

**MUNICIPAL EMPLOYEES'
RETIREMENT SYSTEM**

ACTUARIAL VALUATION AS OF
JUNE 30, 2019

G. S. CURRAN & COMPANY, LTD.

Actuarial Services

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November 12, 2019

Board of Trustees
Municipal Employees' Retirement System
7937 Office Park Boulevard
Baton Rouge, Louisiana 70809

Ladies and Gentlemen:

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

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

Sincerely,

G. S. CURRAN & COMPANY, LTD.

By: _____


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


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

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SUMMARY OF VALUATION RESULTS
MUNICIPAL EMPLOYEES' RETIREMENT SYSTEM – PLAN A

Valuation Date:	June 30, 2019	June 30, 2018
Census Summary:		
Active Members	4,795	4,888
Retired Members and Survivors	3,552	3,468
Terminated Due a Deferred Benefit	199	185
Terminated Due a Refund	3,191	2,994
Payroll:	\$ 183,483,655	\$ 181,786,660
Benefits in Payment:	\$ 66,516,731	\$ 63,184,393
Present Value of Future Benefits:	\$ 1,358,641,079	\$ 1,335,318,466
Actuarial Accrued Liability (EAN):	\$ 1,165,954,887	\$ 1,129,080,666
Frozen Unfunded Actuarial Accrued Liability:	\$ 65,648,756	\$ 68,334,864
Funding Deposit Account Credit Balance:	\$ 9,346,575	\$ 8,712,724
Actuarial Value of Assets (AVA):	\$ 806,503,031	\$ 797,679,469
Market Value of Assets (MVA):	\$ 765,059,686	\$ 734,226,194
Ratio of AVA to Actuarial Accrued Liability (EAN):	69.17%	70.65%
	Fiscal 2019	Fiscal 2018
Market Rate of Return:	4.9%	6.1%
Actuarial Rate of Return:	1.7%	2.8%
	Fiscal 2020	Fiscal 2019
Employers' Normal Cost (Mid-year):	\$ 52,012,558	\$ 48,573,047
Amortization Cost (Mid-year):	\$ 7,613,587	\$ 7,393,261
Estimated Administrative Cost:	\$ 1,898,365	\$ 1,374,875
Projected Ad Valorem Tax Contributions:	\$ 6,460,959	\$ 6,180,051
Projected Revenue Sharing Funds:	\$ 113,397	\$ 113,209
Net Direct Employer Actuarially Required Contributions:	\$ 54,950,154	\$ 51,047,923
Projected Payroll:	\$ 187,660,646	\$ 185,436,456
Board Approved Employee Contribution Rate:	9.50%	9.50%
Board Approved Net Direct Employer Contribution Rate:	27.75%	26.00%
Actuarially Required Net Direct Employer Contribution Rate:	29.28%	27.53%
	Fiscal 2021	Fiscal 2020
Minimum Recommended Net Direct Employer Contribution Rate:	29.50%	27.75%

SUMMARY OF VALUATION RESULTS
MUNICIPAL EMPLOYEES' RETIREMENT SYSTEM – PLAN B

Valuation Date:	June 30, 2019	June 30, 2018
Census Summary:		
Active Members	2,063	2,128
Retired Members and Survivors	1,076	1,050
Terminated Due a Deferred Benefit	97	92
Terminated Due a Refund	1,556	1,419
Payroll:	\$ 75,213,353	\$ 74,696,846
Benefits in Payment:	\$ 12,223,991	\$ 11,522,493
Present Value of Future Benefits:	\$ 304,082,748	\$ 293,683,688
Actuarial Accrued Liability (EAN):	\$ 254,292,446	\$ 241,302,909
Funding Deposit Account Credit Balance:	\$ 1,633,823	\$ 1,523,023
Actuarial Value of Assets (AVA):	\$ 180,085,046	\$ 175,032,415
Market Value of Assets (MVA):	\$ 170,871,104	\$ 161,284,802
Ratio of AVA to Actuarial Accrued Liability (EAN):	70.82%	72.54%
	Fiscal 2019	Fiscal 2018
Market Rate of Return:	4.8%	6.0%
Actuarial Rate of Return:	1.9%	2.7%
	Fiscal 2020	Fiscal 2019
Employers' Normal Cost (Mid-year):	\$ 13,718,748	\$ 12,513,679
Estimated Administrative Cost:	\$ 778,175	\$ 564,941
Projected Ad Valorem Tax Contributions:	\$ 2,648,467	\$ 2,539,407
Projected Revenue Sharing Funds:	\$ 46,483	\$ 46,518
Net Direct Employer Actuarially Required Contributions:	\$ 11,801,973	\$ 10,492,695
Projected Payroll:	\$ 76,952,056	\$ 76,396,822
Board Approved Employee Contribution Rate:	5.00%	5.00%
Board Approved Net Direct Employer Contribution Rate:	14.00%	14.00%
Actuarially Required Net Direct Employer Contribution Rate:	15.34%	13.73%
	Fiscal 2021	Fiscal 2020
Minimum Recommended Net Direct Employer Contribution Rate:	15.50%	13.75%

GENERAL COMMENTS

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

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

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

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

COMMENTS ON DATA

For the valuation, the administrative director of the system furnished a census on electronic media 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 4,795 active members in Plan A, of whom, 1,743 members, including 208 participants in the Deferred Retirement Option Plan (DROP), have vested retirement benefits; 3,552 former Plan A members or their beneficiaries are receiving retirement benefits. An additional 3,390 former members of Plan A have contributions remaining on deposit with the system. This includes 199 former members who have vested rights or have filed reciprocal agreements for future retirement benefits. Census data on members of Plan B may be found in Exhibit XIX. There are 2,063 active members in Plan B, of whom, 793 members, including 78 DROP participants, have vested retirement benefits; 1,076 former members of Plan B or their beneficiaries are receiving retirement benefits. An additional, 1,653 former members of Plan B have contributions remaining on deposit with the system. Of this number, 97 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. For this valuation, the number of such records is de minimis.

In addition to the statistical information provided on the system's participants, the system's administrative director furnished general information related to other aspects of the system's expenses, benefits and funding. Except as stated below, 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 Hawthorn, Waymouth, and Carroll, L.L.P. As indicated in the system's audit report, the net market value of Plan A's assets was \$765,059,686 as of June 30, 2019. For Plan A, the net investment income for Fiscal 2019 measured on a market value basis amounted to \$35,840,752. Contributions to Plan A for the fiscal year totaled \$73,286,585; benefits and expenses amounted to \$78,293,845.

The net market value of Plan B's assets was \$170,871,104 as of June 30, 2019. For Plan B, the net investment income for Fiscal 2019 measured on a market value basis amounted to \$7,795,358.

Contributions to Plan B for the fiscal year totaled \$17,362,323; benefits and expenses amounted to \$15,571,379.

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

Prior to Fiscal 2018 both plans' valuations were based on the Frozen Attained Age Normal actuarial cost method with the unfunded actuarial accrued liability frozen as of June 30, 1989. Under the provisions of Louisiana R.S. 11:103 the unfunded accrued liability for Plan A, which was determined to be \$48,466,297 as of June 30, 1989, was amortized over forty years with payments increasing at 4.25% per year. The unfunded accrued liability for Plan B, which was determined to be \$9,853,175 as of June 30, 1989, was amortized over forty years with payments decreasing at 2% per year. In Plan A, payroll growth less than 4.25% per year will increase future amortization payments as a percent of payroll. As of June 30, 2018, the remaining balance of the frozen unfunded accrued liability for Plan B was completely offset by a portion of the credit balance in the plan's Funding Deposit Account. With the unfunded accrued liability fully amortized, the actuarial funding method for Plan B has been converted to the Aggregate Funding Method in accordance with R.S. 11:22(D). Under both the Frozen Attained Age Normal Cost Method and the Aggregate Funding Method, actuarial gains and losses are spread over future normal costs. Thus, favorable plan experience will lower future normal costs; unfavorable experience will cause future normal costs to increase. In addition, changes in benefits and assumptions are also spread over future normal costs.

Prior to the June 30, 2009 valuation, in any year in which the net direct employer contribution was set above the actuarially required employer contribution rate, excess funds collected, if any, were used to reduce the frozen unfunded actuarial accrued liability. Effective with the June 30, 2009 valuation, any excess funds collected as a result of a freeze in employer contributions are credited to the Funding Deposit Account. Funds deposited into the Funding Deposit Account can be used to reduce the unfunded accrued liability, reduce future normal costs, fund cost of living increases to retirees, or offset net direct employer contributions as determined by the Board of Trustees.

In February of 2017, a recommendation was made to the Board of Trustees to reduce the long-term rate of return assumption. The recommendation was formed after an analysis of the system's portfolio along with expected long-term rates of return, standard deviations of return, and correlations between asset classes collected from a number of investment consulting firms in addition to the system's investment consultants, Meketa Investment Group. Based on this analysis and after discussions with the Board, a plan was approved to reduce the 7.5% valuation interest rate in effect for the Fiscal 2016 actuarial valuation to 7.0% over the coming four actuarial valuations with reductions of 0.10% in 2017, 0.125% in 2018, 0.10% in 2019, and 0.175% in 2020 for Plans A and B. This plan would have resulted in a valuation interest rate for the Fiscal 2019 valuation of 7.175% and a valuation rate for Fiscal 2020 of 7.00%. Despite the original plan, after an updated review of the valuation interest rate was performed in conjunction with the system's 2019 plan experience study which incorporated updated capital market assumptions, the Board elected to speed up the implementation of the final rate in the

original plan. Therefore, the assumed rate of return for the Fiscal 2019 valuation was set at 7.00% for Plans A and B. This rate fell within the actuary's reasonable range for the assumed long-term rate of return and fit with the Board's risk tolerance. The reasonable range was determined by developing 10,000 stochastic trials based upon the system's expected long-term geometric return and standard deviation computed using the G. S. Curran & Company consultant average return study for 2019 and the system's target asset allocation. For 2019, an assumed rate of inflation of 2.5% was implicit in the assumed rate of return for Plans A and B.

As mentioned above, an experience study was conducted for the period of July 1, 2013 through June 30, 2018. As a result of the study, significant changes were made in both economic and non-economic assumptions for both Plan A and Plan B. In particular, revisions were made to mortality, retirement, withdrawal and other decrements. Other non-decrement liability related assumptions were also updated. Details of the changes are given in the complete Experience Report for fiscal years 2014 through 2018.

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 sixty-five through seventy. All assumptions are based on estimates of future long-term experience for the fund. All calculations, recommendations, and conclusions are based on the assumptions specified. To the extent that prospective experience differs from that implied by the plan's assumptions, adjustments will be required to contribution levels. Such differences will be revealed in future actuarial valuations. The net effect of all changes in assumptions was to increase the normal cost accrual rate by 0.8845% in Plan A and 1.7038% in Plan B.

RISK FACTORS

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

All pension plans are subject to asset performance risk. Asset performance is comprised of the real rates of return earned on the portfolio of investments plus the underlying inflation rate. High levels of inflation or deflation can present the plan with problems by either reducing the purchasing power of plan benefits or impairing asset values in the trust. Asset performance over the long run depends not only on average returns but also on the volatility of returns. Two portfolios of identical size with identical average rates of return will accumulate different levels of assets if the volatility of returns differs since increased volatility reduces the accumulation of assets. Another element of asset risk is

reinvestment risk. Interest rate declines can subject pension plans to an increase in this risk. In such an environment, as fixed income securities mature, investment managers are forced to reinvest funds at decreasing rates of return. For pension plans which require significant net cash flow above contributions to fund benefit payments, the risk of insufficient liquidity is another risk component which can create problems if it becomes necessary to sell securities under unfavorable market conditions in order to raise cash necessary to pay retirement benefits. Even for individual securities, insolvency and performance risk can subject a plan to stress if these investments comprise a significant portion of plan assets. Security insolvency or severe underperformance can result in steep increases in sponsor contributions where individual investments comprise more than a de minimis amount of the investment portfolio.

In addition to asset risk, the plan is also subject to risks related to liabilities. These risks include longevity risk (the risk that retirees will live longer than expected), termination risk (the risk that fewer than the anticipated number of members will terminate service prior to retirement), and other factors that may have an impact on the liability structure of the plan. Final average compensation plans are vulnerable to unexpectedly large increases in salary for individual members near retirement. Conversely, in cases where plans have large unfunded liabilities, payroll contraction is a risk insofar as contributions which are typically reported as a percentage of payroll may increase as payrolls decline.

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

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

Beyond identifying risk categories, it is possible to quantify some risk factors. One fairly well known risk metric is the funded ratio of the plan. The rate is given as plan assets divided by plan liabilities. However, the definition of each of these terms may vary. The two typical alternatives used for assets are the market and actuarial value of assets. There are a number of alternative measures of liability depending on the funding method employed. The Governmental Accounting Standards Board (GASB) specifies that for financial reporting purposes, the funded ratio is determined by using the market value of assets divided by the entry age normal accrued liability. This value is given in the system's financial report. Alternatively, we have calculated the ratio of the actuarial value of assets to the entry age normal accrued liability based on the funding methodology used to fund the plan. The ratio is 69.17% for Plan A and 70.82% for Plan B as of June 30, 2019. This value gives some indication of the financial strength of the plan; however, it does not guarantee the ability of the fund to pay benefits in the future or indicate that in the future, contributions are likely to be less than or greater than current contributions. In addition, the ratio cannot be used in isolation to compare the relative strength of different retirement systems. However, the trend of this ratio over time can give some insight into the financial health of the plan. Even in this regard, caution is warranted since market fluctuations in asset

values and changes in plan assumptions can distort underlying trends in this value. One additional risk measure is the sensitivity of the plan's cost structure to asset gains and losses. For this plan, we have determined that based on current assets and demographics, for each percentage under the assumed rate of return on the actuarial value of assets, there will be a corresponding increase in the actuarially required contribution as a percentage of projected payroll of 0.62% for Plan A and 0.34% for Plan B.

The ability of a system to recover from adverse asset or liability performance is related to the maturity of the plan population. In general, plans with increasing active membership are less sensitive to asset and liability gains and losses than mature plans since changes in plan costs can be partially allocated to new members. If the plan has a large number of active members compared to retirees, asset or liability losses can be more easily addressed. As more members retire, contributions can only be collected from a smaller segment of the overall plan population. Often, population ratios of actives to annuitants are used to measure the plan's ability to adjust or recover from adverse events since contributions are made by or on behalf of active members but not for retirees. Thus, if the plan suffers a mortality loss through increased longevity, this will affect both actives and retirees, but the system can only fund this loss by contributions related to active members. A measure of risk related to plan maturity is the ratio of total benefit payments to active payroll. For Fiscal 2019, this ratio is 36% for Plan A and 16% for Plan B. Ten years ago this ratio was 25% for Plan A and 11% for Plan B.

One other area of risk is the risk that plan assumptions will need to be revised to conform to changing actual or expected plan experience. Such assumption revisions could relate to demographic or economic factors. With regard to the economic assumptions, we have determined that a reduction in the valuation interest rate by 1% (without any change to other collateral factors) would increase the actuarially required employer contribution rate for Fiscal 2020 by 9.52% of payroll for Plan A and 5.63% of payroll for Plan B.

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

CHANGES IN PLAN PROVISIONS

The following changes in plan provisions were enacted during the 2019 Regular Session of the Louisiana Legislature:

Act 416 states that the calculation of monthly earnings shall not include income attributable to service as a part-time elected official listed in R.S. 11:164. In addition, the act states that certain elected trustees who cease to hold the elective office that qualified them to serve on the board are not eligible to continue serving on the board.

ASSET EXPERIENCE

The actuarial and market rates of return for the past ten years are given below. These rates of return are based on all plan assets, including those invested on behalf of former DROP participants and retirees with DROP account balances and were determined by assuming a uniform distribution of income and expense throughout the fiscal year.

<u>Plan A</u>	<u>Market Value</u>	<u>Actuarial Value</u>
2010	11.0%	5.9%
2011	10.5%	4.2%
2012	-4.8% †	0.7%
2013	4.3%	0.7%
2014	12.3%	5.8%
2015	-3.1%	3.7%
2016	-2.9%	0.8%
2017	4.7%	2.3%
2018	6.1%	2.8%
2019	4.9%	1.7%

<u>Plan B</u>	<u>Market Value</u>	<u>Actuarial Value</u>
2010	10.9%	5.8%
2011	10.5%	4.2%
2012	-4.7% †	1.0%
2013	4.1%	0.9%
2014	11.7%	5.6%
2015	-3.2%	3.5%
2016	-2.9%	0.7%
2017	4.6%	2.2%
2018	6.0%	2.7%
2019	4.8%	1.9%

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

Geometric Average Market Rates of Return – Plan A

5 year average (Fiscal 2015 – 2019)	1.9%
10 year average (Fiscal 2010 – 2019)	4.1%
15 year average (Fiscal 2005 – 2019)	4.0%
20 year average (Fiscal 2000 – 2019)	3.8%
25 year average (Fiscal 1995 – 2019)	5.5%

Geometric Average Market Rates of Return – Plan B

5 year average (Fiscal 2015 – 2019)	1.8%
10 year average (Fiscal 2010 – 2019)	4.0%
15 year average (Fiscal 2005 – 2019)	3.9%
20 year average (Fiscal 2000 – 2019)	3.6%
25 year average (Fiscal 1995 – 2019)	5.3%

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. This rate of return gives an indication of performance for an actively managed portfolio where securities are bought and sold with the objective of producing the highest total rate of return. During 2019, Plan A earned \$2,384,748 and Plan B earned \$702,273 of dividends and interest income. In addition, Plan A had net realized and unrealized capital gains on investments of \$35,727,695 while the total of such gains for Plan B amounted to \$7,599,648. Investment expenses were \$2,271,691 for Plan A and \$506,563 for Plan B.

The actuarial rate of return is presented for comparison to the assumed long-term rate of return of 7.275% used for the prior valuation. This rate is calculated based on the smoothed value of assets subject to constraints as given in Exhibit VI for Plan A and Exhibit XVI for Plan B. Investment income used to calculate this yield is based upon a smoothing of investment income above or below the valuation interest rate. The difference between rates of return on an actuarial and market value basis results from the smoothing utilized. In the future, yields in excess of the valuation interest rate assumption will reduce future costs; yields below the valuation interest rate assumption will increase future costs. For Plan A, the net actuarial investment earnings for Fiscal 2019 were \$44,021,418 less than the actuarial assumed earnings rate of 7.275%, and were \$9,535,923 less for Plan B. These actuarial losses increased the normal cost accrual rate by 3.4055% for Plan A and 1.8194% for Plan B.

At the end of each fiscal year, a review of the data is made to identify current members of Plan A and Plan B who have consecutive service credit in both plans that have not been addressed in previous transfers of assets and liabilities between the Plan A and Plan B trust funds pursuant to the provisions of R.S. 11:1862(F). In the course of reviewing data for the June 30, 2019 valuation we found 5 members of Plan A with Plan B service credit and 2 such members of Plan B with Plan A service for whom a transfer must be made. Based upon a valuation of the liabilities for service in the previous plan, we recommend a transfer of \$385,610 with accrued interest thereon from June 30, 2019 be made from the Plan B trust to the Plan A trust for Fiscal 2019.

PLAN A – DEMOGRAPHICS AND LIABILITY EXPERIENCE

A reconciliation of the census for the plan is given in Exhibit IX. The average active member is 48 years old with 9.55 years of service and an annual salary of \$38,266. The plan's active membership, inclusive of DROP participants, decreased by 93 members during the fiscal year. The plan has experienced a decrease in the active plan population of 99 members over the last five years. A review of the active census by age indicates that over the last ten years the population under age forty and above age fifty has increased while the proportion of active members age forty-one through fifty has decreased. Over the same ten-year period the plan showed an increase in members with less than ten years of service. The average regular retiree is 71 years old with a monthly benefit of \$1,763. The number of retirees and beneficiaries receiving benefits from the system increased by 84 during the fiscal year; over the last five years the number of retirees has increased by 375 and benefit payments have increased by \$14,880,660.

Plan liability experience for Fiscal 2019 was favorable. Deaths and withdrawals were above projected levels. In addition, salary increases were below projections. All of these factors generally reduce costs.

Retirements above projected levels partially offset these gains. Disabilities and DROP entries were near projected levels. Plan liability gains decreased the normal cost accrual rate by 0.3310%.

PLAN B – DEMOGRAPHICS AND LIABILITY EXPERIENCE

A reconciliation of the census for the plan is given in Exhibit XIX. The average active member is 49 years old with 9.54 years of service and an annual salary of \$36,458. The plan's active membership, inclusive of DROP participants, decreased by 65 members during the fiscal year. The plan has experienced a decrease in the active plan population of 105 members over the last five years. A review of the active census by age indicates that over the last ten years the population in the under fifty age group has decreased while the proportion of active members over age fifty increased. Over the same ten-year period the plan showed a decrease in the number of members with less than 10 years of service. The average regular retiree is 73 years old with a monthly benefit of \$1,042. The number of retirees and beneficiaries receiving benefits from the system increased by 26 during the fiscal year; over the last five years the number of retirees has increased by 160 and benefit payments have increased by \$3,082,188.

Plan liability experience for Fiscal 2019 was favorable. Withdrawals and retiree deaths were above expected levels while disabilities and DROP entries were below projected levels. These factors tend to reduce costs. Salary increases and retirements above projected levels partially offset these gains. Plan liability gains decreased the normal cost accrual rate by 0.5279%.

FUNDING ANALYSIS AND RECOMMENDATIONS

Actuarial funding of a retirement system is a process whereby funds are accumulated over the working lifetimes of employees in such a manner as to have sufficient assets available at retirement to pay for the lifetime benefits accrued by each member of the system. The required contributions are determined by an actuarial valuation based on rates of mortality, termination, disability, and retirement, as well as investment return and other statistical measures specific to the particular group. Each year a determination is made of two cost components, and the actuarially required contributions are based on the sum of these two components plus administrative expenses. These two components are the normal cost and the amortization payment on the unfunded actuarial accrued liability. The normal cost refers to the portion of annual cost based on the salary of active participants. The term unfunded accrued liability (UAL) refers to the excess of the present value of plan benefits over the sum of current assets and future normal costs. Each year the UAL grows with interest and is reduced by payments. The funding method in use for Plan A includes both normal cost and amortization of an unfunded actuarial accrued liability. The funding method in use for Plan B accounts for the fact that there is no unfunded actuarial accrued liability and therefore no need to account for an amortization payment. Neither funding method accounts for changes in plan experience, benefits, or assumptions within the unfunded actuarial accrued liability. These items increase or decrease future normal costs.

In order to establish the actuarially required contribution in any given year, it is necessary to define the assumptions, funding method, and method of amortizing the UAL (if any). 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.

For Plan A, the derivation of the actuarially required contribution for the current fiscal year is given in Exhibit I. The normal cost for Fiscal 2020 adjusted for mid-year payment is \$52,012,558. The amortization payment on the plan's frozen unfunded actuarial accrued liability adjusted for mid-year payment is \$7,613,587. The total actuarially required contribution is determined by adding estimated administrative expenses to these two values. As given on line 16 of Exhibit I the gross actuarially required employer contribution for Fiscal 2020 is \$61,524,510. When this amount is reduced by projected tax contributions and revenue sharing funds, the resulting employers' minimum net direct actuarially required contribution for Fiscal 2020 is \$54,950,154. This is 29.28% of the projected Plan A payroll for Fiscal 2020.

