PAROCHIAL EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL VALUATION AS OF
DECEMBER 31, 2019

G. S. CURRAN & COMPANY, LTD.

Actuarial Services

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June 22, 2020

Board of Trustees
Parochial Employees' Retirement System
7905 Wrenwood Blvd.
Baton Rouge, LA 70809

Ladies and Gentlemen:

We are pleased to present our report on the actuarial valuation of the Parochial Employees' Retirement System for the fiscal year ending December 31, 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 Parochial Employees' Retirement System. The primary purposes of the report are to determine the actuarially required contribution for the retirement system for the fiscal year ending December 31, 2020, 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 Parochial 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.

TABLE OF CONTENTS

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

Valuation Date:		December 31, 2019	December 31, 2018
Census Summary:	Active Members	14,042	14,027
	Retired Members and Survivors	7,651	7,467
	Terminated Due a Deferred Benefit	818	813
	Terminated Due a Refund	7,967	7,845
Payroll:		$ 634,490,049	$ 615,887,352
Benefits in Payment:		$ 185,969,386	$ 177,804,482
Present Value of Future Benefits:		$ 5,029,560,028	$ 4,897,404,869
Actuarial Accrued Liability (EAN):		$ 4,019,234,688	$ 3,908,729,734
Funding Deposit Account Credit Balance:		$ 83,972,205	$ 78,847,141
Actuarial Asset Value (AVA):		$ 3,915,328,623	$ 3,753,426,178
Market Value of Assets (MVA):		$ 4,091,788,575	$ 3,540,960,468
Ratio of AVA to Actuarial Accrued Liability (EAN):		97.41%	96.03%

	Fiscal 2019	Fiscal 2018
Market Rate of Return:	17.8%	-5.6%
Actuarial Rate of Return:	6.4%	4.7%

	Fiscal 2020	Fiscal 2019
Employers' Normal Cost (Mid-year):	$ 78,532,944	$ 82,528,403
Estimated Administrative Cost:	$ 1,735,153	$ 1,686,390
Projected Ad Valorem Tax Contributions:	$ 8,268,122	$ 7,653,690
Projected Revenue Sharing Funds:	$ 135,043	$ 135,454
Net Direct Employer Actuarially Required Contributions:	$ 71,864,932	$ 76,425,649
Projected Payroll:	$ 646,806,410	$ 627,414,629
Actual Employee Contribution Rate:	9.50%	9.50%
Actual Net Direct Employer Contribution Rate:	12.25%	11.50%
Actuarially Required Net Direct Employer Contribution Rate:	11.11%	12.18%

	Fiscal 2021	Fiscal 2020
Minimum Recommended Net Direct Employer Cont. Rate:	11.00%	12.25%

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

		December 31, 2019	December 31, 2018
Valuation Date:		December 31, 2019	December 31, 2018
Census Summary:	Active Members	2,462	2,429
	Retired Members and Survivors	942	896
	Terminated Due a Deferred Benefit	152	154
	Terminated Due a Refund	1,769	1,708
Payroll:		$ 111,568,953	$ 105,914,905
Benefits in Payment:		$ 12,183,667	$ 11,243,994
Present Value of Future Benefits:		$ 452,234,523	$ 429,603,067
Actuarial Accrued Liability (EAN):		$ 348,089,703	$ 329,243,218
Funding Deposit Account Credit Balance:		$ 6,928,047	$ 6,220,583
Actuarial Asset Value (AVA):		$ 345,786,489	$ 326,300,632
Market Value of Assets (MVA):		$ 360,893,172	$ 307,800,757
Ratio of AVA to Actuarial Accrued Liability (EAN):		99.34%	99.11%

	Fiscal 2019	Fiscal 2018
Market Rate of Return:	17.7%	-5.7%
Actuarial Rate of Return:	6.4%	4.8%

	Fiscal 2020	Fiscal 2019
Employers' Normal Cost (Mid-year):	$ 9,542,155	$ 9,174,881
Estimated Administrative Cost:	$ 305,110	$ 290,011
Projected Ad Valorem Tax Contributions:	$ 1,453,870	$ 1,316,214
Projected Revenue Sharing Funds:	$ 23,746	$ 23,294
Net Direct Employer Actuarially Required Contributions:	$ 8,369,649	$ 8,125,384
Projected Payroll:	$ 113,184,019	$ 107,903,460
Actual Employee Contribution Rate:	3.00%	3.00%
Actual Net Direct Employer Contribution Rate:	7.50%	7.50%
Actuarially Required Net Direct Employer Contribution Rate:	7.39%	7.53%

	Fiscal 2021	Fiscal 2020
Minimum Recommended Net Direct Employer Cont. Rate:	7.50%	7.50%

GENERAL COMMENTS

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

Data quality varies from system to system and year to year. The data inputs involve both asset information and census information of plan participants. In both cases, the actuary must rely on third parties; nevertheless, steps are taken to reduce the probability and degree of errors. The development of assumptions is primarily the task of the actuary; however, information and advice from plan administrators, staff and other professionals may be factored into the formation of assumptions. The process of setting assumptions is based primarily on analysis of past trends, but modification 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 in such areas as expectation of population increase and turnover for the plan in view of the particular factors which impact participants. Thus, the process of setting assumptions is not mere “guess work” but rather a process of mathematical analysis of past experience and of those factors likely to impact the future.

One area where the actuary is limited in his ability to develop accurate estimates is the projection of future investment earnings. The difficulties here are significant. First, the future is rarely like the past, and the data points available to develop stochastic trials are far fewer than the 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 process would be in vain if the assumption process was static, and the plan would have to deal with the consequences of actual experience differing from assumptions after forty or fifty years of compounded errors. Fortunately, actuarial funding methods for pension plans all allow for periodic corrections of assumptions to conform with reality as it unfolds. This process of repeated correction of estimates produces results which although imperfect are nevertheless a reasonable approach to determine the level of funding and to provide for the future benefits of plan participants.

COMMENTS ON DATA

For the valuation, the administrative director of the system furnished a census derived from the system's master data processing file indicating each active covered employee's sex, date of birth, service credit, annual salary, and accumulated contributions. Information on retirees detailing dates of birth of retirees and beneficiaries, as well as option categories and benefit amounts, was provided in like manner. In addition, data was supplied on former employees who are vested or who have contributions remaining on deposit. As illustrated in Exhibit IX, there are 14,042 active members in Plan A, of whom, 7,190 members, including 557 participants in the Deferred Retirement Option Plan (DROP), have vested retirement benefits; 7,651 former members of Plan A or their beneficiaries are receiving retirement benefits. An additional 8,785 former members of Plan A have contributions remaining on deposit with the system. This includes 818 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 2,462 active members in Plan B, of whom, 1,207 members, including 80 DROP participants, have vested retirement benefits; 942 former members of Plan B or their beneficiaries are receiving retirement benefits. An additional 1,921 former members of Plan B have contributions remaining on deposit with the system. Of this number, 152 have vested rights or have filed reciprocal agreements for future retirement benefits. All individuals submitted were included in the valuation.

Census data submitted to our office is tested for errors. Several types of census data errors are possible; to ensure that the valuation results are as accurate as possible, a significant effort is made to identify and correct these errors. In order to minimize coverage errors (i.e., missing or duplicated individual records) the records are checked for duplicates, and a comparison of the current year's records to those submitted in prior years is made. Changes in status, new records, and previous records, which have no corresponding current record are identified. This portion of the review indicates the annual flow of members from one status to another and is used to check some of the actuarial assumptions, such as retirement rates, rates of withdrawal, and mortality. In addition, the census is checked for reasonableness in several areas, such as age, service, salary, and current benefits. The records identified by this review as questionable are checked against data from prior valuations; those not recently verified are included in a detailed list of items sent to the system's administrator for verification and/or correction. Once the identified data has been researched and verified or corrected, it is returned to us for use in the valuation. Occasionally some requested information is either unavailable or impractical to obtain. In such cases, values may be assigned to missing data. The assigned values are based on information from similar records or based on information implied from other data in the record. For the 2019 actuarial valuation, given the impacts of the COVID-19 Stay at Home Orders and other work limitations, certain questions related to missing data or incorrect data required assignment or reasonable adjustments based on other relevant data. We do not believe based on the number of affected records that these limitations had a material impact on results.

In addition to the statistical information provided on the system's participants, the system's administrative director furnished general information related to other aspects of the system's expenses, benefits and funding. Valuation asset values as well as income and expenses for the fiscal year were based on information furnished by the system's auditor, the firm of Duplantier, Hrapmann, Hogan & Maher, L.L.P. As indicated in the system's audit report, the net market value of Plan A's assets was $4,091,788,575 as of December 31, 2019. For Plan A, the net investment income for Fiscal 2019 measured on a market value basis was $625,015,609. Contributions to Plan A for the fiscal year totaled $140,851,515; benefits and expenses amounted to $215,039,017.

The net market value of Plan B's assets was $360,893,172 as of December 31, 2019. For Plan B, the net investment income for Fiscal 2019 measured on a market value basis was $54,407,447. Contributions to Plan B for the fiscal year totaled $12,816,561; benefits and expenses amounted to $14,131,593.

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

Plan A was previously funded under the Frozen Attained Age Normal Cost Method. The Frozen Unfunded Accrued Liability was fully amortized in Fiscal 2012. Hence, for the Fiscal 2013 valuation, the system's funding method was changed to the Aggregate Actuarial Cost Method. Plan B is funded utilizing the Aggregate Actuarial Cost Method. This method does not develop an unfunded actuarial liability. Under the Aggregate Cost Method, actuarial gains and losses are spread over future normal costs. Thus, favorable plan experience will lower future normal costs; unfavorable experience will cause future normal costs to increase. In both plans, benefit and assumption changes are also spread over future normal costs. Effective with Fiscal 2008, for both Plans A and B, any excess funds collected pursuant to R. S. 11:105 or R. S. 11:107 are allocated to the Funding Deposit Account. The Funding Deposit Account credit balance as of the end of the prior fiscal year for Plans A and B was $78,847,141 and $6,220,583, respectively. Both accounts were increased with interest at 6.50% for the year. No additional funds were added to the Plan A Funding Deposit Account since the plan did not experience a contribution gain. A freeze in the employer contribution rate in Plan B for Fiscal 2019 resulted in a contribution gain of $303,124 as of December 31, 2019. No funds were withdrawn from the Funding Deposit Account during Fiscal 2019 for either plan. When interest and additional contributions were added to the Funding Deposit Accounts, the resulting balances as of December 31, 2019 for Plans A and B were $83,972,205 and $6,928,047, respectively.

The current year actuarial assumptions utilized for this report are based on the results of an actuarial experience study for the period January 1, 2013 – December 31, 2017, unless otherwise specified in this report. This study included a review of all plan decrements in addition to salary scale experience and other demographic factors which impact plan costs. In determining the valuation interest rate, consideration was given to several factors. First, consensus estimates of rates of return, standard deviations, and correlation coefficients for asset classes derived from various asset consulting firms were developed. Secondly, projected long-term inflation estimates from a number of sources were reviewed. These factors were used to derive forward estimates of the Fund's portfolio earnings rate. Segal Marco Advisors submitted capital market assumptions for use in developing our consultant average assumptions which were used in our ongoing review of the Fund's valuation interest rate.

Although the board of trustees has authority to grant ad hoc Cost of Living Adjustments (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. In addition, COLAs paid out of the Funding Deposit Account do not affect the actuarially required contributions to the system. 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-six through seventy-one. All assumptions used are the same as those used in the 2018 valuation. All calculations, recommendations, and conclusions are based on the assumptions specified. To the extent that prospective experience differs from that assumed adjustments will be required to contribution levels. Such differences will be revealed in future actuarial valuations. Within our valuation model, option factors were updated to those in effect for retirements beginning January 1, 2020.

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. Louisiana Constitutional and Statutory provisions greatly limit this risk by requiring that state and statewide plans maintain funding on an actuarial basis. The State Constitution sets forth general requirements with specific funding parameters specified in the state statutes.

All pension plans are subject to the uncertainty of asset performance. The total nominal rate of return on assets is comprised of the real rates of return earned on the portfolio of investments plus the underlying inflation rate. High levels of inflation are a risk to plan members in that they reduce purchasing power of plan benefits. As the plan attempts to offset inflation by cost of living adjustments, costs will inevitably increase unless provisions are made to prefund such adjustments. Very low inflation will generally reduce the nominal rate of return on assets; deflation can potentially reduce the capital value of trust assets. For the last decade, inflation levels have remained in a fairly narrow range. Current forecasts from investment professionals call for a continuation of this trend. There is always the possibility that high inflation will become a problem in the future or that the country will experience a deflationary period; however, most expert opinion currently assess both of these alternatives as unlikely in the near term.

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. Volatility of returns will be determined by both market conditions and the asset allocation of the investment portfolio. If the system’s investment portfolio has a substantial allocation to assets that have low price stability, the risk of portfolio volatility will increase, although low correlations among asset classes can mitigate this risk. Another element of asset risk is reinvestment risk. Interest rate declines can subject pension plans to an increase in this risk. As fixed income securities mature, investment managers may be forced to reinvest funds at decreasing rates of return. For the foreseeable future it is unlikely, though not impossible, that interest rates will steeply decline mitigating the reinvestment risk the plan currently faces.

The system is also exposed to risk related to cash flow. Where benefit payments exceed contributions to a plan, the plan will be required to use investment income or potentially investment capital to pay benefits. In cases where it is necessary to use investment income to pay retirement benefits, investment market downturns will place additional stress on the portfolio and make the recovery from such downturns more difficult since funds available for reinvestment are reduced by benefit payments. The historical cash flow demonstration given in this report illustrates the noninvestment cash flow and benefit payments of the system over the last 10 years. Currently, annual benefit payments exceed annual contributions to the plan for Plan A and are slightly less than annual contributions to the plan for Plan B. This is a result of the plan's maturity level and the reduction in required contributions after the elimination of the plan's frozen unfunded actuarial liability. Future net noninvestment cash flows for the system will be determined based upon both the system maturity and future contribution levels. Hence, increases in future contributions due to adverse actuarial experience will tend to mitigate the potential of negative cash flows arising from the natural maturation of the system whereas reduced contribution levels resulting from, positive experience will tend to increase the extent of negative cash flows. Absent a significant increase in the active membership of the system, the trend of higher proportion of retired membership will continue and the current trend toward higher level of negative noninvestment cash flows will continue for Plan A, and it is likely that benefit payments will exceed contributions to Plan B in the near future.

