusted amortization credit on the contribution surplus for fiscal 2016 is \$563,614, or 0.26% of fiscal 2016 projected payroll. In addition, for fiscal 2016 the net effect of the change in payroll on amortization costs was to reduce such costs by 0.95% of projected payroll.

A reconciliation of the change in costs is given below. Values listed in dollars are interest adjusted for payment throughout the fiscal year. Percentages are based on the projected payroll for fiscal 2016 except for those items labeled fiscal 2015.

	Dollars	Percentage of Payroll
Normal Cost for Fiscal 2015	\$ 52,332,532	24.90%
Cost of Demographic and Salary Changes	\$ <u>(1,436,952)</u>	<u>(1.67%)</u>
Normal Cost for Fiscal 2016	\$ 50,895,580	23.23%
UAL Payments for Fiscal 2015	\$ 48,567,827	23.12%
Change due to change in payroll	N/A	(0.95%)
Additional Amortization Expenses for Fiscal 2016:		
Asset Experience Loss (Gain)	\$ 1,208,271	0.55%
Assumption Loss (Gain)	\$ 862,290	0.39%
COLA Loss (Gain)	\$ 1,941,389	0.89%
Contribution Loss (Gain)	\$ (563,613)	(0.26%)
Liability Loss (Gain)	\$ <u>(1,987,247)</u>	<u>(0.91%)</u>
Net Amortization Expense (Credit) for Fiscal 2016	\$ 1,461,090	0.66%
Estimated Administrative Cost for Fiscal 2016	\$ 1,556,661	0.71%
Total Normal Cost & Amortization Payments	\$ 102,481,157	46.77%

The derivation of the actuarially required contribution for the current fiscal year is given in Exhibit I. The normal cost for fiscal 2016 as of July 1, 2015 is \$49,088,056. The amortization payments on the system's unfunded actuarial accrued liability as of July 1, 2015 total \$48,252,172. The total actuarially required contribution is determined by adjusting the sum of these two values for interest (since payments are made throughout the fiscal year) and adding estimated administrative expenses. As given in line 11 of Exhibit I the total actuarially required contribution for fiscal 2016 is \$102,481,157. We estimate insurance premium taxes of \$24,825,521 will be paid to the system in fiscal 2016. Hence, the total actuarially required net direct combined contribution (consisting of employee contributions and the net direct employer contribution) for fiscal 2016 amounts to \$77,655,636 or 35.44% of payroll.

Since the actual net direct combined contribution rate for fiscal 2016 is 37.25% of payroll, there will be a contribution gain of 1.81% of payroll. The effect of this gain will be to decrease the required contributions for fiscal 2017 by 0.19% of payroll. The statutes require rounding the net direct employer contribution rate to the nearest 0.25%. Therefore, we recommend a combined employee and net direct employer contribution rate of 35.25% for fiscal 2017. For members with earnings less than or equal to the Department of HHS poverty guidelines, employee contributions will be set equal to 8.00% of payroll. The employer contribution rate to be applied to the earnings of such members should be set equal to 27.25% of payroll. For members with earnings greater than the Department of HHS poverty guidelines, employee contributions will be set equal to 10.00% of payroll. The employer contribution rate to be applied to the earnings of such members should be set equal to 25.25% of payroll.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions, changes in economic or demographic assumptions, completion of amortization payments or credit schedules, and changes in plan provisions or applicable law. Analysis of the effect of all these factors is beyond the scope of this report. We have, however, calculated the sensitivity of the plan's costs to a change in two factors. First, 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 0.75% for the fund. We have also determined that a 1% reduction in the valuation interest rate for the Fund would increase the actuarially required contribution rate for fiscal 2016 by 16.64% of payroll.

In addition to calculating the actuarially required contribution to the fund, we have also calculated the ratio of the system's assets to liabilities. When the actuarial value of assets is divided by the entry age normal accrued liability for the fund the result is 76.09% as of June 30, 2015. This value in isolation does not give a measure of the ability of the fund to pay benefits in the future or indicate that future contributions are likely to be greater or less than current contributions. In addition, the ratio cannot be used 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 the underlying trends in this value.

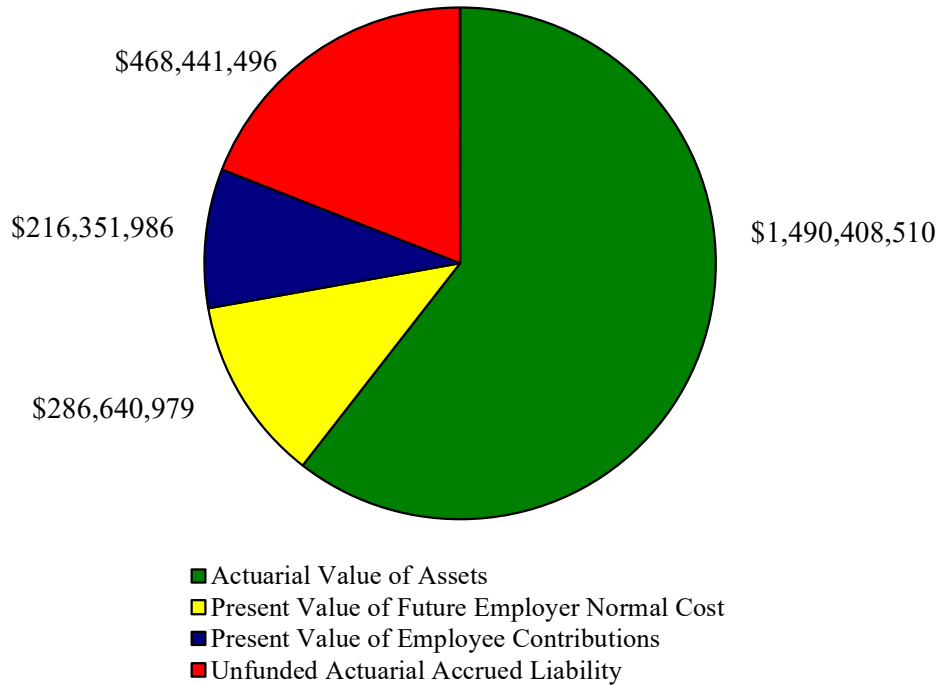
COST OF LIVING INCREASES

During fiscal 2015, the actual cost of living (as measured by the US Department of Labor CPI-U) increased by 0.12%. Cost of living provisions for the system are detailed in R.S. 11:2260A(7) and R.S. 11:246. The former statute allows the board to use interest earnings in excess of the normal requirements to grant annual cost of living increases of up to 3% of each retiree's current benefit. R.S. 11:246 provides cost of living increases to retirees and beneficiaries over the age of 65 equal to 2% of the benefit in payment on October 1, 1977, or the date the benefit was originally received if retirement commenced after that date. R.S. 11:241 provides 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 30th 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.

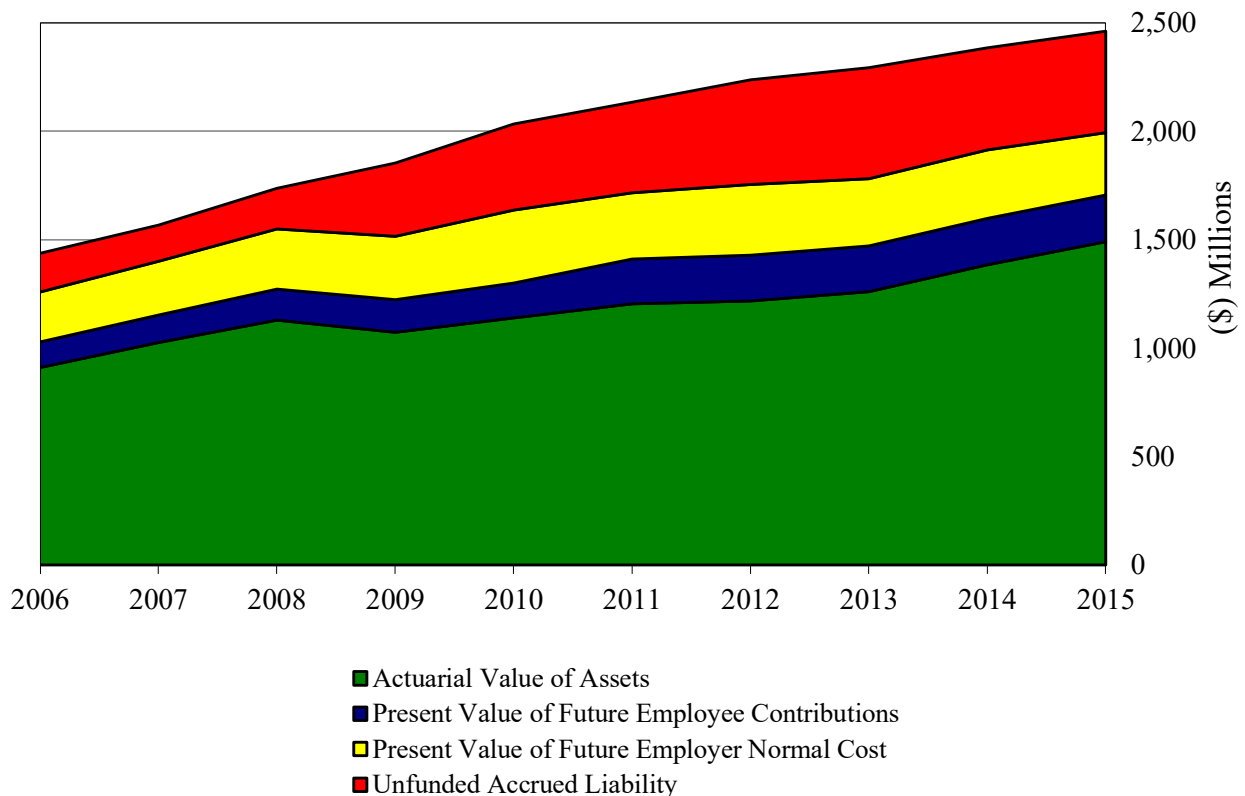
R.S. 11:243 sets forth the funding criteria necessary in order to grant cost of living adjustments to regular retirees and beneficiaries (who are neither the surviving spouse nor children of the retiree.) The criteria for the fund to qualify as eligible to grant any such increase is as follows: a funded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

With a funded ratio (as measured by the Actuarial Value of Assets divided by the Pension Benefit Obligation) of 78.55% and since the system granted a cost of living increase on January 1, 2015 which is within the three most recent fiscal years, we have determined that for fiscal 2015 the plan does not meet the criteria set forth in R. S. 11:243 for granting a cost of living increase from "excess interest earnings".