Liability and asset experience as well as changes in assumptions and benefits can increase or decrease plan costs. In addition to these factors, any COLA granted in the prior fiscal year would increase required contributions (unless it is offset by a withdrawal from the Funding Deposit Account). New entrants to the system can also increase or decrease costs as a percent of payroll depending upon their demographic distribution and other factors related to prior plan experience. Finally, contributions above or below requirements may reduce or increase future costs.

The effects of various factors on the cost structure for Plan A are outlined below:

Employer's Normal Cost Accrual Rate – Fiscal 2019	27.7700%
Factors Increasing the Normal Cost Accrual Rate:	
Assumption Changes	0.8845%
Asset Experience Loss	3.4055%
Contribution Loss	0.1752%
Factors Decreasing the Normal Cost Accrual Rate:	
Plan Liability Experience Gain	0.3310%
New Members	2.0475%
Employer's Normal Cost Accrual Rate – Fiscal 2020	29.8567%

Required net direct employer contributions are also affected by the available ad valorem taxes and revenue sharing funds which the system receives each year. When these funds change as a percentage of payroll, net direct employer contributions are adjusted accordingly. We estimate that for Plan A these funds will remain the same percentage of projected payroll as was collected in the prior year. We also estimate the amortization payment on the fund's UAL will increase by 0.07% of projected payroll. The net effect of the above changes in the cost structure of the system resulted in a minimum actuarially required net direct employer contribution rate for Fiscal 2020 for Plan A of 29.28%; the board approved employer contribution rate for Fiscal 2020 is 27.75% of payroll. R.S. 11:103 requires that the net direct employer contributions be rounded to the nearest 0.25%, hence, after accounting for

the anticipated contribution shortfall, we are recommending a minimum net direct employer contribution rate for Plan A of 29.50% for Fiscal 2021.

For Plan B, the derivation of the actuarially required contribution for the current fiscal year is given in Exhibit XI. The normal cost for Fiscal 2020 adjusted for mid-year payment is \$13,718,748. Based upon the Board of Trustees' decision to use a portion of the credit balance in the plan's Funding Deposit Account to pay off the remaining balance on the frozen unfunded accrued liability in Fiscal 2018, there is no projected amortization payment in the calculation of the minimum recommended net direct employer contribution rate for Fiscal 2021. The total actuarially required contribution is determined by adding estimated administrative expenses to the normal cost accrual rate. As given on line 12 of Exhibit XI the gross actuarially required employer contribution for Fiscal 2020 is \$14,496,923. When this amount is reduced by projected tax contributions and revenue sharing funds, the resulting employers' minimum net direct actuarially required contribution for Fiscal 2020 is \$11,801,973. This is 15.34% of the projected Plan B payroll for Fiscal 2020.

The effects of various factors on the cost structure for Plan B are outlined below:

Employer's Normal Cost Accrual Rate – Fiscal 2019	17.5566%
Factors Increasing the Normal Cost Accrual Rate:	
Assumption Changes	1.7038%
Asset Experience Loss	1.8194%
Factors Decreasing the Normal Cost Accrual Rate:	
Plan Liability Experience Gain	0.5279%
Contribution Gain	0.0267%
New Members	1.0634%
Employer's Normal Cost Accrual Rate – Fiscal 2020	19.4618%

We estimate that for Plan B, the funds collected from ad valorem taxes and revenue sharing funds in Fiscal 2020 will increase by 0.12% of payroll. The net effect of the above changes in the cost structure of the system resulted in a minimum actuarially required net direct employer contribution rate for Fiscal 2020 for Plan B of 15.34%; the actual employer contribution rate for Fiscal 2020 is 14.00% of payroll. R.S. 11:103 requires that the net direct employer contributions be rounded to the nearest 0.25%, hence, after accounting for the anticipated contribution shortfall, we are recommending a minimum net direct employer contribution rate for Plan B of 15.50% for Fiscal 2021.

Both Plan A and Plan B have Funding Deposit Account Credit Balances. Since neither plan experienced a contribution gain due to a net direct employer contribution rate above the minimum recommended employer contribution rate during Fiscal 2019, no additional funds were credited to the Funding Deposit Account during the year. In accordance with R.S. 11:107.1(D), the balances were adjusted for the accrual of interest at the valuation interest rate. The remaining funds in these accounts may be used to reduce the outstanding unfunded accrued liability, reduce the future normal costs, fund cost of living increases to retirees, or reduce contributions for specified fiscal years.

Under the provisions of R.S. 11:103, excess or deficient contributions typically decrease or increase future normal costs. However, if the minimum net direct employer contribution is scheduled to decrease, the Board may maintain the contribution rate at some level above the minimum recommended rate. Pursuant to R. S. 11:105 and R. S. 11:107, such excess contributions are credited to the Funding Deposit Account. In addition, in accordance with R.S. 11:106, the Board may set the employer contribution rate up to 3% more than the minimum required contribution rate; any additional funds collected are credited to the Funding Deposit Account.

COST OF LIVING INCREASES

During Fiscal 2019 the actual cost of living (as measured by the US Department of Labor CPI-U) increased by 1.6%. Cost of living provisions for the system are detailed in R.S. 11:1761, R.S. 11:246, and R.S. 11:241. R.S. 11:1761 allows the Board to use interest earnings in excess of the normal requirements to grant annual cost of living increases of 2% of each retiree's original benefit. R.S. 11:246 provides cost of living increases of retirees and beneficiaries over the age of 65 equal to 2% of the benefit in payment on October 1, 1977, or the date the benefit was originally received if retirement commenced after that date. R.S. 11:241 provides for cost of living benefits payable based on a formula equal to up to \$1 times the total of the number of years of credited service accrued at retirement or at death of the member or retiree plus the number of years since retirement or since death of the member or retiree to the system's fiscal year end preceding the payment of the benefit increase. The provisions of R.S. 11:241 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.

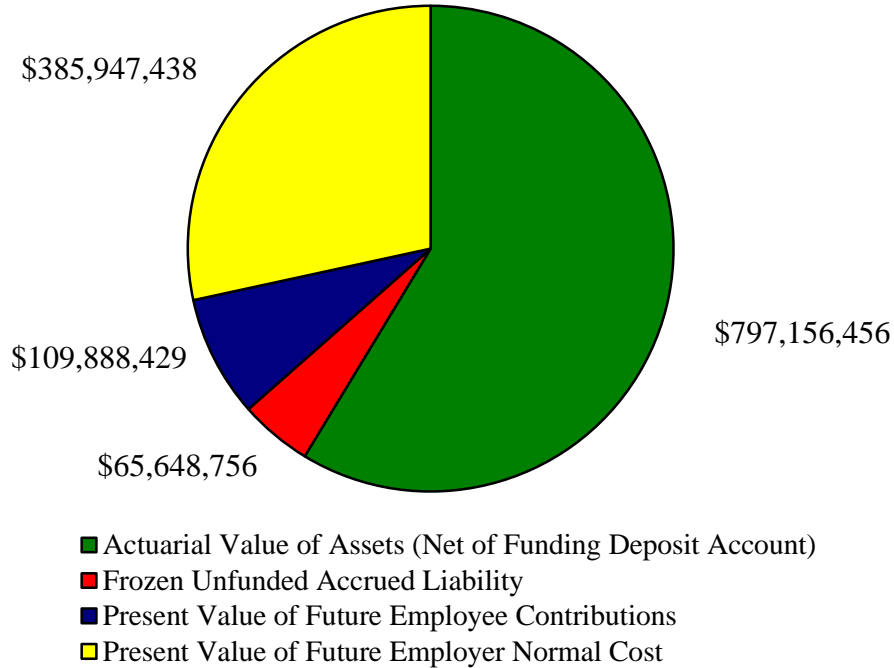
In addition, Act 113 of the 2008 Regular Legislation Session provides for a COLA of 3% of the normal monthly benefit but not less than \$20 per month. Although this COLA is permanent, it may only be granted once. This one-time cost of living increase may only be paid from excess interest earnings.

Based upon the irrevocable election of the Board of Trustees to accept the alternative method for determining eligibility to authorize cost of living increases under Act 170 of the 2013 Legislative Session, the ratio of the plan's assets to benefit obligations must meet the criteria established in R.S. 11:243. Under this section, the system would only be authorized to grant a COLA under R. S. 11:241, R.S. 11:246, or R. S. 11: 1761 in fiscal years in which the rate of return on an actuarial basis exceeds the valuation interest rate and one of the following applies:

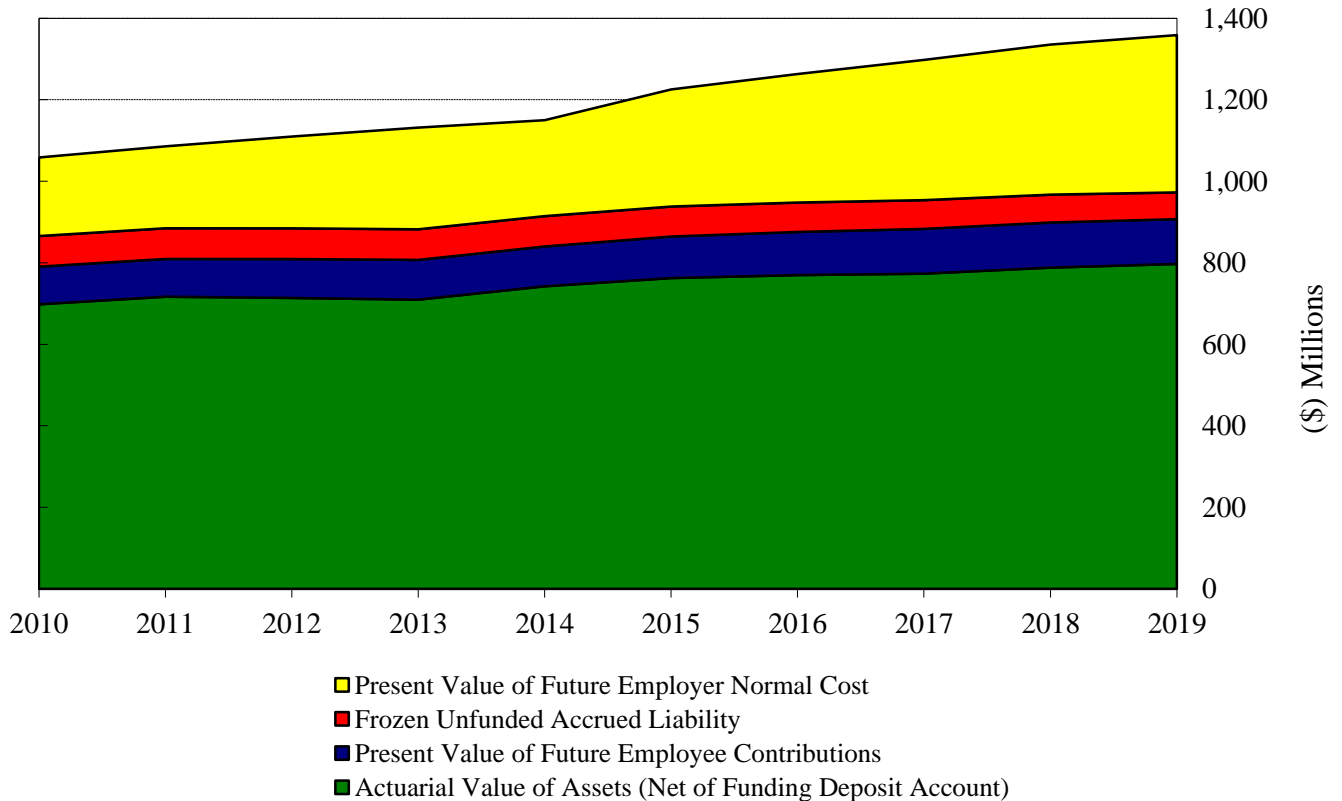
1. The system has a funded ratio of 90% or more and has not granted a benefit increase to retirees, survivors, and beneficiaries in the most recent fiscal year.
2. The system has a funded ratio of 80% or more and has not granted a benefit increase to retirees, survivors, and beneficiaries in the two most recent fiscal years.
3. The system has a funded ratio of 70% or more and has not granted a benefit increase to retirees, survivors, and beneficiaries in the three most recent fiscal years.

The most recent cost of living increase paid to plan retirees and survivors was effective April 1, 2009. For Fiscal 2019, we have determined that neither plan had excess interest earnings; hence no cost of living increase is payable to regular retirees unless paid out of the Funding Deposit Account.

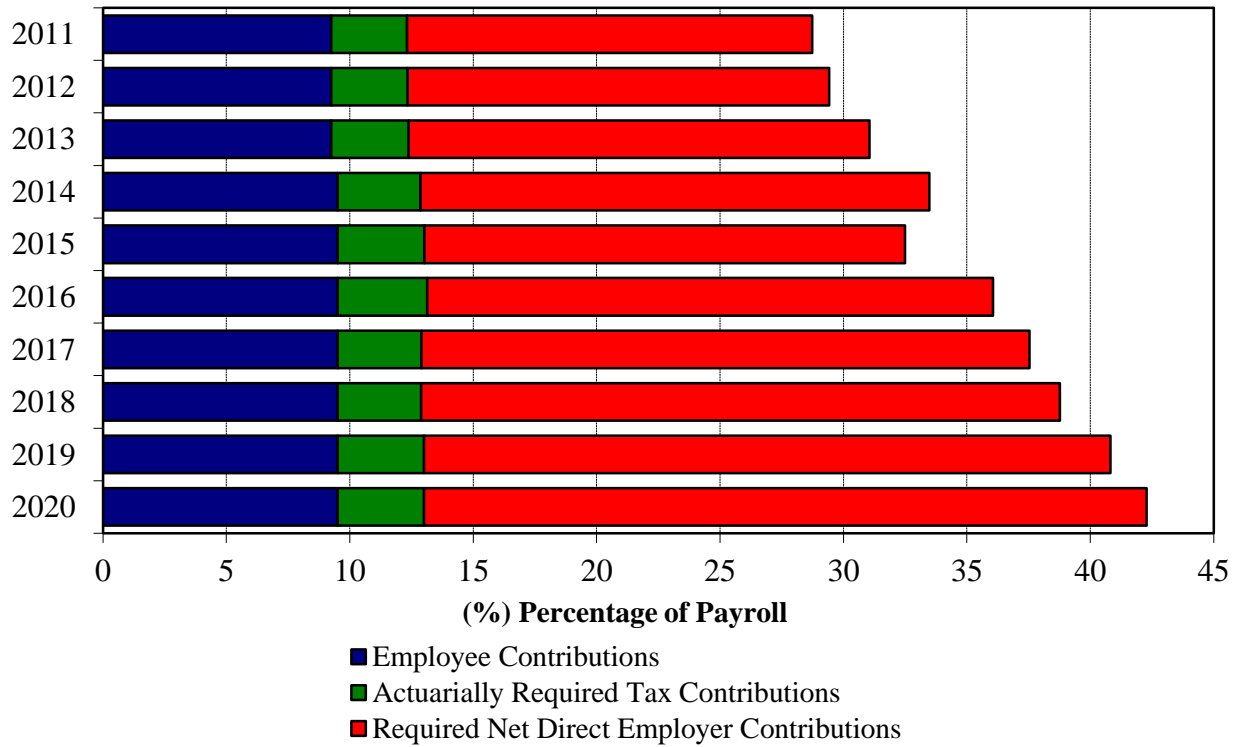
Plan A – Components of Present Value of Future Benefits June 30, 2019



Plan A – Components of Present Value of Future Benefits

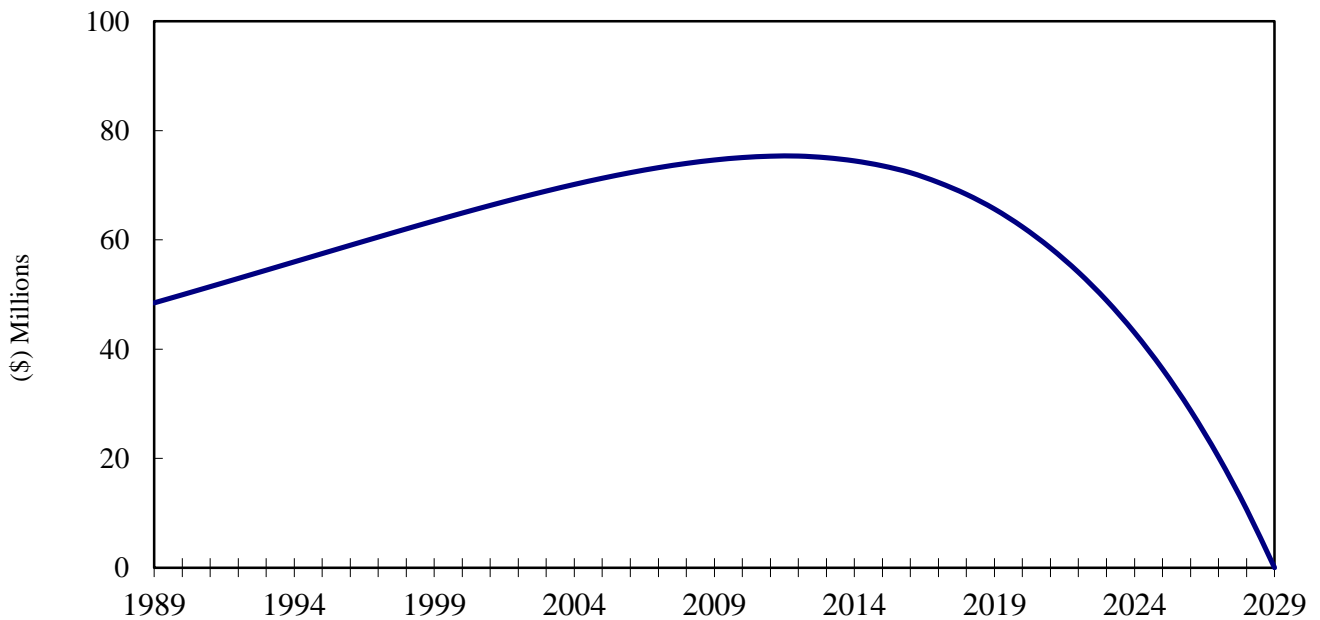


Plan A – Components of Actuarial Funding

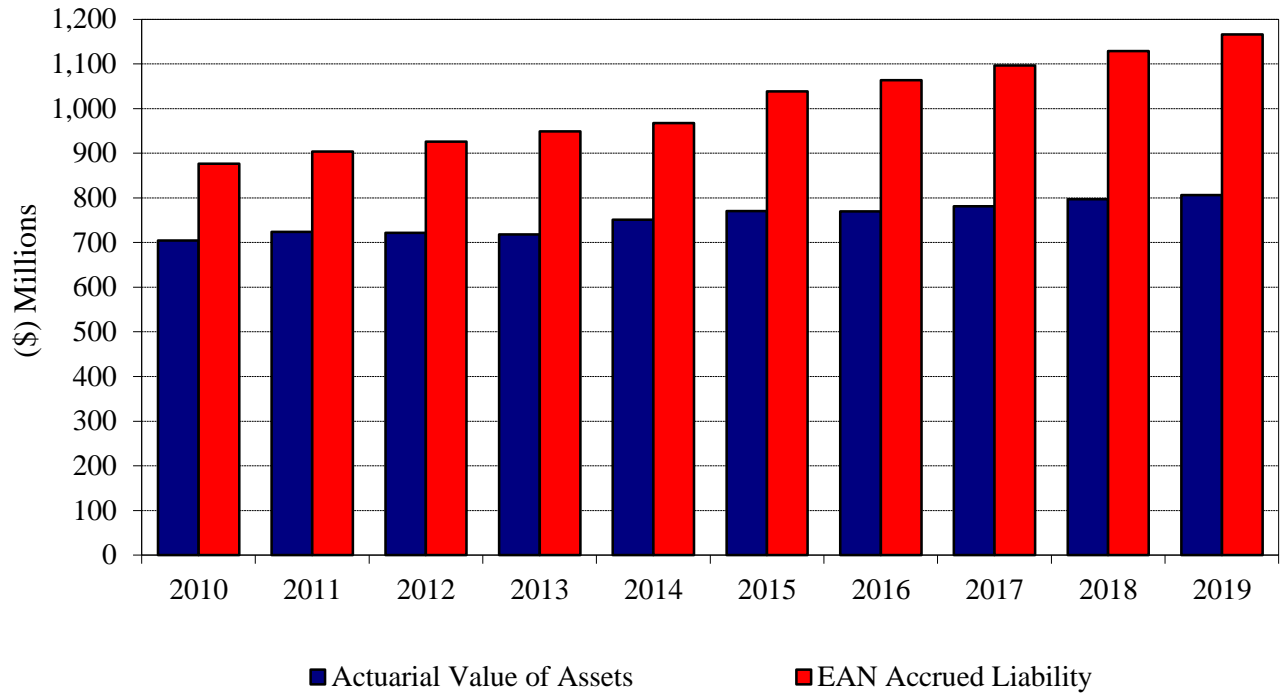


Projected Tax Contributions consist of Projected Ad Valorem and Revenue Sharing Funds as a percent of payroll

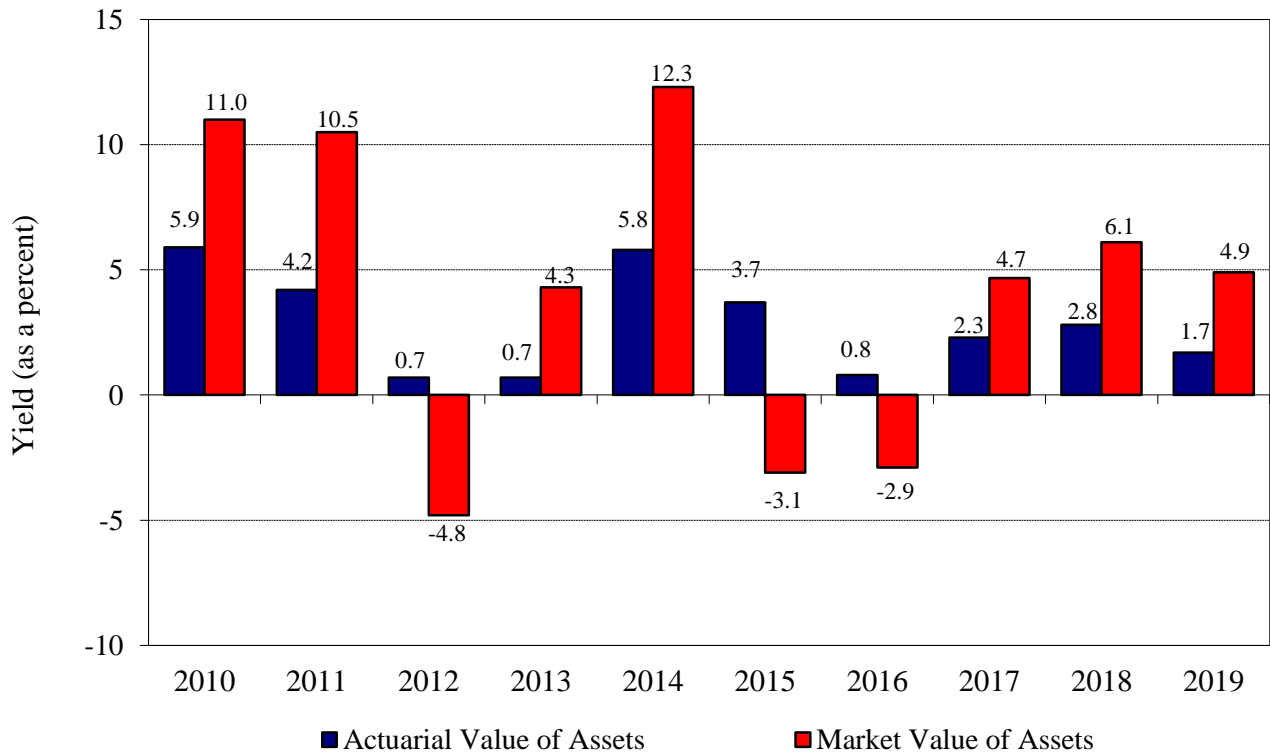
Plan A – Frozen Unfunded Accrued Liability