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. In a general sense, the short term effects of these risks on the cost structure of the plan are somewhat limited since changes in these factors tend to be gradual and follow long term secular trends. Final average compensation plans are also vulnerable to unexpectedly large increases in salary for individual members near retirement. The effect of such events frequently relates to pay plan revisions where salaries "catch-up" after a number of years of slow growth. Revisions of this type usually depend on general economic conditions and can result in liability losses. However, they generally are infrequent and are more of a short term issue.

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. The risk associated with either of these factors can vary dependent upon the severity of the event, and cannot be easily forecasted.

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 97.41%

for Plan A and 99.34% for Plan B as of December 31, 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. Exhibits X and XX give a history of this value for the last ten years. However, the underlying trend is somewhat disguised since the system has significantly reduced the valuation interest rate over this period. Absent the reduction in this rate the current ratio would be significantly higher. One additional risk measure is the sensitivity of the plan's cost structure to asset gains and losses. For Plan A, we have determined that based on current assets and demographics, for each percentage under (over) the assumed rate of return on the actuarial value of assets, there will be a corresponding increase (reduction) in the actuarially required contribution as a percentage of projected payroll of 0.70% for the fund. Similarly for Plan B, we have determined that the corresponding increase (reduction) in the actuarially required contribution as a percentage of projected payroll will be 0.36% for the fund.

Each pension plan has its own unique benefit structure and demographic profile. As a result each plan will respond to changes in interest rates in a unique way. As the expected rate of return on investments changes and the interest rate used to discount plan liabilities is adjusted, the shift in plan liabilities will depend upon the duration of the liabilities (which can be understood as the plan's sensitivity to the change in the interest rate). A slightly different measure of the duration for the plan can also be understood as an indicator of the plan's maturity. When a pension plan is first established, all of the participants are active members; as members retire and the plan matures, the duration of the plan decreases. A determination of the liability duration gives some insight into the investment time horizon of the plan. Thus the liability duration of a closed plan can be thought of as the weighted "center of gravity" of plan benefit cash flows with expected cash flows occurring both before and after the duration value. For open plans with a continuous flow of new entrants this measure is somewhat less informative since the duration horizon keeps changing as new members enter the plan. For this plan we have estimated the effective liability duration as 11.31 for Plan A and 11.96 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 vulnerable 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 29.31% for Plan A and 10.92% for Plan B; ten years ago this ratio was 16.82% for Plan A and 6.28% for Plan B.

One other area of exposure the plan faces is the possibility that plan assumptions will need to be revised to conform to changing actual or expected plan experience. Such assumption revisions may relate to economic or demographic factors. With regard to the economic assumptions, there is always the possibility that market expectations will require an adjustment to the assumed rate of return. Current market expectations are that in this area a decrease in the assumptions is more probable than an increase. The magnitude of any potential such change will be related to future capital market expectations. With regard to the economic assumptions, we have determined that a reduction in the valuation interest rate by 1% (without any change to other collateral factors) would increase the actuarially required employer contribution rate for Fiscal 2020 by 11.39% of payroll for Plan A and 6.60% of payroll for Plan B. Future adjustments to the future assumed rates of return may be required; however the likelihood of such an event is difficult to gauge since it requires assigning probabilities to future capital market scenarios.

Noneconomic assumptions such as mortality or other rates of decrement such as withdrawal, retirement, or disability are also subject to change. In general, such changes tend to effect plan costs less than adjustments to the assumed rates of return. Quantifying the probability or magnitude of such changes is beyond the scope of this report.

In summary, there is a risk that future actuarial measurements may differ significantly from current measurements presented in this report due to factors such as the following: plan experience differing from that anticipated by the economic or demographic assumptions, changes in economic or demographic assumptions, and changes in plan provisions or applicable law. 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, factors such as those outlined above have the potential on their own accord to pose a significant risk to future cost levels and solvency of the system.

CHANGES IN PLAN PROVISIONS

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

Act 58 of the 2019 Regular Session of the Louisiana Legislature added employees of certain public trusts to the definition of employees.

ASSET EXPERIENCE

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

Plan A	Market Value	Actuarial Value
2010	15.2%	4.4%
2011	-0.7%	2.9%
2012	15.6%	4.2%
2013	18.1%	13.0%
2014	4.9%	10.5%
2015	-0.6%	7.3%
2016	7.7%	7.8%
2017	17.3%	8.6%
2018	-5.6%	4.7%
2019	17.8%	6.4%

Plan B	Market Value	Actuarial Value
2010	15.4%	4.6%
2011	-0.7%	3.2%
2012	15.8%	4.8%
2013	17.6%	12.8%
2014	4.9%	10.3%
2015	-0.7%	7.1%
2016	7.7%	7.5%
2017	17.4%	8.5%
2018	-5.7%	4.8%
2019	17.7%	6.4%

Geometric Average Market Rates of Return – Plan A

5 year average	(Fiscal 2015 – 2019)	6.9%
10 year average	(Fiscal 2010 – 2019)	8.6%
15 year average	(Fiscal 2005 – 2019)	6.7%
20 year average	(Fiscal 2000 – 2019)	6.5%
25 year average	(Fiscal 1995 – 2019)	8.0%

Geometric Average Market Rates of Return – Plan B

5 year average	(Fiscal 2015 – 2019)	6.9%
10 year average	(Fiscal 2010 – 2019)	8.6%
15 year average	(Fiscal 2005 – 2019)	6.6%
20 year average	(Fiscal 2000 – 2019)	6.6%
25 year average	(Fiscal 1995 – 2019)	7.7%

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 $70,860,250 and Plan B earned $6,184,237 of dividends, interest and other recurring income. In addition, Plan A had net realized and unrealized capital gains and other non-recurring income on investments of $577,068,211 while the total of such gains for Plan B amounted to $50,261,098. Investment expenses were $22,912,852 for Plan A and $2,037,888 for Plan B.

The actuarial rate of return is presented for comparison to the assumed long-term rate of return of 6.50% for Fiscal 2019. This rate is calculated based on the smoothed value of assets subject to constraints as given in Exhibit III-B for Plan A and Exhibit XIII-B 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. Yields in excess of the 6.50% assumption will reduce future costs; yields below 6.50% will increase future costs. Net actuarial investment earnings were less than the actuarial assumed earnings rate of 6.50%, used for Fiscal 2019, by $5,509,617 for Plan A and were less than the actuarial assumed earnings rate of 6.50%, used for Fiscal 2019, by $366,586 for Plan B. These earnings shortfalls for Plan A produced actuarial losses, which increased the normal cost accrual rate by 0.0982% and the earnings shortfalls for Plan B produced actuarial losses, which increased the normal cost accrual rate by 0.0378% 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. 11:2012. In the course of reviewing data for the December 31, 2019 valuation we found members of Plan A and Plan B with such service and recommend a transfer of $178,107 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 (including DROP participants) is 47 years old with 10.04 years of service and an annual salary of $45,185. The plan's active membership, inclusive of DROP participants, increased by 15 members during the fiscal year. The plan has experienced a decrease in the active plan population of 19 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 forty-one to fifty age group has declined while the population in the sixty-one to seventy age group has increased. Over the same ten-year period the plan showed a fairly stable distribution among the various service groups.

The average regular retiree is 71 years old with a monthly benefit of $2,196. The number of retirees and beneficiaries receiving benefits from the system increased by 184 during the fiscal year; over the last five years the number of retirees has increased by 1,128 and benefit payments have increased by $48,660,231.

Plan liability experience for Fiscal 2019 was slightly favorable. Disabilities below projected levels and retiree deaths above projected levels tend to reduce costs. Retirements and DROP entries above projected levels tend to increase costs. Salary increases above projected levels tend to increase costs, but since salary increases at many key durations were below assumed levels, the impact was not significant. In aggregate, plan liability gains decreased the normal cost accrual rate by 0.8555%.

PLAN B – DEMOGRAPHICS AND LIABILITY EXPERIENCE

A reconciliation of the census for the plan is given in Exhibit XIX. The average active member (including DROP participants) is 47 years old with 9.65 years of service and an annual salary of $45,316. The plan's active membership, inclusive of DROP participants, increased by 33 members during the fiscal year. The plan has experienced an increase in the active plan population of 141 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 forty-one to fifty age group has declined while the population in the sixty-one to seventy age group has increased. Over the same ten-year period the plan showed a fairly stable distribution among the various service groups.

The average regular retiree is 72 years old with a monthly benefit of $1,148. The number of retirees and beneficiaries receiving benefits from the system increased by 46 during the fiscal year; over the last five years the number of retirees has increased by 228 and benefit payments have increased by $4,734,679.

Plan liability experience for Fiscal 2019 was slightly favorable. Withdrawals and retiree deaths were above projected levels. These factors tend to reduce costs. Partially offsetting these factors were DROP entries slightly above projected levels and salary increases above projected levels. Retirements were near projected levels. In aggregate, plan liability gains decreased the normal cost accrual rate by 0.0440%.

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 the normal cost, and the actuarially required contributions are based on the sum of this value and administrative expenses. Under the funding method used for the plan, changes in plan experience, benefits, or assumptions increase or decrease future normal costs. In addition excess or deficient contributions can decrease or increase future costs. The funding method used for both plans produces no unfunded actuarial accrued liability.

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

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.

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 as of January 1, 2020 is $76,098,671. The total actuarially required contribution is determined by adjusting the value for interest (since payments are made throughout the fiscal year) and adding estimated administrative expenses. As given on line 12 of Exhibit I the total actuarially required contribution for Fiscal 2020 is $80,268,097. When this amount is reduced by projected tax contributions and revenue sharing funds, the resulting employers' net direct actuarially required contribution for Fiscal 2020 is $71,864,932. This is 11.11% 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. 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	13.8503%
Factors Increasing the Normal Cost Accrual Rate:	
Asset Experience Loss	0.0982%
Contribution Loss	0.0542%
Factors Decreasing the Normal Cost Accrual Rate:	
Plan Liability Experience Gain	0.8555%
New Members	0.3521%
Employer's Normal Cost Accrual Rate – Fiscal 2020	12.7951%

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 collected in Fiscal 2020 will increase by 0.06% 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 A of 11.11%; the actual employer contribution rate for Fiscal 2020 is 12.25% of payroll. R.S. 11:103 requires that the net direct employer contributions be rounded to the nearest 0.25%, hence we are recommending a minimum net direct employer contribution rate for Plan A of 11.00% 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 as of January 1, 2020 is $9,246,378. The total actuarially required contribution is determined by adjusting the value for interest (since payments are made throughout the fiscal year) and adding estimated administrative expenses. As given on line 12 of Exhibit XI the total actuarially required contribution for Fiscal 2020 is $9,847,265. When this amount is reduced by projected tax contributions and revenue sharing funds, the resulting employers' net direct actuarially required contribution for Fiscal 2020 is $8,369,649. This is 7.39% 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	9.0025%
Factors Increasing the Normal Cost Accrual Rate:	
Asset Experience Loss	0.0378%
Additions to FDA	0.0313%
Factors Decreasing the Normal Cost Accrual Rate:	
New Members	0.0873%
Plan Liability Experience Gain	0.0440%
Contribution Gain	0.0313%
Employer's Normal Cost Accrual Rate – Fiscal 2020	8.9090%

We estimate that for Plan B the funds collected from ad valorem taxes and revenue sharing funds in Fiscal 2020 will increase by 0.07% 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 7.39%; the actual employer contribution rate for Fiscal 2020 is 7.50% of payroll. R.S. 11:103 requires that the net direct employer contributions be rounded to the nearest 0.25%, hence we are recommending a minimum net direct employer contribution rate for Plan B of 7.50% for Fiscal 2021.

For Plan A, the Board may set the net direct employer contribution at any rate between 11.00% and 12.25% for fiscal 2021. For Plan B, since the minimum recommended employer contribution rate of 7.50% equals the Fiscal 2020 minimum employer contriubtion rate, the board may not set the rate above the minimum level for fiscal 2021. In Plan A, should the net direct employer contribution rate be set at a level above the minimum rate, under R.S. 11:107 the resulting additional contributions paid by the employers, if they exceed any potential contribution losses, would be added to the Funding Deposit Account.

COST OF LIVING INCREASES

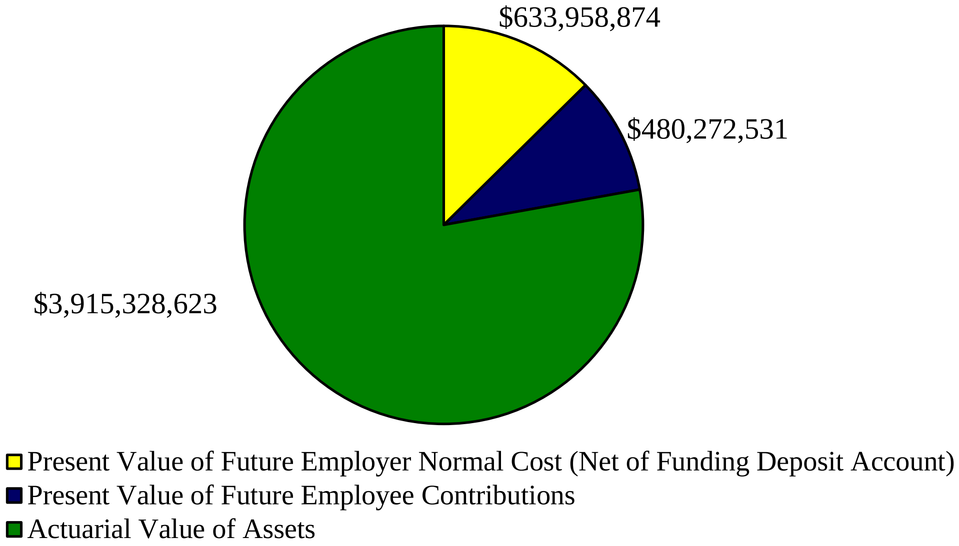
During calendar 2019 the actual cost of living (as measured by the U.S. Department of Labor CPI-U) increased by 2.29%. Cost of living provisions for the system are detailed in R.S. 11:1937 and R.S. 11:246. The former statute allows the board to use interest earnings in excess of the normal requirements to grant annual cost of living increases of up to 2.50% of the current benefit to retirees aged 62 or over, who have been retired at least one year. R.S. 11:246 provides cost of living increases to retirees and beneficiaries over the age of 65 equal to 2% of the benefit in payment on October 1, 1977, or the date the benefit was originally received if retirement commenced after that date. R.S. 11:241 provides for cost of living benefits payable based on a formula equal to up to $1 times the total of the number of years of credited service accrued at retirement or at death of the member or retiree plus the number of years since retirement or since death of the member or retiree to the system's fiscal year end preceding the payment of the benefit increase. The provisions of R.S. 11:241 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.