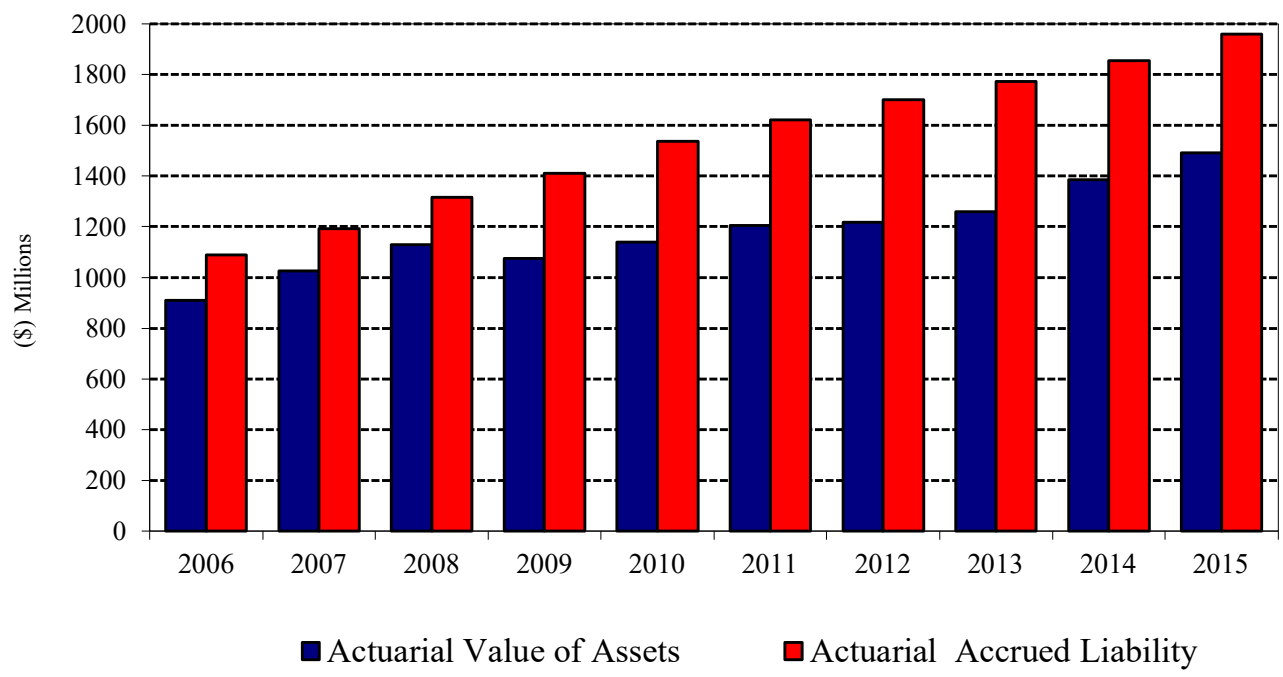
Components of Present Value of Future Benefits June 30, 2015



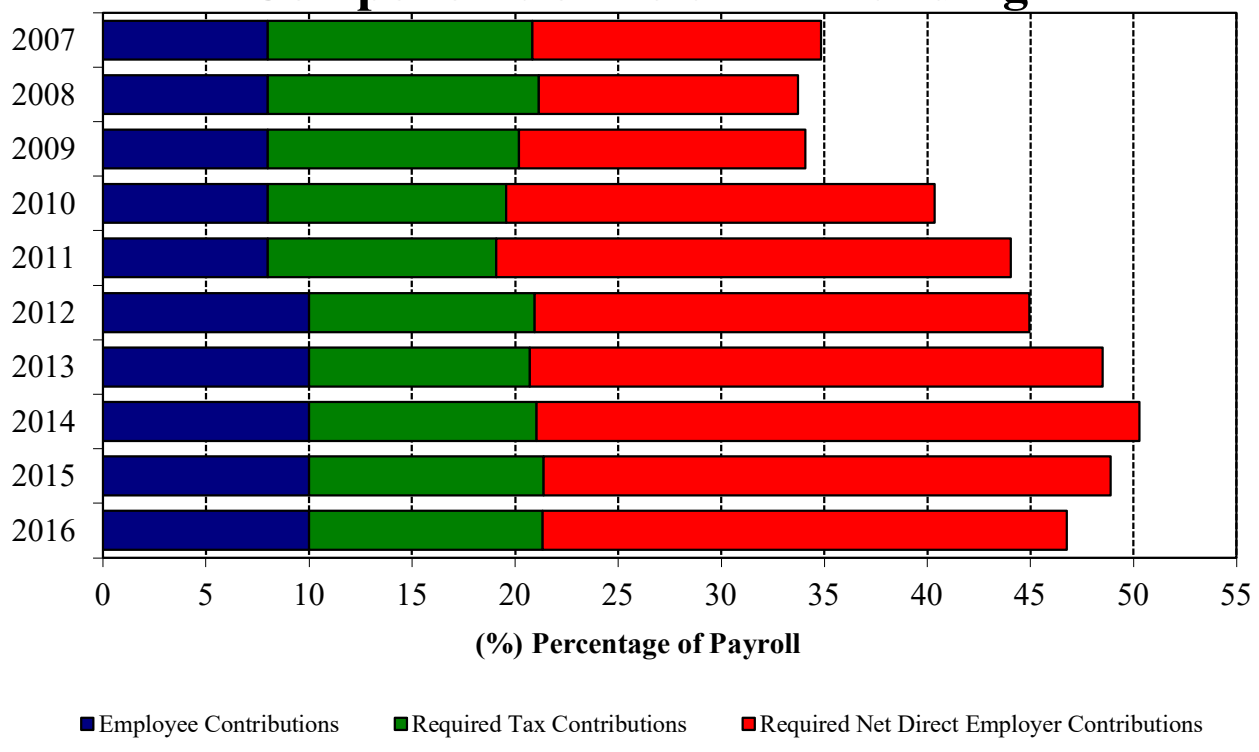
Components of Present Value of Future Benefits Historical



Actuarial Value of Assets vs. Actuarial Accrued Liability

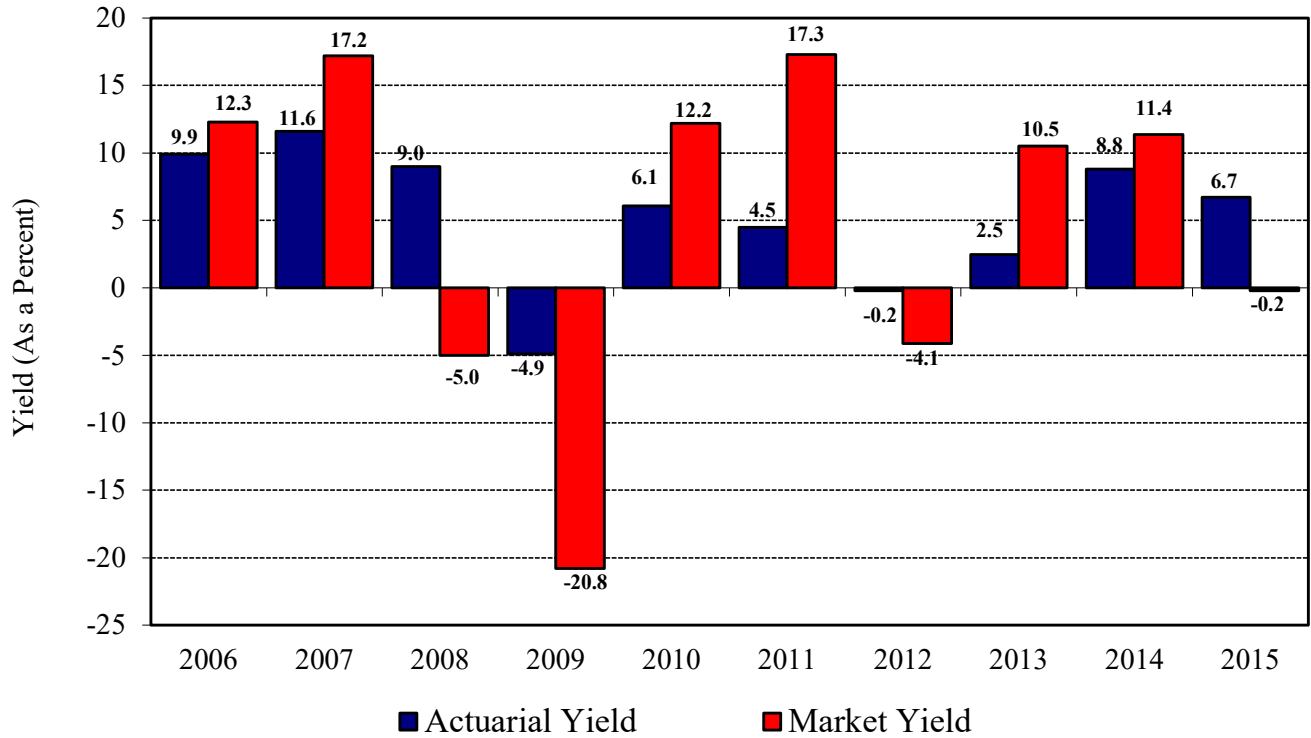


Components of Actuarial Funding

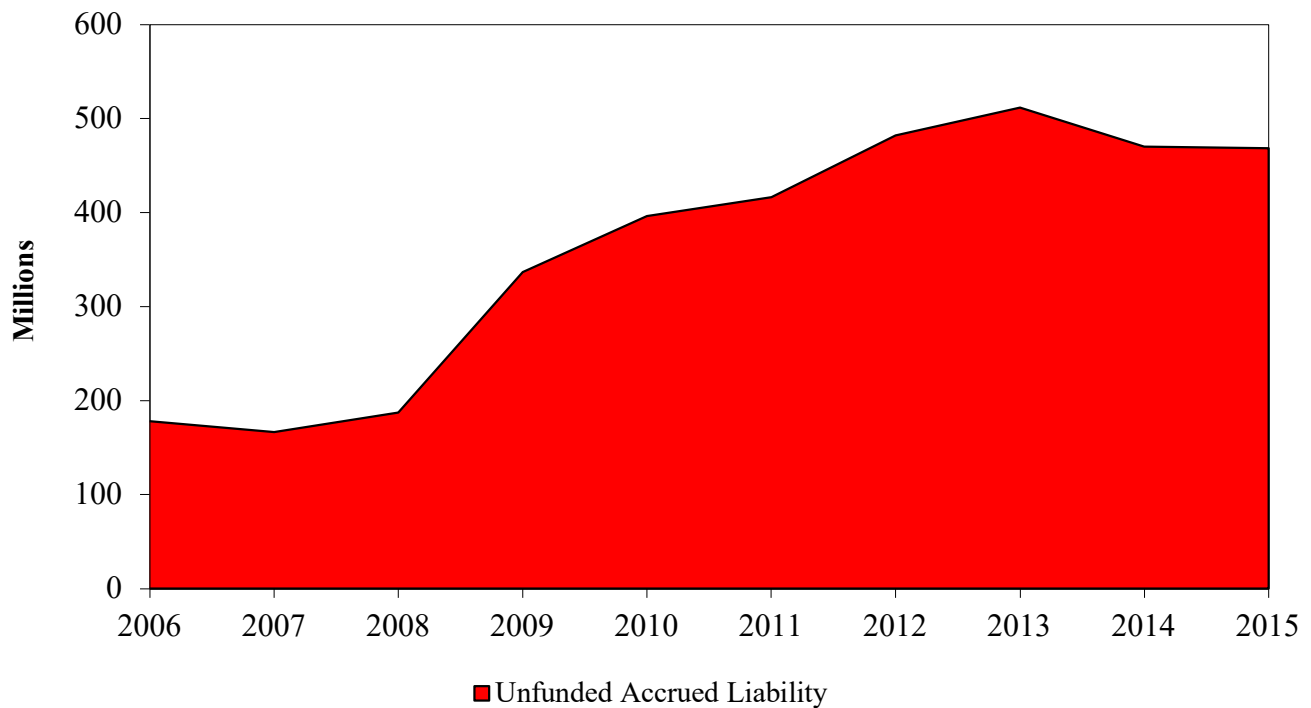


(2012 and later employee contribution level is based on members with earnings above the poverty level)