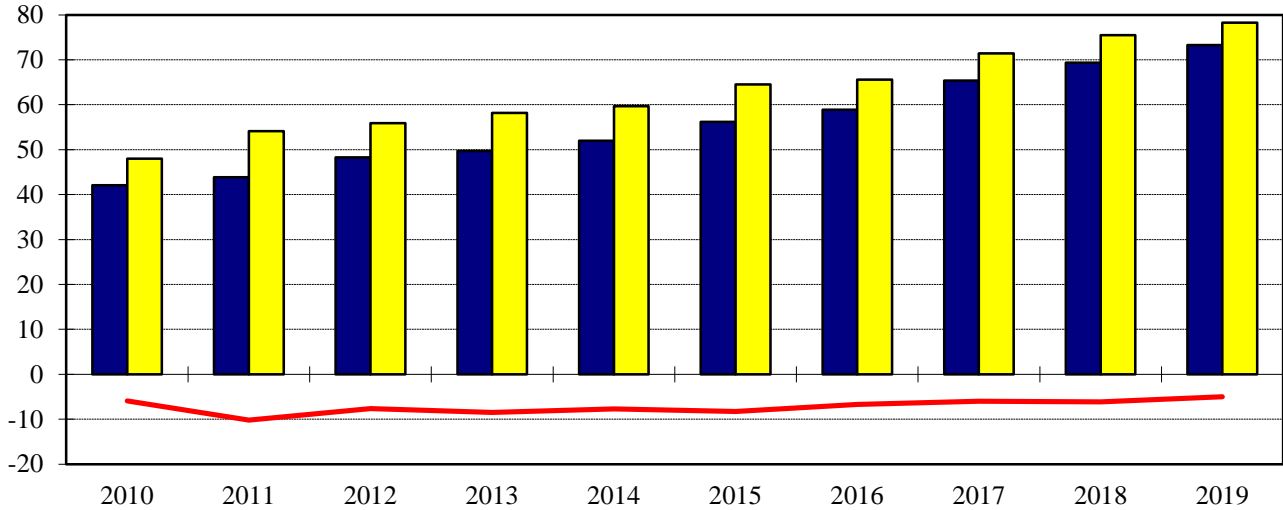
Plan A – Actuarial Value of Assets vs. EAN Accrued Liability



Plan A – Historical Asset Yield

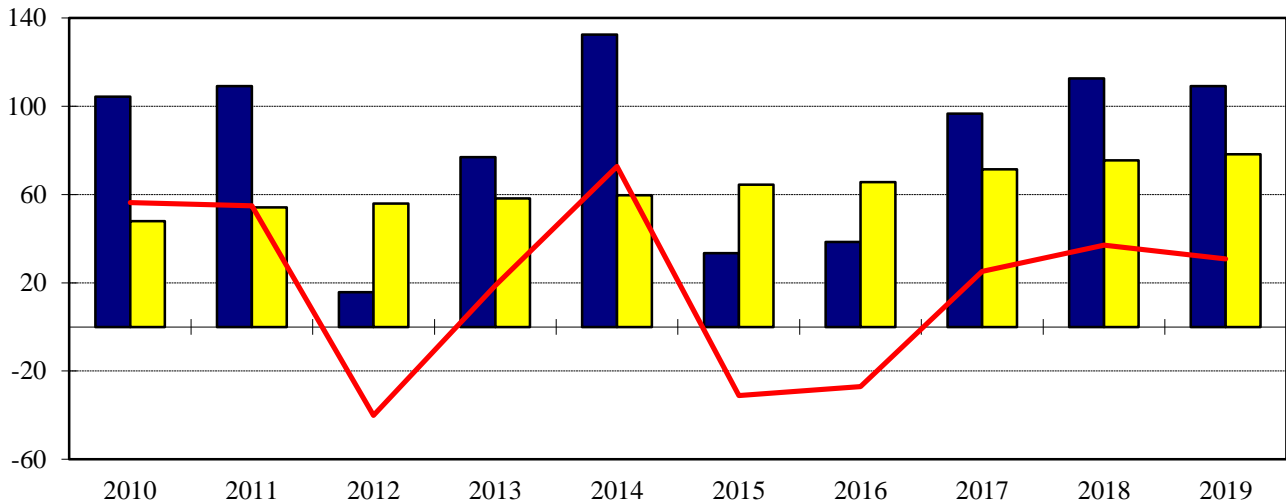


Plan A – Net Non-Investment Income



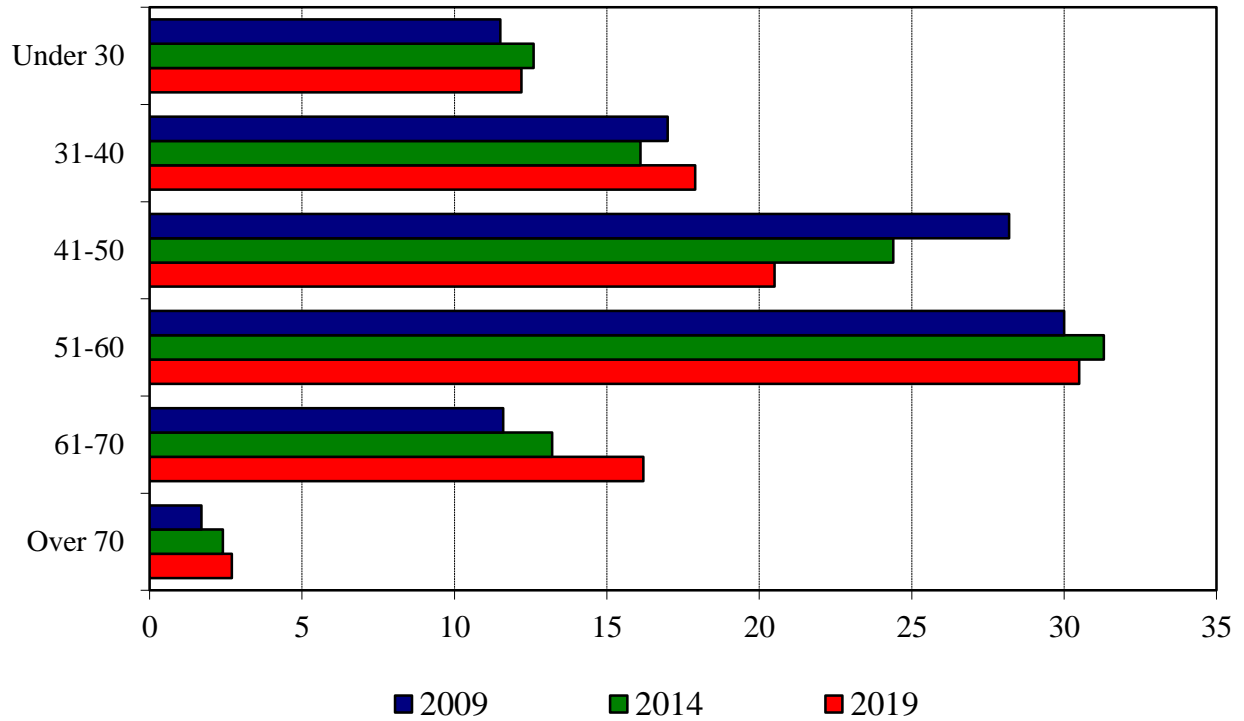
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Non-Investment Income (\$Mil)	■	42.1	43.9	48.3	49.7	52.0	56.2	58.9	65.4	69.4	73.3
Benefits and Expenses (\$Mil)	■	48.0	54.1	55.9	58.2	59.7	64.5	65.6	71.4	74.5	78.3
Net Non-Investment Income (\$Mil)	—	-5.9	-10.2	-7.6	-8.5	-7.7	-8.3	-6.7	-6.0	-5.1	-5.0

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

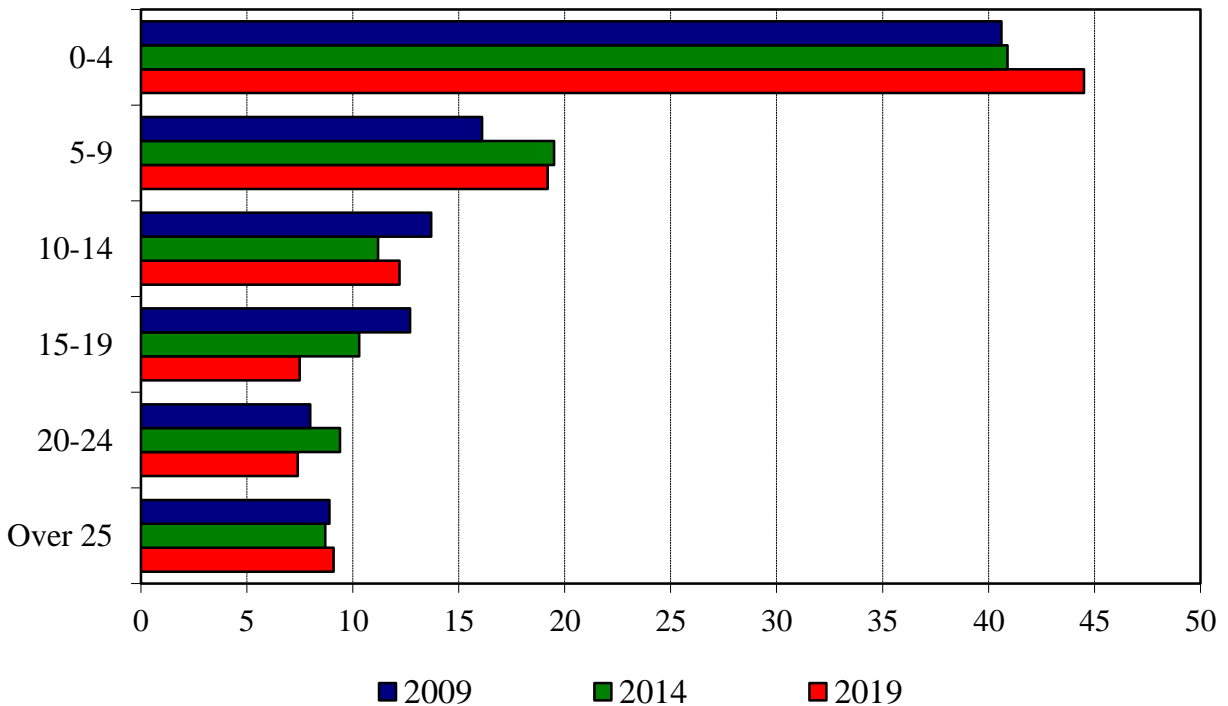


		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Income (\$Mil)	■	104.3	108.9	15.8	77.0	132.4	33.4	38.5	96.6	111.7	109.1
Benefits and Expenses (\$Mil)	■	48.0	54.1	55.9	58.2	59.7	64.5	65.6	71.4	74.5	78.3
Net Change in MVA (\$Mil)	—	56.3	54.8	-40.1	18.8	72.7	-31.1	-27.1	25.2	37.2	30.8

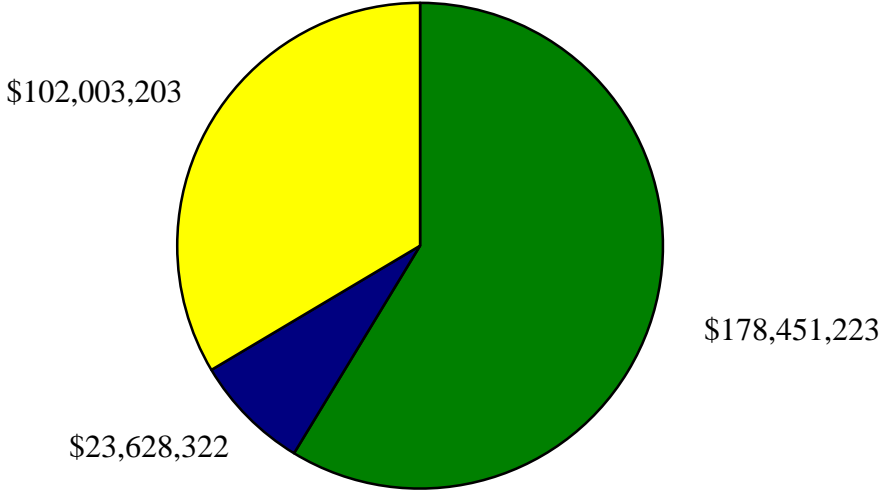
Plan A – Active – Census By Age (as a percent)



Plan A – Active – Census By Service (as a percent)

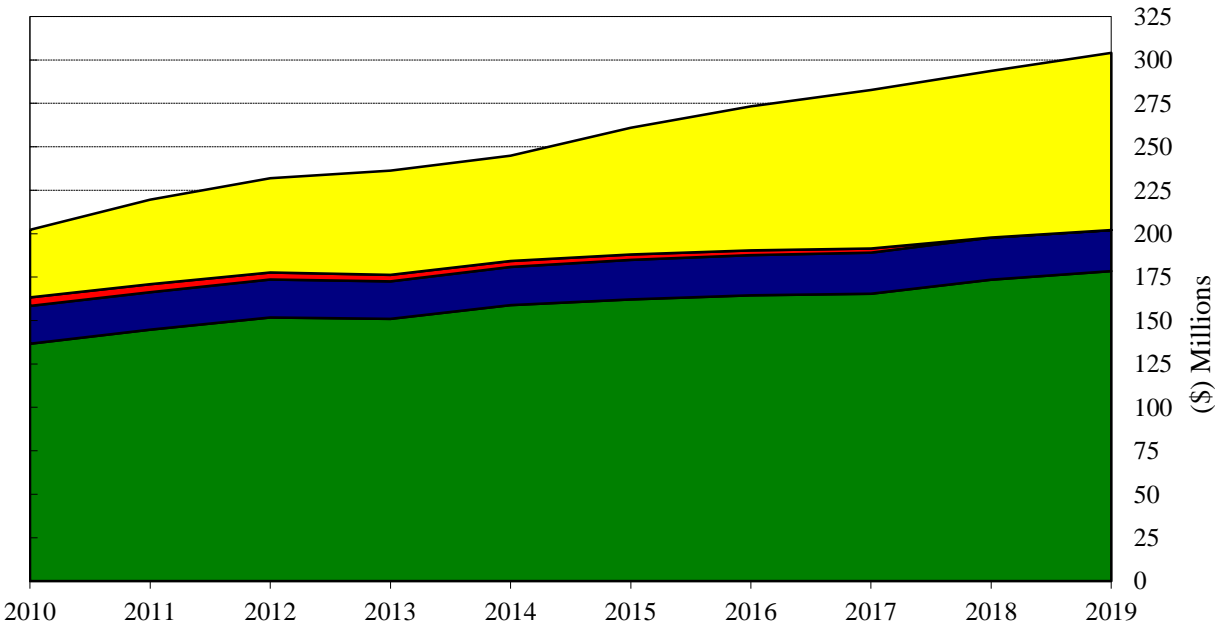


Plan B – Components of Present Value of Future Benefits June 30, 2019



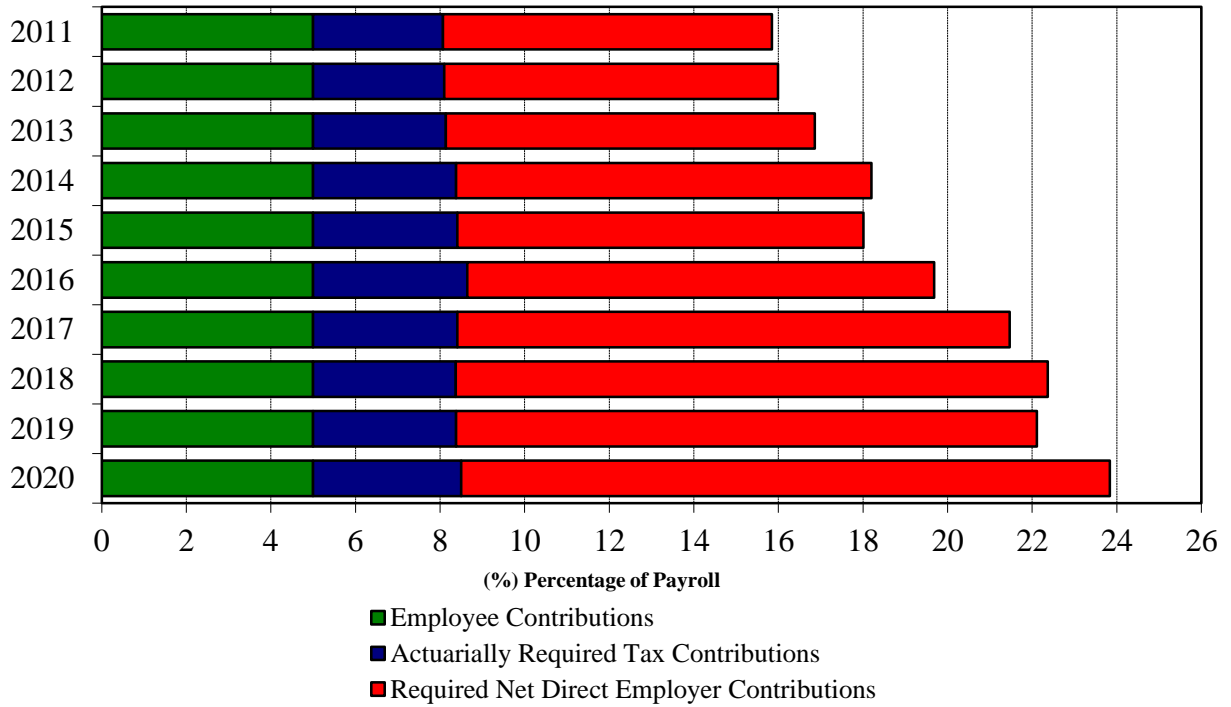
- Actuarial Value of Assets (Net of Funding Deposit Account)
- Present Value of Future Employee Contributions
- Present Value of Future Employer Normal Cost

Plan B – Components of Present Value of Future Benefits

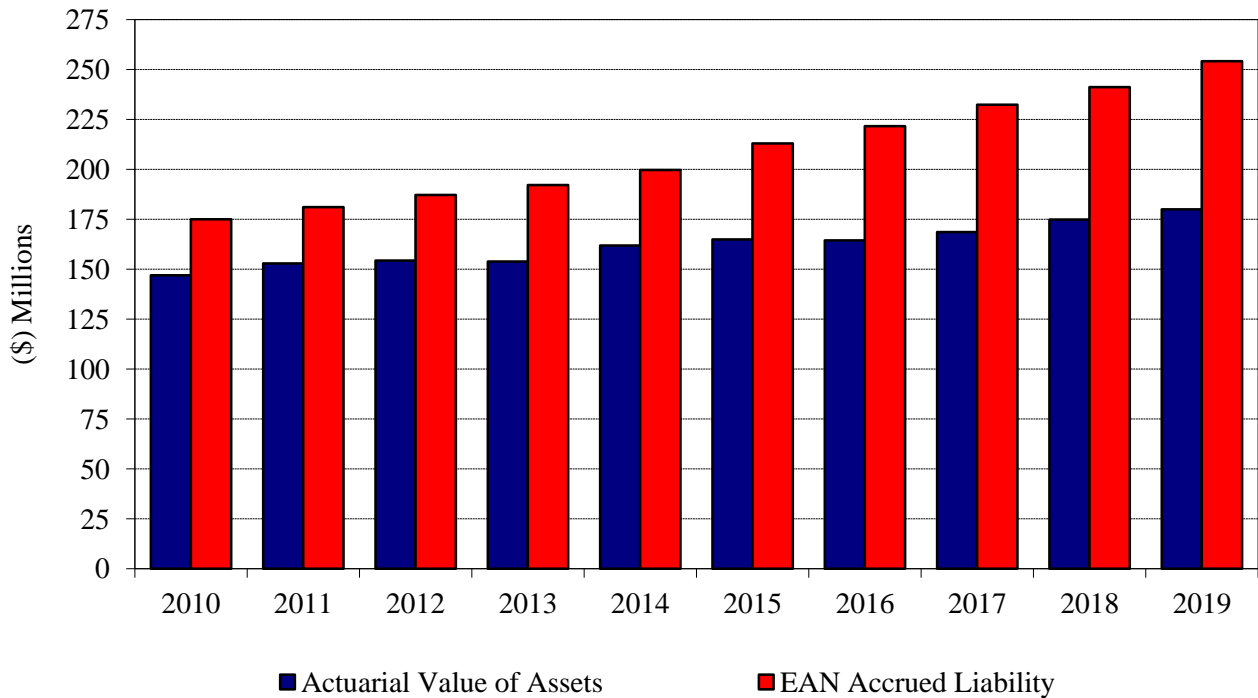


- Present Value of Future Employer Normal Cost
- Unfunded Accrued Liability
- Present Value of Future Employee Contributions
- Actuarial Value of Assets (Net of Funding Deposit Account)