All of the above provisions require that the system earn sufficient excess interest earnings to fund the increases unless the Board funds a cost of living increase out of the Funding Deposit Account Credit Balance. For Fiscal 2019, neither plan earned excess interest. However, R.S. 11:243 permits payment of a cost of living adjustment from the plan's Funding Deposit Account if the plan 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. If COLAs are paid from the Funding Deposit Account, there will be no increase in the Normal Cost Accrual Rate for the Plans.

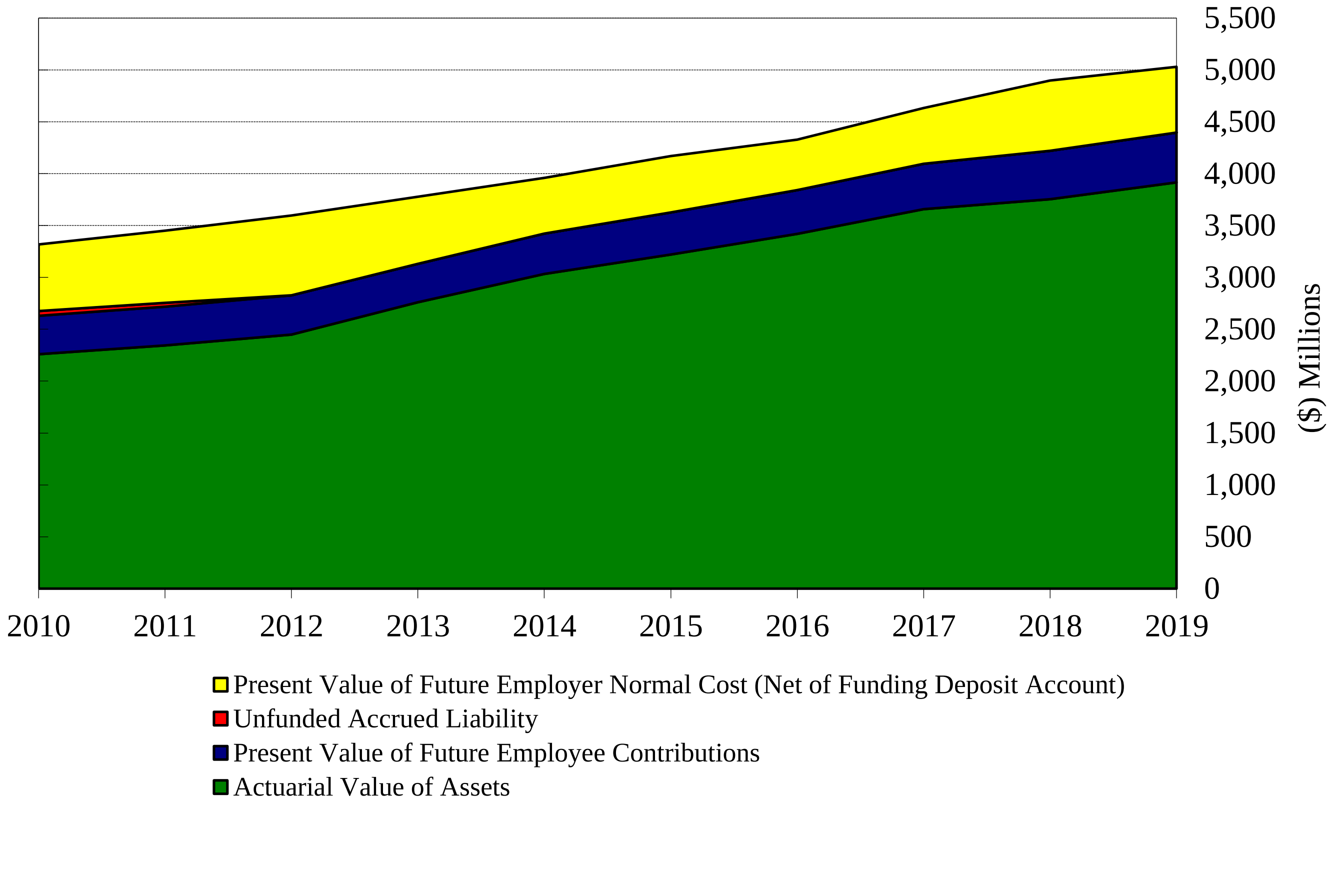
Plan A COLA Descriptions	Annual Increase in Benefits	Present Value of Increase
R.S. 11:1937 – 2 1/2% of current benefit to pensioners over age 62	$ 3,785,473	$ 33,924,307
R.S. 11:246 - 2% of original benefit to pensioners over age 62	$ 2,322,703	$ 20,446,784

Plan B COLA Descriptions	Annual Increase in Benefits	Present Value of Increase
R.S. 11:1937 – 2 1/2% of current benefit to pensioners over age 62	$ 266,820	$ 2,471,226
R.S. 11:246 - 2% of original benefit to pensioners over age 62	$ 170,951	$ 1,526,796

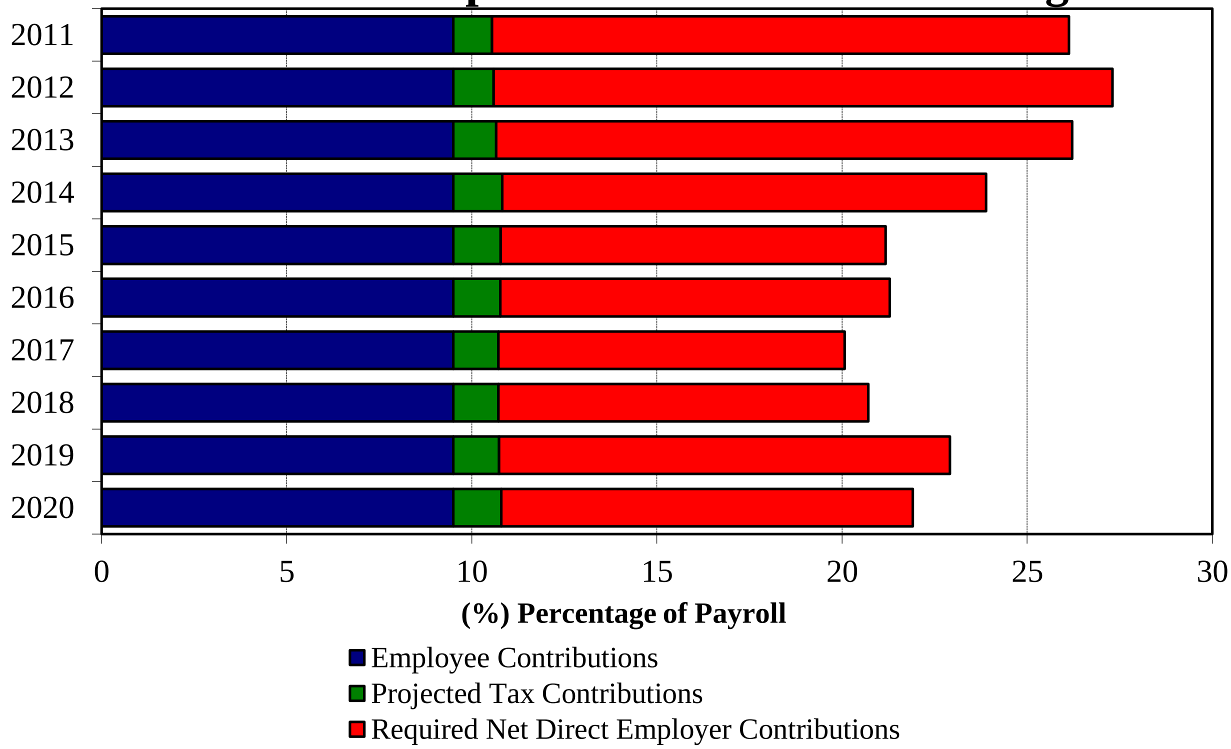
Plan A – Components of Present Value of Future Benefits
December 31, 2019



Plan A – Components of Present Value of Future Benefits

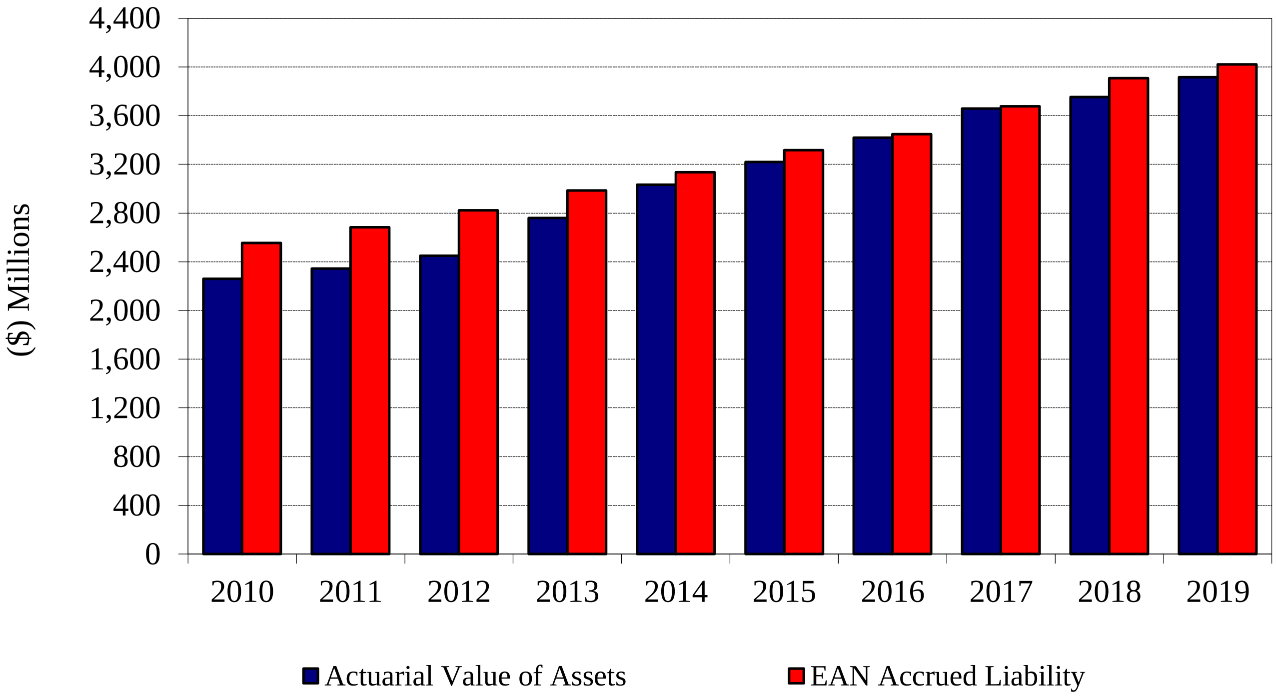


Plan A – Components of Actuarial Funding

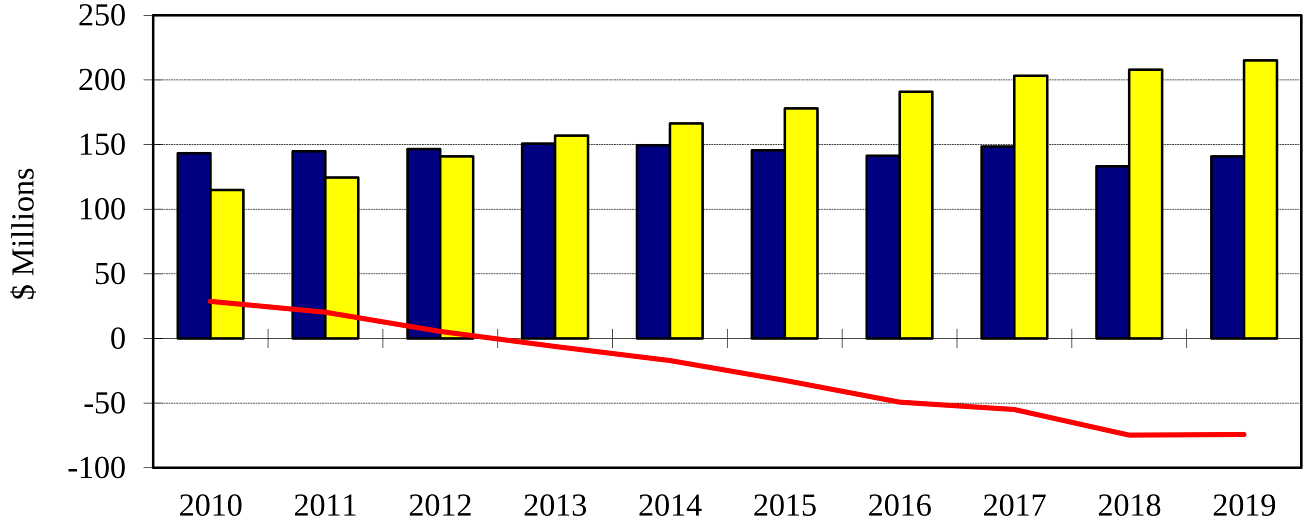


Projected Tax Contributions consist of Projected Ad Valorem and Revenue Sharing Funds as a percent of payroll