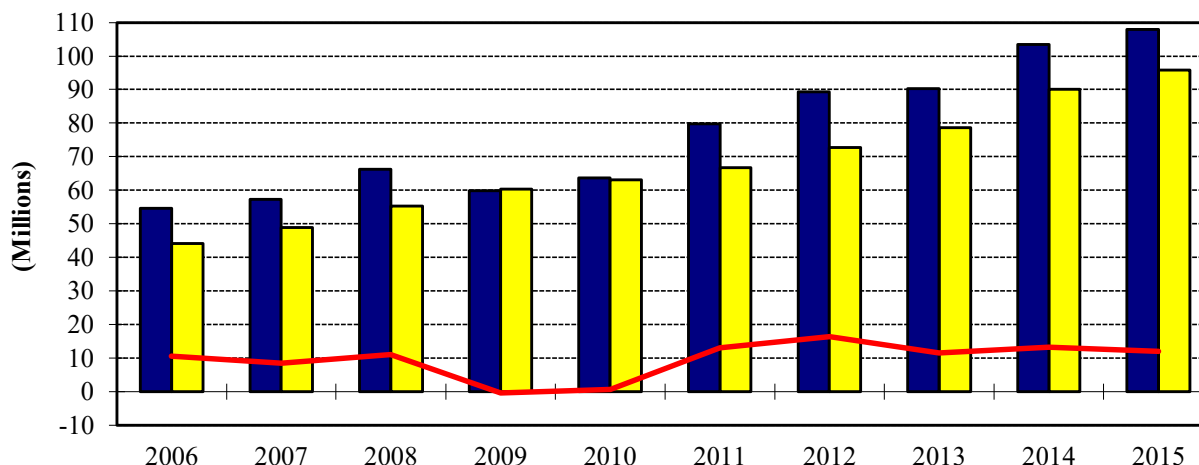
Historical Asset Yields



Unfunded Accrued Liability

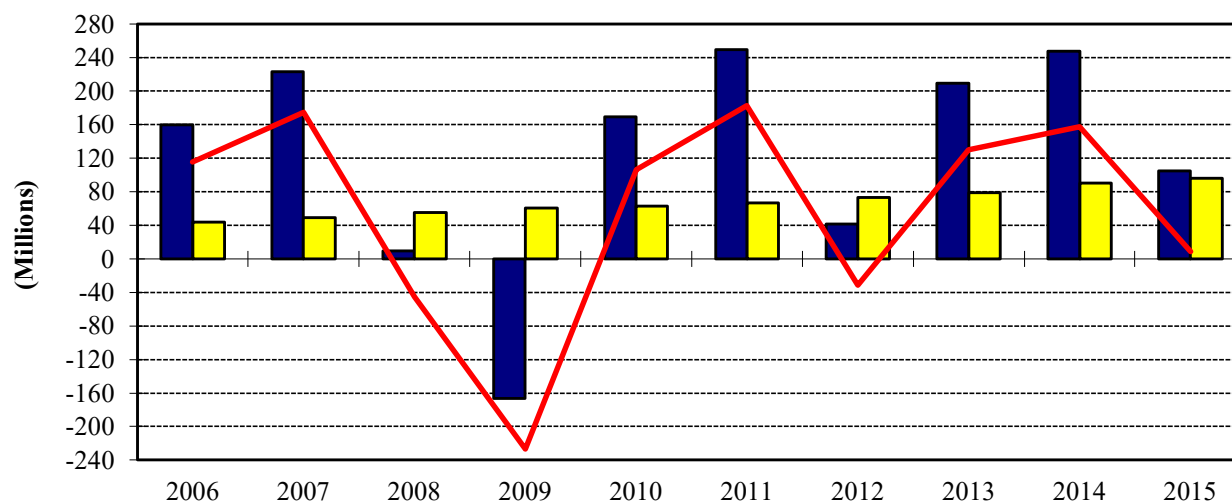


Net Non-Investment Income



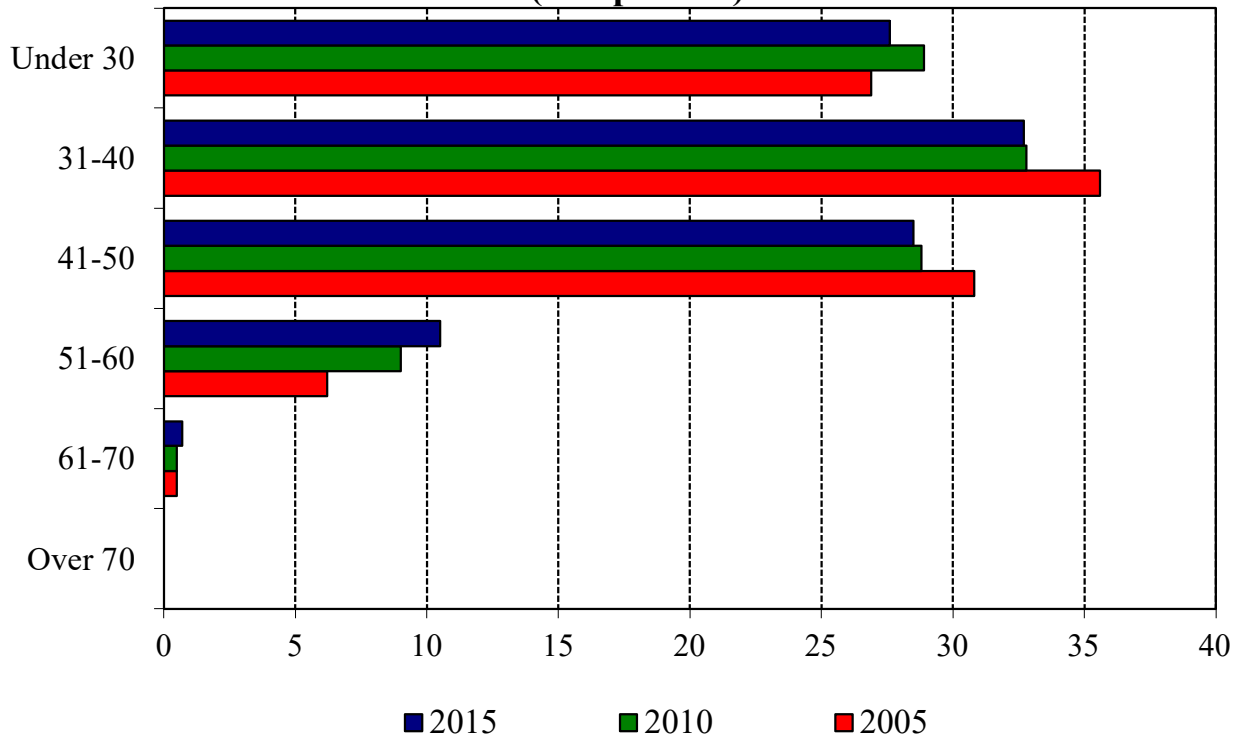
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Non-Investment Income (\$Mil)	■	54.7	57.4	66.3	59.8	63.7	79.7	89.2	90.2	103.4	107.8
Benefits and Expenses (\$Mil)	■	44.2	48.9	55.3	60.3	63.1	66.7	72.8	78.7	90.1	95.8
Net Non-Investment Income (\$Mil)	—	10.5	8.5	11.0	-0.5	0.6	13.0	16.4	11.5	13.3	12.0

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



		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total Income (\$Mil)	■	159.5	223.3	9.5	-166.6	169.3	249.4	41.2	209.0	247.2	104.6
Benefits and Expenses (\$Mil)	■	44.2	48.9	55.3	60.3	63.1	66.7	72.8	78.7	90.1	95.8
Net Change in MVA (\$Mil)	—	115.3	174.4	-45.8	-226.9	106.2	182.7	-31.6	130.3	157.1	8.8

Active – Census By Age (as a percent)



Active – Census By Service (as a percent)