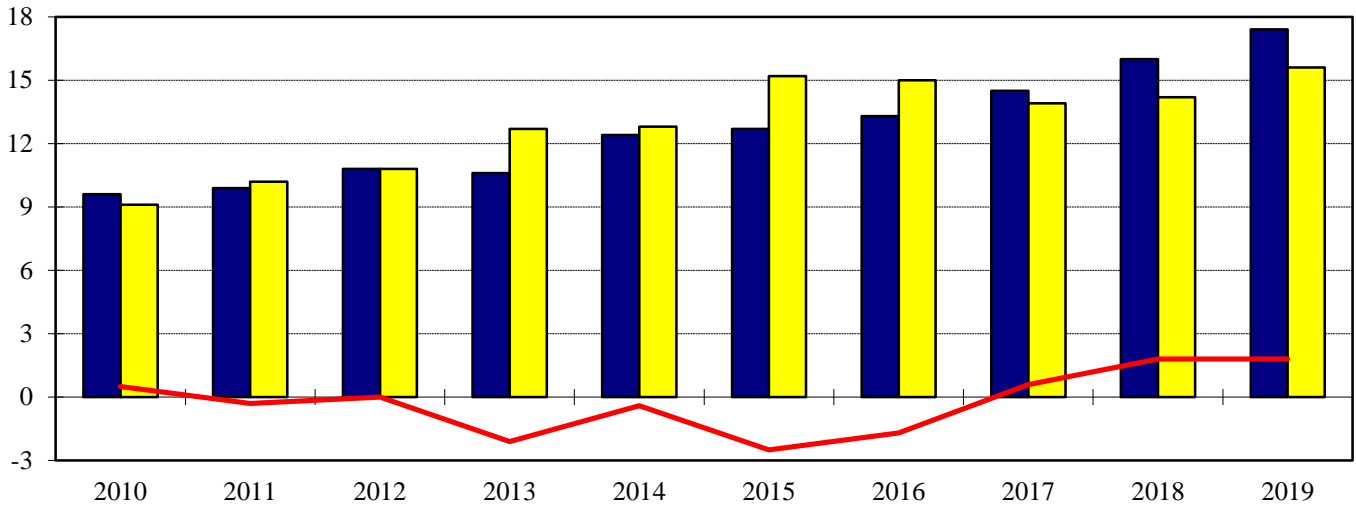
Plan B – Components of Actuarial Funding



Plan B – Actuarial Value of Assets vs. EAN Accrued Liability

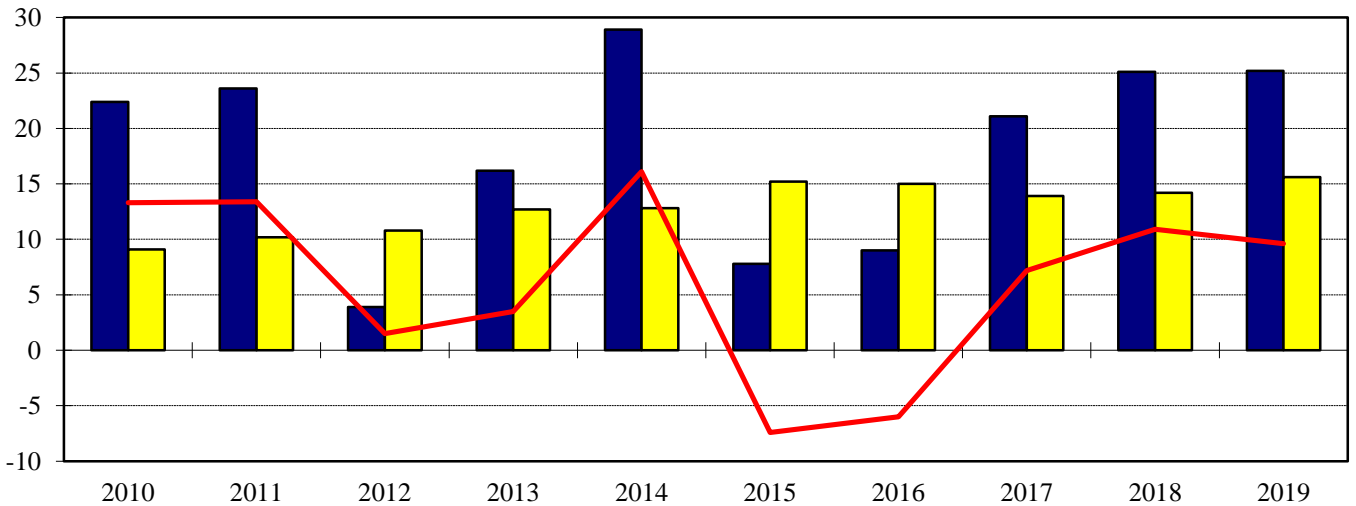


Plan B – Net Non-Investment Income



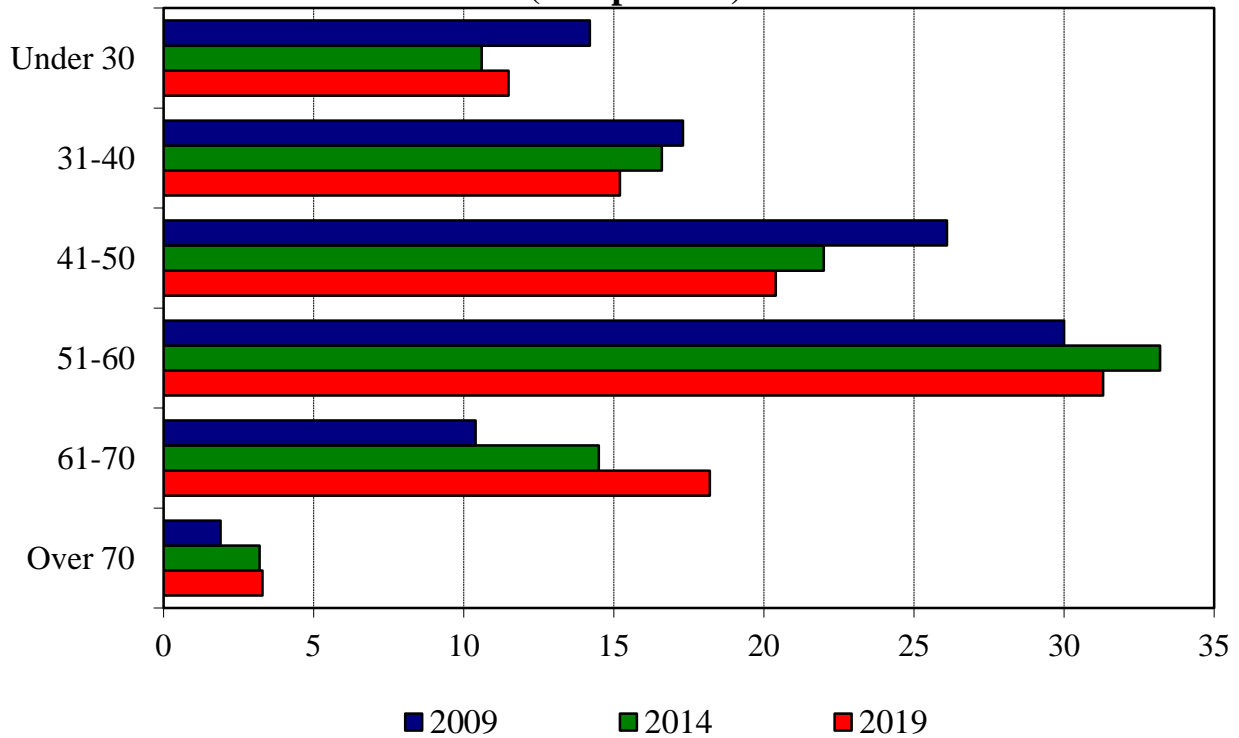
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Non-Investment Income (\$Mil)	■	9.6	9.9	10.8	10.6	12.4	12.7	13.3	14.5	16.0	17.4
Benefits and Expenses (\$Mil)	■	9.1	10.2	10.8	12.7	12.8	15.2	15.0	13.9	14.2	15.6
Net Non-Investment Income (\$Mil)	—	0.5	-0.3	0.0	-2.1	-0.4	-2.5	-1.7	0.6	1.8	1.8

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

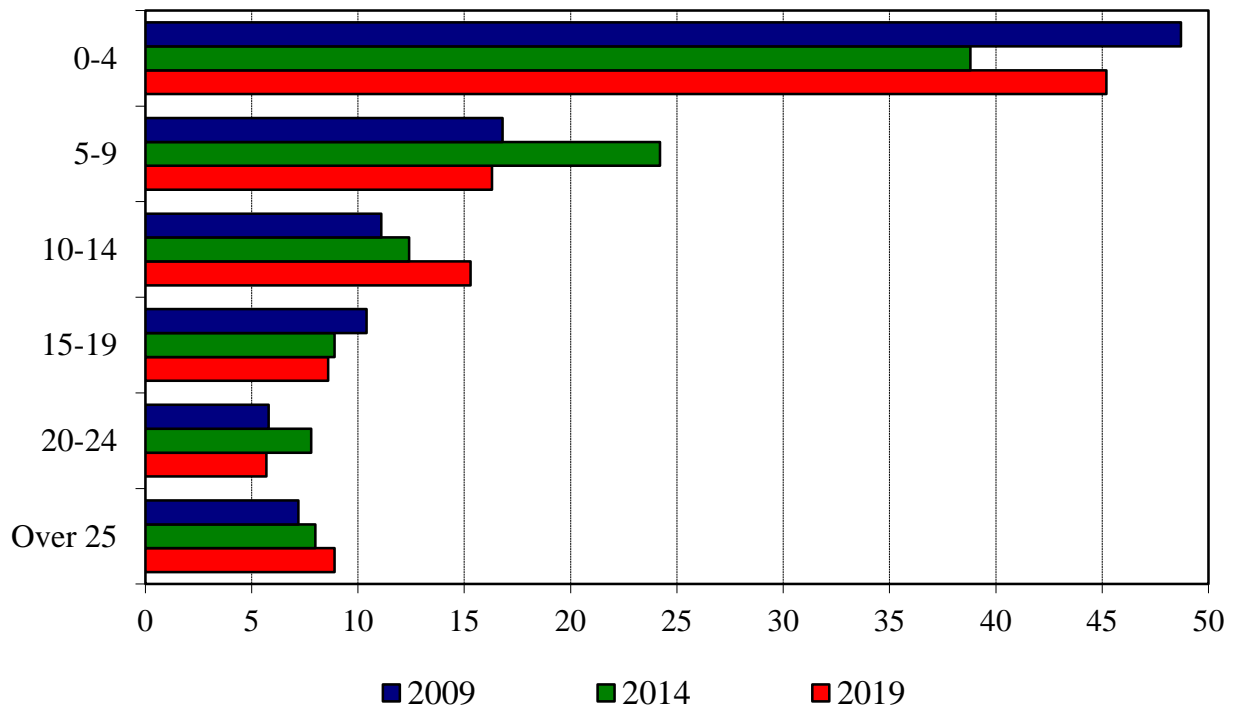


		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Income (\$Mil)	■	22.4	23.6	3.9	16.2	28.9	7.8	9.0	21.1	25.1	25.2
Benefits and Expenses (\$Mil)	■	9.1	10.2	10.8	12.7	12.8	15.2	15.0	13.9	14.2	15.6
Net Change in MVA (\$Mil)	—	13.3	13.4	1.5	3.5	16.1	-7.4	-6.0	7.2	10.9	9.6

Plan B – Active – Census By Age
(as a percent)



Plan B – Active – Census By Service
(as a percent)



Plan B – Historical Asset Yield

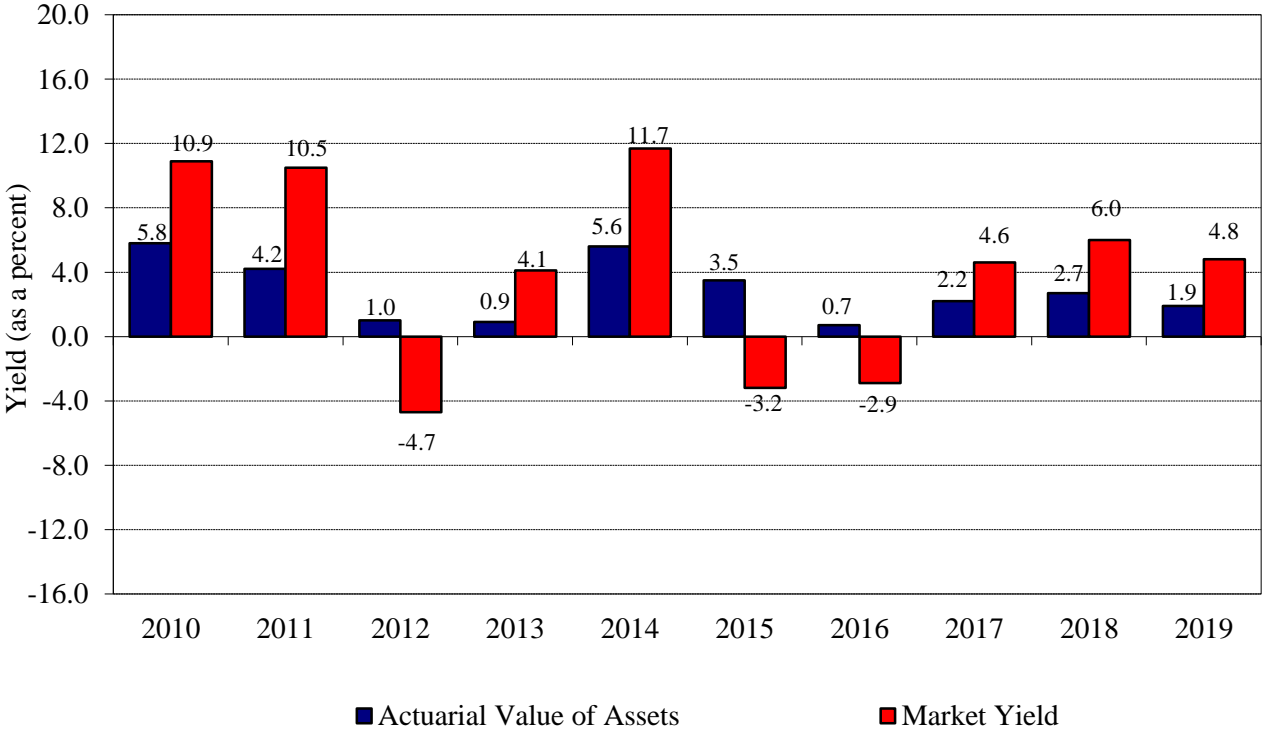


EXHIBIT I
PLAN A: ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS

1.	Present Value of Future Benefits	\$ 1,358,641,079
2.	Funding Deposit Account Credit Balance	\$ 9,346,575
3.	Frozen Unfunded Actuarial Accrued Liability	\$ 65,648,756
4.	Actuarial Value of Assets	\$ 806,503,031
5.	Present Value of Future Employee Contributions	\$ 109,888,429
6.	Present Value of Future Employer Normal Costs (1 + 2 – 3 – 4 – 5).....	\$ 385,947,438
7.	Present Value of Future Salaries.....	\$ 1,292,667,617
8.	Employer Normal Cost Accrual Rate (6 ÷ 7)	29.856665%
9.	Projected Fiscal 2020 Salary for Current Membership.....	\$ 168,412,774
10.	Employer Normal Cost as of July 1, 2019 (8 × 9).....	\$ 50,282,438
11.	Employer Normal Cost Interest Adjusted for Mid-year Payment	\$ 52,012,558
12.	Amortization Payment on Frozen Unfunded Accrued Liability with Payments Increasing at 4.25% per year	\$ 7,360,332
13.	Amortization Payment Interest Adjust for Mid-year Payment	\$ 7,613,587
14.	TOTAL Employer Normal Cost & Amortization Payment (11 + 13).....	\$ 59,626,145
15.	Estimated Administrative Cost for Fiscal 2020	\$ 1,898,365
16.	Gross Employer Actuarially Required Contribution for Fiscal 2020 (14 + 15)	\$ 61,524,510
17.	Projected Ad Valorem Tax Contributions for Fiscal 2020	\$ 6,460,959
18.	Projected Revenue Sharing Funds for Fiscal 2020	\$ 113,397
19.	Employers' Minimum Net Direct Actuarially Required Contribution for Fiscal 2020 (16 – 17 – 18).....	\$ 54,950,154
20.	Projected Payroll for Fiscal 2020.....	\$ 187,660,646
21.	Employers' Minimum Net Direct Actuarially Required Contribution as a % of Projected Payroll for Fiscal 2020 (19 ÷ 20)	29.28%
22.	Board Approved Employer Contribution Rate for 2020.....	27.75%
23.	Contribution Shortfall (Excess) as a Percentage of Payroll (21 – 22)	1.53%
24.	Increase (Reduction) to Following Year Payment for Contribution Shortfall (Excess).....	0.20%
25.	Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2021 (21 + 24, Rounded to the nearest 0.25%).....	29.50%

EXHIBIT II
PLAN A: PRESENT VALUE OF FUTURE BENEFITS

PRESENT VALUE OF FUTURE BENEFITS FOR ACTIVE MEMBERS:

Retirement Benefits	\$ 565,444,751
Survivor Benefits.....	11,835,171
Disability Benefits.....	11,755,695
Vested Termination Benefits.....	46,926,354
Refunds of Contributions	23,751,180

TOTAL Present Value of Future Benefits for Active Members..... \$ 659,713,151

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement.....	\$ 20,554,492
Terminated Members with Reciprocals	
Due Benefits at Retirement	1,100,277
Terminated Members Due a Refund	4,787,245

TOTAL Present Value of Future Benefits for Terminated Members..... \$ 26,442,014

PRESENT VALUE OF FUTURE BENEFITS FOR RETIREES:

Regular Retirees	
Maximum.....	\$ 237,417,022
Option 2	251,173,944
Option 3	82,053,542
Option 4	3,024,291

TOTAL Regular Retirees..... \$ 573,668,799

Disability Retirees..... 13,766,938

Survivors & Widows..... 63,866,650

Reserve for lifetime DROP annuities..... 128,994

DROP Account Balances - Retirees/Active Former DROP... 21,054,533

TOTAL Present Value of Future Benefits for Retirees & Survivors..... \$ 672,485,914

TOTAL Present Value of Future Benefits..... \$ 1,358,641,079

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

CURRENT ASSETS:

Cash in Banks	\$ 8,786,908
Contributions and Taxes Receivable.....	5,127,022
Accrued Interest and Dividends.....	194,227
Investments Receivable	5,000,432
Due (to) from Other Funds	4,999,137
Other Current Assets.....	6,443

TOTAL CURRENT ASSETS..... \$ 24,114,169

Property, Plant & Equipment..... \$ 1,578,823

INVESTMENTS:

Cash Equivalents.....	\$ 18,798,188
Equities	394,789,228
Fixed Income	284,759,960
Real Estate	20,608,384
Alternative Investments	22,278,667

TOTAL INVESTMENTS..... \$ 741,234,427

TOTAL ASSETS \$ 766,927,419

CURRENT LIABILITIES:

Accounts Payable.....	\$ 137,165
Refunds Payable.....	226,788
Investments Payable.....	684,352
Due to/(from) Plan B	(385,610)
Other Post-Employment Benefits	332,064
Other Current Liabilities	872,974

TOTAL CURRENT LIABILITIES \$ 1,867,733

MARKET VALUE OF ASSETS..... \$ 765,059,686

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

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

Fiscal year 2019	\$ (17,395,262)
Fiscal year 2018	(9,067,158)
Fiscal year 2017	(18,915,901)
Fiscal year 2016	(72,602,401)
Fiscal year 2015	(79,045,238)
Total for Five Years	\$ (197,025,960)

Deferral of Excess (Shortfall) of Invested Income:

Fiscal year 2019 (80%)	\$ (13,916,210)
Fiscal year 2018 (60%)	(5,440,295)
Fiscal year 2017 (40%)	(7,566,360)
Fiscal year 2016 (20%)	(14,520,480)
Fiscal year 2015 (0%)	0
Total Deferred for Year	\$ (41,443,345)

Market Value of Plan Net Assets, End of Year

\$ 765,059,686

Preliminary Actuarial Value of Plan Assets, End of Year

\$ 806,503,031

Actuarial Value of Assets Corridor

85% of Market Value, End of Year

\$ 650,300,733

115% of Market Value, End of Year

\$ 879,818,639

Final Actuarial Value of Plan Net Assets, End of Year

\$ 806,503,031

EXHIBIT IV
PLAN A: PRESENT VALUE OF FUTURE CONTRIBUTIONS

Employee Contributions to the Annuity Savings Fund	\$ 109,888,429
Employer Normal Contributions to the Pension Accumulation Fund.....	385,947,438
Employer Amortization Payments to the Pension Accumulation Fund	65,648,756
Funding Deposit Account Debit (Credit) Balance.....	(9,346,575)
TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS	\$ 552,138,048

EXHIBIT V
PLAN A: CHANGE IN FROZEN UNFUNDED ACTUARIAL ACCRUED LIABILITY

Prior Year Frozen Unfunded Accrued Liability	\$ 68,334,864
Interest on Frozen Unfunded Accrued Liability	\$ 4,971,361
TOTAL Interest Adjusted Cost Elements.....	\$ 4,971,361
Amortization Payment on the Unfunded Accrued Liability	\$ 7,138,168
Interest on Amortization Payment	519,301
Credited Withdrawals from Funding Deposit Account	0
TOTAL Interest Adjusted Employer Contributions	\$ 7,657,469
NET Change in Frozen Unfunded Accrued Liability.....	\$ (2,686,108)
CURRENT YEAR FROZEN UNFUNDED ACCRUED LIABILITY	\$ 65,648,756

EXHIBIT VI
PLAN A: ANALYSIS OF CHANGE IN ASSETS

Actuarial Value of Assets (June 30, 2018)	\$ 797,679,469
INCOME:	
Member Contributions	\$ 16,783,858
Employer Contributions	48,946,089
Ad Valorem Taxes and Revenue Sharing	6,417,100
Transfers from Other Plan/Systems	1,139,538
Total Contributions	\$ 73,286,585
Net Appreciation in Fair Value of Investments	\$ 35,727,695
Interest & Dividend Income	2,384,748
Investment Expense	(2,271,691)
Net Investment Income	\$ 35,840,752
TOTAL Income	\$ 109,127,337
EXPENSES:	
Retirement Benefits	\$ 64,787,222
DROP Disbursements	6,512,526
Refunds of Contributions	4,584,449
Funds Transferred to another System	1,212,255
Transfer from Plan B to Plan A	(385,610)
Administrative Expenses	1,583,003
TOTAL Expenses	\$ 78,293,845
Net Market Value Income for Fiscal 2019 (Income – Expenses)	\$ 30,833,492
Unadjusted Fund Balance as of June 30, 2019	
(Fund Balance Previous Year + Net Income)	\$ 828,512,961
Adjustment for Actuarial Smoothing	\$ (22,009,930)
Actuarial Value of Assets: (June 30, 2019)	\$ 806,503,031

**EXHIBIT VII
PLAN A: FUNDING DEPOSIT ACCOUNT**

Funding Deposit Account Balance as of June 30, 2018	\$ 8,712,724
Interest on Opening Balance at 7.275%	633,851
Contributions to the Funding Deposit Account	0
Withdrawals from the Funding Deposit Account	0
Funding Deposit Account Balance as of June 30, 2019	\$ 9,346,575

**EXHIBIT VIII – SCHEDULE A
PLAN A: PENSION BENEFIT OBLIGATION**

Present Value of Credited Projected Benefits Payable to Current Employees.....	\$ 456,343,987
Present Value of Benefits Payable to Terminated Employees	26,442,014
Present Value of Benefits Payable to Current Retirees and Beneficiaries	672,485,914
TOTAL PENSION BENEFIT OBLIGATION	\$ 1,155,271,915
NET ACTUARIAL VALUE OF ASSETS	\$ 806,503,031
Ratio of Net Actuarial Value of Assets to Pension Benefit Obligation.....	69.81%

**EXHIBIT VIII – SCHEDULE B
PLAN A: ENTRY AGE NORMAL ACCRUED LIABILITIES**

Accrued Liability for Active Employees	\$ 467,026,959
Accrued Liability for Terminated Employees	26,442,014
Accrued Liability for Current Retirees and Beneficiaries	672,485,914
TOTAL ENTRY AGE NORMAL ACCRUED LIABILITY	\$ 1,165,954,887
ACTUARIAL VALUE OF ASSETS	\$ 806,503,031
Ratio of Net Actuarial Value of Assets to Entry Age Normal Accrued Liability	69.17%

**EXHIBIT IX
CENSUS DATA – PLAN A**

	Active	Terminated with Funds on Deposit	DROP	Retired	Total
Number of members as of June 30, 2018	4,667	3,179	221	3,468	11,535
Additions to Census					
Initial membership	681	107			788
Omitted in error last year		5		1	6
Death of another member			(3)	46	43
Adjustment for multiple records	4			9	13
Change in Status during Year					
Actives terminating service	(273)	273			
Actives who retired	(115)			115	
Actives entering DROP	(83)		83		
Term. members rehired	19	(19)			
Term. members who retire		(11)		11	
Retirees who are rehired	6			(6)	
Refunded who are rehired	13	3			16
DROP participants retiring			(55)	55	
DROP returned to work	38		(38)		
Omitted in error last year					
Eliminated from Census					
Refund of contributions	(350)	(143)			(493)
Deaths	(20)	(4)		(147)	(171)
Included in error last year					
Adjustment for multiple records					
Number of members as of June 30, 2019	4,587	3,390	208	3,552	11,737

PLAN A - ACTIVES CENSUS BY AGE:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
16 - 20	34	5	39	24,062	938,419
21 - 25	122	61	183	26,415	4,833,974
26 - 30	219	142	361	31,337	11,312,678
31 - 35	271	153	424	34,902	14,798,339
36 - 40	266	166	432	37,860	16,355,642
41 - 45	273	170	443	36,351	16,103,476
46 - 50	353	189	542	38,509	20,871,927
51 - 55	488	221	709	41,454	29,390,532
56 - 60	477	278	755	41,086	31,020,007
61 - 65	365	188	553	41,648	23,031,615
66 - 70	145	78	223	43,348	9,666,534
71 - 75	56	27	83	40,987	3,401,915
76 - 80	29	10	39	37,216	1,451,428
81 - 85	5	3	8	34,046	272,369
86 - 90	0	1	1	34,800	34,800
TOTAL	3,103	1,692	4,795	38,266	183,483,655

THE ACTIVE CENSUS INCLUDES 1,743 ACTIVES WITH VESTED BENEFITS, INCLUDING 208 DROP PARTICIPANTS AND 191 ACTIVE FORMER DROP PARTICIPANTS.