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



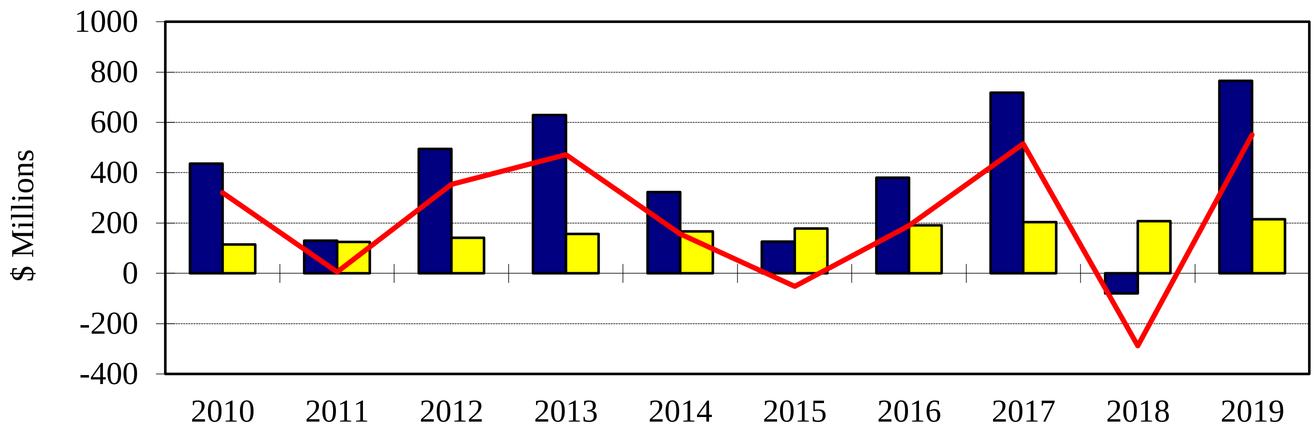
Plan A – Net Non-Investment Income



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Non-Investment Income ($Mil)	143.4	144.8	146.4	149.8	149.4	145.6	141.4	148.4	133.2	140.9
Benefits and Expenses ($Mil)	114.8	124.6	140.9	156.8	166.4	177.9	190.7	203.3	208.0	215.0
Net Non-Investment Income ($Mil)	28.6	20.2	5.5	-7.0	-17.0	-32.3	-49.3	-54.9	-74.8	-74.1

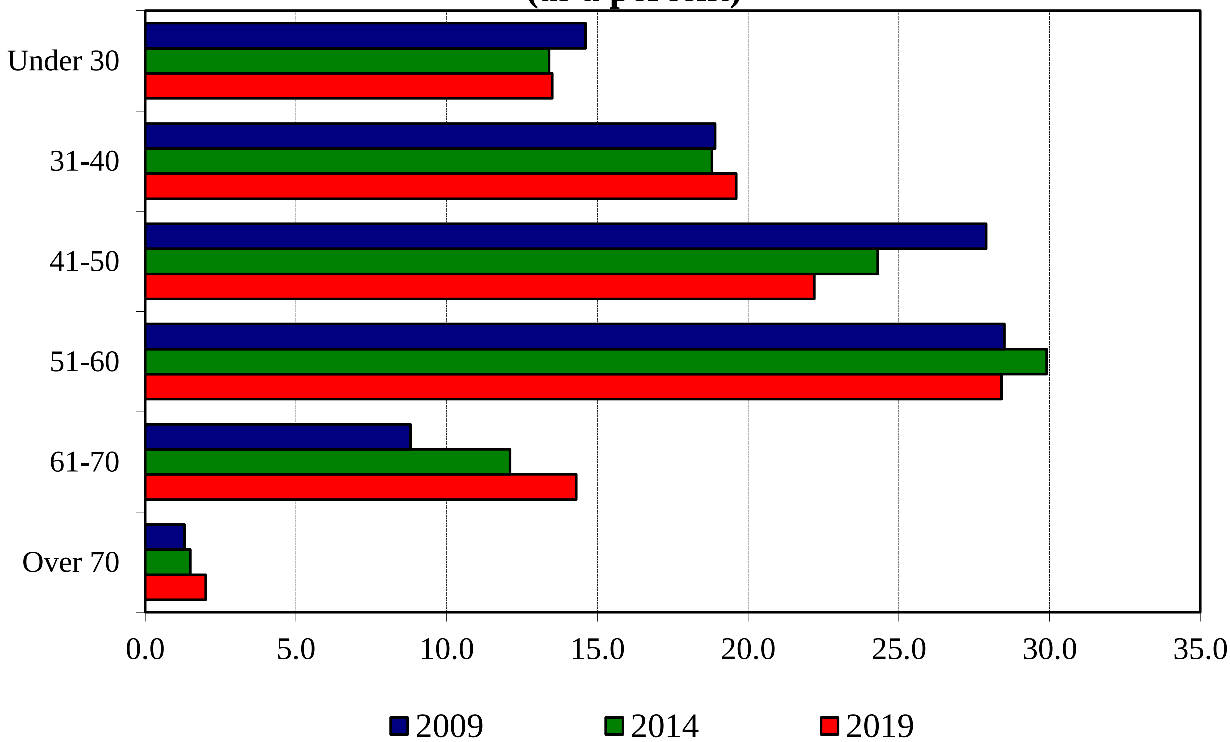
Plan A – Total Income vs. Expenses

(Based on Market Value of Assets)

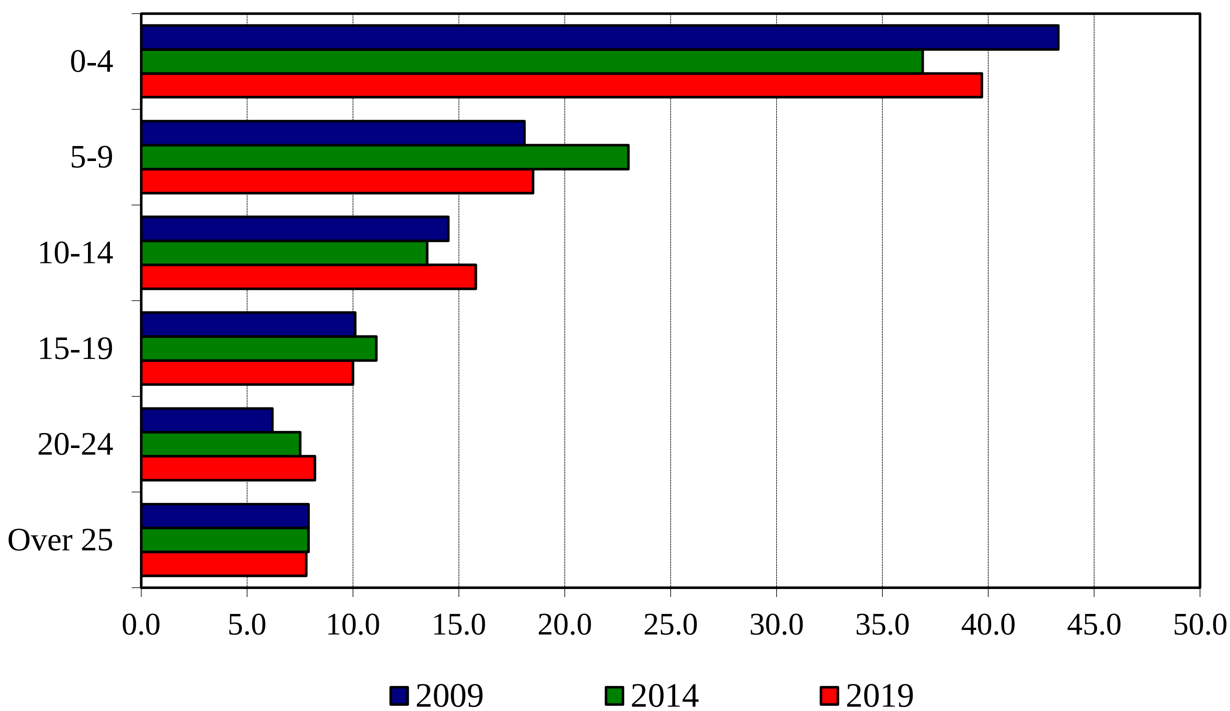


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Income ($Mil)	435.7	130.1	494.4	616.3	298.5	126.8	380.0	718.4	-80.1	765.9
Benefits and Expenses ($Mil)	114.8	124.6	140.9	156.8	166.4	177.9	190.7	203.3	208.0	215.0
Net Change in MVA ($Mil)	320.9	5.5	353.5	459.5	132.1	-51.1	189.3	515.1	-288.1	550.9

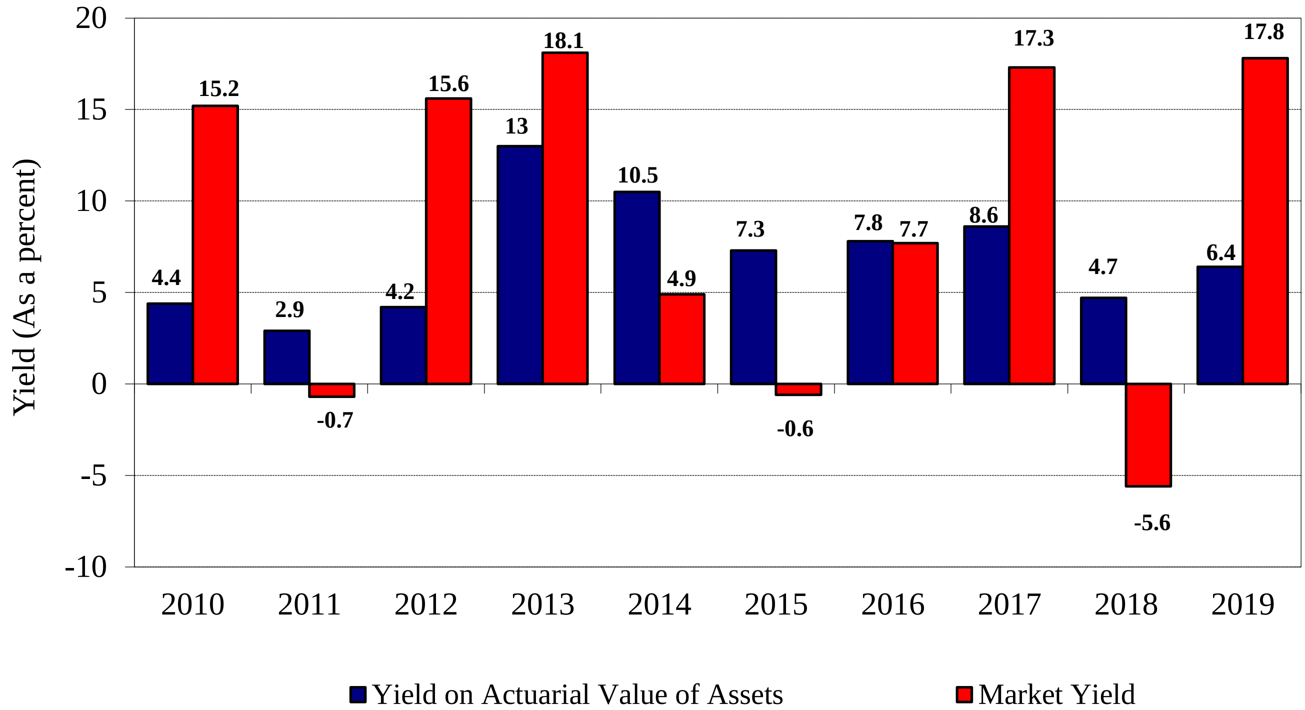
Plan A – Active – Census By Age
(as a percent)



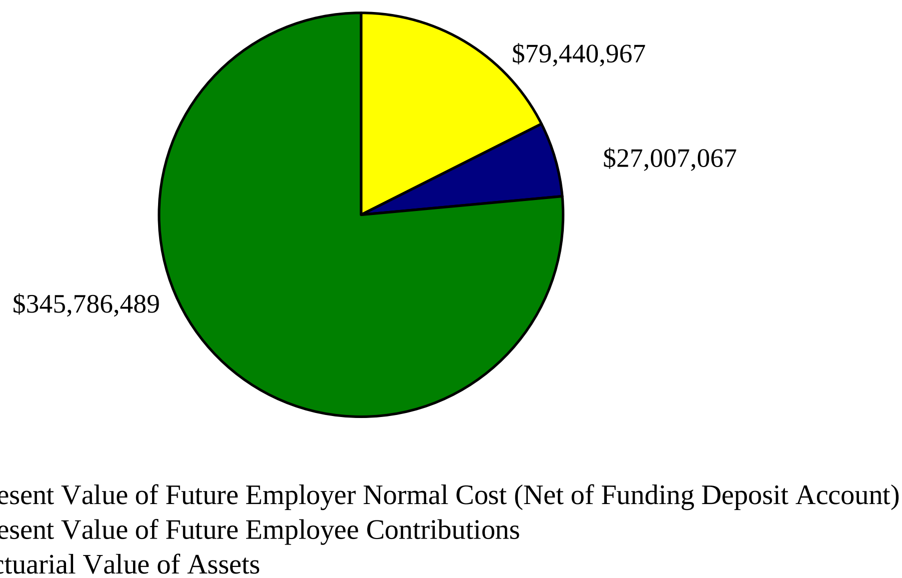
Plan A – Active – Census By Service
(as a percent)