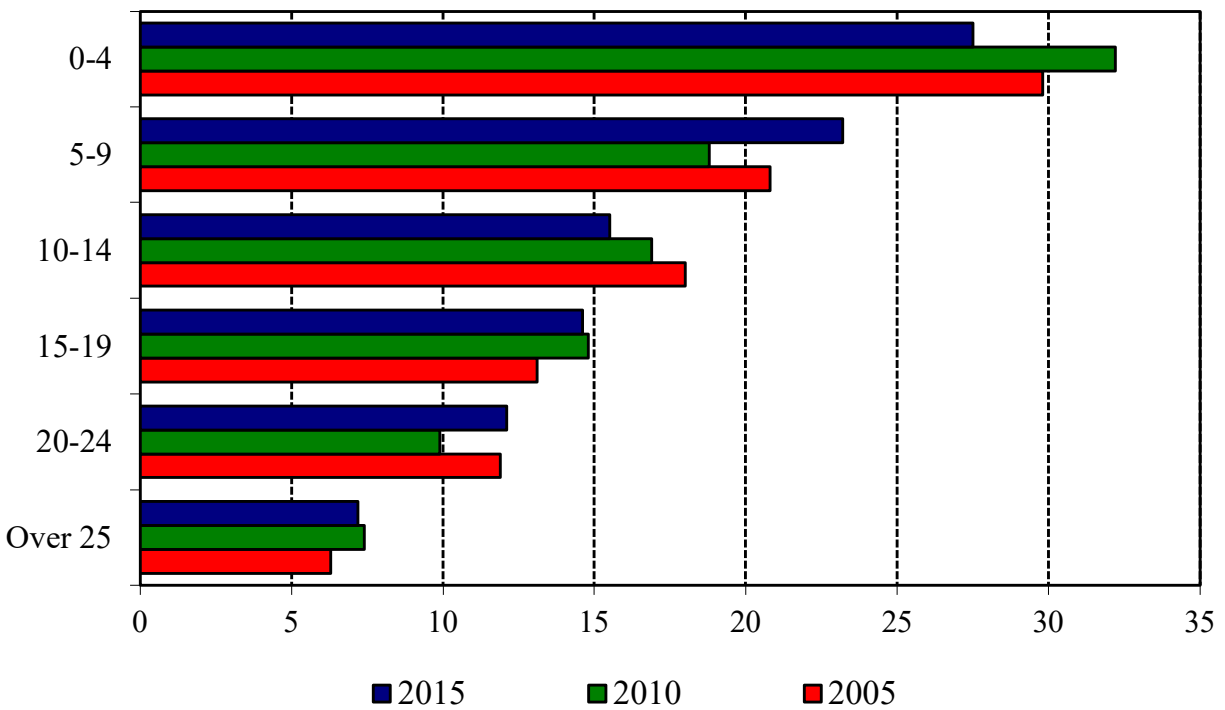


EXHIBIT I
ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS

1.	Normal Cost of Retirement Benefits.....	\$	42,965,708
2.	Normal Cost of Death Benefits.....	\$	1,399,097
3.	Normal Cost of Disability Benefits.....	\$	1,232,262
4.	Normal Cost of Deferred Retirement Benefits	\$	1,498,738
5.	Normal Cost of Contribution Refunds.....	\$	1,992,251
6.	TOTAL Normal Cost as of July 1, 2015 (1+2+3+4+5).....	\$	49,088,056
7.	Amortization of Unfunded Accrued Liability of \$468,441,496	\$	48,252,172
8.	TOTAL Normal Cost & Amortization Payments (6+7).....		97,340,228
9.	Normal Cost and Amortization Payments Interest Adjusted for Midyear Payment	\$	100,924,496
10.	Estimated Administrative Cost for Fiscal 2016	\$	1,556,661
11.	TOTAL Administrative and Interest Adjusted Actuarial Costs (9+10).....	\$	102,481,157
12.	Expected Insurance Premium Taxes due in Fiscal 2016.....	\$	24,825,521
13.	Net Direct Combined Actuarially Req'd Contributions for Fiscal 2016 (11-12)	\$	77,655,636
14.	Projected Payroll For Contributing Members July 1, 2015 through June 30, 2016	\$	219,109,115
15.	Net Direct Combined Actuarially Required Contributions as a % of Projected Payroll for Fiscal 2016 (13 ÷ 14).....		35.44%
16.	Actual Net Direct Combined Contribution Rate for Fiscal 2016.....		37.25%
17.	Contribution Gain (Loss) as a Percentage of Payroll (16 – 15)		1.81%
18.	Adjustment to Following Year Payment for Contribution Gain (Loss)		0.19%
19.	Recommended Net Direct Combined Contribution Rate for Fiscal 2017 (15 – 18) (Rounded to nearest 0.25%).....		35.25%
20.	Recommended Net Direct Employee Contribution Rate for Fiscal 2017 (members with earnings less than or equal to the Department of HHS poverty guidelines)		8.00%
21.	Recommended Net Direct Employer Contribution Rate for Fiscal 2017 (members with earnings less than or equal to the Department of HHS poverty guidelines)		27.25%
22.	Recommended Net Direct Employee Contribution Rate for Fiscal 2017 (members with earnings more than the Department of HHS poverty guidelines).....		10.00%
23.	Recommended Net Direct Employer Contribution Rate for Fiscal 2017 (members with earnings more than the Department of HHS poverty guidelines).....		25.25%

EXHIBIT II
PRESENT VALUE OF FUTURE BENEFITS

PRESENT VALUE OF FUTURE BENEFITS FOR ACTIVE MEMBERS:

Retirement Benefits.....	\$ 1,434,893,202
Survivor Benefits.....	23,596,088
Disability Benefits.....	17,735,084
Vested Termination Benefits.....	27,985,109
Refunds of Contributions	12,772,674

TOTAL Present Value of Future Benefits for Active Members..... \$ 1,516,982,157

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement.....	\$ 13,858,796
Terminated Members with Reciprocal Due Benefits at Retirement	0
Terminated Members Due a Refund	2,338,544

TOTAL Present Value of Future Benefits for Terminated Members..... \$ 16,197,340

PRESENT VALUE OF FUTURE BENEFITS FOR RETIREES:

Regular Retirees

Maximum.....	\$ 217,092,482
Option 1	64,921,479
Option 2	304,486,994
Option 3	133,026,804
Option 4	6,969,118
Option 5	0

TOTAL Regular Retirees..... \$ 726,496,877

Disability Retirees..... 49,674,793

Survivors & Widows..... 58,870,773

DROP Account Balances Payable to Retirees 90,675,449

IBO Retirees' Account Balance 2,945,582

TOTAL Present Value of Future Benefits for Retirees & Survivors..... \$ 928,663,474

TOTAL PRESENT VALUE OF FUTURE BENEFITS..... \$ 2,461,842,971

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

CURRENT ASSETS:

Cash in Banks	\$ 7,742,050
Contributions and Taxes Receivable.....	6,990,421
Accrued Interest and Dividends.....	6,209,194
Investments Receivable.....	118,160
Prepaid Expenses	802,327
Receivable on Currency Contracts.....	32,568,513

TOTAL CURRENT ASSETS..... \$ 54,430,665

Property Plant & Equipment..... \$ 717,680

INVESTMENTS:

Cash Equivalents.....	\$ 87,600,816
Equities	760,598,609
Fixed Income	301,888,474
Real Estate	102,794,048
Alternative Investments	2,478,876
Tactical Allocation.....	139,193,395

TOTAL INVESTMENTS..... \$ 1,394,554,218

MERGER NOTES

\$ 2,937,477

TOTAL ASSETS

\$ 1,452,640,040

CURRENT LIABILITIES:

Accounts Payable	\$ 850,097
Investments Payable.....	321,089
Payable on Currency Contracts.....	32,330,085

TOTAL CURRENT LIABILITIES

\$ 33,501,271

MARKET VALUE OF ASSETS..... \$ 1,419,138,769

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

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

Fiscal year 2015	\$ (109,387,912)
Fiscal year 2014	49,370,553
Fiscal year 2013	34,152,321
Fiscal year 2012	(135,213,355)
Fiscal year 2011	<u>96,347,506</u>
 Total for five years	 \$ (64,730,887)

Deferral of excess (shortfall) of invested income:

Fiscal year 2015 (80%)	\$ (87,510,330)
Fiscal year 2014 (60%)	29,622,332
Fiscal year 2013 (40%)	13,660,928
Fiscal year 2012 (20%)	(27,042,671)
Fiscal year 2011 (0%)	<u>0</u>
 Total deferred for year	 \$ (71,269,741)

Market value of plan net assets, end of year..... \$ 1,419,138,769

Preliminary actuarial value of plan assets, end of year \$ 1,490,408,510

Actuarial value of assets corridor

85% of market value, end of year	\$ 1,206,267,954
115% of market value, end of year	\$ 1,632,009,584

Final actuarial value of plan net assets, end of year \$ 1,490,408,510

**EXHIBIT IV
PRESENT VALUE OF FUTURE CONTRIBUTIONS**

Employee Contributions to the Annuity Savings Fund	\$	216,351,986
Employer Normal Contributions to the Pension Accumulation Fund.....		286,640,979
Employer Amortization Payments to the Pension Accumulation Fund		468,441,496
 TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS	 \$	 971,434,461

**EXHIBIT V - SCHEDULE A
ACTUARIAL ACCRUED LIABILITIES**

LIABILITY FOR ACTIVE MEMBERS		
Accrued Liability for Retirement Benefits.....	\$	994,428,787
Accrued Liability for Survivor Benefits		9,297,597
Accrued Liability for Disability Benefits.....		5,147,458
Accrued Liability for Vested Termination Benefits.....		12,663,103
Accrued Liability for Refunds of Contributions		(7,547,753)
 TOTAL Actuarial Accrued Liability for Active Members	 \$	 1,013,989,192
 LIABILITY FOR TERMINATED MEMBERS	 \$	 16,197,340
 LIABILITY FOR RETIREES AND SURVIVORS	 \$	 928,663,474
 TOTAL ACTUARIAL ACCRUED LIABILITY	 \$	 1,958,850,006
 ACTUARIAL VALUE OF ASSETS	 \$	 1,490,408,510
 UNFUNDED ACTUARIAL ACCRUED LIABILITY	 \$	 468,441,496

**EXHIBIT V - SCHEDULE B
CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY**

Prior Year Unfunded Accrued Liability	\$	470,163,334
Interest on Unfunded Accrued Liability	35,262,250	
Normal Cost for Prior Year	50,473,976	
Interest on the Normal Cost.....	3,785,548	
Administrative Expenses	1,587,981	
Interest on Expenses	58,473	
 TOTAL Additions to UAL	 \$	 91,168,228
Required Contributions for Prior Year with interest	\$	106,262,173
Contribution Excess (Shortfall) with accrued interest.....		5,158,272
Liability Assumption Gains (Losses)		(7,891,805)
Cost of Living Adjustment Gains (Losses)		(17,767,886)
Liability Experience Gains (Losses).....		18,187,590
Investment Gains (Losses).....		(11,058,278)
 TOTAL Reductions to UAL.....	 \$	 92,890,066
 NET Change in Unfunded Accrued Liability	 \$	 (1,721,838)
 CURRENT YEAR UNFUNDED ACCRUED LIABILITY.....	 \$	 468,441,496

EXHIBIT V - SCHEDULE C
AMORTIZATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY - June 30, 2015

<u>FISCAL</u> <u>YEAR</u>	<u>DESCRIPTION</u>	<u>AMORT.</u> <u>PERIOD</u>	<u>INITIAL</u> <u>BALANCE</u>	<u>YEARS</u> <u>REMAINING</u>	<u>REMAINING</u> <u>BALANCE</u>	<u>AMORT.</u> <u>PAYMENTS</u>
1993	Merger Loss (Gain)	30	13,485,002	8	6,596,725	1,047,664
1995	Merger Loss (Gain)	30	41,779,611	10	24,016,159	3,254,713
1996	Merger Loss (Gain)	30	1,772,399	11	1,087,219	138,251
1997	Merger Loss (Gain)	30	890,324	12	578,203	69,534
1998	Merger Loss (Gain)	30	1,602,435	13	1,094,526	125,299
1999	Merger Loss (Gain)	30	14,104,876	14	10,076,599	1,104,183
2001	Merger Loss (Gain)	30	3,117,590	16	2,403,641	244,593
2002	Cumulative Non-Merger Bases	27	175,578,584	14	129,853,753	14,229,238
2003	Contribution Loss (Gain)	15	2,678,010	3	786,449	281,320
2003	Assumption Loss (Gain)	15	(3,248,077)	3	(953,860)	(341,205)
2003	Experience Loss (Gain)	15	44,477,780	3	13,061,747	4,672,310
2004	Contribution Loss (Gain)	15	2,129,874	4	806,884	224,102
2004	Experience Loss (Gain)	15	1,570,785	4	595,078	165,275
2005	Experience Loss (Gain)	15	(24,922,321)	5	(11,423,074)	(2,626,401)
2005	Assumption Loss (Gain)	15	(57,207,831)	5	(26,221,045)	(6,028,760)
2005	Contribution Loss (Gain)	15	(2,457,193)	5	(1,126,247)	(258,948)
2006	Experience Loss (Gain)	15	(30,043,731)	6	(15,975,841)	(3,166,113)
2006	Benefits/COLA Loss (Gain)	15	12,495,729	6	6,644,640	1,316,843
2006	Assumption Loss (Gain)	15	7,880,410	6	4,190,431	830,465
2006	Contribution Loss (Gain)	15	(3,044,474)	6	(1,618,908)	(320,837)
2007	Contribution Loss (Gain)	15	(3,684,696)	7	(2,210,955)	(388,306)
2007	Merger Loss (Gain)	30	1,065,812	22	958,134	83,948
2007	Experience Loss (Gain)	15	(19,348,466)	7	(11,609,802)	(2,039,009)
2007	Benefits/COLA Loss (Gain)	15	13,421,495	7	8,053,398	1,414,404
2008	Assumption Loss (Gain)	15	(138,425)	8	(91,853)	(14,588)
2008	Contribution Loss (Gain)	15	(4,399,499)	8	(2,919,322)	(463,635)
2008	Merger Loss (Gain)	30	1,556,324	23	1,424,061	122,582
2008	Experience Loss (Gain)	15	11,244,458	8	7,461,347	1,184,980
2008	Benefits/COLA Loss (Gain)	15	15,006,752	8	9,957,846	1,581,464
2009	Asset Assumption Loss (Gain)	15	(121,695,690)	9	(87,942,962)	(12,824,715)
2009	Asset Experience Loss (Gain)	20	261,874,151	14	218,067,763	23,895,637
2009	COLA Loss (Gain)	20	15,784,880	14	13,144,380	1,440,347
2009	Experience Loss (Gain)	20	(3,921,422)	14	(3,265,445)	(357,824)
2009	Contribution Loss (Gain)	20	993,536	14	827,337	90,659
2010	Liability Assumption Loss(Gain)	15	37,843,942	10	29,427,932	3,988,126
2010	Asset Experience Loss (Gain)	19	14,930,089	14	12,726,461	1,394,552
2010	Experience Loss (Gain)	19	985,441	14	839,993	92,046
2010	Contribution Loss (Gain)	19	11,264,571	14	9,601,960	1,052,173
2011	Merger Loss (Gain)	30	329,132	26	314,894	25,924
2011	Asset Experience Loss (Gain)	18	34,204,316	14	29,916,075	3,278,172
2011	Experience Loss (Gain)	18	(13,197,519)	14	(11,542,928)	(1,264,862)
2011	Contribution Loss (Gain)	18	6,777,563	14	5,927,851	649,568
2012	Asset Experience Loss (Gain)	17	93,583,915	14	84,211,536	9,227,812
2012	Experience Loss (Gain)	17	(21,072,289)	14	(18,961,911)	(2,077,826)
2012	Contribution Loss (Gain)	17	2,867,982	14	2,580,755	282,796
2013	Asset Experience Loss (Gain)	16	61,647,815	14	57,248,525	6,273,233
2013	Experience Loss (Gain)	16	(30,226,604)	14	(28,069,584)	(3,075,836)