PLAN A - TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
31 - 35	4	2	6	9,850	59,100
36 - 40	7	5	12	15,534	186,404
41 - 45	6	12	18	15,030	270,546
46 - 50	16	8	24	17,791	426,975
51 - 55	26	24	50	14,972	748,616
56 - 60	39	26	65	15,313	995,319
61 - 65	10	7	17	15,823	268,989
66 - 70	1	2	3	6,068	18,203
71 - 75	0	1	1	14,642	14,642
76 - 80	1	2	3	3,565	10,694
TOTAL	110	89	199	15,073	2,999,488

PLAN A - TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

Contributions Ranging From	To	Number	Total Contributions
0	99	1,869	106,079
100	499	461	119,406
500	999	206	148,014
1000	1999	203	294,596
2000	4999	186	594,334
5000	9999	127	909,769
10000	19999	96	1,355,213
20000	99999	43	1,226,076
TOTAL		3,191	4,747,487

PLAN A - REGULAR RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
41 - 45	4	1	5	24,839	124,195
46 - 50	17	7	24	28,009	672,204
51 - 55	43	24	67	30,541	2,046,239
56 - 60	173	84	257	29,600	7,607,191
61 - 65	322	151	473	26,439	12,505,829
66 - 70	408	176	584	22,234	12,984,750
71 - 75	349	166	515	18,238	9,392,516
76 - 80	247	110	357	16,738	5,975,595
81 - 85	169	68	237	15,284	3,622,222
86 - 90	85	39	124	13,032	1,615,931
91 - 99	40	29	69	12,218	843,037
TOTAL	1,857	855	2,712	21,161	57,389,709

PLAN A - DISABILITY RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
36 - 40	1	1	2	12,235	24,469
41 - 45	2	1	3	15,597	46,791
46 - 50	8	0	8	10,840	86,721
51 - 55	12	3	15	14,151	212,269
56 - 60	17	5	22	13,078	287,719
61 - 65	22	9	31	11,833	366,815
66 - 70	13	2	15	8,212	123,177
71 - 75	6	4	10	8,518	85,181
76 - 80	3	3	6	6,989	41,931
81 - 85	5	1	6	7,166	42,994
86 - 90	1	1	2	4,761	9,521
TOTAL	90	30	120	11,063	1,327,588

PLAN A - SURVIVORS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
0 - 25	6	6	12	12,083	145,000
31 - 35	1	2	3	11,755	35,264
36 - 40	1	3	4	6,056	24,223
41 - 45	3	3	6	5,939	35,636
46 - 50	2	7	9	9,448	85,034
51 - 55	5	25	30	9,875	296,254
56 - 60	8	44	52	10,197	530,237
61 - 65	5	54	59	15,573	918,807
66 - 70	9	76	85	12,807	1,088,609
71 - 75	7	95	102	11,426	1,165,454
76 - 80	4	121	125	10,188	1,273,511
81 - 85	8	103	111	10,107	1,121,858
86 - 90	2	79	81	9,427	763,570
91 - 99	0	41	41	7,707	315,977
TOTAL	61	659	720	10,833	7,799,434

PLAN A - 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	33	6													39
21 - 25	78	54	30	8	10	3									183
26 - 30	94	56	49	47	32	78	5								361
31 - 35	84	48	46	50	36	114	45	1							424
36 - 40	65	45	37	46	37	106	54	41	1						432
41 - 45	78	49	25	21	30	87	75	38	39	1					443
46 - 50	67	35	35	36	31	100	65	54	60	57	2				542
51 - 55	77	50	47	43	33	130	89	79	86	69	36				709
56 - 60	64	46	46	54	42	139	102	79	72	63	48				755
61 - 65	32	30	34	34	30	109	82	57	63	49	33				553
66 - 70	16	6	9	7	9	45	42	24	20	17	28				223
71 & Over	6	7	6	5	4	12	28	15	14	15	19				131
Totals	694	432	364	351	294	923	587	358	355	271	166				4,795

PLAN A - 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	23,973	24,550													24,062
21 - 25	24,543	26,560	30,824	26,493	26,740	27,110									26,415
26 - 30	26,804	31,519	29,836	32,688	34,035	35,227	38,572								31,337
31 - 35	27,799	31,102	32,253	35,133	36,353	40,237	39,896	39,027							34,902
36 - 40	28,940	31,604	33,226	37,622	38,047	40,497	46,755	44,561	40,210						37,860
41 - 45	28,568	31,432	30,693	35,843	32,693	38,521	40,582	42,882	44,665	67,774					36,351
46 - 50	28,093	34,549	29,133	33,007	35,277	34,644	40,224	43,139	48,940	52,596	68,065				38,509
51 - 55	32,186	36,741	31,184	33,528	35,919	38,944	39,366	43,733	49,715	53,812	63,465				41,454
56 - 60	32,285	32,397	39,641	38,051	36,738	37,501	42,697	44,154	43,000	49,812	57,338				41,086
61 - 65	40,987	42,796	34,110	37,926	38,444	37,873	40,487	44,214	41,534	49,274	55,582				41,648
66 - 70	38,067	31,834	29,728	33,592	40,021	42,970	39,820	38,727	48,078	60,161	52,991				43,348
71 & Over	36,520	36,657	35,554	30,211	33,539	32,464	40,045	43,756	31,545	43,900	48,368				39,393
Average	29,159	32,569	32,463	35,181	35,794	38,192	41,130	43,470	45,380	51,707	56,687				38,266

PLAN A - 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 - 30													0
31 - 35												6	6
36 - 40									12				12
41 - 45								17					17
46 - 50					1								1
51 - 55	1						22						22
56 - 60	15	9	14	13	13	47	1	1					105
61 - 65	16					1							17
66 - 70	2												2
71 - 75	1												1
76 - 80	3												3
81 & Over													0
Totals	39	10	14	13	14	50	23	18	12	6	0		199

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

Attained Ages	Years Until Retirement Eligibility											Average Benefit	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over		
0 - 30													0
31 - 35													9,850
36 - 40									15,534				15,534
41 - 45						6,173		15,551					15,030
46 - 50	24,652				25,170		17,143						17,791
51 - 55	8,883					15,213	12,125	12,604					14,972
56 - 60	17,533	14,013	14,303	15,700	14,728	10,396							15,313
61 - 65	16,587					3,596							15,823
66 - 70	4,723	8,758											6,068
71 - 75	14,642												14,642
76 - 80	3,565												3,565
81 & Over													0
Average	15,300	13,487	14,303	15,700	15,474	14,703	16,925	15,388	15,534	9,850	0		15,073

PLAN A - 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	10	7	3	3	6	20	4								29
51 - 55	13	9	6	7	8	76	51	9							67
56 - 60	24	24	24	28	20	118	88	21	3	1	1				257
61 - 65	59	56	40	44	42	211	89	54	11	5	2				473
66 - 70	42	36	44	50	40	155	182	68	16	6					584
71 - 75	17	11	17	13	30	66	93	107	39	21	4				515
76 - 80	7	5	5	4	6	16	34	58	74	29	14				357
81 - 85	2	1	1	1	7	5	8	22	30	39	15				237
86 - 90	1	1	1	1	1	5	1	5	7	20	35				124
91 & Over															69
Totals	175	150	141	152	160	667	550	344	180	121	72				2,712

PLAN A - 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	27,587	29,532	23,375	27,259	26,985	25,596	25,431								27,462
51 - 55	29,992	28,568	46,983	34,347	32,909	27,939	21,907	16,184							30,541
56 - 60	37,027	33,581	32,038	35,320	38,285	27,939	21,907	20,572	10,518	8,000	2,753				29,600
61 - 65	26,818	26,490	26,340	24,241	27,201	31,489	22,571	20,572	15,164	3,946	3,946				26,439
66 - 70	19,509	22,455	21,337	20,243	21,299	23,450	24,311	22,541	15,164	9,959	4,344				22,234
71 - 75	19,678	13,116	25,205	22,073	18,903	17,376	16,879	20,868	22,701	13,940					18,238
76 - 80	32,589	17,074	19,492	7,470	18,369	15,142	14,036	15,408	23,298	25,231	8,189				16,738
81 - 85	11,054	30,371	6,885	14,499	16,220	17,220	12,489	11,797	14,317	23,285	22,553				15,284
86 - 90	9,223	34,120	14,593	6,621	49,262	12,150	7,526	9,975	11,536	12,891	20,858				13,032
91 & Over				30,209			4,412	10,469	14,917	11,879	11,830				12,218
Average	26,000	25,705	25,963	24,724	25,159	22,980	18,610	16,915	16,556	17,247	15,150				21,161

PLAN A - 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	2												2
41 - 45	2		1										3
46 - 50	1	1	2					1					8
51 - 55	3	2	1	2			4	3	1				15
56 - 60	3	1	3	2	1	6	5	8	2	1			22
61 - 65	3	1	3	2	3	7	3	3	3	1			31
66 - 70			3			2	4	3	3				15
71 - 75						2	1	3	1	1			10
76 - 80						1	1	1	3				6
81 - 85		1				1	1	2		1	1		6
86 - 90						1				2			2
91 & Over													0
Totals	11	5	11	4	4	23	18	21	14	6	3		120

PLAN A - 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	12,234												12,234
41 - 45	15,039		16,713										15,597
46 - 50	9,104	8,196	10,161			14,071	15,381	8,496	12,460				10,840
51 - 55	12,298	17,359	11,172	12,981		13,674	16,710	8,945	14,652				14,151
56 - 60		12,972	11,534	12,102	12,911	15,659	11,957	11,895	7,773	8,158			13,078
61 - 65			7,859	15,032	12,911	12,404	7,346	6,868	8,179	13,274			11,833
66 - 70			6,929			14,060	4,791	8,773	8,094				8,212
71 - 75						8,212	5,321	4,830	12,106	19,233	3,154		8,518
76 - 80						8,368	8,244	7,267	7,804				6,989
81 - 85		4,628				8,244				6,435	9,154		7,166
86 - 90										4,760			4,760
91 & Over													0
Average	12,276	12,103	10,133	14,007	12,709	12,931	12,247	9,370	9,071	9,437	5,154		11,063

PLAN A - 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	2	4		2	1	3						12
21 - 25												0
26 - 30												0
31 - 35		1				1		1				3
36 - 40		1			1	2		2				4
41 - 45						4		2				6
46 - 50	1		1			2	1	3		1		9
51 - 55			2	1		7	7	5	2	1	5	30
56 - 60	2	1	2	3	7	7	11	11	2	5	1	52
61 - 65	3	1	1	3	1	14	13	8	7	5	3	59
66 - 70	2	1	1	1	5	11	20	17	11	10	6	85
71 - 75	1		1		2	10	30	23	20	9	6	102
76 - 80					2	7	16	28	38	19	15	125
81 - 85	1				1	2	11	20	25	30	21	111
86 - 90	1						3	10	12	25	30	81
91 & Over						1		1	5	6	28	41
Totals	13	10	7	10	20	71	112	129	122	111	115	720

PLAN A - 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	11,314	11,224		17,461	7,133	11,808						12,083
21 - 25												0
26 - 30												0
31 - 35		17,890				7,577		9,798				11,755
36 - 40		4,554			4,229	7,720						6,056
41 - 45						7,184						5,939
46 - 50	11,479		12,839			6,498	19,969	3,449				9,448
51 - 55			9,578			7,800	11,287	6,832		7,255		9,875
56 - 60	9,426	9,328	22,395	20,493	12,886	10,554	9,157	19,072	7,825	2,774	1,842	9,875
61 - 65	17,510	14,231	11,061	16,401	41,358	21,260	12,036	8,515	8,146	5,647	5,066	10,197
66 - 70	10,730	14,836	12,019	36,014	34,637	16,113	13,337	12,254	6,334	5,911	3,822	15,573
71 - 75	9,536	11,249		8,441	13,431	14,901	11,576	11,743	9,489	8,319	3,131	12,807
76 - 80					10,571	14,154	8,958	11,067	13,213	5,680	6,008	11,426
81 - 85	19,062				3,902	8,637	7,524	7,560	10,366	10,474	7,146	10,188
86 - 90	13,305						6,602	11,653	8,991	12,351	12,017	10,107
91 & Over						7,469		3,637	13,349	6,606	7,089	9,427
Average	12,989	11,698	14,266	22,110	18,401	13,752	10,858	11,147	10,085	9,569	7,841	10,833

EXHIBIT X
PLAN A: YEAR-TO-YEAR COMPARISON

	Fiscal 2019	Fiscal 2018	Fiscal 2017	Fiscal 2016
Number of Active Members	4,795	4,888	4,937	4,912
Number of Retirees & Survivors	3,552	3,468	3,417	3,345
Number of Terminated Due Deferred Benefits	199	185	184	186
Number Terminated Due Refunds	3,191	2,994	1,343	2,826
Active Lives Payroll	\$ 183,483,655	\$ 181,786,660	\$ 182,044,919	\$ 177,777,678
Retiree Benefits in Payment	\$ 66,516,731	\$ 63,184,393	\$ 60,663,715	\$ 57,895,282
Market Value of Assets (MVA)	\$ 765,059,686	\$ 734,226,194	\$ 697,057,939	\$ 671,876,210
Actuarial Value of Assets (AVA)	\$ 806,503,031	\$ 797,679,469	\$ 781,417,434	\$ 769,849,744
Entry Age Normal Accrued Liability	\$ 1,165,954,887	\$ 1,129,080,666	\$ 1,096,616,918	\$ 1,063,558,257
Ratio of AVA to EAN Accrued Liability	69.17%	70.65%	71.26%	72.38%
Frozen Unfunded Actuarial Accrued Liability	\$ 65,648,756	\$ 68,334,864	\$ 70,511,316	\$ 72,227,730
Present Value of Future Employer Normal Cost	\$ 385,947,438	\$ 367,352,092	\$ 344,034,117	\$ 315,256,488
Present Value of Future Employee Contrib.	\$ 109,888,429	\$ 110,664,765	\$ 109,901,879	\$ 105,774,692
Funding Deposit Account Balance	\$ 9,346,575	\$ 8,712,724	\$ 8,112,406	\$ 8,421,235
Present Value of Future Benefits	\$ 1,358,641,079	\$ 1,335,318,466	\$ 1,297,752,340	\$ 1,254,687,419
	Fiscal 2020	Fiscal 2019	Fiscal 2018	Fiscal 2017
Employee Contribution Rate	9.50%	9.50%	9.50%	9.50%
Estimated Tax Contribution as a % of Payroll	3.50%	3.50%	3.39%	3.40%
Actuarially Required Net Direct Employer Contribution Rate	29.28%	27.53%	25.88%	24.64%
Actual Employer Contribution Rate	27.75%	26.00%	24.75%	23.25% *

* Includes 0.5% from the Funding Deposit Account

Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011	Fiscal 2010
4,926	4,894	4,939	5,021	5,029	5,068
3,262	3,177	3,106	3,040	3,001	2,907
182	184	193	181	174	183
2,731	2,667	2,672	2,632	2,594	2,590
\$ 172,033,158	\$ 167,852,836	\$ 167,422,222	\$ 167,511,550	\$ 164,262,655	\$ 162,546,523
\$ 54,791,332	\$ 51,636,071	\$ 48,994,132	\$ 46,224,138	\$ 44,218,709	\$ 41,527,971
\$ 698,984,365	\$ 730,072,543	\$ 657,723,192	\$ 639,209,518	\$ 679,285,361	\$ 624,427,505
\$ 770,402,847	\$ 751,235,484	\$ 717,816,409	\$ 721,475,280	\$ 723,942,801	\$ 704,735,602
\$ 1,038,155,304	\$ 967,584,136	\$ 948,970,683	\$ 925,638,084	\$ 903,431,729	\$ 876,252,316
74.21%	77.64%	75.64%	77.94%	80.13%	80.43%
\$ 73,553,869	\$ 74,454,702	\$ 75,038,341	\$ 75,337,890	\$ 75,313,546	\$ 75,064,492
\$ 287,312,026	\$ 235,357,990	\$ 249,506,497	\$ 225,090,618	\$ 201,003,138	\$ 192,786,430
\$ 101,854,569	\$ 97,716,362	\$ 97,624,041	\$ 95,445,659	\$ 92,535,571	\$ 92,383,724
\$ 7,833,707	\$ 8,930,139	\$ 8,287,832	\$ 7,691,723	\$ 7,121,966	\$ 6,594,413
\$ 1,225,289,604	\$ 1,149,834,399	\$ 1,131,697,456	\$ 1,109,657,724	\$ 1,085,673,090	\$ 1,058,375,835
Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011
9.50%	9.50%	9.50%	9.25%	9.25%	9.25%
3.64%	3.52%	3.36%	3.13%	3.09%	3.07%
22.92%	19.48%	20.62%	18.67%	17.08%	16.41%
19.75%	20.75% †	18.75%	17.00%	16.75%	14.25%

† Includes 1.0% from the Funding Deposit Account

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EXHIBIT XI
PLAN B: ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS

1.	Present Value of Future Benefits	\$	304,082,748
2.	Funding Deposit Account Credit Balance	\$	1,633,823
3.	Actuarial Value of Assets	\$	180,085,046
4.	Present Value of Future Employee Contributions	\$	23,628,322
5.	Present Value of Future Employer Normal Costs (1 + 2 – 3 – 4).....	\$	102,003,203
6.	Present Value of Future Salaries	\$	524,119,456
7.	Employer Normal Cost Accrual Rate (5 ÷ 6)		19.461823%
8.	Projected Fiscal 2020 Salary for Current Membership.....	\$	68,145,796
9.	Employer Normal Cost as of July 1, 2019 (7 × 8).....	\$	13,262,414
10.	Employer Normal Cost Interest Adjusted for Mid-year Payment	\$	13,718,748
11.	Estimated Administrative Cost for Fiscal 2020	\$	778,175
12.	Gross Employer Actuarially Required Contribution for Fiscal 2020 (10 + 11)	\$	14,496,923
13.	Projected Ad Valorem Tax Contributions for Fiscal 2020	\$	2,648,467
14.	Projected Revenue Sharing Funds for Fiscal 2020	\$	46,483
15.	Employers' Minimum Net Direct Actuarially Required Contribution for Fiscal 2020 (12 – 13 – 14).....	\$	11,801,973
16.	Projected Payroll for Fiscal 2020.....	\$	76,952,056
17.	Employers' Minimum Net Direct Actuarially Required Contribution as a % of Projected Payroll for Fiscal 2020 (15 ÷ 16)		15.34%
18.	Board Approved Employer Contribution Rate for 2020.....		14.00%
19.	Contribution Shortfall (Excess) as a Percentage of Payroll (17 – 18)		1.34%
20.	Increase (Reduction) to Following Year Payment for Contribution Shortfall (Excess)		0.17%
21.	Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2021 (17 + 20, Rounded to the nearest 0.25%).....		15.50%

EXHIBIT XII
PLAN B: PRESENT VALUE OF FUTURE BENEFITS

PRESENT VALUE OF FUTURE BENEFITS FOR ACTIVE MEMBERS:

Retirement Benefits	\$ 150,533,105
Survivor Benefits.....	3,134,279
Disability Benefits.....	6,367,301
Vested Termination Benefits.....	10,760,532
Refunds of Contributions	4,611,047

TOTAL Present Value of Future Benefits for Active Members..... \$ 175,406,264

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement.....	\$ 7,965,402
Terminated Members with Reciprocals	
Due Benefits at Retirement	927,907
Terminated Members Due a Refund	1,218,407

TOTAL Present Value of Future Benefits [for Terminated Members..... \$ 10,111,716

PRESENT VALUE OF FUTURE BENEFITS FOR PENSIONERS:

Regular Retirees by Option Selected:

Maximum.....	\$ 44,352,392
Option 2	37,121,400
Option 3	10,823,299

TOTAL Regular Retirees

	\$ 92,297,091
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TOTAL Disability Retirees

	\$ 4,614,997
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TOTAL Survivors & Widows.....