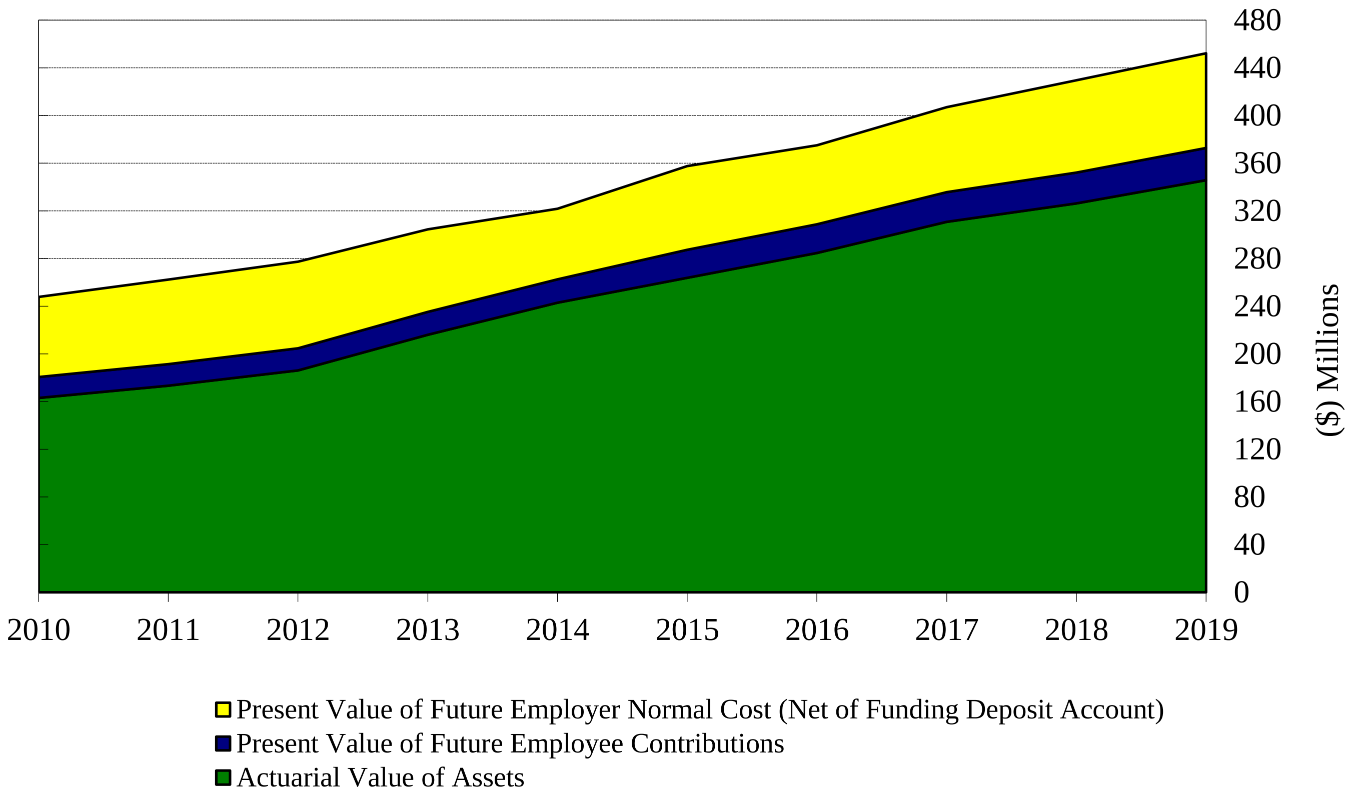
Plan A – Historical Asset Yield



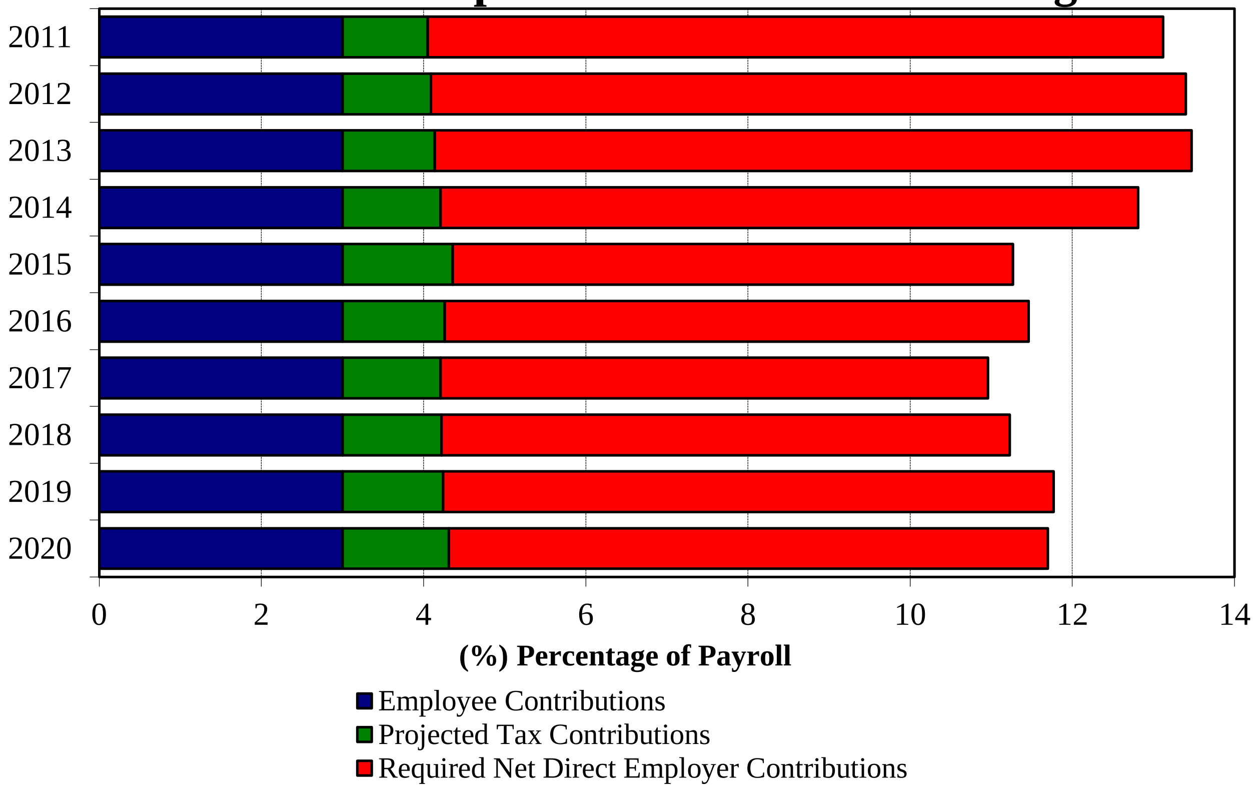
Plan B – Components of Present Value of Future Benefits
December 31, 2019



Plan B – Components of Present Value of Future Benefits

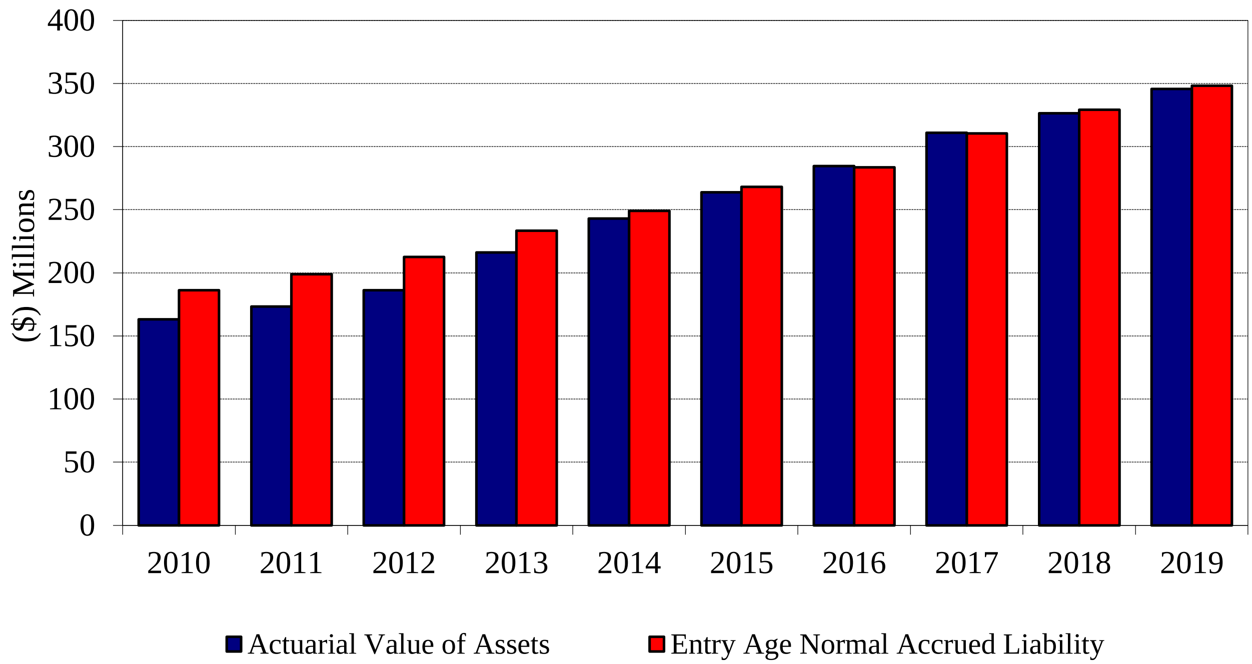


Plan B – Components of Actuarial Funding

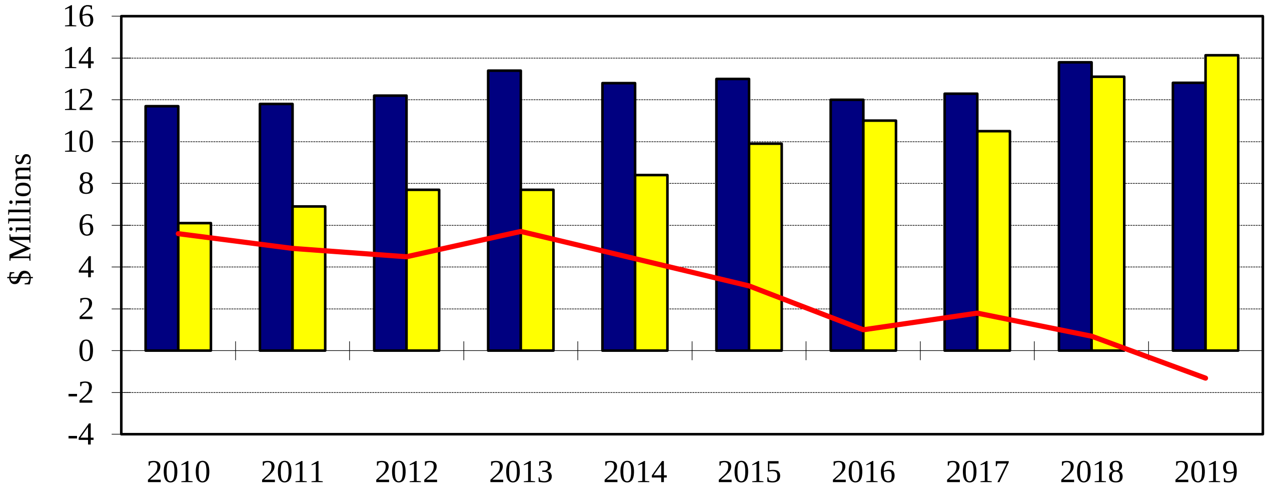


Projected Tax Contributions consist of Projected Ad Valorem and Revenue Sharing Funds as a percent of payroll

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

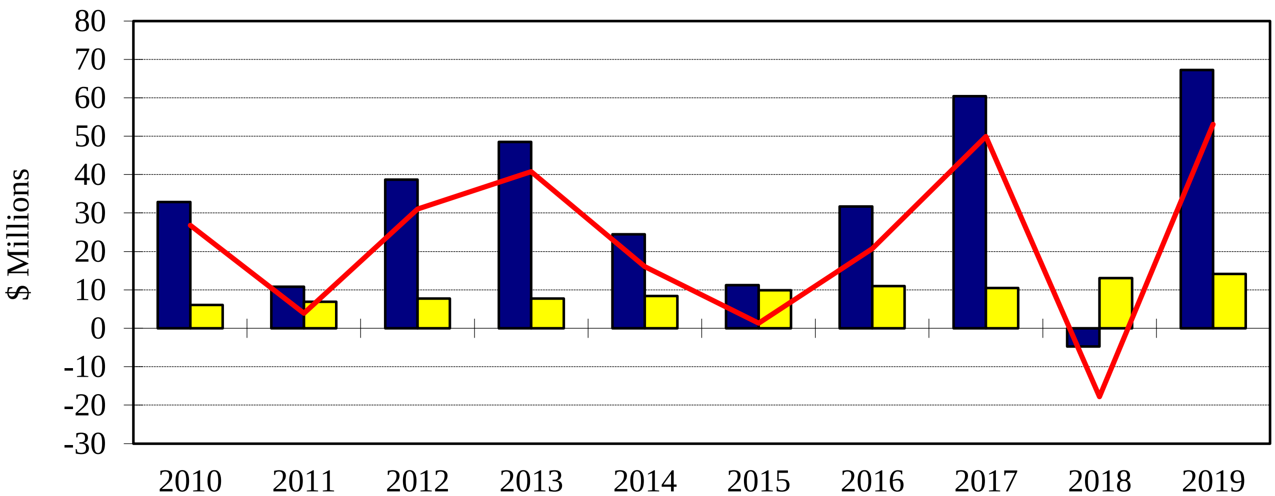


Plan B – Net Non-Investment Income



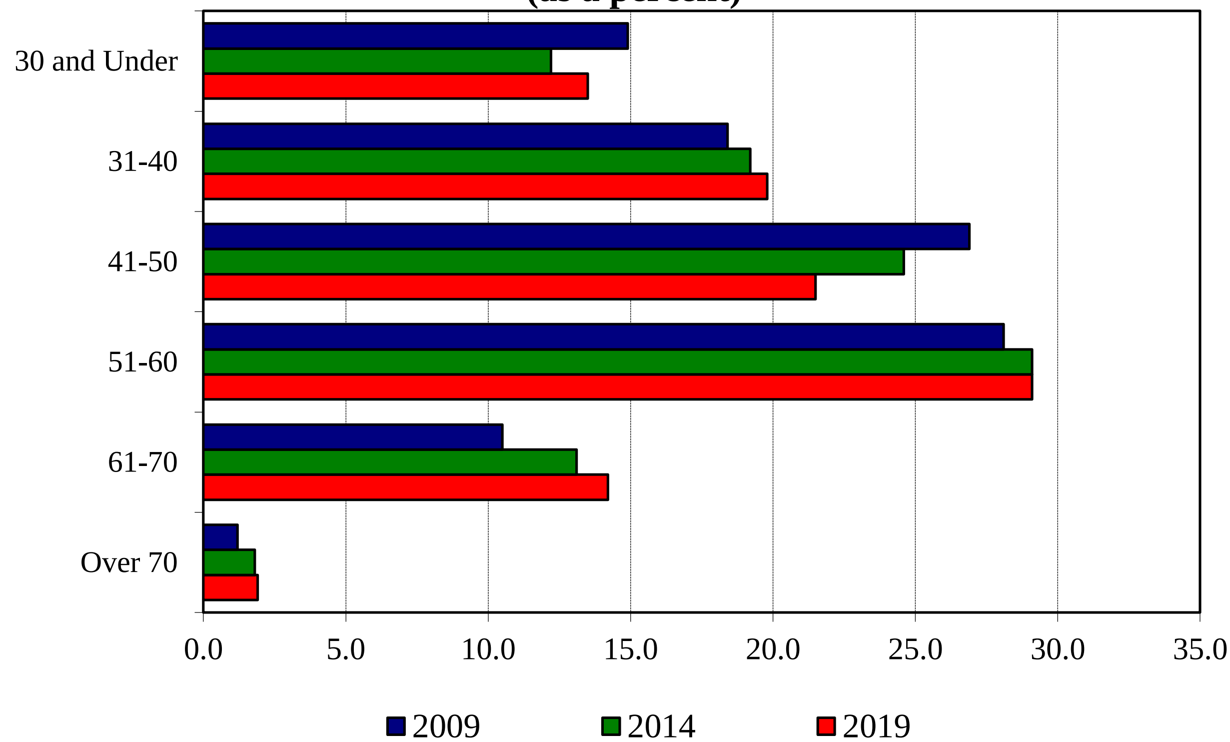
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Non-Investment Income ($Mil)	11.7	11.8	12.2	13.4	12.8	13.3	12.0	12.3	13.8	12.8
Benefits and Expenses ($Mil)	6.1	6.9	7.7	7.7	8.4	9.9	11.0	10.5	13.1	14.1
Net Non-Investment Income ($Mil)	5.6	4.9	4.5	5.7	4.4	3.4	1.0	1.8	0.7	-1.3