<u>FISCAL</u> <u>YEAR</u>	<u>DESCRIPTION</u>	<u>AMORT.</u> <u>PERIOD</u>	<u>INITIAL</u> <u>BALANCE</u>	<u>YEARS</u> <u>REMAINING</u>	<u>REMAINING</u> <u>BALANCE</u>	<u>AMORT.</u> <u>PAYMENTS</u>
2013	Contribution Loss (Gain)	16	9,431,584	14	8,758,531	959,751
2013	Assumption Loss (Gain)	15	1,290,257	13	1,187,751	135,972
2014	Asset Experience Loss (Gain)	15	(16,528,266)	14	(15,895,445)	(1,741,806)
2014	Experience Loss (Gain)	15	(12,708,035)	14	(12,221,479)	(1,339,217)
2014	Contribution Loss (Gain)	15	3,117,549	14	2,998,187	328,538
2014	Liability Assumption Loss (Gain)	15	(318,965)	14	(306,752)	(33,614)
2015	Asset Experience Loss (Gain)	15	11,058,278	15	11,058,278	1,165,360
2015	Experience Loss (Gain)	15	(18,187,590)	15	(18,187,590)	(1,916,671)
2015	Contribution Loss (Gain)	15	(5,158,272)	15	(5,158,272)	(543,597)
2015	Liability Assumption Loss (Gain)	15	7,891,805	15	7,891,805	831,666
2015	COLA Loss	15	17,767,886	15	17,767,886	1,872,442

TOTAL Unfunded Actuarial Accrued Liability \$468,441,496

TOTAL Fiscal 2015 Amortization Payments \$48,252,172

EXHIBIT VI
ANALYSIS OF CHANGE IN ASSETS

Actuarial Value of Assets (June 30, 2014)		\$ 1,385,135,204
INCOME:		
Member Contributions	\$ 21,286,015	
Employer Contributions	62,252,947	
Irregular Contributions	338,779	
Insurance Premium Taxes	23,924,457	
Total Contributions		\$ 107,802,198
Net Appreciation (Depreciation) of Investments.....	\$(12,581,284)	
Interest & Dividends	12,929,561	
Legal Settlement	2,964,117	
Investment Expense	(6,485,239)	
Net Investment Income		\$ (3,172,845)
TOTAL Income		\$ 104,629,353
EXPENSES:		
Retirement Benefits	\$ 91,920,483	
Refunds of Contributions.....	1,746,315	
Transfers to Other Systems.....	543,002	
Administrative Expenses	1,587,981	
TOTAL Expenses		\$ 95,797,781
Net Market Value Income for Fiscal 2015 (Income - Expenses)		\$ 8,831,572
Unadjusted Fund Balance as of June 30, 2015 (Fund Balance Previous Year + Net Income).....		\$ 1,393,966,776
Adjustment for Actuarial Smoothing.....		\$ 96,441,734
Actuarial Value of Assets: (June 30, 2015).....		\$ 1,490,408,510

EXHIBIT VII
PENSION BENEFIT OBLIGATION

Present Value of Credited Projected Benefits Payable to Current Employees.....	\$	952,569,444
Present Value of Benefits Payable to Terminated Employees		16,197,340
Present Value of Benefits Payable to Current Retirees and Beneficiaries		928,663,474
 TOTAL PENSION BENEFIT OBLIGATION.....	 \$	 1,897,430,258
 NET ACTUARIAL VALUE OF ASSETS	 \$	 1,490,408,510
 Ratio of Net Actuarial Value of Assets to Pension Benefit Obligation.....		 78.55%

**EXHIBIT VIII
CENSUS DATA**

	Active	Terminated with Funds on Deposit	DROP	Retired	Total
Number of members as of June 30, 2014	4,098	551	185	2,057	6,891
Additions to Census					
Initial membership	301	42			343
Omitted in error last year		1			1
Death of another member			(1)	14	13
Adjustment for multiple records				(1)	(1)
Change in Status during Year					
Actives terminating service	(87)	87			
Actives who retired	(40)			40	
Actives entering DROP	(52)		52		
Term. members rehired	22	(22)			
Term. members who retire		(6)		6	
Retirees who are rehired	1			(1)	
Refunded who are rehired	9				9
DROP participants retiring			(58)	58	
DROP returned to work	12		(12)		
Omitted in error last year					
Eliminated from Census					
Refund of contributions	(69)	(49)			(118)
Deaths	(3)			(33)	(36)
Included in error last year					
Adjustment for multiple records				(1)	(1)
Number of members as of June 30, 2015	4,192	604	166	2,139	7,101

ACTIVES CENSUS BY AGE:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
16 - 20	34	1	35	30,722	1,075,257
21 - 25	394	14	408	35,317	14,409,319
26 - 30	683	31	714	39,520	28,217,285
31 - 35	696	39	735	44,401	32,634,510
36 - 40	604	31	635	50,750	32,226,246
41 - 45	608	41	649	57,508	37,322,863
46 - 50	505	39	544	62,471	33,983,977
51 - 55	277	35	312	66,407	20,718,968
56 - 60	111	18	129	70,151	9,049,442
61 - 65	22	2	24	76,141	1,827,383
66 - 70	5	2	7	71,235	498,642
TOTAL	3,939	253	4,192	50,564	211,963,892

THE ACTIVE CENSUS INCLUDES 1,945 ACTIVES WITH VESTED BENEFITS, INCLUDING 57 ACTIVE FORMER DROP PARTICIPANTS. THE 166 CURRENT DROP PARTICIPANTS ARE EXCLUDED.

DROP PARTICIPANTS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
46 - 50	23	1	24	59,237	1,421,684
51 - 55	77	2	79	56,924	4,496,997
56 - 60	47	1	48	64,455	3,093,829
61 - 65	13	2	15	64,336	965,038
TOTAL	160	6	166	60,106	9,977,548

TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
36 - 40	12	0	12	23,938	287,252
41 - 45	21	0	21	23,921	502,337
46 - 50	30	2	32	25,902	828,848
51 - 55	12	1	13	24,291	315,781
56 - 60	2	0	2	33,034	66,067
66 - 70	1	0	1	23,393	23,393
TOTAL	78	3	81	24,984	2,023,678

TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

Contributions Ranging From To	Number	Total Contributions
0 - 99	54	2,673
100 - 499	143	37,560
500 - 999	64	45,609
1000 - 1999	54	76,510
2000 - 4999	76	256,082
5000 - 9999	56	399,133
10000 - 19999	41	592,725
20000 - 99999	35	928,252
TOTAL	523	2,338,544

REGULAR RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
46 - 50	27	1	28	44,857	1,256,007
51 - 55	225	7	232	50,696	11,761,540
56 - 60	326	13	339	47,249	16,017,554
61 - 65	331	11	342	44,573	15,243,940
66 - 70	281	5	286	38,322	10,960,039
71 - 75	170	2	172	37,278	6,411,876
76 - 80	104	2	106	33,989	3,602,868
81 - 85	49	0	49	28,026	1,373,280
86 - 90	40	0	40	25,853	1,034,125
91 - 99	9	0	9	30,582	275,241
TOTAL	1,562	41	1,603	42,381	67,936,470

DISABILITY RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
36 - 40	1	1	2	21,248	42,495
41 - 45	9	2	11	25,391	279,305
46 - 50	19	3	22	23,216	510,755
51 - 55	30	2	32	25,928	829,687
56 - 60	25	3	28	29,881	836,664
61 - 65	34	2	36	32,045	1,153,620
66 - 70	25	0	25	31,898	797,455
71 - 75	13	0	13	33,975	441,673
76 - 80	11	0	11	23,766	261,428
81 - 85	6	0	6	16,537	99,223
86 - 90	1	0	1	13,830	13,830
TOTAL	174	13	187	28,161	5,266,135

SURVIVORS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
0 - 25	14	19	33	5,462	180,253
26 - 30	1	0	1	32,146	32,146
31 - 35	0	3	3	14,457	43,372
36 - 40	1	3	4	23,560	94,238
41 - 45	1	10	11	25,008	275,088
46 - 50	0	11	11	23,773	261,499
51 - 55	0	19	19	26,796	509,122
56 - 60	1	22	23	28,502	655,551
61 - 65	1	34	35	23,994	839,805
66 - 70	1	32	33	19,665	648,960
71 - 75	0	37	37	22,070	816,573
76 - 80	0	42	42	20,003	840,141
81 - 85	0	56	56	16,484	923,097
86 - 90	0	32	32	14,320	458,239
91 - 99	0	9	9	16,014	144,129
TOTAL	20	329	349	19,261	6,722,213

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	27	7	1										35
21 - 25	102	106	74	53	31	42							408
26 - 30	81	92	80	45	67	336	13						714
31 - 35	55	29	37	52	41	311	196	14					735
36 - 40	15	12	20	16	23	147	206	181	15				635
41 - 45	11	4	6	11	16	74	118	227	178	4			649
46 - 50	9	9	6	5	4	31	63	107	222	87		1	544
51 - 55		1	1	1	2	26	27	59	68	96		31	312
56 - 60	1					4	23	17	18	40		26	129
61 - 65							4	4	4	4		8	24
66 - 70								3	1			3	7
71 & Over													0
Totals	301	260	225	183	184	971	650	612	506	231	69		4192

AVERAGE ANNUAL SALARY OF ACTIVE MEMBERS:

Attained Ages	Completed Years of Service											Average Salary	
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over		
0 - 20	30,552	31,432	30,338										30,722
21 - 25	30,594	31,942	38,185	38,886	41,375	41,277							35,317
26 - 30	31,687	33,315	38,416	38,144	40,033	43,139	47,606						39,520
31 - 35	32,551	33,617	37,524	38,920	41,293	44,967	50,891	57,476					44,401
36 - 40	33,138	32,060	39,307	39,688	47,136	46,729	51,396	57,640	63,308				50,750
41 - 45	38,669	34,322	33,161	41,204	44,891	46,481	51,820	60,798	66,121	66,245			57,508
46 - 50	41,197	35,064	36,243	40,797	38,892	46,356	53,433	63,790	66,353	72,374	64,866		62,471
51 - 55		27,133	22,020	61,319	49,756	49,008	51,289	62,305	65,803	74,740	81,431		66,407
56 - 60	51,857					68,115	55,442	59,184	71,003	74,814	83,585		70,151
61 - 65							83,785	56,387	67,536	70,766	89,186		76,141
66 - 70								55,017	22,850		103,580		71,235
71 & Over													0
Average	32,051	32,733	37,965	39,097	41,931	44,805	51,780	60,354	66,196	73,646	83,865		50,564

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										12		12
41 - 45						3	18					21
46 - 50	1		1			30						32
51 - 55	2	2	4	2	3							13
56 - 60	2											2
61 - 65												0
66 - 70	1											1
71 & Over												0
Totals	6	2	5	2	3	33	18	12	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										23,938		23,938
41 - 45						40,346	21,183					23,921
46 - 50	34,724		43,629			25,016						25,901
51 - 55	21,070	26,935	19,881	27,915	28,138							24,291
56 - 60	33,034											33,034
61 - 65												0
66 - 70	23,393											23,393
71 & Over												0
Average	27,721	26,935	24,631	27,915	28,138	26,410	21,183	23,938	0	0	0	24,984

SERVICE RETIREES:

Attained Ages	Completed Years Since Retirement											Total	
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over		
0 - 50	9	8	5	3	2	1							28
51 - 55	43	39	44	27	15	60	4						232
56 - 60	37	45	30	39	29	124	33	2					339
61 - 65	11	15	20	20	9	109	120	24	13		1		342
66 - 70	1	3	1	3	6	35	96	110	16	13		2	286
71 - 75			1	2	1	12	24	64	42	13		13	172
76 - 80				1		1	5	21	28	22		28	106
81 - 85							2	2	6	12		27	49
86 - 90							1		2		5	32	40
91 & Over								1		2		6	9
Totals	101	110	101	95	62	342	285	224	107	68	108		1603

AVERAGE ANNUAL BENEFITS PAYABLE TO SERVICE RETIREES:

Attained Ages	Completed Years Since Retirement											Average Benefit	
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over		
0 - 50	43,596	42,011	41,485	44,872	62,729	60,054							44,857
51 - 55	54,046	56,877	51,365	51,146	46,719	45,124	42,540						50,696
56 - 60	52,512	54,928	56,155	50,398	44,538	41,819	42,834	31,016					47,249
61 - 65	47,550	63,440	51,474	55,608	48,809	44,221	42,357	39,112	25,118	20,260			44,573
66 - 70	34,003	35,667	76,585	43,942	51,595	43,072	40,043	37,152	29,817	26,375	21,376		38,322
71 - 75			39,875	32,862	69,182	34,394	42,153	41,209	36,495	24,123	25,305		37,278
76 - 80				55,370		24,473	30,269	44,447	39,166	33,196	21,834		33,989
81 - 85							12,759	40,267	36,644	39,379	21,290		28,026
86 - 90							9,043		49,243	46,273	21,726		25,853
91 & Over								26,928		50,487	24,556		30,582
Average	51,647	55,315	52,456	51,012	47,353	43,035	41,081	39,132	35,060	32,528	22,226		42,381

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 - 35													0
36 - 40		1					1						2
41 - 45	1	2	1		1	4	2						11
46 - 50		2	1	1	2	8	6	1		1			22
51 - 55		1	1		2	12	11	2	2		1		32
56 - 60		1		1	1	8	8	4	2		3		28
61 - 65				2		5	8	7	3		8	3	36
66 - 70						3	4	6	6		5	1	25
71 - 75							2	5	2		1	3	13
76 - 80							2	2	1		1	5	11
81 - 85								1			2	3	6
86 - 90												1	1
91 & Over												1	0
Totals	1	7	3	4	6	40	44	28	17	21	16		187

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 - 35													0
36 - 40		27,451					15,044						21,248
41 - 45	32,640	49,533	26,246		26,020	18,635	10,396						25,391
46 - 50		36,753	27,059	25,404	29,352	24,671	15,617	17,811	17,204				23,216
51 - 55		21,718	9,416		31,506	31,325	26,697	14,722	11,077		14,379		25,928
56 - 60		26,387		42,157	19,728	48,157	27,532	13,758	19,453	16,314			29,881
61 - 65				66,691		50,212	42,957	22,752	15,353	21,860	15,108		32,045
66 - 70						40,493	47,568	37,955	22,711	22,279	10,313		31,898
71 - 75							20,046	59,855	24,900	20,220	10,763		33,975
76 - 80							9,396	40,535	63,341	24,626	14,720		23,766
81 - 85								34,206		17,903	9,737		16,537
86 - 90											13,830		13,830
91 & Over													0
Average	32,640	35,447	20,907	50,236	27,911	35,140	28,097	32,280	21,984	20,488	12,785		28,161

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	1	3			2	16	4					26
21 - 25					1	3	1	1	1			7
26 - 30		1										1
31 - 35					2	1						3
36 - 40		2				1				1		4
41 - 45		1				5	2	2	1			11
46 - 50	1				3	3	1	2	1			11
51 - 55	1	2	1	1	1	5	2	3	3			19
56 - 60	1		1		1	7	5	5	1		2	23
61 - 65	1	2			1	4	6	8	5	5	3	35
66 - 70							5	14	5	3	6	33
71 - 75						2	3	9	7	2	14	37
76 - 80							4	1	7	10	20	42
81 - 85							1	1	4	11	39	56
86 - 90									2	2	28	32
91 & Over										1	8	9
Totals	5	11	2	1	11	47	34	46	37	35	120	349

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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	5,058	5,874			4,767	5,454	3,835					5,186
21 - 25					5,217	9,632	3,519	2,902	4,894			6,490
26 - 30		32,146										32,146
31 - 35					14,776	13,820						14,457
36 - 40		32,864				26,719				1,791		23,559
41 - 45		31,539				33,025	19,023	14,628	11,119			25,008
46 - 50	33,723				33,875	32,398	11,160	2,605	12,585			23,773
51 - 55	58,647	36,256	87,798	47,749	15,383	19,623	21,839	16,317	12,096			26,796
56 - 60	15,919		42,895		33,876	33,815	33,243	22,988	25,811		9,595	28,502
61 - 65	62,706	32,094			36,376	23,426	27,234	17,400	25,032	22,967	13,412	23,994
66 - 70							19,602	22,527	20,681	20,043	12,005	19,665
71 - 75						37,181	47,095	26,246	28,193	20,234	9,064	22,070
76 - 80							16,073	57,977	29,636	28,153	11,444	20,003
81 - 85							2,962	10,208	30,282	20,223	14,522	16,484
86 - 90									14,373	28,989	13,268	14,320
91 & Over										40,343	12,973	16,014
Average	35,210	25,794	65,346	47,749	21,051	19,615	21,997	20,875	23,620	23,415	12,741	19,261

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EXHIBIT IX YEAR-TO-YEAR COMPARISON

	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012
Number of Active Members	4,192	4,098	4,063	4,056
Number of Retirees & Survivors	2,139	2,057	1,958	1,875
DROP Participants	166	185	221	217
Number of Terminated Due Deferred Benefits	81	9	71	70
Number Terminated Due Refunds	523	472	450	398
Active Lives Payroll (excludes DROP participants)	\$ 211,963,892	\$ 203,333,976	\$ 199,129,982	\$ 198,112,999
Retiree Benefits in Payment	\$ 79,924,818	\$ 73,404,453	\$ 67,678,016	\$ 62,975,274
Market Value of Assets	\$ 1,419,138,769	\$ 1,410,307,198	\$ 1,253,213,084	\$ 1,122,864,548
Ratio of Actuarial Value of Assets to Actuarial Accrued Liability	76.09%	74.66%	71.13%	71.66%
Actuarial Accrued Liability	\$ 1,958,850,006	\$ 1,855,298,538	\$ 1,771,931,777	\$ 1,700,643,083
Actuarial Value of Assets	\$ 1,490,408,510	\$ 1,385,135,204	\$ 1,260,348,240	\$ 1,218,618,308
UAL (Funding Excess)	\$ 468,441,496	\$ 470,163,334	\$ 511,583,537	\$ 482,024,775
P.V. of Future Employer Normal Contributions	\$ 286,640,979	\$ 315,734,786	\$ 310,702,226	\$ 325,616,184
Present Value of Future Employee Contrib.	\$ 216,351,986	\$ 213,279,261	\$ 210,842,508	\$ 211,015,125
Present Value of Future Benefits	\$ 2,461,842,971	\$ 2,384,312,585	\$ 2,294,778,794	\$ 2,223,486,329

	Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013
Employee Contribution Rate (For employees with earnings above the poverty level)	10.00%	10.00%	10.00%	10.00%
Required Tax Contributions as a Percentage of Projected Payroll	11.33%	11.39%	11.05%	10.72%
Actuarially Required Employer Contribution as a Percentage of Projected Payroll (For employees with earnings above the poverty level)	25.44%	27.50%	29.23%	27.77%
Actual Employer Contribution Rate (For employees with earnings above the poverty level)	27.25%	29.25%	28.25%	24.00%

Fiscal 2011	Fiscal 2010	Fiscal 2009	Fiscal 2008	Fiscal 2007	Fiscal 2006
4,020	3,989	3,882	3,821	3,632	3,534
1,802	1,749	1,688	1,631	1,555	1,477
225	162	147	130	134	111
68	59	55	55	54	52
418	442	407	350	298	249
\$ 193,136,985	\$ 189,542,210	\$ 178,913,097	\$ 169,401,716	\$ 150,960,665	\$ 140,175,740
\$ 58,699,965	\$ 56,056,554	\$ 53,031,851	\$ 48,416,581	\$ 43,972,738	\$ 39,649,619
\$ 1,154,482,040	\$ 971,775,080	\$ 865,547,030	\$ 1,092,459,674	\$ 1,138,227,081	\$ 963,805,222
74.33%	74.21%	76.13%	85.78%	86.02%	83.66%
\$ 1,621,007,988	\$ 1,536,258,543	\$ 1,410,559,615	\$ 1,317,161,382	\$ 1,192,323,327	\$ 1,089,280,137
\$ 1,204,830,245	\$ 1,140,054,175	\$ 1,073,797,423	\$ 1,129,809,421	\$ 1,025,656,019	\$ 911,329,622
\$ 416,177,743	\$ 396,204,368	\$ 336,762,192	\$ 187,351,961	\$ 166,667,308	\$ 177,950,515
\$ 305,540,215	\$ 335,984,027	\$ 292,585,945	\$ 277,566,364	\$ 247,631,617	\$ 230,234,335
\$ 206,989,105	\$ 160,939,180	\$ 150,094,699	\$ 142,412,175	\$ 126,968,955	\$ 118,092,552
\$ 2,133,537,308	\$ 2,033,181,750	\$ 1,853,240,259	\$ 1,737,139,921	\$ 1,566,923,899	\$ 1,437,607,024

Fiscal 2012	Fiscal 2011	Fiscal 2010	Fiscal 2009	Fiscal 2008	Fiscal 2007
10.00%	8.00%	8.00%	8.00%	8.00%	8.00%
10.93%	11.09%	11.56%	12.20%	13.16%	12.83%
24.02%	24.97%	20.79%	13.89%	12.56%	14.01%
23.25%	21.50%	14.00%	12.50%	13.75%	15.50%

SUMMARY OF PRINCIPAL PLAN PROVISIONS

The Firefighters' Retirement System was established as of January 1, 1980, for the purpose of providing retirement allowances and other benefits as described under R.S. 11:2256 - 11:2259. The following summary of plan provisions is for general informational purposes only and does not constitute a guarantee of benefits.