	\$ 16,015,512
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DROP Account Balances - Retirees/Active Former DROP... \$ 5,637,168

TOTAL Present Value of Future Benefits for Retirees & Survivors..... \$ 118,564,768

TOTAL Present Value of Future Benefits..... \$ 304,082,748

**EXHIBIT XIII – SCHEDULE A
PLAN B: MARKET VALUE OF ASSETS**

CURRENT ASSETS:

Cash in Banks	\$ 9,493,020
Contributions and Taxes Receivable.....	1,104,735
Accrued Interest and Dividends	61,411
Investments Receivable	1,060,697
Due (to) from Other Funds	(4,999,137)
Other Current Assets.....	3,386

TOTAL CURRENT ASSETS..... \$ 6,724,112

Property Plant & Equipment..... \$ 601,321

INVESTMENTS:

Cash Equivalents.....	\$ 10,178,537
Equities	83,912,630
Fixed Income	61,405,095
Real Estate	4,381,966
Alternative Investments	4,729,182

TOTAL INVESTMENTS..... \$ 164,607,410

TOTAL ASSETS..... \$ 171,932,843

CURRENT LIABILITIES:

Accounts Payable.....	\$ 27,280
Refunds Payable.....	5,809
Investments Payable.....	145,166
Due to/(from) Plan A	385,610
Other Post-Employment Benefits	136,424
Other Current Liabilities	361,450

TOTAL CURRENT LIABILITIES..... \$ 1,061,739

MARKET VALUE OF ASSETS..... \$ 170,871,104

**EXHIBIT XIII – SCHEDULE B
PLAN B – ACTUARIAL VALUE OF ASSETS**

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

Fiscal year 2019.....	\$ (4,002,113)
Fiscal year 2018.....	(2,132,350)
Fiscal year 2017.....	(4,100,380)
Fiscal year 2016.....	(15,463,450)
Fiscal year 2015.....	(16,980,623)
Total for Five Years	\$ (42,678,916)

Deferral of Excess (Shortfall) of Invested Income:

Fiscal year 2019 (80%).....	\$ (3,201,690)
Fiscal year 2018 (60%).....	(1,279,410)
Fiscal year 2017 (40%).....	(1,640,152)
Fiscal year 2016 (20%).....	(3,092,690)
Fiscal year 2015 (0%).....	0
Total Deferred for Year.....	\$ (9,213,942)

Market Value of Plan Net Assets, End of Year..... \$ 170,871,104

Preliminary Actuarial Value of Plan Assets, End of Year..... \$ 180,085,046

Actuarial Value of Assets Corridor

85% of Market Value, End of Year..... \$ 145,240,438

115% of Market Value, End of Year..... \$ 196,501,770

Final Actuarial Value of Plan Net Assets, End of Year..... \$ 180,085,046

EXHIBIT XIV
PLAN B: PRESENT VALUE OF FUTURE CONTRIBUTIONS

Employee Contributions to the Annuity Savings Fund	\$ 23,628,322
Employer Normal Contributions to the Pension Accumulation Fund.....	102,003,203
Employer Amortization Payments to the Pension Accumulation Fund	0
Funding Deposit Account Credit Balance	(1,633,823)
 TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS	 \$ 123,997,702

EXHIBIT XV
PLAN B: RECONCILIATION OF CONTRIBUTIONS

Employer Normal Cost for Prior Year.....	\$ 12,081,914
Interest on Normal Cost.....	878,959
Administrative Expenses	687,603
Interest on Expenses	24,573
 TOTAL Interest Adjusted Actuarially Required Employer Contributions	 \$ 13,673,049
Direct Employer Contributions.....	\$ 10,699,641
Interest on Employer Contributions.....	382,367
Ad Valorem Taxes and Revenue Sharing Funds	2,636,546
Interest on Taxes and Revenue Sharing Funds.....	94,221
 TOTAL Interest Adjusted Employer Contributions	 \$ 13,812,775
 CONTRIBUTION SURPLUS (DEFICIENCY)	 \$ 139,726

EXHIBIT XVI
PLAN B: ANALYSIS OF CHANGE IN ASSETS

Actuarial Value of Assets (June 30, 2018)	\$	175,032,415
INCOME:		
Member Contributions	\$	3,629,182
Employer Contributions		10,699,641
Ad Valorem Taxes and Revenue Sharing		2,636,546
Transfers from Other Plan/Systems		396,954
Total Contributions	\$	17,362,323
Net Appreciation in Fair Value of Investments	\$	7,599,648
Interest & Dividend Income		702,273
Investment Expense		(506,563)
Net Investment Income	\$	7,795,358
TOTAL Income	\$	25,157,681
EXPENSES:		
Retirement Benefits	\$	11,852,841
DROP Disbursements		1,279,928
Refunds of Contributions		1,172,865
Funds Transferred to another System		192,532
Transfer from Plan B to Plan A		385,610
Administrative Expenses		687,603
TOTAL Expenses	\$	15,571,379
Net Market Value Income for Fiscal 2019 (Income – Expenses)	\$	9,586,302
Unadjusted Fund Balance as of June 30, 2019		
(Fund Balance Previous Year + Net Income)	\$	184,618,717
Adjustment for Actuarial Smoothing	\$	(4,533,671)
Actuarial Value of Assets: (June 30, 2019)	\$	180,085,046

EXHIBIT XVII
PLAN B: FUNDING DEPOSIT ACCOUNT

Funding Deposit Account Balance as of June 30, 2018	\$ 1,523,023
Interest on Opening Balance at 7.275%	110,800
Contributions to the Funding Deposit Account	0
Withdrawals from the Funding Deposit Account	0
Funding Deposit Account Balance as of June 30, 2019	\$ 1,633,823

EXHIBIT XVIII – SCHEDULE A
PLAN B: PENSION BENEFIT OBLIGATION

Present Value of Credited Projected Benefits Payable to Current Employees.....	\$ 119,293,357
Present Value of Benefits Payable to Terminated Employees	10,111,716
Present Value of Benefits Payable to Current Retirees and Beneficiaries	118,564,768
TOTAL PENSION BENEFIT OBLIGATION	\$ 247,969,841
NET ACTUARIAL VALUE OF ASSETS	\$ 180,085,046
Ratio of Net Actuarial Value of Assets to Pension Benefit Obligation.....	72.62%

EXHIBIT XVIII – SCHEDULE B
PLAN B: ENTRY AGE NORMAL ACCRUED LIABILITIES

Accrued Liability for Active Employees	\$ 125,615,962
Accrued Liability for Terminated Employees	10,111,716
Accrued Liability for Current Retirees and Beneficiaries	118,564,768
TOTAL ENTRY AGE NORMAL ACCRUED LIABILITY	\$ 254,292,446
ACTUARIAL VALUE OF ASSETS	\$ 180,085,046
Ratio of Net Actuarial Value of Assets to Entry Age Normal Accrued Liability	70.82%

EXHIBIT XIX
CENSUS DATA – PLAN B

	Active	Terminated with Funds on Deposit	DROP	Retired	Total
Number of members as of June 30, 2018	2,048	1,511	80	1,050	4,689
Additions to Census					
Initial membership	305	62			367
Omitted in error last year					
Death of another member				15	15
Adjustment for multiple records		3		4	7
Change in Status during Year					
Actives terminating service	(155)	155			
Actives who retired	(44)			44	
Actives entering DROP	(30)		30		
Term. members rehired	12	(12)			
Term. members who retire		(8)		8	
Retirees who are rehired	1			(1)	
Refunded who are rehired	2	2			4
DROP participants retiring			(15)	15	
DROP returned to work	13		(13)		
Omitted in error last year					
Eliminated from Census					
Refund of contributions	(154)	(59)			(213)
Deaths	(12)	(1)	(4)	(56)	(73)
Included in error last year				(3)	(3)
Adjustment for multiple records	(1)				(1)
Number of members as of June 30, 2019	1,985	1,653	78	1,076	4,792

PLAN B - ACTIVES CENSUS BY AGE:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
16 - 20	21	2	23	23,691	544,891
21 - 25	57	27	84	26,237	2,203,911
26 - 30	95	36	131	28,622	3,749,451
31 - 35	92	38	130	32,163	4,181,142
36 - 40	112	72	184	35,668	6,562,979
41 - 45	128	55	183	37,683	6,896,020
46 - 50	142	96	238	37,114	8,833,037
51 - 55	199	91	290	38,510	11,167,855
56 - 60	243	112	355	37,666	13,371,434
61 - 65	173	94	267	40,104	10,707,899
66 - 70	80	29	109	40,358	4,399,000
71 - 75	29	16	45	37,139	1,671,248
76 - 80	19	0	19	35,577	675,966
81 - 85	2	1	3	43,350	130,050
86 - 90	2	0	2	59,235	118,470
TOTAL	1,394	669	2,063	36,458	75,213,353

THE ACTIVE CENSUS INCLUDES 793 ACTIVES WITH VESTED BENEFITS, INCLUDING 78 DROP PARTICIPANTS AND 83 ACTIVE FORMER DROP PARTICIPANTS.

PLAN B - TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
31 - 35	0	1	1	9,204	9,204
36 - 40	4	1	5	10,138	50,690
41 - 45	3	3	6	12,230	73,381
46 - 50	8	6	14	12,735	178,291
51 - 55	14	7	21	10,610	222,812
56 - 60	28	13	41	14,416	591,040
61 - 65	6	0	6	8,094	48,564
66 - 70	1	0	1	5,793	5,793
76 - 80	1	0	1	494	494
86 - 90	1	0	1	630	630
TOTAL	66	31	97	12,174	1,180,899

PLAN B - TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

Contributions Ranging From	To	Number	Total Contributions
0 -	99	805	24,892
100 -	499	364	88,369
500 -	999	132	94,053
1000 -	1999	105	144,584
2000 -	4999	93	294,683
5000 -	9999	37	272,368
10000 -	19999	16	205,248
20000 -	99999	4	93,676
TOTAL		1,556	1,217,873

PLAN B - REGULAR RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
51 - 55	2	0	2	31,726	63,451
56 - 60	19	8	27	22,791	615,349
61 - 65	82	45	127	14,558	1,848,876
66 - 70	143	52	195	14,051	2,739,998
71 - 75	111	45	156	11,575	1,805,721
76 - 80	83	38	121	10,154	1,228,692
81 - 85	64	34	98	10,358	1,015,127
86 - 90	36	12	48	9,655	463,446
91 - 99	12	4	16	6,181	98,900
TOTAL	552	238	790	12,506	9,879,560

PLAN B - DISABILITY RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
41 - 45	1	0	1	6,645	6,645
46 - 50	3	0	3	7,097	21,290
51 - 55	4	1	5	10,885	54,424
56 - 60	15	6	21	11,534	242,221
61 - 65	7	2	9	10,180	91,618
71 - 75	1	0	1	12,210	12,210
TOTAL	31	9	40	10,710	428,408

PLAN B - SURVIVORS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
31 - 35	0	1	1	2,245	2,245
36 - 40	1	0	1	10,042	10,042
41 - 45	0	3	3	3,646	10,937
46 - 50	0	2	2	15,785	31,570
51 - 55	2	8	10	3,916	39,163
56 - 60	3	12	15	10,534	158,009
61 - 65	5	28	33	9,729	321,043
66 - 70	2	23	25	9,944	248,605
71 - 75	1	35	36	7,870	283,314
76 - 80	1	34	35	6,618	231,626
81 - 85	1	38	39	7,538	293,969
86 - 90	1	27	28	7,231	202,469
91 - 99	1	17	18	4,613	83,031
TOTAL	18	228	246	7,789	1,916,023

PLAN B - 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	21	2													23
21 - 25	42	32	6	2	1	1									84
26 - 30	45	25	18	15	9	17	2								131
31 - 35	24	24	10	10	12	30	20								130
36 - 40	31	20	14	13	19	32	33								184
41 - 45	29	23	11	12	10	34	34	4							183
46 - 50	30	28	19	10	11	34	42	14	2						238
51 - 55	24	24	20	19	19	49	54	19	17	2					290
56 - 60	33	28	19	22	23	59	61	26	12	7					355
61 - 65	13	16	18	11	14	45	39	23	27	25					267
66 - 70	8	7	2	5	7	23	21	3	9	11					109
71 & Over	5	2	6	4	6	13	9	5	7	6					69
Totals	305	231	143	123	131	337	315	177	117	101	83				2,063

PLAN B - 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	23,306	27,735														23,691
21 - 25	25,149	27,092	30,825	24,503	21,897	24,868	37,830									26,237
26 - 30	25,533	29,303	27,916	31,710	28,198	32,961	37,830									28,622
31 - 35	28,575	33,108	32,182	29,585	33,355	32,667	35,139									32,163
36 - 40	26,954	29,677	33,667	30,676	33,455	37,618	45,477									35,668
41 - 45	27,016	32,269	30,374	29,632	33,431	40,200	45,501	42,609	39,147							37,683
46 - 50	28,726	31,085	33,153	43,518	35,220	39,211	37,961	50,742	45,158	44,951						37,114
51 - 55	29,033	30,449	32,867	28,487	36,492	36,186	44,100	43,292	47,993	43,314	48,133					37,510
56 - 60	29,897	28,492	41,679	28,338	33,522	33,098	39,888	42,647	42,334	51,909	58,820					37,666
61 - 65	27,746	28,313	32,943	34,576	37,517	31,782	34,693	49,706	39,832	49,247	51,053					40,104
66 - 70	25,785	27,260	62,576	28,310	33,730	41,746	43,007	48,595	41,556	49,614	58,613					40,358
71 & Over	30,895	29,126	42,283	25,623	37,815	32,198	44,297	50,540	39,409	33,734	41,043					37,619
Average	27,102	29,811	34,026	30,887	34,244	35,620	40,921	44,527	42,736	46,804	53,106					36,458

PLAN B - 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 - 30												0
31 - 35										1		1
36 - 40									5			5
41 - 45								6				6
46 - 50							14					14
51 - 55						21						21
56 - 60	7	10	12	5	7							41
61 - 65	5		1									6
66 - 70	1											1
71 - 75												0
76 - 80	1											1
81 - 85												0
86 - 90	1											1
91 & Over												0
Totals	15	10	13	5	7	21	14	6	5	1	0	97

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

Attained Ages	Years Until Retirement Eligibility										Average Benefit	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29		30&Over
0 - 30												0
31 - 35										9,204		9,204
36 - 40									10,138			10,138
41 - 45								12,230				12,230
46 - 50							12,735					12,735
51 - 55						10,610						10,610
56 - 60	12,534	20,726	10,026	9,607	18,242							14,416
61 - 65	9,497		1,080									8,094
66 - 70	5,793											5,793
71 - 75												0
76 - 80	494											494
81 - 85												0
86 - 90												630
91 & Over												0
Average	9,476	20,726	9,338	9,607	18,242	10,610	12,735	12,230	10,138	9,204	0	12,174

PLAN B - SERVICE RETIREES:

Attained Ages	Completed Years Since Retirement											Total			
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over				
0 - 50															0
51 - 55	2														2
56 - 60	1	3													27
61 - 65	32	30	19	7	11	23	3								127
66 - 70	18	21	16	20	32	66	12	8							195
71 - 75	6	3	10	4	15	46	61	11							156
76 - 80	3	6	5		8	23	40	28	7	1					121
81 - 85	1	2	3			6	15	36	28	5	2				98
86 - 90			1			4	3	8	19	11	2				48
91 & Over						1	1		1	6	7				16
Totals	63	65	57	36	69	179	137	93	55	25	11				790

PLAN B - AVERAGE ANNUAL BENEFITS PAYABLE TO SERVICE RETIREES:

Attained Ages	Completed Years Since Retirement											Average Benefit			
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over				
0 - 50															0
51 - 55	31,726														31,726
56 - 60	31,223	28,857	27,790	22,943	21,232	21,275	11,510								22,791
61 - 65	13,052	13,744	14,817	7,916	14,449	19,621	14,359	14,337							14,558
66 - 70	16,696	13,979	10,039	12,878	15,170	14,144	17,882	10,472							14,051
71 - 75	9,060	7,274	9,886	10,173	15,122	11,349	11,532	12,511							11,575
76 - 80	5,243	8,914	11,526		7,587	12,211	9,423	9,842	11,271	28,894					10,154
81 - 85	13,688	9,491	15,359			15,099	9,997	9,924	9,832	11,655	2,504				10,358
86 - 90			26,284			4,062	6,768	9,881	10,758	8,176	13,612				9,655
91 & Over						5,364	4,396		11,640	8,294	3,962				6,181
Average	14,232	13,642	13,235	13,011	14,429	14,037	11,210	10,344	10,368	9,490	5,452				12,506

PLAN B - 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 - 40												0
41 - 45	1											1
46 - 50						2	1					3
51 - 55		2	1			1	1					5
56 - 60	1	2	2	1	3	5	4	2	1			21
61 - 65				1		4	1	2		1		9
66 - 70												0
71 - 75										1		1
76 & Over												0
Totals	2	4	3	2	3	12	7	4	1	2	0	40

PLAN B - 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 - 40												0
41 - 45	6,645											6,645
46 - 50						7,209	6,872					7,097
51 - 55		9,973	17,045			10,215	7,217					10,885
56 - 60	6,144	11,815	14,044	12,618	12,522	10,486	14,681	9,128	4,766			11,534
61 - 65				18,109		10,876	9,734	7,600		5,071		10,180
66 - 70												0
71 - 75										12,210		12,210
76 & Over												0
Average	6,395	10,894	15,044	15,363	12,522	10,047	11,793	8,364	4,766	8,640	0	10,710

PLAN B - 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 - 30												0
31 - 35								1				1
36 - 40						1						1
41 - 45					1	1			2			3
46 - 50		1			1							2
51 - 55			1	1	1	1	2	1	2	1		10
56 - 60	3			1	5	7	8	2	1	4	2	15
61 - 65	1	3	2	1	2	5	5	5	4	1	2	33
66 - 70			1	2	5	5	12	9	7	1	2	25
71 - 75		1	1	1	1	3	5	11	8	5	1	36
76 - 80	2				1	2	5	12	7	10	2	35
81 - 85					1	2	5	7	7	6	8	39
86 - 90						2	2	3	7	6	10	28
91 & Over						1	1	1		6	10	18
Totals	6	5	5	6	5	29	42	50	38	34	26	246

PLAN B - 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 - 30												0
31 - 35								2,245				2,245
36 - 40						10,042						10,042
41 - 45						3,069			3,934			3,646
46 - 50		24,661			6,909	6,079	2,557	9,607	1,959	1,386		15,785
51 - 55			1,415	7,379	4,266	7,998	4,950	10,435			3,029	3,916
56 - 60	25,145			5,756		10,938	9,481	5,006	4,056	8,211	2,836	10,534
61 - 65	26,236	16,172	10,653	7,809		13,954	11,950	5,378	10,535	4,126	3,933	9,729
66 - 70			18,510	9,776		7,520	7,683	10,709	5,225	6,962		9,944
71 - 75		6,876	7,104	4,782	9,872	7,713	5,231	6,251	6,572	7,558	6,493	7,870
76 - 80	11,793				836	8,353	9,725	7,507	6,116	4,859	9,028	6,618
81 - 85					29,105	3,259	7,706	6,600	7,083	10,281	6,184	7,538
86 - 90							507	2,131		4,040	5,615	7,231
91 & Over												4,613
Average	20,876	16,011	9,667	7,546	10,197	9,197	7,941	7,236	6,303	6,401	5,651	7,789

EXHIBIT XX
PLAN B: YEAR-TO-YEAR COMPARISON

	Fiscal 2019	Fiscal 2018	Fiscal 2017	Fiscal 2016
Number of Active Members	2,063	2,128	2,125	2,142
Number of Retirees & Survivors	1,076	1,050	1,025	975
Number of Terminated Due Deferred Benefits	97	92	82	71
Number Terminated Due Refunds	1,556	1,419	1,331	1,258
Active Lives Payroll	\$ 75,213,353	\$ 74,696,846	\$ 73,275,324	\$ 71,918,938
Retiree Benefits in Payment	\$ 12,223,991	\$ 11,522,493	\$ 10,946,571	\$ 10,254,964
Market Value of Assets (MVA)	\$ 170,871,104	\$ 161,284,802	\$ 150,467,958	\$ 143,201,586
Actuarial Value of Assets (AVA)	\$ 180,085,046	\$ 175,032,415	\$ 168,698,012	\$ 164,516,476
Entry Age Normal Accrued Liability	\$ 254,292,446	\$ 241,302,909	\$ 232,425,916	\$ 221,633,353
Ratio of AVA to EAN Accrued Liability	70.82%	72.54%	72.58%	74.23%
Frozen Unfunded Actuarial Accrued Liability	\$ 0	\$ 0	\$ 2,382,456	\$ 2,742,698
Present Value of Future Employer Normal Cost	\$ 102,003,203	\$ 95,920,724	\$ 91,249,645	\$ 82,911,008
Present Value of Future Employee Contrib.	\$ 23,628,322	\$ 24,253,572	\$ 23,664,481	\$ 23,119,585
Funding Deposit Account Balance	\$ 1,633,823	\$ 1,523,023	\$ 3,286,730	\$ 3,233,725
Present Value of Future Benefits	\$ 304,082,748	\$ 293,683,688	\$ 282,707,864	\$ 270,056,042
	Fiscal 2020	Fiscal 2019	Fiscal 2018	Fiscal 2017
Employee Contribution Rate	5.00%	5.00%	5.00%	5.00%
Estimated Tax Contribution as a % of Payroll	3.50%	3.38%	3.37%	3.41%
Actuarially Required Net Direct Employer Contribution Rate	15.34%	13.73%	14.00%	13.06%
Actual Employer Contribution Rate	14.00%	14.00%	13.25%	11.25% *

* Includes 0.25% from the Funding Deposit Account

Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011	Fiscal 2010
2,200	2,168	2,128	2,155	2,175	2,197
959	916	900	879	865	836
71	74	61	61	62	72
1,218	1,170	1,155	1,100	1,062	1,062
\$ 69,909,530	\$ 67,939,158	\$ 65,928,929	\$ 66,409,896	\$ 65,427,477	\$ 65,241,810
\$ 9,917,688	\$ 9,141,803	\$ 8,793,050	\$ 8,285,257	\$ 7,953,795	\$ 7,339,269
\$ 149,268,995	\$ 156,659,396	\$ 140,744,063	\$ 137,164,489	\$ 144,028,034	\$ 130,596,777
\$ 165,154,609	\$ 161,992,280	\$ 153,851,774	\$ 154,451,871	\$ 152,966,837	\$ 147,046,143
\$ 212,961,895	\$ 199,762,726	\$ 192,160,973	\$ 187,178,650	\$ 181,142,563	\$ 175,023,271
77.55%	81.09%	80.06%	82.52%	84.45%	84.02%
\$ 3,088,551	\$ 3,421,001	\$ 3,740,857	\$ 4,049,257	\$ 4,346,525	\$ 4,633,960
\$ 72,948,195	\$ 60,613,662	\$ 60,012,141	\$ 54,153,087	\$ 49,451,626	\$ 48,645,557
\$ 22,770,216	\$ 21,982,912	\$ 21,589,199	\$ 21,845,625	\$ 21,582,459	\$ 21,546,957
\$ 3,008,116	\$ 3,126,521	\$ 2,901,644	\$ 2,692,941	\$ 2,493,464	\$ 2,308,763
\$ 260,953,455	\$ 244,883,334	\$ 236,292,327	\$ 231,806,899	\$ 225,853,983	\$ 219,563,854

Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011
5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
3.64%	3.41%	3.38%	3.14%	3.10%	3.07%
11.04%	9.60%	9.82%	8.72%	7.89%	7.78%
9.50%	10.00% †	8.75%	8.00%	8.00%	6.75%

† Includes 0.50% from the Funding Deposit Account

SUMMARY OF PRINCIPAL PLAN PROVISIONS

All members of the Municipal Employees' Retirement System are participants in either Plan A or B according to the provisions of the agreement entered into by their employer. All employees of a participating employer must participate in the same plan. The principal provisions of each plan are given below. The following summary of plan provisions is for general informational purposes only and does not constitute a guarantee of benefits.