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

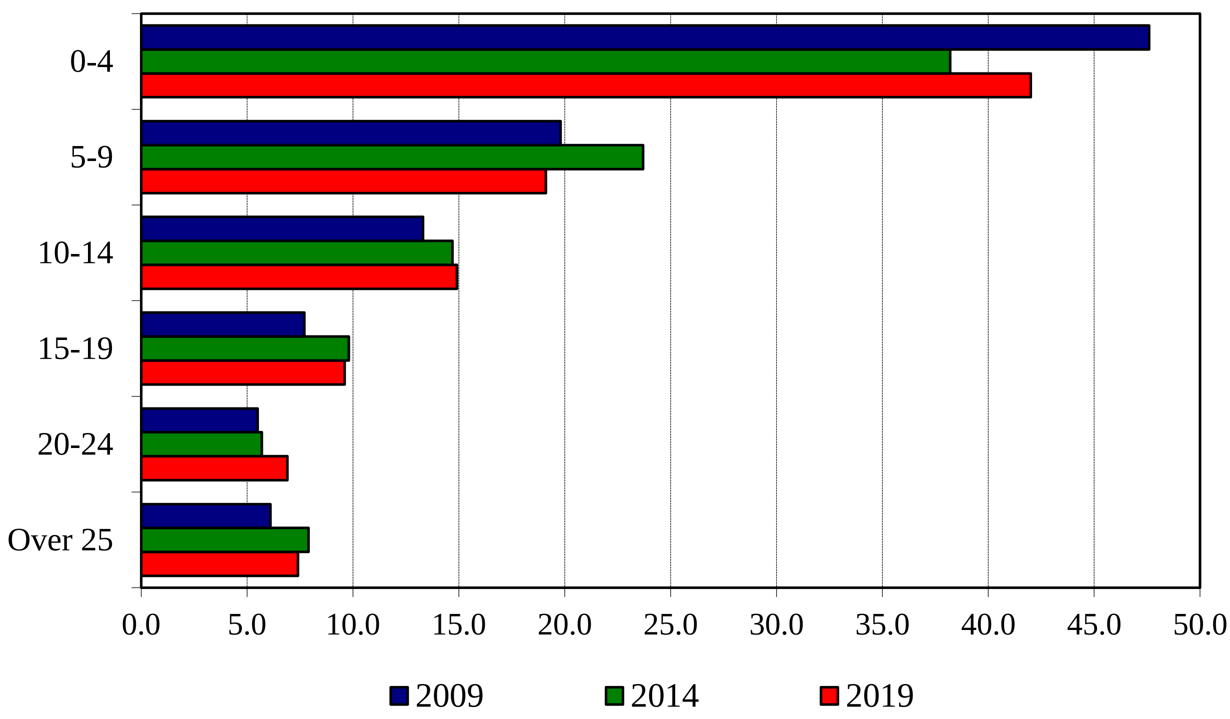


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Income ($Mil)	32.9	10.8	38.7	48.5	24.5	11.5	31.7	60.4	-4.7	67.2
Benefits and Expenses ($Mil)	6.1	6.9	7.7	7.7	8.4	9.9	11.0	10.5	13.1	14.1
Net Change in MVA ($Mil)	26.8	3.9	31.0	40.8	16.1	1.6	20.7	49.9	-17.8	53.1

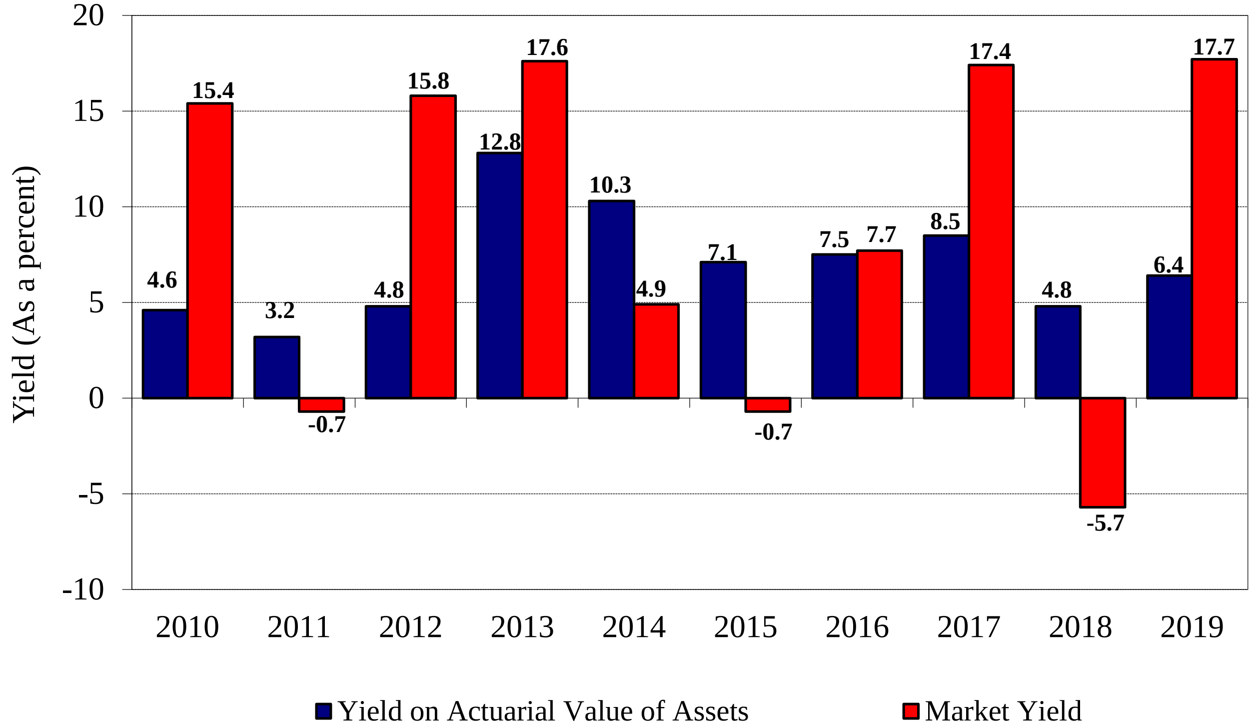
Plan B – Active – Census By Age
(as a percent)



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



Plan B – Historical Asset Yield



PLAN A -
EXHIBITS

EXHIBIT I
PLAN A: ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS

1.	Present Value of Future Benefits	$ 5,029,560,028
2.	Funding Deposit Account Credit Balance	$ 83,972,205
3.	Actuarial Value of Assets	$ 3,915,328,623
4.	Present Value of Future Employee Contributions	$ 480,272,531
5.	Present Value of Future Employer Normal Costs (1 + 2 – 3 – 4)	$ 717,931,079
6.	Present Value of Future Salaries	$ 5,610,963,485
7.	Employer Normal Cost Accrual Rate (5 ÷ 6)	12.795148%
8.	Projected Fiscal 2020 Salary for Current Membership	$ 594,746,314
9.	Employer Normal Cost as of January 1, 2020 (7 × 8)	$ 76,098,671
10.	Employer Normal Cost Interest Adjusted for Mid-year Payment	$ 78,532,944
11.	Estimated Administrative Cost for Fiscal 2020	$ 1,735,153
12.	TOTAL Administrative and Interest Adjusted Actuarial Costs (10 + 11)	$ 80,268,097
13.	Estimated Ad Valorem Tax Contributions for Fiscal 2020	$ 8,268,122
14.	Estimated Revenue Sharing Funds for Fiscal 2020	$ 135,043
15.	Employers' Minimum Net Direct Actuarially Required Contribution for Fiscal 2020 (12 – 13 – 14)	$ 71,864,932
16.	Projected Payroll for Fiscal 2020	$ 646,806,410
17.	Employers' Minimum Net Direct Actuarially Required Contribution as a % of Projected Payroll for Fiscal 2020 (15 ÷ 16)	11.11%
18.	Actual Employer Contribution Rate for Fiscal 2020	12.25%
19.	Contribution Shortfall (Excess) as a Percentage of Payroll (17 – 18)	(1.14%)
20.	Increase (Reduction) to Following Year Payment for Contribution Shortfall (Excess)	(0.12%)
21.	Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2021 (17 + 20, Rounded to Nearest 0.25%)	11.00%

EXHIBIT II
PLAN A: PRESENT VALUE OF FUTURE BENEFITS

PRESENT VALUE OF FUTURE BENEFITS FOR ACTIVE MEMBERS:

Retirement Benefits	$ 2,672,761,571		
Survivor Benefits	47,384,501		
Disability Benefits	106,935,427		
Vested Termination Benefits	110,512,362		
Refunds of Contributions	74,143,746		
TOTAL Present Value of Future Benefits for Active Members		$ 3,011,737,607	

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement	$ 95,506,925	
Terminated Members with Reciprocals Due Benefits at Retirement	232,604	
Terminated Members Due a Refund	13,786,822	
TOTAL Present Value of Future Benefits for Terminated Members		$ 109,526,351

PRESENT VALUE OF FUTURE BENEFITS FOR RETIREES:

Regular Retirees			
Maximum	$ 815,640,151		
Option 1	2,560,840		
Option 2	598,935,831		
Option 3	266,459,436		
Option 4	67,602,250		
TOTAL Regular Retirees		$ 1,751,198,508	
Disability Retirees		39,253,856	
Survivors & Widows		116,625,386	
Reserve for Accrued Retiree DROP Account Balances		1,218,320	
TOTAL Present Value of Future Benefits for Retirees & Survivors			$ 1,908,296,070

TOTAL Present Value of Future Benefits	$ 5,029,560,028

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

CURRENT ASSETS:				
Cash in Banks	$	20,980,448		
Contributions and Taxes Receivable		30,161,772		
Accrued Interest and Dividends		986,461		
Investments Receivable		293,716		
Due (to)/from other Funds		(271,508)		
Due (to)/from Plan B		178,107		
Deferred Outflows of Resources		6,048		
Other Current Assets		13		
TOTAL CURRENT ASSETS			$	52,335,057
Property Plant & Equipment			$	559,051
INVESTMENTS:				
Cash Equivalents	$	55,298,109		
Equities		2,189,588,989		
Fixed Income		1,305,050,509		
Real Estate		216,148,426		
Alternative Investments		293,747,848		
TOTAL INVESTMENTS			$	4,059,833,881
TOTAL ASSETS			$	4,112,727,989
CURRENT LIABILITIES:				
Accounts Payable	$	2,437,318		
Benefits Payable		16,287,852		
Refunds Payable		1,161,370		
Investments Payable		178,331		
Other Post-Employment Benefits Payable		591,049		
Deferred Inflows of Resources		283,494		
TOTAL CURRENT LIABILITIES			$	20,939,414
MARKET VALUE OF ASSETS			$	4,091,788,575

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

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

Fiscal year 2019	$	397,226,316
Fiscal year 2018		(469,282,812)
Fiscal year 2017		339,826,280
Fiscal year 2016		21,590,369
Fiscal year 2015		(247,856,881)
Total for five years	$	41,503,272

Deferral of excess (shortfall) of invested income:

Fiscal year 2019 (80%)	$	317,781,053
Fiscal year 2018 (60%)		(281,569,687)
Fiscal year 2017 (40%)		135,930,512
Fiscal year 2016 (20%)		4,318,074
Fiscal year 2015 (0%)		0
Total deferred for year	$	176,459,952

Market value of plan net assets, end of year	$	4,091,788,575
Preliminary actuarial value of plan assets, end of year	$	3,915,328,623

Actuarial value of assets corridor

85% of market value, end of year	$	3,478,020,289
115% of market value, end of year	$	4,705,556,861

Final actuarial value of plan net assets, end of year	$	3,915,328,623

EXHIBIT IV
PLAN A: PRESENT VALUE OF FUTURE CONTRIBUTIONS

Employee Contributions to the Annuity Savings Fund	$	480,272,531
Employer Normal Contributions to the Pension Accumulation Fund		717,931,079
Funding Deposit Account Debit / (Credit) Balance		(83,972,205)
TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS	$	1,114,231,405

EXHIBIT V
PLAN A: RECONCILIATION OF CONTRIBUTIONS

Employer Normal Cost for Prior Year	$	79,970,284		
Interest on the Normal Cost		5,198,068		
Administrative Expenses		1,495,334		
Interest on Expenses		47,834		
TOTAL Interest Adjusted Actuarially Required Employer Contributions			$	86,711,520
Direct Employer Contributions	$	72,984,730		
Interest on Employer Contributions		2,334,663		
Ad Valorem Taxes and Revenue Sharing		8,092,294		
Interest on Ad Valorem Taxes and Revenue Sharing Funds		258,859		
TOTAL Interest Adjusted Employer Contributions			$	83,670,546
CONTRIBUTION SURPLUS (DEFICIENCY)			$	(3,040,974)

EXHIBIT VI
PLAN A: ANALYSIS OF CHANGE IN ASSETS

Actuarial Value of Assets (December 31, 2018)		$ 3,753,426,178
INCOME:		
Member Contributions	$ 57,299,760	
Employer Contributions	72,984,730	
Irregular Contributions	94,670	
Ad Valorem and Revenue Sharing Funds	8,092,294	
Transfer (to)/from Plan B	178,107	
Transfers from other Systems	1,116,560	
Other Income	1,085,394	
Total Contributions		$ 140,851,515
Net Appreciation in Fair Value of Investments	$ 577,007,139	
Interest & Dividends	70,860,250	
Class Action Settlement	61,072	
Investment Expense	(22,912,852)	
Net Investment Income		$ 625,015,609
TOTAL Income		$ 765,867,124
EXPENSES:		
Retirement Benefits	$ 182,519,287	
DROP Disbursements	17,015,026	
Refunds of Contributions	12,208,207	
Transfers to other Systems	1,801,163	
Administrative Expenses	1,495,334	
TOTAL Expenses		$ 215,039,017
Net Market Value Income for Fiscal 2019 (Income - Expenses)		$ 550,828,107
Unadjusted Fund Balance as of December 31, 2019 (Fund Balance Previous Year + Net Income)		$ 4,304,254,285
Adjustment for Actuarial Smoothing		$ (388,925,662)
Actuarial Value of Assets: (December 31, 2019)		$ 3,915,328,623