MEMBERSHIP - All full time firefighters or any person in a position as defined in the municipal fire and police civil service system who is employed by a fire department of any municipality, parish, or fire protection district of the State of Louisiana, except Orleans, and East Baton Rouge Parishes, who earns at least three hundred seventy-five dollars per month excluding state supplemental pay are required to be members of this retirement system. Employees of the system are eligible, at their option to become members of the system. Persons must be under the age of fifty to be eligible for system membership unless they become members through merger.

CONTRIBUTION RATES - Under the provisions of R.S. 11:62, 11:103, and 22:1476A(3), the fund is financed by a combination of employee contributions, employer contributions, and insurance premium taxes. The employee contribution rate is set by R.S. 11:62 but cannot be less than 8% or more than 10% of earnable compensation. The employee contribution rate is fixed at 8% for members whose earnable compensation is less than or equal to the poverty guidelines issued by the U. S. Department of Health and Human Services. Gross employer contributions are determined by actuarial valuation and are subject to change each year in accordance with R. S. 11:103 and 11:107.2. The employee contribution rate is set at 8% when gross employer contributions total 25% or less of earnable compensation. The employee rate then increases 0.25% for each 0.75% increase in the total rate, subject to a maximum rate of 10%. Insurance premium taxes are allocated to the system based on available funds and the statutory provisions as described in R.S. 22:1476A(3).

CONTRIBUTION REFUNDS - Upon withdrawal from service, members not entitled to a retirement allowance may receive a refund of accumulated contributions. Refunds are payable ninety days after the effective date of withdrawal from service.

RETIREMENT BENEFITS - Members with twelve years of creditable service may retire at age fifty-five; members with twenty years of service may retire at age fifty; members with twenty-five years of service may retire regardless of age, provided that they have been a member of this system for at least one year. The retirement allowance is equal to three and one-third percent of the member's average final compensation multiplied by his years of creditable service, not to exceed one hundred percent of his average final compensation.

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 payable to the member, the member's spouse, or the member's dependent child, which is actuarially equivalent to the maximum benefit.

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

Initial Benefit Option – This option is available only to regular retirees who have not participated in the Deferred Retirement Option Plan. Under this option members may receive an initial benefit plus a reduced monthly retirement allowance which, when combined, equal the actuarially equivalent amount of the maximum retirement allowance. The initial benefit may not exceed an amount equal to thirty-six payments of the member's maximum retirement allowance. The initial benefit can be paid either as a lump-sum payment or placed in an account called an "initial benefit account" with interest credited thereto and monthly payments made from the account.

DISABILITY BENEFITS - Any member who has been officially certified as totally disabled solely as the result of injuries sustained in the performance of his official duties, or for any cause, provided the member has a least five years of creditable service and provided that the disability was incurred while the member was an active contributing member, is entitled to disability benefits. Any member under the age of fifty who becomes totally disabled will receive a disability benefit equal to 60% of final compensation for an injury received in the line of duty; or 75% of his accrued retirement benefit with a minimum of 25% of average salary for any injury received, even though not in the line of duty. Any member age fifty or older who becomes totally disabled from an injury sustained in the line of duty is entitled to a disability benefit equal to the greater of 60% of final compensation or his accrued retirement benefit. Any member age fifty or older who becomes totally disabled as a result of any injury, even though not in the line of duty, is entitled to a disability benefit equal to his accrued retirement benefit with a minimum of 25% of average salary. The surviving spouse of a member who was on disability retirement at the time of death receives a benefit of \$200 per month. When the member takes disability retirement, he may in addition take an actuarially reduced benefit in which case the member's surviving spouse receives 50% of the disability benefit being paid immediately prior to the death of the disability retiree. The retirement system may reduce benefits paid to a disability retiree who is also receiving workers compensation payments.

SURVIVOR BENEFITS - Benefits are payable to survivors of a deceased member who dies and is not eligible for retirement as follows. If any member is killed in the line of duty and leaves a surviving eligible spouse, the spouse is entitled to an annual benefit equal to two-thirds of the deceased member's final compensation. If any member dies from a cause not in the line of duty, the surviving spouse is entitled to an annual benefit equal to 3% of the deceased member's average final compensation multiplied by his total years of creditable service; however, in no event is the annual benefit less than 40% nor more than 60% of the deceased member's average final compensation. Children of the deceased member who are under the age of eighteen years are entitled to the greater of \$200 per month or 10% of average final compensation (not to exceed 100% of average final compensation) until reaching the age of eighteen or until the age of twenty-two if enrolled full-time in

an institution of higher learning, unless the surviving child is physically handicapped or mentally retarded in which case the benefit is payable regardless of age. If a deceased member dies leaving no surviving spouse, but at least one minor child, each child is entitled to receive forty percent of the deceased's average final compensation, not to exceed an aggregate of sixty percent of average final compensation.

DEFERRED RETIREMENT OPTION PLAN - In lieu of terminating employment and accepting a service retirement allowance, any member of the system who has at least twenty years of creditable service and who is eligible to receive 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, membership in the system terminates and neither the employee nor employer contributions are payable. Compensation and creditable service will remain as they existed on the effective date of commencement of participation in the plan. The monthly retirement benefits that would have been payable, had the member elected to cease employment and receive a service retirement allowance, are paid into the deferred retirement option plan account. Upon termination of employment at the end of the specified period of participation, a participant in the program may receive, at his option, a lump sum payment from the account equal to the payments to the account, or a true annuity based upon his account, or he may elect any other method of payment if approved by the board of trustees. The monthly benefits that were being paid into the fund during the period of participation will begin to be paid to the retiree. If employment is not terminated at the end of the thirty-six months, payments into the account cease and the member resumes active contributing membership in the system. If the participant dies during the period of participation in the program, a lump sum payment equal to his account balance is paid to his named beneficiary or, if none, to his estate; in addition, normal survivor benefits are payable to survivors of retirees.

COST OF LIVING INCREASES - The board of trustees is authorized to grant retired members and widows of members who have retired an annual cost of living increase of up to 3% of their current benefit, and all retired members and widows who are sixty-five years of age and older a 2% increase in their original benefit. In order for the board to grant either of these increases the system must meet certain criteria detailed in the statute related to funding status and interest earnings. In lieu of these cost of living adjustments the board may also grant an increase in the form of " $X \times (A+B)$ " where "X" is any amount up to \$1 per month, and "A" is equal to 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 thirtieth 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 that have an impact on the cost of the plan. To the extent that future experience varies from the assumptions selected for valuation, future costs will be either higher or lower than anticipated. The following chart illustrates the effect of emerging experience on the plan.

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

ACTUARIAL COST METHOD:	Individual Entry Age Normal With Allocation of Cost Based on Earnings. Entry and Attained Ages Calculated on an Age Near Birthday Basis.
VALUATION INTEREST RATE:	7.5% (Net of investment expense)
ACTUARIAL ASSET VALUES:	All assets are valued at market value adjusted to defer four-fifths of all earnings above or below the valuation interest rate in the valuation year, three-fifths of all earnings above or below the valuation interest rate in the prior year, two-fifths of all earnings above or below the valuation interest rate from two years prior, and one-fifth of all earnings above or below the valuation interest rate from three years prior. The resulting smoothed values are subject to a corridor of 85% to 115% of the market value of assets. If the smoothed value falls outside the corridor, the actuarial value is set equal to the average of the corridor limit and the smoothed value.
ACTIVE, ANNUITANT AND BENEFICIARY MORTALITY:	RP-2000 Combined Healthy with Blue Collar Adjustment Sex Distinct Tables Projected to 2031
RETIREE COST OF LIVING INCREASES:	The present value of future retirement benefits is based on benefits currently being paid by the system and includes previously granted cost of living increases. The present values do not include provisions for potential future increases not yet authorized by the Board of Trustees.

ANNUAL SALARY INCREASE RATE: Salary increases include 2.875% inflation and merit increases. The gross rates including inflation and merit increases are as follows:

Years of Service	Salary Growth Rate
1 – 2	15.000%
3 – 24	5.250%
25 & over	4.750%

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

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

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

DROP PARTICIPATION PERIOD: All DROP participants are assumed to participate for 3 years and retire at the end of this participation period.

RETIREMENT RATES FOR ACTIVE FORMER DROP PARTICIPANTS: Retirement rates for active former DROP participants are as follows:

Ages	Retirement Rates
74 & Under	0.25
75 & Over	1.00

DISABILITY RATES: 55% of the disability rates used for the 21st valuation of the Railroad Retirement System for individuals with 10-19 years of service. The table of these rates is included later in the report. 20% of total disabilities are assumed to be in the line of duty.

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

<u>Service</u>	<u>Factor</u>	<u>Service</u>	<u>Factor</u>
<1	0.075	6	0.050
1	0.065	7	0.040
2	0.065	8	0.030
3	0.065	9	0.020
4	0.050	>9	0.010
5	0.050		