MEMBERSHIP – All persons who are actively employed by a participating employer on a permanent, regularly scheduled basis of at least an average of thirty-five hours per week are members of this system. Excluded from membership are members of city councils, alderman, town councilmen, and constables; the exclusion does not apply to persons serving in excluded positions on January 1, 1997.

PLAN A PROVISIONS:

CONTRIBUTION RATES – The Board of Trustees may set the employee contribution rate not less than 9.25% nor more than 10.00%. In addition, each sheriff and ex officio tax collector deducts one-fourth of one percent of the aggregate amount of the tax shown to be collected by the tax roll of each respective parish, excepting Orleans Parish, and remits the money to the system on an annual basis. Taxes are apportioned between Plan A and Plan B in proportion to salaries of plan participants. Taxes received from East Baton Rouge Parish are apportioned between the Municipal Employees' Retirement System and the Employees' Retirement System of the City of Baton Rouge. The system also receives revenue sharing funds each year as appropriated by the legislature. The remaining employer contributions are determined according to actuarial requirements and are set annually.

RETIREMENT BENEFITS (Tier 1) – Members with ten years of creditable service may retire at age sixty; members with twenty-five years of service may retire regardless of age. The monthly retirement allowance is equal to three percent of the member's final compensation multiplied by his years of creditable service; elected officials receive an additional one-half percent of final compensation for each year of such elected service. However, the accrued retirement benefits for those employees who were members of only the supplemental plan prior to October 1, 1978, are based on one percent of final compensation plus two dollars per month for each year of service credited prior to October 1, 1978. The retirement allowance may not exceed the greater of final annual salary or one hundred percent of the member's final average compensation. Members with twenty years of service credit, not otherwise eligible for normal retirement, are eligible for a modified actuarially reduced early retirement.

RETIREMENT BENEFITS (Tier 2) – Employees whose first employment making them eligible for membership occurs on or after January 1, 2013 become members of Tier 2. Normal retirement eligibility in Tier 2 is at age 67 with seven years of service credit, at age 62 with ten years of service credit, or age 55 with thirty years of service credit. Members are eligible for an actuarially reduced early retirement at twenty-five years of service credit. Retirement benefits are based on a 3% accrual rate. Employee contributions are set by the Board of Trustees within a range of 8% to 10%.

DISABILITY BENEFITS – Five years of creditable service are required in order to be eligible for disability benefits. Twenty years of creditable service are required in order for a member to have a vested disability benefit. A disabled member receives a normal retirement allowance if eligible under

regular retirement provisions; if he is not eligible for a normal retirement, he receives a disability benefit equal to the lesser of:

- 1) Forty-five percent of his final average compensation or three percent of his final average compensation multiplied by his years of creditable service, whichever is greater; or
- 2) Three percent of his final average compensation multiplied by his years of creditable service projected to his earliest normal retirement age.

SURVIVOR BENEFITS – Five years of creditable service are required in order to be eligible for survivor benefits. If the member is eligible for normal retirement at the time of death, the surviving spouse receives an automatic option two benefit. If the member is not eligible for a normal retirement, the surviving spouse with minor children receives sixty percent of final compensation payable until no child in her care satisfies the definition of minor child. The surviving spouse with no minor children receives forty percent of final compensation payable upon attainment of age sixty by the spouse, or the actuarial equivalent of this amount payable immediately (such equivalent not to be less than 20% of final compensation). Minor children with no surviving unmarried parent receive thirty percent of final compensation each not to exceed a total of sixty percent of final compensation. Survivor benefits are also payable to the surviving spouses of former members who have not withdrawn their accumulated contributions and who have at least twenty years of creditable service. The benefits payable are the actuarial equivalent of the Option 2 benefits that would have become payable to the surviving spouse at the time the former member would have begun receiving deferred normal retirement benefits, had the member survived until that date, elected Option 2, and died at that time.

PLAN B PROVISIONS:

CONTRIBUTION RATES – The Board of Trustees may set the employee contribution rate not less than 5.00% nor more than 6.00%. In addition, each sheriff and ex officio tax collector deducts one-fourth of one percent of the aggregate amount of the tax shown to be collected by the tax roll of each respective parish, excepting Orleans Parish, and remits the money to the system on an annual basis. Taxes are apportioned between Plan A and Plan B in proportion to salaries of plan participants. Taxes received from East Baton Rouge Parish are apportioned between the Municipal Employees' Retirement System and the Employees' Retirement System of the City of Baton Rouge. The system also receives revenue sharing funds each year as appropriated by the legislature. The remaining employer contributions are determined according to actuarial requirements and are set annually.

RETIREMENT BENEFITS (Tier 1) – Members with ten years of creditable service may retire at age sixty; members with thirty years of service may retire at any age. The monthly retirement allowance is equal to two percent of the member's final compensation multiplied by his years of creditable service; elected officials receive an additional one-half percent of final compensation for each year of such elected service.

RETIREMENT BENEFITS (Tier 2) – Employees whose first employment making them eligible for membership occurs on or after January 1, 2013 will become members of Tier 2. Normal retirement eligibility in Tier 2 is at age 67 with seven years of service credit, at age 62 with ten years of service credit, or age 55 with thirty years of service credit. Members are eligible for an actuarially reduced

early retirement at twenty-five years of service credit. Retirement benefits are based on a 2% accrual rate. Employee contributions are set by the Board of Trustees within a range of 4% to 6%.

DISABILITY BENEFITS – Ten years of creditable service are required in order to be eligible for disability benefits. Twenty years of creditable service are required in order for a member to have a vested disability benefit. A disabled member receives a normal retirement allowance if eligible under regular retirement provisions; if he is not eligible for a normal retirement allowance, he receives a disability benefit equal to the lesser of:

- 1) Thirty percent of his final average compensation or two percent of his final average compensation multiplied by his years of creditable service, whichever is greater; and
- 2) Two percent of his final average compensation multiplied by his years of creditable service projected to his earliest normal retirement age.

SURVIVOR BENEFITS – The surviving spouse of a member who was eligible for normal retirement at the time of death receives an automatic option two benefit. The surviving spouse of a member with five or more years of creditable service and not eligible for normal retirement at the time of death receives either 30% of the member's final compensation payable to the spouse when they attain age 60 or an actuarial equivalent of 30% of the deceased member's final compensation, but not less than 15% of such final compensation. Survivor benefits are also payable to the surviving spouses of former members who have not withdrawn their accumulated contributions and who have at least twenty years of creditable service. The benefits payable are the actuarial equivalent of the Option 2 benefits that would have become payable to the surviving spouse at the time the former member would have begun receiving deferred normal retirement benefits, had the member survived until that date, elected Option 2, and died at that time.

PROVISIONS APPLICABLE TO BOTH PLAN A AND B:

FINAL AVERAGE COMPENSATION –For a member whose first employment making him eligible for membership in the system began after June 30, 2006, final average compensation is based on the average monthly earnings during the highest sixty consecutive months or joined months if service was interrupted. The earnings to be considered for each twelve month period within the sixty month period may not exceed 115% of the preceding twelve month period.

Effective January 1, 2013, for a member whose first employment making him eligible for membership in the system began before July 1, 2006, final average compensation was redefined to be thirty-six months plus the number of whole months since January 1, 2013 not to exceed sixty months. However, the actual monthly final average compensation used to determine the member's benefit cannot be less than the thirty-six month final average compensation as of January 1, 2013. The earnings to be considered for each twelve month period within the final average compensation period may not exceed 115% of the preceding twelve month period.

UNUSED SICK & ANNUAL LEAVE – All unused sick and annual leave is credited at the time of retirement to the member if the employer so elects for his employees. The actuarial cost of providing this conversion is borne solely by the employer and must be paid to the Board within thirty days of the member's retirement date.

OPTIONAL ALLOWANCES – Members may receive their benefits as a life annuity, or in lieu of such a reduced benefit according to the option selected which is the actuarial equivalent of the maximum benefit.

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

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

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

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

DEFERRED RETIREMENT OPTION PLAN – In lieu of terminating employment and accepting a service retirement allowance, any member of Plan A or B who is eligible for a normal retirement may elect to participate in the Deferred Retirement Option Plan (DROP) for up to three years and defer the receipt of benefits. Upon commencement of participation in the plan, membership in the system terminates. During participation in the plan, employer contributions are payable but employee contributions cease. The monthly retirement benefits that would have been payable, had the person elected to cease employment and receive a service retirement allowance, are paid into the DROP account. After a member terminates his participation in DROP his account will earn interest at the actual rate of return earned on the funds left on deposit as certified by the custodian of the system's assets. This interest will be credited to the individual member's account balance on a daily basis beginning July 1, 2006. In addition, no cost of living increases are payable to participants until employment which made them eligible to become members of the system has been terminated for at least one full year.

Upon termination of employment prior to, or at the end of, the specified period of participation, a participant in the plan may receive, at his option, a lump sum payment from the account equal to the payments into the account, a true annuity based upon his account balance in that fund, or any other method of payment if approved by the Board of Trustees. The monthly benefits that were being paid into the DROP account will begin to be paid to the retiree. If a participant dies during the participation in the plan, a lump sum equal to his account balance in the plan fund shall be paid to his named beneficiary or, if none, to his estate. If employment is not terminated at the end of the three years, payments into the plan fund cease and the person resumes active contributing membership in the system. For any member hired prior to July 1, 2006, additional accrued benefits are based on final average compensation used to calculate the member's original benefit unless the additional period of service is at least thirty-six months. For any member hired on or after July 1, 2006, whose period of additional service after their DROP participation period ends is less than sixty months, the final compensation figure used to calculate the additional benefit will be that used to calculate the original

benefit. If their period of additional service is sixty months or more, the final compensation figure used to calculate the additional benefit will be based on their compensation during the period of additional service.

COST OF LIVING INCREASES – The Board of Trustees is authorized to grant retired members, and widows of members, who have been retired for at least one full year an annual cost of living increase of two percent of their original benefit and all retired members and widows who are sixty-five years of age and older a two percent increase in their original benefit (or their benefit as of October 1, 1977, if they retired prior to that time). 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 on investments. In lieu of the prior provisions, R.S. 11:241 provides for cost of living benefits payable based on a formula equal to up to \$1 times the total of the number of years of credited service accrued at retirement or at death of the member or retiree plus the number of years since retirement or since death of the member or retiree to the system's fiscal year end preceding the payment of the benefit increase. In order for the board to grant any of these increases, the system must meet certain criteria detailed in the statutes related to funding status and interest earnings.

ACTUARIAL ASSUMPTIONS

In determining actuarial costs, certain assumptions must be made regarding future experience under the plan. These assumptions include the rate of investment return, mortality of plan members, rates of salary increase, rates of retirement, rates of termination, rates of disability, and various other factors 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 effect of emerging experience on the fund is illustrated by the following chart.

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: Plan A: Frozen Attained Age Normal Actuarial Cost Method with allocation based on earnings. The frozen actuarial accrued liabilities were calculated on the projected unit credit cost method.

Plan B: The Aggregate Actuarial Cost Method with allocation based on earnings. The normal cost is interest adjusted for midyear payment.

ACTUARIAL ASSET VALUES: Invested assets are valued at market value adjusted to defer four-fifths of all earnings above or below the valuation interest rate in the valuation year, three-fifths of all earnings above or below the valuation interest rate in the prior year, two-fifths of all earnings above or below the valuation interest rate from two years prior, and one-fifth of all earnings above or below the valuation interest rate from three years prior. The resulting smoothed values are subject to a corridor of 85% to 115% of the market value of assets. If the smoothed value falls outside the corridor, the actuarial value is set equal to the average of the corridor limit and the smoothed value.

VALUATION INTEREST RATE: 7.0% (Net of Investment Expense)

ANNUAL SALARY INCREASE RATE: Salary increases include 2.50% inflation plus merit increases.

PLAN A	
<u>Years of Service</u> <u>(less than or equal to)</u>	<u>Salary Increase</u> <u>(in the following year)</u>
1-4	6.4%
Above 4	4.5%

PLAN B	
<u>Years of Service</u> <u>(less than or equal to)</u>	<u>Salary Increase</u> <u>(in the following year)</u>
1-4	7.4%
Above 4	4.9%

ACTIVE MEMBER MORTALITY: 120% of the PubG-2010(B) Employee Tables for males and females, each with the full generational MP2018 scale

ANNUITANT, AND BENEFICIARY MORTALITY: 120% of the PubG-2010(B) Healthy Retiree Tables for males and females, each with the full generational MP2018 scale

RETIREE COST OF LIVING INCREASES: The present value of future retirement benefits is based on benefits currently being paid by the system and includes previously granted cost of living increases. The present values do not include provisions for potential future increases not yet authorized by the Board of Trustees.

RATES OF RETIREMENT: The table of these rates is included later in the report. These rates apply only to those individuals eligible to retire. Members are assumed to retire no earlier than normal retirement age.

RETIREMENT LIMITATIONS: Projected retirement benefits are not subjected 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 in DROP.

DROP PARTICIPATION PERIOD: DROP participants are assumed to participate for 3 years. At the end of the DROP participation period, one half of participants are assumed to retire; the other half are assumed to work three additional years.

**RETIREMENT RATES FOR ACTIVE
FORMER DROP PARTICIPANTS:**

The table of these rates is included later in the report. These rates apply only to those active participants who were previously in DROP.

RATES OF WITHDRAWAL:

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

Service Duration (\leq)	Plan A (Tier 1)	Plan A (Tier 2)	Plan B (Tiers 1 & 2)
1	23.00%	23.00%	29.00%
2	20.00%	20.00%	24.00%
3	17.00%	17.00%	19.00%
4	14.00%	14.00%	15.00%
5	12.00%	12.00%	12.00%
6	10.00%	10.00%	10.00%
7	9.00%	9.00%	9.00%
8	9.00%	9.00%	8.00%
9	8.00%	8.00%	7.00%
10	7.00%	7.00%	7.00%
11	6.00%	6.00%	6.00%
12	5.00%	5.00%	6.00%
13	4.00%	4.00%	5.00%
14	4.00%	4.00%	5.00%
15	3.00%	3.00%	4.00%
16	3.00%	3.00%	4.00%
17	3.00%	3.00%	4.00%
18	3.00%	3.00%	4.00%
19	3.00%	3.00%	4.00%
20	3.00%	3.00%	4.00%
21	3.00%	3.00%	4.00%
22	3.00%	3.00%	4.00%
23	4.00%	3.00%	3.00%
24	5.00%	3.00%	3.00%
25	8.00%	3.00%	2.00%
26	0.00%	3.00%	2.00%
27	0.00%	3.00%	1.00%
28	0.00%	3.00%	1.00%
29	0.00%	4.00%	1.00%
30	0.00%	5.00%	1.00%
31 and Over	0.00%	8.00%	1.00%

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

RATES OF DISABILITY – Plan A: 25% of the disability rates used for the 21st valuation of the Railroad Retirement System for individuals with 10 – 19 years of service.

RATES OF DISABILITY – Plan B: 50% of the disability rates used for the 21st valuation of the Railroad Retirement System for individuals with 10 – 19 years of service.

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

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

<u>Member's 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: 120% of the PubNS-2010(B) Disabled Retiree Tables for males and females, each with the full generational MP2018 scale

VESTING ELECTING PERCENTAGE – Plan A: 50% of members with less than 20 years of service are assumed to elect a deferred benefit in lieu of a refund of contributions. 85% of members with 20 or more years of service are assumed to elect the deferred benefit.

VESTING ELECTING PERCENTAGE – Plan B: 66% of members with less than 25 years of service are assumed to elect a deferred benefit in lieu of a refund of contributions. 85% of members with 25 or more years of service are assumed to elect the deferred benefit.

PLAN A – ACTUARIAL TABLES AND RATES

Age	Retirement Rates Tier 1	Retirement Rates Tier 2	DROP Entry Rates Tier 1	DROP Entry Rates Tier 2	Post-DROP Retirement Tier 1	Post-DROP Retirement Tier 2	Disability Rates	Remarriage Rates
18	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00038	0.06124
19	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00038	0.06124
20	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00038	0.06124
21	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00038	0.05818
22	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00038	0.05524
23	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00038	0.05242
24	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00038	0.04971
25	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00038	0.04566
26	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00038	0.04335
27	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00038	0.04114
28	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00038	0.03902
29	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00038	0.03698
30	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00038	0.03502
31	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00038	0.03314
32	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00038	0.03134
33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00038	0.02961
34	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00038	0.02795
35	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00043	0.02636
36	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00048	0.02483
37	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00053	0.02336
38	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00060	0.02195
39	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00068	0.02060
40	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00078	0.01930
41	0.20000	0.00000	0.17000	0.00000	0.04000	0.00000	0.00088	0.01805
42	0.20000	0.00000	0.17000	0.00000	0.04000	0.00000	0.00098	0.01686
43	0.20000	0.00000	0.17000	0.00000	0.04000	0.00000	0.00110	0.01571
44	0.13000	0.00000	0.17000	0.00000	0.04000	0.00000	0.00125	0.01461
45	0.08000	0.00000	0.17000	0.00000	0.04000	0.00000	0.00143	0.01355
46	0.05000	0.00000	0.16000	0.00000	0.04000	0.00000	0.00163	0.01253
47	0.04000	0.00000	0.15000	0.00000	0.04000	0.00000	0.00183	0.01156
48	0.04000	0.00000	0.14000	0.00000	0.04000	0.00000	0.00208	0.01063
49	0.05000	0.00000	0.14000	0.00000	0.04000	0.00000	0.00235	0.00973
50	0.06000	0.00000	0.14000	0.00000	0.07000	0.00000	0.00268	0.00887
51	0.07000	0.00000	0.14000	0.00000	0.10000	0.00000	0.00305	0.00804
52	0.07000	0.00000	0.16000	0.00000	0.12000	0.00000	0.00345	0.00725
53	0.08000	0.00000	0.18000	0.00000	0.14000	0.00000	0.00392	0.00649
54	0.07000	0.00000	0.20000	0.00000	0.16000	0.00000	0.00445	0.00576
55	0.07000	0.07000	0.23000	0.23000	0.18000	0.18000	0.00505	0.00000
56	0.07000	0.07000	0.24000	0.24000	0.19000	0.19000	0.00575	0.00000
57	0.06000	0.06000	0.25000	0.25000	0.19000	0.19000	0.00653	0.00000
58	0.06000	0.06000	0.24000	0.24000	0.20000	0.20000	0.00740	0.00000
59	0.07000	0.07000	0.23000	0.23000	0.21000	0.21000	0.00843	0.00000
60	0.07000	0.07000	0.21000	0.21000	0.21000	0.21000	0.01220	0.00000
61	0.08000	0.08000	0.19000	0.19000	0.22000	0.22000	0.01220	0.00000
62	0.09000	0.09000	0.17000	0.17000	0.22000	0.22000	0.01220	0.00000
63	0.10000	0.10000	0.15000	0.15000	0.22000	0.22000	0.01220	0.00000
64	0.12000	0.12000	0.13000	0.13000	0.22000	0.22000	0.01220	0.00000
65	0.14000	0.14000	0.13000	0.13000	0.21000	0.21000	0.01220	0.00000
66	0.16000	0.16000	0.12000	0.12000	0.20000	0.20000	0.01220	0.00000
67	0.18000	0.18000	0.12000	0.12000	0.18000	0.18000	0.01220	0.00000
68	0.19000	0.19000	0.12000	0.12000	0.17000	0.17000	0.01220	0.00000
69	0.20000	0.20000	0.12000	0.12000	0.15000	0.15000	0.01220	0.00000
70	0.21000	0.21000	0.12000	0.12000	0.14000	0.14000	0.01220	0.00000
71	0.21000	0.21000	0.12000	0.12000	0.13000	0.13000	0.01220	0.00000
72	0.20000	0.20000	0.12000	0.12000	0.13000	0.13000	0.01220	0.00000
73	0.19000	0.19000	0.11000	0.11000	0.13000	0.13000	0.01220	0.00000
74	0.17000	0.17000	0.11000	0.11000	0.13000	0.13000	0.01220	0.00000
75	0.16000	0.16000	0.09000	0.09000	0.13000	0.13000	0.01220	0.00000

PLAN B – ACTUARIAL TABLES AND RATES

Age	Retirement Rates Tier 1	Retirement Rates Tier 2	DROP Entry Rates Tier 1	DROP Entry Rates Tier 2	Post-DROP Retirement Tier 1	Post-DROP Retirement Tier 2	Disability Rates	Remarriage Rates
18	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00075	0.06124
19	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00075	0.06124
20	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00075	0.06124
21	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00075	0.05818
22	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00075	0.05524
23	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00075	0.05242
24	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00075	0.04971
25	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00075	0.04566
26	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00075	0.04335
27	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00075	0.04114
28	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00075	0.03902
29	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00075	0.03698
30	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00075	0.03502
31	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00075	0.03314
32	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00075	0.03134
33	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00075	0.02961
34	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00075	0.02795
35	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00085	0.02636
36	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00095	0.02483
37	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00105	0.02336
38	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00120	0.02195
39	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00135	0.02060
40	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00155	0.01930
41	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00175	0.01805
42	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00195	0.01686
43	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00220	0.01571
44	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00250	0.01461
45	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00285	0.01355
46	0.01000	0.00000	0.10000	0.00000	0.15000	0.00000	0.00325	0.01253
47	0.01000	0.00000	0.10000	0.00000	0.15000	0.00000	0.00365	0.01156
48	0.01000	0.00000	0.10000	0.00000	0.15000	0.00000	0.00415	0.01063
49	0.01000	0.00000	0.22000	0.00000	0.15000	0.00000	0.00470	0.00973
50	0.01000	0.00000	0.32000	0.00000	0.15000	0.00000	0.00535	0.00887
51	0.02000	0.00000	0.35000	0.00000	0.15000	0.00000	0.00610	0.00804
52	0.02000	0.00000	0.36000	0.00000	0.15000	0.00000	0.00690	0.00725
53	0.03000	0.00000	0.36000	0.00000	0.15000	0.00000	0.00785	0.00649
54	0.03000	0.00000	0.36000	0.00000	0.14000	0.00000	0.00890	0.00576
55	0.03000	0.03000	0.37000	0.37000	0.12000	0.12000	0.01010	0.00000
56	0.03000	0.03000	0.38000	0.38000	0.10000	0.10000	0.01150	0.00000
57	0.03000	0.03000	0.39000	0.39000	0.08000	0.08000	0.01305	0.00000
58	0.04000	0.04000	0.37000	0.37000	0.07000	0.07000	0.01480	0.00000
59	0.05000	0.05000	0.34000	0.34000	0.06000	0.06000	0.01685	0.00000
60	0.06000	0.06000	0.28000	0.28000	0.06000	0.06000	0.02440	0.00000
61	0.08000	0.08000	0.22000	0.22000	0.07000	0.07000	0.02440	0.00000
62	0.11000	0.11000	0.17000	0.17000	0.09000	0.09000	0.02440	0.00000
63	0.13000	0.13000	0.12000	0.12000	0.12000	0.12000	0.02440	0.00000
64	0.16000	0.16000	0.10000	0.10000	0.15000	0.15000	0.02440	0.00000
65	0.18000	0.18000	0.08000	0.08000	0.18000	0.18000	0.02440	0.00000
66	0.20000	0.20000	0.07000	0.07000	0.20000	0.20000	0.02440	0.00000
67	0.22000	0.22000	0.06000	0.06000	0.22000	0.22000	0.02440	0.00000
68	0.23000	0.23000	0.06000	0.06000	0.24000	0.24000	0.02440	0.00000
69	0.23000	0.23000	0.06000	0.06000	0.25000	0.25000	0.02440	0.00000
70	0.23000	0.23000	0.06000	0.06000	0.25000	0.25000	0.02440	0.00000
71	0.23000	0.23000	0.07000	0.07000	0.25000	0.25000	0.02440	0.00000
72	0.21000	0.21000	0.08000	0.08000	0.24000	0.24000	0.02440	0.00000
73	0.20000	0.20000	0.09000	0.09000	0.24000	0.24000	0.02440	0.00000
74	0.19000	0.19000	0.09000	0.09000	0.23000	0.23000	0.02440	0.00000
75	0.18000	0.18000	0.09000	0.09000	0.21000	0.21000	0.02440	0.00000