EXHIBIT VII
PLAN A: FUNDING DEPOSIT ACCOUNT

Funding Deposit Account Balance as of December 31, 2018	$	78,847,141
Interest on Opening Balance at 6.50%		5,125,064
Contributions to the Funding Deposit Account		0
Withdrawals from the Funding Deposit Account		0
Funding Deposit Account Balance as of December 31, 2019	$	83,972,205

EXHIBIT VIII – SCHEDULE A
PLAN A: PENSION BENEFIT OBLIGATION

Present Value of Credited Projected Benefits Payable to Current Employees	$ 1,902,938,211
Present Value of Benefits Payable to Terminated Employees	109,526,351
Present Value of Benefits Payable to Current Retirees and Beneficiaries	1,908,296,070
TOTAL PENSION BENEFIT OBLIGATION	$ 3,920,760,632
NET ACTUARIAL VALUE OF ASSETS	$ 3,915,328,623
Ratio of Net Actuarial Value of Assets to Pension Benefit Obligation	99.86%

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

Accrued Liability for Active Employees	$ 2,001,412,267
Accrued Liability for Terminated Employees	109,526,351
Accrued Liability for Current Retirees and Beneficiaries	1,908,296,070
TOTAL ENTRY AGE NORMAL ACCRUED LIABILITY	$ 4,019,234,688
NET ACTUARIAL VALUE OF ASSETS	$ 3,915,328,623
Ratio of Net Actuarial Value of Assets to Entry Age Normal Accrued Liability	97.41%

EXHIBIT IX
PLAN A: CENSUS DATA

	Active	Terminated with Funds on Deposit	DROP	Retired	Total
Number of members as of December 31, 2018	13,476	8,658	551	7,467	30,152
Additions to Census					
Initial membership	1,620	48			1,668
Death of another member			(1)	77	76
Omitted in error last year		1			1
Adjustment for multiple records	1	3			4
Change in Status during Year					
Actives terminating service	(504)	504			
Actives who retired	(228)			228	
Actives entering DROP	(201)		201		
Term. members rehired	63	(63)			
Term. members who retire		(59)		59	
Retirees who are rehired	1			(1)	
Refunded who are rehired	28	4			32
DROP participants retiring			(116)	116	
DROP returned to work	78		(78)		
Omitted in error last year					
Eliminated from Census					
Refund of contributions	(828)	(303)			(1,131)
Deaths	(21)	(8)		(293)	(322)
Included in error last year					
Adjustment for multiple records				(2)	(2)
Number of members as of December 31, 2019	13,485	8,785	557	7,651	30,478

PLAN A - ACTIVES CENSUS BY AGE:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
16 - 20	79	27	106	24,656	2,613,489
21 - 25	341	295	636	29,565	18,803,427
26 - 30	522	630	1,152	34,777	40,062,553
31 - 35	542	736	1,278	40,990	52,385,796
36 - 40	641	840	1,481	44,472	65,862,840
41 - 45	631	783	1,414	48,226	68,191,282
46 - 50	762	938	1,700	48,902	83,133,914
51 - 55	976	1,006	1,982	49,543	98,193,347
56 - 60	1,000	1,007	2,007	47,626	95,585,813
61 - 65	697	718	1,415	48,975	69,299,101
66 - 70	308	283	591	47,903	28,310,400
71 - 75	122	74	196	42,483	8,326,754
76 - 80	33	28	61	50,700	3,092,703
81 - 85	16	5	21	28,172	591,603
86 - 90	0	2	2	18,514	37,027
TOTAL	6,670	7,372	14,042	45,185	634,490,049

THE ACTIVE CENSUS INCLUDES 7,190 ACTIVES WITH VESTED BENEFITS, INCLUDING 557 DROP PARTICIPANTS AND 371 ACTIVE FORMER DROP PARTICIPANTS.

PLAN A - TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
26 - 30	1	1	2	9,102	18,204
31 - 35	9	15	24	10,510	252,236
36 - 40	23	45	68	13,127	892,611
41 - 45	41	50	91	17,116	1,557,545
46 - 50	44	91	135	19,455	2,626,371
51 - 55	68	113	181	19,440	3,518,658
56 - 60	78	127	205	18,000	3,689,985
61 - 65	44	34	78	10,303	803,650
66 - 70	13	6	19	10,640	202,154
71 - 75	5	3	8	4,876	39,004
76 - 80	3	2	5	4,086	20,430
81 - 85	0	1	1	1,713	1,713
86 - 90	0	1	1	581	581
TOTAL	329	489	818	16,654	13,623,142

PLAN A - TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

Contributions Ranging From		To	Number	Total Contributions
0	-	99	4,479*	121,815*
100	-	499	1,200	292,511
500	-	999	501	361,131
1000	-	1999	412	590,647
2000	-	4999	583	1,898,257
5000	-	9999	377	2,685,302
10000	-	19999	302	4,353,817
20000	-	99999	113	3,338,829
		TOTAL	7,967	13,642,309

* Includes 3,311 members due a refund who were not included in the data provided to the actuary because they are maintained external to the computer system.

PLAN A - REGULAR RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
46 - 50	3	1	4	41,645	166,580
51 - 55	38	24	62	55,497	3,440,794
56 - 60	247	181	428	48,331	20,685,454
61 - 65	539	566	1,105	34,259	37,855,913
66 - 70	832	759	1,591	26,422	42,036,942
71 - 75	699	576	1,275	23,531	30,001,776
76 - 80	470	427	897	19,983	17,924,810
81 - 85	310	266	576	17,514	10,087,798
86 - 90	145	169	314	15,149	4,756,891
91 - 99	65	95	160	12,677	2,028,359
TOTAL	3,348	3,064	6,412	26,355	168,985,317

PLAN A - DISABILITY RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
31 - 35	1	0	1	12,682	12,682
36 - 40	0	1	1	37,571	37,571
41 - 45	3	1	4	14,563	58,250
46 - 50	10	8	18	15,858	285,448
51 - 55	31	22	53	17,370	920,619
56 - 60	56	36	92	17,595	1,618,768
61 - 65	26	17	43	12,231	525,927
66 - 70	1	0	1	8,554	8,554
TOTAL	128	85	213	16,281	3,467,819

PLAN A - SURVIVORS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
0 - 25	6	12	18	14,013	252,230
26 - 30	1	4	5	18,809	94,046
31 - 35	0	1	1	7,266	7,266
36 - 40	2	3	5	6,435	32,176
41 - 45	2	3	5	18,120	90,602
46 - 50	1	7	8	10,877	87,013
51 - 55	2	23	25	19,379	484,479
56 - 60	11	37	48	17,535	841,656
61 - 65	14	66	80	18,603	1,488,279
66 - 70	18	120	138	16,141	2,227,415
71 - 75	14	146	160	13,072	2,091,595
76 - 80	22	182	204	12,358	2,520,957
81 - 85	10	145	155	11,337	1,757,213
86 - 90	5	98	103	9,084	935,680
91 - 99	2	69	71	8,530	605,643
TOTAL	110	916	1,026	13,174	13,516,250

PLAN A - ACTIVE MEMBERS:

Attained Ages	Completed Years of Service											
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 20	89	16	1									106
21 - 25	284	169	81	55	31	16						636
26 - 30	299	224	169	118	109	217	16					1,152
31 - 35	203	148	132	114	108	377	182	14				1,278
36 - 40	175	152	125	106	98	321	337	150	17			1,481
41 - 45	153	126	96	88	83	262	274	212	107	13		1,414
46 - 50	149	120	90	100	98	305	280	223	221	100	14	1,700
51 - 55	147	120	129	111	94	333	317	229	238	188	76	1,982
56 - 60	83	121	93	120	90	376	345	239	245	189	106	2,007
61 - 65	28	42	40	64	70	267	274	212	191	124	103	1,415
66 - 70	9	19	11	26	17	102	137	82	87	52	49	591
71 & Over	5	9	3	8	8	28	51	42	39	42	45	280
Totals	1,624	1,266	970	910	806	2,604	2,213	1,403	1,145	708	393	14,042

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	24,406	26,018	25,053									24,656
21 - 25	27,983	28,827	32,190	33,573	31,178	35,241						29,565
26 - 30	29,927	31,292	37,606	36,012	39,122	39,598	40,177					34,777
31 - 35	34,903	34,292	39,647	43,074	38,924	42,840	48,876	59,387				40,990
36 - 40	30,950	36,105	42,338	40,640	39,718	46,193	52,176	53,963	56,494			44,472
41 - 45	32,606	40,109	39,163	50,197	44,402	46,451	52,250	60,915	56,840	61,849		48,226
46 - 50	31,857	34,757	36,941	41,232	39,312	45,501	52,719	56,540	62,610	67,733	75,574	48,902
51 - 55	39,829	36,682	37,570	45,608	43,667	46,285	49,219	52,417	58,118	64,687	64,615	49,543
56 - 60	33,728	36,002	40,136	45,214	42,810	41,762	44,318	52,214	52,455	61,018	71,358	47,626
61 - 65	37,923	36,641	35,960	49,640	43,733	46,153	44,198	49,941	51,934	61,917	62,177	48,975
66 - 70	27,228	37,296	36,739	64,534	32,379	43,519	44,532	47,211	51,003	55,395	61,129	47,903
71 & Over	28,724	29,762	32,519	44,974	36,355	36,279	39,762	44,200	47,189	34,719	59,774	43,029
Average	31,656	34,249	38,265	43,470	40,602	44,192	48,500	53,632	55,685	61,140	65,196	45,185

PLAN A - TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Attained Ages	Years Until Retirement Eligibility: 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 25												0
26 - 30											2	2
31 - 35										5	19	24
36 - 40									25	36	7	68
41 - 45								50	32	9		91
46 - 50						3	85	41	6			135
51 - 55	4	1	2	1		116	51	6				181
56 - 60	30	36	31	23	31	49	5					205
61 - 65	33	6	12	8	10	9						78
66 - 70	17	2										19
71 - 75	8											8
76 - 80	5											5
81 - 85	1											1
86 - 90	1											1
Totals	99	45	45	32	41	177	141	97	63	50	28	818

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

Attained Ages	Years Until Retirement Eligibility: 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 25												0
26 - 30											9,102	9,102
31 - 35										13,640	9,686	10,510
36 - 40									16,530	10,891	12,469	13,127
41 - 45								19,838	13,502	14,841		17,116
46 - 50						24,060	23,291	11,823	14,953			19,455
51 - 55	46,865	33,988	32,304	52,418		21,655	11,871	10,468				19,440
56 - 60	20,935	18,968	22,424	18,081	19,627	12,248	11,900					18,000
61 - 65	12,485	7,146	7,413	9,723	9,798	9,337						10,303
66 - 70	10,726	9,907										10,640
71 - 75	4,875											4,875
76 - 80	4,086											4,086
81 - 85	1,713											1,713
86 - 90	581											581
Average	14,864	17,323	18,860	17,064	17,230	18,465	18,756	15,871	14,842	11,877	10,340	16,654

PLAN A - SERVICE RETIREES:

Attained Ages	Completed Years Since Retirement 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 50	1	2	1									4
51 - 55	23	8	12	10	4	5						62
56 - 60	77	47	69	50	45	131	9					428
61 - 65	132	134	137	141	110	309	110	23	4	3	2	1,105
66 - 70	104	120	145	143	131	605	227	69	21	18	8	1,591
71 - 75	22	33	36	52	76	472	394	133	33	21	3	1,275
76 - 80	7	5	16	18	16	140	270	297	90	28	10	897
81 - 85	3	5	3	10	8	45	79	157	167	69	30	576
86 - 90				2	1	14	22	40	87	107	41	314
91 & Over						1	3	12	15	42	87	160
Totals	369	354	419	426	391	1,722	1,114	731	417	288	181	6,412

PLAN A - AVERAGE ANNUAL BENEFITS PAYABLE TO SERVICE RETIREES:

Attained Ages	Completed Years Since Retirement 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 50	39,874	42,603	41,500									41,645
51 - 55	52,453	57,580	51,912	65,603	43,976	63,772						55,497
56 - 60	41,644	51,758	49,113	47,105	56,818	48,774	39,554					48,331
61 - 65	27,473	24,965	30,905	34,602	33,217	43,635	37,300	19,603	10,996	7,837	6,331	34,259
66 - 70	21,678	21,317	23,695	22,786	24,166	26,491	36,994	33,815	16,264	10,775	8,902	26,422
71 - 75	28,024	20,750	24,881	18,848	21,495	21,216	24,121	32,070	29,468	18,790	13,743	23,531
76 - 80	18,556	15,947	18,477	19,904	19,423	21,739	17,229	19,534	26,065	27,004	15,178	19,983
81 - 85	26,014	19,124	23,764	20,949	11,981	15,435	16,624	16,332	15,027	24,667	25,130	17,514
86 - 90				41,787	20,339	21,972	12,192	13,075	13,919	13,664	21,491	15,149
91 & Over						19,357	9,922	11,110	12,630	10,432	14,004	12,677
Average	30,239	27,520	30,992	30,000	29,700	29,209	25,694	21,986	18,258	17,258	17,294	26,355

PLAN A - DISABILITY RETIREES:

Attained Ages	Completed Years Since Retirement 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 30												0
31 - 35				1								1
36 - 40			1									1
41 - 45		1			1	2						4
46 - 50	2	1	4			5	4	2				18
51 - 55	4	4	2	6	8	16	6	7				53
56 - 60	4	6	11	6	9	21	15	10	6	4		92
61 - 65	3	5	3	2	2	9	5	4	4	4	2	43
66 - 70			1									1
71 & Over												0
Totals	13	17	22	15	20	53	30	23	10	8	2	213

PLAN A - AVERAGE ANNUAL BENEFITS PAYABLE TO DISABILITY RETIREES:

Attained Ages	Completed Years Since Retirement 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 30												0
31 - 35				12,682								12,682
36 - 40			37,571									37,571
41 - 45		16,336			15,195	13,360						14,563
46 - 50	11,931	12,431	23,981			13,461	16,251	10,462				15,858
51 - 55	16,677	16,695	23,396	17,983	20,977	18,219	17,924	9,369				17,370
56 - 60	16,737	23,323	22,954	15,824	15,910	20,126	17,364	15,762	8,873	6,824		17,595
61 - 65	17,149	15,193	14,943	8,836	14,327	14,337	11,151	12,821	7,926	6,760	6,272	12,231
66 - 70			8,554									8,554
71 & Over												0
Average	16,074	18,321	22,098	15,546	17,743	17,683	16,292	12,844	8,494	6,792	6,272	16,281