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

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

SERVICE RELATED DEATH: 20% of Total Deaths

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

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

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

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

ACTUARIAL TABLES AND RATES

Age	Male Mortality Rates	Female Mortality Rates	Retirement Rates	DROP Entry Rates	Disability Rates
18	0.00017	0.00012	0.000000	0.000000	0.000830
19	0.00018	0.00012	0.000000	0.000000	0.000830
20	0.00019	0.00012	0.000000	0.000000	0.000830
21	0.00020	0.00011	0.000000	0.000000	0.000830
22	0.00022	0.00011	0.000000	0.000000	0.000830
23	0.00023	0.00012	0.000000	0.000000	0.000830
24	0.00025	0.00013	0.000000	0.000000	0.000830
25	0.00028	0.00013	0.000000	0.000000	0.000830
26	0.00031	0.00015	0.000000	0.000000	0.000830
27	0.00033	0.00015	0.000000	0.000000	0.000830
28	0.00034	0.00016	0.000000	0.000000	0.000830
29	0.00035	0.00017	0.000000	0.000000	0.000830
30	0.00062	0.00021	0.000000	0.000000	0.000830
31	0.00068	0.00026	0.000000	0.000000	0.000830
32	0.00075	0.00029	0.000000	0.000000	0.000830
33	0.00081	0.00031	0.000000	0.000000	0.000830
34	0.00087	0.00034	0.000000	0.000000	0.000830
35	0.00093	0.00037	0.000000	0.000000	0.000940
36	0.00098	0.00040	0.000000	0.000000	0.001050
37	0.00103	0.00043	0.000000	0.000000	0.001160
38	0.00105	0.00046	0.000000	0.000000	0.001320
39	0.00106	0.00050	0.000000	0.000000	0.001490
40	0.00107	0.00055	0.000000	0.000000	0.001710
41	0.00108	0.00061	0.060000	0.150000	0.001930
42	0.00110	0.00067	0.060000	0.150000	0.002150
43	0.00113	0.00074	0.060000	0.150000	0.002420
44	0.00116	0.00080	0.060000	0.150000	0.002750
45	0.00120	0.00084	0.060000	0.150000	0.003140
46	0.00122	0.00088	0.060000	0.150000	0.003580
47	0.00126	0.00091	0.060000	0.150000	0.004020
48	0.00129	0.00097	0.060000	0.150000	0.004570
49	0.00133	0.00104	0.060000	0.150000	0.005170
50	0.00137	0.00115	0.060000	0.170000	0.005890
51	0.00151	0.00127	0.060000	0.170000	0.006710
52	0.00160	0.00145	0.060000	0.170000	0.007590
53	0.00176	0.00166	0.060000	0.170000	0.008640
54	0.00195	0.00190	0.060000	0.170000	0.009790
55	0.00232	0.00218	0.060000	0.170000	0.011110
56	0.00283	0.00254	0.060000	0.170000	0.012650
57	0.00331	0.00290	0.060000	0.170000	0.014360
58	0.00388	0.00325	0.060000	0.170000	0.016280
59	0.00440	0.00369	0.060000	0.170000	0.018540
60	0.00502	0.00424	0.060000	0.170000	0.026840
61	0.00590	0.00496	0.060000	0.170000	0.026840
62	0.00674	0.00581	0.060000	0.170000	0.026840
63	0.00795	0.00683	0.060000	0.170000	0.026840
64	0.00892	0.00782	0.060000	0.170000	0.026840
65	0.01004	0.00890	0.500000	0.170000	0.026840
66	0.01170	0.01013	0.500000	0.170000	0.026840
67	0.01303	0.01131	0.500000	0.170000	0.026840
68	0.01400	0.01260	0.500000	0.170000	0.026840
69	0.01547	0.01403	0.500000	0.170000	0.026840
70	0.01675	0.01595	0.500000	0.000000	0.026840
71	0.01836	0.01721	0.500000	0.000000	0.026840
72	0.02015	0.01914	0.500000	0.000000	0.026840
73	0.02216	0.02056	0.500000	0.000000	0.026840
74	0.02444	0.02267	0.500000	0.000000	0.026840
75	0.02786	0.02408	0.500000	0.000000	0.026840

PRIOR YEAR ASSUMPTIONS

ACTIVE MEMBER MORTALITY:	RP-2000 Employee Mortality Table set back 1 year for males and 1 year for females																																
ANNUITANT AND BENEFICIARY MORTALITY:	RP-2000 Healthy Annuitant Morality Table set back 1 year for males and 1 year for females																																
ANNUAL SALARY INCREASE RATE:	<p>Salary increases include 3.00% inflation and merit increases. The gross rates including inflation and merit increases are as follows:</p> <table style="margin-left: 40px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Years of Service</th> <th style="text-align: left;">Salary Growth Rate</th> </tr> </thead> <tbody> <tr> <td>1 – 2</td> <td>15.000%</td> </tr> <tr> <td>3 – 14</td> <td>6.500%</td> </tr> <tr> <td>15 & over</td> <td>5.500%</td> </tr> </tbody> </table>	Years of Service	Salary Growth Rate	1 – 2	15.000%	3 – 14	6.500%	15 & over	5.500%																								
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RETIREMENT RATES FOR ACTIVE FORMER DROP PARTICIPANTS:	<p>Retirement rates for active former DROP participants are as follows:</p> <table style="margin-left: 40px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Ages</th> <th style="text-align: left;">Retirement Rates</th> </tr> </thead> <tbody> <tr> <td>74 & Under</td> <td>0.20</td> </tr> <tr> <td>75 & Over</td> <td>1.00</td> </tr> </tbody> </table>	Ages	Retirement Rates	74 & Under	0.20	75 & Over	1.00																										
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74 & Under	0.20																																
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WITHDRAWAL RATES:	<p>The rates of withdrawal are applied based upon completed years of service according to the following table:</p> <table style="margin-left: 40px; border-collapse: collapse; width: 80%;"> <thead> <tr> <th style="text-align: left;"><u>Service</u></th> <th style="text-align: left;"><u>Factor</u></th> <th style="text-align: left;"><u>Service</u></th> <th style="text-align: left;"><u>Factor</u></th> </tr> </thead> <tbody> <tr> <td><1</td> <td>0.100</td> <td>7</td> <td>0.020</td> </tr> <tr> <td>1</td> <td>0.060</td> <td>8</td> <td>0.020</td> </tr> <tr> <td>2</td> <td>0.060</td> <td>9</td> <td>0.020</td> </tr> <tr> <td>3</td> <td>0.060</td> <td>10</td> <td>0.020</td> </tr> <tr> <td>4</td> <td>0.035</td> <td>11</td> <td>0.020</td> </tr> <tr> <td>5</td> <td>0.035</td> <td>>11</td> <td>0.010</td> </tr> <tr> <td>6</td> <td>0.035</td> <td></td> <td></td> </tr> </tbody> </table> <p>Note: The withdrawal rate for individuals eligible to retire is assumed to be zero.</p>	<u>Service</u>	<u>Factor</u>	<u>Service</u>	<u>Factor</u>	<1	0.100	7	0.020	1	0.060	8	0.020	2	0.060	9	0.020	3	0.060	10	0.020	4	0.035	11	0.020	5	0.035	>11	0.010	6	0.035		
<u>Service</u>	<u>Factor</u>	<u>Service</u>	<u>Factor</u>																														
<1	0.100	7	0.020																														
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4	0.035	11	0.020																														
5	0.035	>11	0.010																														
6	0.035																																
MARRIAGE STATISTICS:	80% 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 2000 U. S. Census:

<u>Member's Age</u>	<u>% With Children</u>	<u>Number of Children</u>	<u>Average Age</u>
25	62%	1.7	6
35	82%	2.1	10
45	66%	1.8	13
55	19%	1.4	15
65	2%	1.4	15

DISABLED LIVES MORTALITY: RP-2000 Disabled Lives Mortality Tables for Males and Females

PRIOR YEAR ACTUARIAL TABLES AND RATES

Age	Active Male Mortality Rates	Active Female Mortality Rates	Retired Male Mortality Rates	Retired Female Mortality Rates	Retirement Rates	DROP Entry Rates	Disability Rates
18	0.00030	0.00018	0.00030	0.00018	0.00000	0.00000	0.00083
19	0.00032	0.00019	0.00032	0.00019	0.00000	0.00000	0.00083
20	0.00033	0.00019	0.00033	0.00019	0.00000	0.00000	0.00083
21	0.00035	0.00019	0.00035	0.00019	0.00000	0.00000	0.00083
22	0.00036	0.00019	0.00036	0.00019	0.00000	0.00000	0.00083
23	0.00037	0.00019	0.00037	0.00019	0.00000	0.00000	0.00083
24	0.00037	0.00020	0.00037	0.00020	0.00000	0.00000	0.00083
25	0.00038	0.00020	0.00038	0.00020	0.00000	0.00000	0.00083
26	0.00038	0.00021	0.00038	0.00021	0.00000	0.00000	0.00083
27	0.00038	0.00021	0.00038	0.00021	0.00000	0.00000	0.00083
28	0.00038	0.00022	0.00038	0.00022	0.00000	0.00000	0.00083
29	0.00039	0.00024	0.00039	0.00024	0.00000	0.00000	0.00083
30	0.00041	0.00025	0.00041	0.00025	0.00000	0.00000	0.00083
31	0.00044	0.00026	0.00044	0.00026	0.00000	0.00000	0.00083
32	0.00050	0.00031	0.00050	0.00031	0.00000	0.00000	0.00083
33	0.00056	0.00035	0.00056	0.00035	0.00000	0.00000	0.00083
34	0.00063	0.00039	0.00063	0.00039	0.00000	0.00000	0.00083
35	0.00070	0.00044	0.00070	0.00044	0.00000	0.00000	0.00094
36	0.00077	0.00047	0.00077	0.00047	0.00000	0.00000	0.00105
37	0.00084	0.00051	0.00084	0.00051	0.00000	0.00000	0.00116
38	0.00090	0.00055	0.00090	0.00055	0.00000	0.00000	0.00132
39	0.00096	0.00060	0.00096	0.00060	0.00000	0.00000	0.00149
40	0.00102	0.00065	0.00102	0.00065	0.00000	0.00000	0.00171
41	0.00108	0.00071	0.00108	0.00071	0.08000	0.15000	0.00193
42	0.00114	0.00077	0.00114	0.00077	0.08000	0.15000	0.00215
43	0.00122	0.00085	0.00122	0.00085	0.08000	0.15000	0.00242
44	0.00130	0.00094	0.00130	0.00094	0.08000	0.15000	0.00275
45	0.00140	0.00103	0.00140	0.00103	0.08000	0.15000	0.00314
46	0.00151	0.00112	0.00151	0.00112	0.08000	0.15000	0.00358
47	0.00162	0.00122	0.00162	0.00122	0.08000	0.15000	0.00402
48	0.00173	0.00133	0.00173	0.00133	0.08000	0.15000	0.00457
49	0.00186	0.00143	0.00186	0.00143	0.08000	0.15000	0.00517
50	0.00200	0.00155	0.00200	0.00155	0.08000	0.15000	0.00589
51	0.00214	0.00168	0.00535	0.00234	0.04000	0.15000	0.00671
52	0.00229	0.00181	0.00553	0.00246	0.04000	0.25000	0.00759
53	0.00245	0.00197	0.00564	0.00265	0.04000	0.25000	0.00864
54	0.00262	0.00213	0.00572	0.00290	0.04000	0.25000	0.00979
55	0.00281	0.00232	0.00580	0.00319	0.14000	0.25000	0.01111
56	0.00303	0.00253	0.00590	0.00353	0.14000	0.25000	0.01265
57	0.00331	0.00276	0.00612	0.00393	0.14000	0.25000	0.01436
58	0.00363	0.00301	0.00644	0.00438	0.14000	0.11000	0.01628
59	0.00400	0.00329	0.00690	0.00492	0.14000	0.11000	0.01854
60	0.00441	0.00360	0.00749	0.00553	0.14000	0.11000	0.02684
61	0.00488	0.00393	0.00820	0.00620	0.14000	0.11000	0.02684
62	0.00538	0.00429	0.00900	0.00692	0.14000	0.38000	0.02684
63	0.00592	0.00466	0.00991	0.00769	0.14000	0.38000	0.02684
64	0.00647	0.00504	0.01095	0.00851	0.50000	0.38000	0.02684
65	0.00703	0.00543	0.01212	0.00939	0.50000	0.38000	0.02684
66	0.00757	0.00582	0.01342	0.01036	0.50000	0.38000	0.02684
67	0.00810	0.00621	0.01487	0.01141	0.50000	0.38000	0.02684
68	0.00860	0.00658	0.01646	0.01254	0.50000	0.38000	0.02684
69	0.00907	0.00695	0.01820	0.01377	0.50000	0.00000	0.02684
70	0.00951	0.00729	0.02011	0.01515	1.00000	0.00000	0.02684
71	0.00992	0.00761	0.02221	0.01674	1.00000	0.00000	0.02684
72	0.02457	0.01858	0.02457	0.01858	1.00000	0.00000	0.02684
73	0.02728	0.02067	0.02728	0.02066	1.00000	0.00000	0.02684
74	0.03039	0.02297	0.03039	0.02297	1.00000	0.00000	0.02684
75	0.03390	0.02546	0.03390	0.02546	1.00000	0.00000	0.02684

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