PRIOR YEAR ASSUMPTIONS

VALUATION INTEREST RATE:	7.275% (Net of Investment Expense)
ANNUAL SALARY INCREASE RATE:	5.0% (including 2.6% inflation)
ACTIVE MEMBER MORTALITY:	RP 2000 Employee Table for set back two years for males and females
ANNUITANT, AND BENEFICIARY MORTALITY:	RP 2000 Healthy Annuitant Table set forward 2 years and projected to 2028 using Scale AA for males and set forward 1 year and projected to 2028 using Scale AA for females
DROP PARTICIPATION PERIOD:	DROP participants are assumed to participate for 3 years. At the end of the DROP participation period, one half of participants are assumed to retire; the other half are assumed to work one additional year.
RETIREMENT RATES FOR ACTIVE FORMER DROP PARTICIPANTS:	Retirement rates for active former DROP participants are as follows:

<u>Ages</u>	<u>Plan A</u>	<u>Plan B</u>
Below 86	0.21	0.17
86 & Above	1.00	1.00

RATES OF WITHDRAWAL:

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

<u>Service</u>	<u>Plan A</u>	<u>Plan B</u>
0	0.20	0.23
1	0.17	0.20
2	0.14	0.15
3	0.12	0.13
4	0.10	0.10
5	0.09	0.09
6	0.08	0.08
7	0.07	0.07
8	0.06	0.06
9	0.06	0.05
10	0.05	0.04
11	0.05	0.04
12	0.04	0.03
13	0.04	0.03
14	0.03	0.03
15	0.03	0.03
16	0.02	0.03
17	0.02	0.03
18	0.02	0.03
Over 18	0.02	0.02

RATES OF DISABILITY – Plan A:	25% of the disability rates used for the 21 st valuation of the Railroad Retirement System for individuals with 10 – 19 years of service.
RATES OF DISABILITY – Plan B:	50% of the disability rates used for the 21 st valuation of the Railroad Retirement System for individuals with 10 – 19 years of service.
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 – Plan A:	<p>Tier 1 – 60% of members with less than 20 years of service are assumed to elect a deferred benefit in lieu of a refund of contributions. 100% of members with 20 or more years of service are assumed to elect the deferred benefit.</p> <p>Tier 2 – 60% of members with less than 25 years of service are assumed to elect a deferred benefit in lieu of a refund of contributions. 100% of members with 25 or more years of service are assumed to elect the deferred benefit.</p>
VESTING ELECTING PERCENTAGE – Plan B:	<p>Tier 1 – 66% of members are assumed to elect a deferred benefit in lieu of a refund of contributions.</p> <p>Tier 2 – 60% of members with less than 25 years of service are assumed to elect a deferred benefit in lieu of a refund of contributions. 100% of members with 25 or more years of service are assumed to elect the deferred benefit.</p>

PLAN A – ACTUARIAL TABLES AND RATES – PRIOR YEAR

Age	Retired Male Mortality Rates	Retired Female Mortality Rates	Active Male Mortality Rates	Active Female Mortality Rates	Male Disabled Mortality Rates	Female Disabled Mortality Rates	Retirement Rates Tier 1	Retirement Rates Tier 2
18	0.00020	0.00013	0.00028	0.00018	0.02257	0.00745	0.00000	0.00000
19	0.00021	0.00013	0.00030	0.00018	0.02257	0.00745	0.00000	0.00000
20	0.00021	0.00012	0.00032	0.00019	0.02257	0.00745	0.00000	0.00000
21	0.00022	0.00012	0.00033	0.00019	0.02257	0.00745	0.00000	0.00000
22	0.00023	0.00012	0.00035	0.00019	0.02257	0.00745	0.00000	0.00000
23	0.00025	0.00013	0.00036	0.00019	0.02257	0.00745	0.00000	0.00000
24	0.00026	0.00014	0.00037	0.00019	0.02257	0.00745	0.00000	0.00000
25	0.00029	0.00014	0.00037	0.00020	0.02257	0.00745	0.00000	0.00000
26	0.00033	0.00016	0.00038	0.00020	0.02257	0.00745	0.00000	0.00000
27	0.00036	0.00017	0.00038	0.00021	0.02257	0.00745	0.00000	0.00000
28	0.00039	0.00018	0.00038	0.00021	0.02257	0.00745	0.00000	0.00000
29	0.00043	0.00019	0.00038	0.00022	0.02257	0.00745	0.00000	0.00000
30	0.00049	0.00023	0.00039	0.00024	0.02257	0.00745	0.00000	0.00000
31	0.00055	0.00028	0.00041	0.00025	0.02257	0.00745	0.00000	0.00000
32	0.00061	0.00031	0.00044	0.00026	0.02257	0.00745	0.00000	0.00000
33	0.00067	0.00034	0.00050	0.00031	0.02257	0.00745	0.00000	0.00000
34	0.00073	0.00036	0.00056	0.00035	0.02257	0.00745	0.00000	0.00000
35	0.00079	0.00038	0.00063	0.00039	0.02257	0.00745	0.00000	0.00000
36	0.00084	0.00040	0.00070	0.00044	0.02257	0.00745	0.00000	0.00000
37	0.00089	0.00041	0.00077	0.00047	0.02257	0.00745	0.00000	0.00000
38	0.00091	0.00044	0.00084	0.00051	0.02257	0.00745	0.00000	0.00000
39	0.00094	0.00046	0.00090	0.00055	0.02257	0.00745	0.00000	0.00000
40	0.00097	0.00051	0.00096	0.00060	0.02257	0.00745	0.00000	0.00000
41	0.00101	0.00056	0.00102	0.00065	0.02257	0.00745	0.06000	0.00000
42	0.00105	0.00061	0.00108	0.00071	0.02257	0.00745	0.06000	0.00000
43	0.00111	0.00067	0.00114	0.00077	0.02257	0.00745	0.06000	0.00000
44	0.00115	0.00074	0.00122	0.00085	0.02257	0.00745	0.06000	0.00000
45	0.00120	0.00078	0.00130	0.00094	0.02257	0.00745	0.06000	0.00000
46	0.00125	0.00082	0.00140	0.00103	0.02257	0.00745	0.06000	0.00000
47	0.00131	0.00086	0.00151	0.00112	0.02257	0.00745	0.06000	0.00000
48	0.00340	0.00093	0.00162	0.00122	0.02257	0.00745	0.06000	0.00000
49	0.00342	0.00141	0.00173	0.00133	0.02257	0.00818	0.06000	0.00000
50	0.00339	0.00152	0.00186	0.00143	0.02257	0.00896	0.06000	0.00000
51	0.00334	0.00169	0.00200	0.00155	0.02385	0.00978	0.06000	0.00000
52	0.00329	0.00195	0.00214	0.00168	0.02512	0.01063	0.06000	0.00000
53	0.00335	0.00228	0.00229	0.00181	0.02640	0.01154	0.06000	0.00000
54	0.00348	0.00266	0.00245	0.00197	0.02769	0.01248	0.06000	0.00000
55	0.00377	0.00313	0.00262	0.00213	0.02897	0.01346	0.06000	0.06000
56	0.00415	0.00370	0.00281	0.00232	0.03027	0.01446	0.06000	0.06000
57	0.00463	0.00428	0.00303	0.00253	0.03156	0.01550	0.06000	0.06000
58	0.00522	0.00481	0.00331	0.00276	0.03286	0.01654	0.06000	0.06000
59	0.00573	0.00539	0.00363	0.00301	0.03415	0.01760	0.06000	0.06000
60	0.00631	0.00601	0.00400	0.00329	0.03544	0.01865	0.12000	0.12000
61	0.00717	0.00668	0.00441	0.00360	0.03673	0.01971	0.12000	0.12000
62	0.00794	0.00739	0.00488	0.00393	0.03803	0.02077	0.12000	0.12000
63	0.00904	0.00816	0.00538	0.00429	0.03933	0.02184	0.12000	0.12000
64	0.01002	0.00901	0.00592	0.00466	0.04067	0.02294	0.12000	0.12000
65	0.01109	0.00992	0.00647	0.00504	0.04204	0.02408	0.18000	0.18000
66	0.01262	0.01090	0.00703	0.00543	0.04347	0.02529	0.18000	0.18000
67	0.01394	0.01197	0.00757	0.00582	0.04498	0.02660	0.18000	0.18000
68	0.01496	0.01317	0.00810	0.00621	0.04658	0.02803	0.18000	0.18000
69	0.01656	0.01455	0.00860	0.00658	0.04831	0.02959	0.18000	0.18000
70	0.01787	0.01615	0.00907	0.00695	0.05017	0.03132	0.18000	0.18000
71	0.01990	0.01746	0.00951	0.00729	0.05221	0.03323	0.18000	0.18000
72	0.02220	0.01941	0.00992	0.00761	0.05445	0.03533	0.12000	0.12000
73	0.02478	0.02091	0.02457	0.01858	0.05691	0.03764	0.12000	0.12000
74	0.02762	0.02309	0.02728	0.02067	0.05961	0.04014	0.12000	0.12000
75	0.03161	0.02473	0.03039	0.02297	0.06258	0.04285	0.12000	0.12000

PLAN A – ACTUARIAL TABLES AND RATES – PRIOR YEAR (Continued)

Age	DROP Entry Rates Tier 1	DROP Entry Rates Tier 2	Disability Rates	Remarriage Rates
18	0.00000	0.00000	0.00038	0.06124
19	0.00000	0.00000	0.00038	0.06124
20	0.00000	0.00000	0.00038	0.06124
21	0.00000	0.00000	0.00038	0.05818
22	0.00000	0.00000	0.00038	0.05524
23	0.00000	0.00000	0.00038	0.05242
24	0.00000	0.00000	0.00038	0.04971
25	0.00000	0.00000	0.00038	0.04566
26	0.00000	0.00000	0.00038	0.04335
27	0.00000	0.00000	0.00038	0.04114
28	0.00000	0.00000	0.00038	0.03902
29	0.00000	0.00000	0.00038	0.03698
30	0.00000	0.00000	0.00038	0.03502
31	0.00000	0.00000	0.00038	0.03314
32	0.00000	0.00000	0.00038	0.03134
33	0.00000	0.00000	0.00038	0.02961
34	0.00000	0.00000	0.00038	0.02795
35	0.00000	0.00000	0.00043	0.02636
36	0.00000	0.00000	0.00048	0.02483
37	0.00000	0.00000	0.00053	0.02336
38	0.00000	0.00000	0.00060	0.02195
39	0.00000	0.00000	0.00068	0.02060
40	0.00000	0.00000	0.00078	0.01930
41	0.18000	0.00000	0.00088	0.01805
42	0.18000	0.00000	0.00098	0.01686
43	0.18000	0.00000	0.00110	0.01571
44	0.18000	0.00000	0.00125	0.01461
45	0.18000	0.00000	0.00143	0.01355
46	0.18000	0.00000	0.00163	0.01253
47	0.18000	0.00000	0.00183	0.01156
48	0.18000	0.00000	0.00208	0.01063
49	0.18000	0.00000	0.00235	0.00973
50	0.27000	0.00000	0.00268	0.00887
51	0.27000	0.00000	0.00305	0.00804
52	0.27000	0.00000	0.00345	0.00725
53	0.27000	0.00000	0.00392	0.00649
54	0.27000	0.00000	0.00445	0.00576
55	0.27000	0.27000	0.00505	0.00000
56	0.27000	0.27000	0.00575	0.00000
57	0.27000	0.27000	0.00653	0.00000
58	0.27000	0.27000	0.00740	0.00000
59	0.27000	0.27000	0.00843	0.00000
60	0.24000	0.24000	0.01220	0.00000
61	0.16000	0.16000	0.01220	0.00000
62	0.16000	0.16000	0.01220	0.00000
63	0.16000	0.16000	0.01220	0.00000
64	0.16000	0.16000	0.01220	0.00000
65	0.16000	0.16000	0.01220	0.00000
66	0.16000	0.16000	0.01220	0.00000
67	0.16000	0.16000	0.01220	0.00000
68	0.16000	0.16000	0.01220	0.00000
69	0.16000	0.16000	0.01220	0.00000
70	0.09000	0.09000	0.01220	0.00000
71	0.09000	0.09000	0.01220	0.00000
72	0.09000	0.09000	0.01220	0.00000
73	0.09000	0.09000	0.01220	0.00000
74	0.09000	0.09000	0.01220	0.00000
75	0.09000	0.09000	0.01220	0.00000

PLAN B – ACTUARIAL TABLES AND RATES – PRIOR YEAR

Age	Retired Male Mortality Rates	Retired Female Mortality Rates	Active Male Mortality Rates	Active Female Mortality Rates	Male Disabled Mortality Rates	Female Disabled Mortality Rates	Retirement Rates Tier 1	Retirement Rates Tier 2
18	0.00020	0.00013	0.00028	0.00018	0.02257	0.00745	0.00000	0.00000
19	0.00021	0.00013	0.00030	0.00018	0.02257	0.00745	0.00000	0.00000
20	0.00021	0.00012	0.00032	0.00019	0.02257	0.00745	0.00000	0.00000
21	0.00022	0.00012	0.00033	0.00019	0.02257	0.00745	0.00000	0.00000
22	0.00023	0.00012	0.00035	0.00019	0.02257	0.00745	0.00000	0.00000
23	0.00025	0.00013	0.00036	0.00019	0.02257	0.00745	0.00000	0.00000
24	0.00026	0.00014	0.00037	0.00019	0.02257	0.00745	0.00000	0.00000
25	0.00029	0.00014	0.00037	0.00020	0.02257	0.00745	0.00000	0.00000
26	0.00033	0.00016	0.00038	0.00020	0.02257	0.00745	0.00000	0.00000
27	0.00036	0.00017	0.00038	0.00021	0.02257	0.00745	0.00000	0.00000
28	0.00039	0.00018	0.00038	0.00021	0.02257	0.00745	0.00000	0.00000
29	0.00043	0.00019	0.00038	0.00022	0.02257	0.00745	0.00000	0.00000
30	0.00049	0.00023	0.00039	0.00024	0.02257	0.00745	0.00000	0.00000
31	0.00055	0.00028	0.00041	0.00025	0.02257	0.00745	0.00000	0.00000
32	0.00061	0.00031	0.00044	0.00026	0.02257	0.00745	0.00000	0.00000
33	0.00067	0.00034	0.00050	0.00031	0.02257	0.00745	0.00000	0.00000
34	0.00073	0.00036	0.00056	0.00035	0.02257	0.00745	0.00000	0.00000
35	0.00079	0.00038	0.00063	0.00039	0.02257	0.00745	0.00000	0.00000
36	0.00084	0.00040	0.00070	0.00044	0.02257	0.00745	0.00000	0.00000
37	0.00089	0.00041	0.00077	0.00047	0.02257	0.00745	0.00000	0.00000
38	0.00091	0.00044	0.00084	0.00051	0.02257	0.00745	0.00000	0.00000
39	0.00094	0.00046	0.00090	0.00055	0.02257	0.00745	0.00000	0.00000
40	0.00097	0.00051	0.00096	0.00060	0.02257	0.00745	0.00000	0.00000
41	0.00101	0.00056	0.00102	0.00065	0.02257	0.00745	0.00000	0.00000
42	0.00105	0.00061	0.00108	0.00071	0.02257	0.00745	0.00000	0.00000
43	0.00111	0.00067	0.00114	0.00077	0.02257	0.00745	0.00000	0.00000
44	0.00115	0.00074	0.00122	0.00085	0.02257	0.00745	0.00000	0.00000
45	0.00120	0.00078	0.00130	0.00094	0.02257	0.00745	0.00000	0.00000
46	0.00125	0.00082	0.00140	0.00103	0.02257	0.00745	0.08000	0.00000
47	0.00131	0.00086	0.00151	0.00112	0.02257	0.00745	0.08000	0.00000
48	0.00340	0.00093	0.00162	0.00122	0.02257	0.00745	0.08000	0.00000
49	0.00342	0.00141	0.00173	0.00133	0.02257	0.00818	0.08000	0.00000
50	0.00339	0.00152	0.00186	0.00143	0.02257	0.00896	0.08000	0.00000
51	0.00334	0.00169	0.00200	0.00155	0.02385	0.00978	0.08000	0.00000
52	0.00329	0.00195	0.00214	0.00168	0.02512	0.01063	0.08000	0.00000
53	0.00335	0.00228	0.00229	0.00181	0.02640	0.01154	0.08000	0.00000
54	0.00348	0.00266	0.00245	0.00197	0.02769	0.01248	0.08000	0.00000
55	0.00377	0.00313	0.00262	0.00213	0.02897	0.01346	0.20000	0.20000
56	0.00415	0.00370	0.00281	0.00232	0.03027	0.01446	0.08000	0.08000
57	0.00463	0.00428	0.00303	0.00253	0.03156	0.01550	0.08000	0.08000
58	0.00522	0.00481	0.00331	0.00276	0.03286	0.01654	0.08000	0.08000
59	0.00573	0.00539	0.00363	0.00301	0.03415	0.01760	0.08000	0.08000
60	0.00631	0.00601	0.00400	0.00329	0.03544	0.01865	0.08000	0.08000
61	0.00717	0.00668	0.00441	0.00360	0.03673	0.01971	0.08000	0.08000
62	0.00794	0.00739	0.00488	0.00393	0.03803	0.02077	0.12000	0.12000
63	0.00904	0.00816	0.00538	0.00429	0.03933	0.02184	0.12000	0.12000
64	0.01002	0.00901	0.00592	0.00466	0.04067	0.02294	0.12000	0.12000
65	0.01109	0.00992	0.00647	0.00504	0.04204	0.02408	0.12000	0.12000
66	0.01262	0.01090	0.00703	0.00543	0.04347	0.02529	0.12000	0.12000
67	0.01394	0.01197	0.00757	0.00582	0.04498	0.02660	0.12000	0.12000
68	0.01496	0.01317	0.00810	0.00621	0.04658	0.02803	0.12000	0.12000
69	0.01656	0.01455	0.00860	0.00658	0.04831	0.02959	0.12000	0.12000
70	0.01787	0.01615	0.00907	0.00695	0.05017	0.03132	0.12000	0.12000
71	0.01990	0.01746	0.00951	0.00729	0.05221	0.03323	0.12000	0.12000
72	0.02220	0.01941	0.00992	0.00761	0.05445	0.03533	0.12000	0.12000
73	0.02478	0.02091	0.02457	0.01858	0.05691	0.03764	0.12000	0.12000
74	0.02762	0.02309	0.02728	0.02067	0.05961	0.04014	0.12000	0.12000
75	0.03161	0.02473	0.03039	0.02297	0.06258	0.04285	0.12000	0.12000

PLAN B – ACTUARIAL TABLES AND RATES – PRIOR YEAR (Continued)

Age	DROP Entry Rates Tier 1	DROP Entry Rates Tier 2	Disability Rates	Remarriage Rates
18	0.00000	0.00000	0.00090	0.06124
19	0.00000	0.00000	0.00090	0.06124
20	0.00000	0.00000	0.00090	0.06124
21	0.00000	0.00000	0.00090	0.05818
22	0.00000	0.00000	0.00090	0.05524
23	0.00000	0.00000	0.00090	0.05242
24	0.00000	0.00000	0.00090	0.04971
25	0.00000	0.00000	0.00090	0.04566
26	0.00000	0.00000	0.00090	0.04335
27	0.00000	0.00000	0.00090	0.04114
28	0.00000	0.00000	0.00090	0.03902
29	0.00000	0.00000	0.00090	0.03698
30	0.00000	0.00000	0.00090	0.03502
31	0.00000	0.00000	0.00090	0.03314
32	0.00000	0.00000	0.00090	0.03134
33	0.00000	0.00000	0.00090	0.02961
34	0.00000	0.00000	0.00090	0.02795
35	0.00000	0.00000	0.00102	0.02636
36	0.00000	0.00000	0.00114	0.02483
37	0.00000	0.00000	0.00126	0.02336
38	0.00000	0.00000	0.00144	0.02195
39	0.00000	0.00000	0.00162	0.02060
40	0.00000	0.00000	0.00186	0.01930
41	0.00000	0.00000	0.00210	0.01805
42	0.00000	0.00000	0.00234	0.01686
43	0.00000	0.00000	0.00264	0.01571
44	0.00000	0.00000	0.00300	0.01461
45	0.00000	0.00000	0.00342	0.01355
46	0.33000	0.00000	0.00390	0.01253
47	0.33000	0.00000	0.00438	0.01156
48	0.33000	0.00000	0.00498	0.01063
49	0.33000	0.00000	0.00564	0.00973
50	0.33000	0.00000	0.00642	0.00887
51	0.33000	0.00000	0.00732	0.00804
52	0.33000	0.00000	0.00828	0.00725
53	0.33000	0.00000	0.00942	0.00649
54	0.33000	0.00000	0.01068	0.00576
55	0.25000	0.25000	0.01212	0.00000
56	0.25000	0.25000	0.01380	0.00000
57	0.25000	0.25000	0.01566	0.00000
58	0.25000	0.25000	0.01776	0.00000
59	0.25000	0.40000	0.02022	0.00000
60	0.40000	0.20000	0.02928	0.00000
61	0.20000	0.20000	0.02928	0.00000
62	0.20000	0.20000	0.02928	0.00000
63	0.20000	0.20000	0.02928	0.00000
64	0.20000	0.20000	0.02928	0.00000
65	0.20000	0.10000	0.02928	0.00000
66	0.10000	0.10000	0.02928	0.00000
67	0.10000	0.10000	0.02928	0.00000
68	0.10000	0.10000	0.02928	0.00000
69	0.10000	0.10000	0.02928	0.00000
70	0.10000	0.10000	0.02928	0.00000
71	0.10000	0.10000	0.02928	0.00000
72	0.10000	0.10000	0.02928	0.00000
73	0.10000	0.10000	0.02928	0.00000
74	0.10000	0.10000	0.02928	0.00000
75	0.10000	0.10000	0.02928	0.00000

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.