PLAN A - SURVIVING BENEFICIARIES OF FORMER MEMBERS:

Attained Ages	Completed Years Since Retirement											
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 20	2	2	1	1	2	8	2					18
21 - 25												0
26 - 30				1	1	1		1	1			5
31 - 35						1						1
36 - 40			1			1		1	1	1		5
41 - 45						1	3				1	5
46 - 50				1	1	3	2	1				8
51 - 55	1		1		2	5	7	8	1			25
56 - 60	2	1	2		3	16	16	3	4		1	48
61 - 65	1	5	4	10	7	19	18	7	8	1		80
66 - 70		2	4	5	5	43	37	21	15	5	1	138
71 - 75	1		1	2	3	28	60	33	25	5	2	160
76 - 80			1	1	4	11	47	71	42	18	9	204
81 - 85					1	9	18	33	38	32	24	155
86 - 90			1		1	1	7	10	19	36	28	103
91 & Over						2	2	1	6	13	47	71
Totals	7	10	16	21	30	149	219	190	160	111	113	1,026

PLAN A - AVERAGE ANNUAL BENEFITS PAYABLE TO SURVIVORS OF FORMER MEMBERS:

Attained Ages	Completed Years Since Retirement											
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 20	8,081	24,165	42,013	15,872	10,480	10,720	11,567					14,013
21 - 25												0
26 - 30				63,598	14,590	7,395		2,115	6,348			18,809
31 - 35						7,266						7,266
36 - 40			7,585			6,549		6,958	2,395	8,689		6,435
41 - 45						63,537	6,685				7,009	18,120
46 - 50				19,497	7,535	10,531	9,613	9,160				10,877
51 - 55	43,443		50,099		26,197	19,270	19,055	11,552	16,397			19,379
56 - 60	18,542	33,884	14,836		25,742	19,296	18,093	13,880	5,660		1,303	17,534
61 - 65	20,512	17,541	16,358	26,807	17,632	22,678	17,214	15,915	8,290	4,683		18,603
66 - 70		7,456	14,231	16,194	25,407	18,086	16,429	17,606	10,241	7,423	1,543	16,141
71 - 75	60,780		7,455	18,234	14,837	13,245	13,513	12,885	11,601	4,467	11,595	13,072
76 - 80			20,529	3,788	9,325	11,908	12,363	12,153	11,455	16,399	12,014	12,358
81 - 85					15,648	11,111	12,562	9,762	12,161	11,834	10,520	11,337
86 - 90			6,052		6,374	19,282	4,962	8,373	12,151	8,417	8,986	9,084
91 & Over						24,415	5,590	22,253	10,251	8,378	7,510	8,530
Average	25,426	18,483	17,860	23,251	17,567	16,683	14,004	12,366	11,208	10,438	8,834	13,174

EXHIBIT X
PLAN A: YEAR-TO-YEAR COMPARISON

	Fiscal 2019	Fiscal 2018	Fiscal 2017	Fiscal 2016
Number of Active Members	14,042	14,027	14,201	14,330
Number of Retirees & Survivors	7,651	7,467	7,301	7,050
Number of Terminated Due Deferred Benefits	818	813	709	703
Number Terminated Due Refunds	7,967	7,845	7,482	7,329
Active Lives Payroll	$ 634,490,049	$ 615,887,352	$ 605,199,478	$ 599,421,070
Retiree Benefits in Payment	$ 185,969,386	$ 177,804,484	$ 170,697,910	$ 157,140,568
Market Value of Assets	$ 4,091,788,575	$ 3,540,960,468	$ 3,829,020,281	$ 3,313,917,014
Entry Age Normal (EAN) Accrued Liability	$ 4,019,234,688	$ 3,908,729,734	$ 3,676,214,901	$ 3,446,813,538
Ratio of AVA to EAN Accrued Liability	97.41%	96.03%	99.49%	99.20%
Actuarial Value of Assets	$ 3,915,328,623	$ 3,753,426,178	$ 3,657,539,805	$ 3,419,149,648
Present Value of Future Employer Normal Cost	$ 717,931,079	$ 756,070,638	$ 604,529,232	$ 555,155,571
Present Value of Future Employee Contrib.	$ 480,272,531	$ 466,755,194	$ 437,372,887	$ 422,091,697
Funding Deposit Account Credit Balance	$ 83,972,205	$ 78,847,141	$ 66,910,393	$ 68,896,088
Frozen Unfunded Actuarial Accrued Liability	$ 0	$ 0	$ 0	$ 0
Present Value of Future Benefits	$ 5,029,560,028	$ 4,897,404,869	$ 4,632,531,531	$ 4,327,500,828

	Fiscal 2020	Fiscal 2019	Fiscal 2018	Fiscal 2017
Employee Contribution Rate	9.50%	9.50%	9.50%	9.50%
Projected Tax Contribution as % of Payroll	1.30%	1.24%	1.22%	1.22%
Actuarially Required Net Direct Employer Contribution Rate	11.11%	12.18%	9.99%	9.35%
Actual Employer Contribution Rate	12.25%	11.50%	11.50%	12.50%

Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011	Fiscal 2010
14,232	14,061	13,866	14,370	14,646	14,791
6,783	6,523	6,242	5,991	5,718	5,531
678	660	683	561	561	556
7,182	7,026	7,109	6,795	6,795	6,762
$ 577,600,460	$ 566,547,812	$ 543,669,542	$ 558,327,346	$ 552,543,155	$ 546,737,427
$ 146,994,479	$ 137,309,161	$ 124,299,785	$ 114,515,106	$ 104,683,495	$ 97,650,642
$ 3,124,593,132	$ 3,175,649,999	$ 3,043,479,814	$ 2,583,983,506	$ 2,230,462,425	$ 2,225,041,407
$ 3,316,128,533	$ 3,133,179,431	$ 2,984,143,643	$ 2,823,038,820	$ 2,682,634,009	$ 2,553,982,211
97.11%	96.80%	92.49%	86.73%	87.38%	88.46%
$ 3,220,157,028	$ 3,032,888,183	$ 2,760,148,403	$ 2,448,529,177	$ 2,344,047,017	$ 2,259,207,052
$ 592,955,250	$ 560,647,763	$ 651,806,943	$ 773,908,389	$ 724,810,561	$ 669,371,250
$ 405,879,187	$ 389,156,042	$ 370,352,485	$ 378,465,400	$ 373,626,178	$ 370,489,102
$ 49,644,401	$ 23,781,823	$ 4,918,053	$ 4,574,933	$ 29,274,204	$ 27,231,818
$ 0	$ 0	$ 0	$ 0	$ 36,903,336	$ 45,756,457
$ 4,169,347,064	$ 3,958,910,165	$ 3,777,389,778	$ 3,596,328,033	$ 3,450,112,888	$ 3,317,592,043

Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011
9.50%	9.50%	9.50%	9.50%	9.50%	9.50%
1.27%	1.28%	1.32%	1.16%	1.09%	1.05%
10.52%	10.40%	13.07%	15.56%	16.72%	15.58%
13.00%	14.50%	16.00%	16.75%	15.75%	15.75%

PLAN B - EXHIBITS

EXHIBIT XI
PLAN B: ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS

1.	Present Value of Future Benefits	$	452,234,523
2.	Funding Deposit Account Credit Balance	$	6,928,047
3.	Actuarial Value of Assets	$	345,786,489
4.	Present Value of Future Employee Contributions	$	27,007,067
5.	Present Value of Future Employer Normal Costs (1 + 2 – 3 – 4)	$	86,369,014
6.	Present Value of Future Salaries	$	969,460,580
7.	Employer Normal Cost Accrual Rate (5 ÷ 6)		8.908976%
8.	Projected Fiscal 2020 Salary for Current Membership	$	103,787,219
9.	Employer Normal Cost as of January 1, 2020 (7 × 8)	$	9,246,378
10.	Employer Normal Cost Interest Adjusted for Mid-year Payment	$	9,542,155
11.	Estimated Administrative Cost for Fiscal 2020	$	305,110
12.	TOTAL Administrative and Interest Adjusted Actuarial Costs (10 + 11)	$	9,847,265
13.	Estimated Ad Valorem Tax Contributions for Fiscal 2020	$	1,453,870
14.	Estimated Revenue Sharing Funds for Fiscal 2020	$	23,746
15.	Employers' Minimum Net Direct Actuarially Required Contribution for Fiscal 2020 (12 – 13 – 14)	$	8,369,649
16.	Projected Payroll for Fiscal 2020	$	113,184,019
17.	Employers' Minimum Net Direct Actuarially Required Contribution as a % of Projected Payroll for Fiscal 2020 (15 ÷ 16)		7.39%
18.	Actual Employer Contribution Rate for Fiscal 2020		7.50%
19.	Contribution Shortfall (Excess) as a Percentage of Payroll (17 – 18)		(0.11%)
20.	Increase (Reduction) to Following Year Payment for Contribution Shortfall (Excess)		(0.01%)
21.	Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2021 (17 + 20, Rounded to Nearest 0.25%)		7.50%

EXHIBIT XII
PLAN B: PRESENT VALUE OF FUTURE BENEFITS

PRESENT VALUE OF FUTURE BENEFITS FOR ACTIVE MEMBERS:

Retirement Benefits	$	281,249,645		
Survivor Benefits		5,638,133		
Disability Benefits		13,651,127		
Vested Termination Benefits		12,174,917		
Refunds of Contributions		4,031,618		
TOTAL Present Value of Future Benefits for Active Members			$	316,745,440

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement	$	10,795,902		
Terminated Members with Reciprocals Due Benefits at Retirement		147,507		
Terminated Members Due a Refund		1,136,408		
TOTAL Present Value of Future Benefits for Terminated Members			$	12,079,817

PRESENT VALUE OF FUTURE BENEFITS FOR PENSIONERS:

Regular Retirees by Option Selected:						
Maximum	$	52,720,005				
Option 1		243,212				
Option 2		43,841,149				
Option 3		10,987,998				
Option 4		1,540,527				
TOTAL Regular Retirees			$	109,332,891		
TOTAL Disability Retirees			$	3,218,217		
TOTAL Survivors & Widows			$	10,632,573		
Reserve for Accrued Retiree DROP Account Balances			$	225,585		
TOTAL Present Value of Future Benefits for Retirees & Survivors					$	123,409,266

TOTAL Present Value of Future Benefits	$	452,234,523

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

CURRENT ASSETS:				
Cash in Banks	$	2,291,589		
Contributions and Taxes Receivable		2,971,255		
Accrued Interest and Dividends		112,935		
Investments Receivable		24,284		
Due (to)/from other Funds		271,508		
Due (to)/from Plan A		(178,107)		
Other Current Assets		7,708		
TOTAL CURRENT ASSETS			$	5,501,172
Property Plant & Equipment			$	83,847
INVESTMENTS:				
Cash Equivalents	$	25,606,173		
Equities		180,954,864		
Fixed Income		107,483,106		
Real Estate		17,908,773		
Alternative Investments		24,776,830		
TOTAL INVESTMENTS			$	356,729,746
TOTAL ASSETS			$	362,314,765
CURRENT LIABILITIES:				
Retirements Payable	$	207,366		
Accounts Payable		1,140,596		
Investments Payable		55,055		
Refunds Payable		18,576		
TOTAL CURRENT LIABILITIES			$	1,421,593
MARKET VALUE OF ASSETS			$	360,893,172

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

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

Fiscal year 2019	$	34,442,464
Fiscal year 2018		(40,486,193)
Fiscal year 2017		28,697,360
Fiscal year 2016		1,827,421
Fiscal year 2015		(20,301,524)
Total for five years	$	4,179,528

Deferral of excess (shortfall) of invested income:

Fiscal year 2019 (80%)	$	27,553,971
Fiscal year 2018 (60%)		(24,291,716)
Fiscal year 2017 (40%)		11,478,944
Fiscal year 2016 (20%)		365,484
Fiscal year 2015 (0%)		0
Total deferred for year	$	15,106,683

Market value of plan net assets, end of year	$	360,893,172
Preliminary actuarial value of plan assets, end of year	$	345,786,489

Actuarial value of assets corridor

85% of market value, end of year	$	306,759,196
115% of market value, end of year	$	415,027,148

Final actuarial value of plan net assets, end of year	$	345,786,489

EXHIBIT XIV
PLAN B: PRESENT VALUE OF FUTURE CONTRIBUTIONS

Employee Contributions to the Annuity Savings Fund	$	27,007,067
Employer Normal Contributions to the Pension Accumulation Fund		86,369,014
Funding Deposit Account Debit / (Credit) Balance		(6,928,047)
TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS	$	106,448,034

EXHIBIT XV
PLAN B: RECONCILIATION OF CONTRIBUTIONS

Employer Normal Cost for Prior Year	$	8,890,489		
Interest on Normal Cost		577,882		
Administrative Expenses		257,297		
Interest on Expenses		8,231		
TOTAL Interest Adjusted Actuarially Required Employer Contributions			$	9,733,899
Direct Employer Contributions	$	8,331,425		
Interest on Employer Contributions		266,510		
Ad Valorem Taxes and Revenue Sharing Funds		1,394,483		
Interest on Taxes and Revenue Sharing Funds		44,607		
TOTAL Interest Adjusted Employer Contributions			$	10,037,025
CONTRIBUTION SURPLUS (DEFICIENCY)			$	303,126

EXHIBIT XVI
PLAN B: ANALYSIS OF CHANGE IN ASSETS

Actuarial Value of Assets (December 31, 2018)		$	326,300,632
INCOME:			
Member Contributions	$ 3,180,013		
Employer Contributions	8,331,425		
Irregular Contributions	3,683		
Ad Valorem Taxes and Revenue Sharing	1,394,483		
Transfers (to)/from Plan A	(178,107)		
Transfers from other Systems	66,135		
Other Income	18,929		
Total Contributions		$	12,816,561
Net Appreciation in Fair Value of Investments	$ 50,255,730		
Interest & Dividends	6,184,237		
Class Action Settlement	5,368		
Investment Expense	(2,037,888)		
Net Investment Income		$	54,407,447
TOTAL Income		$	67,224,008
EXPENSES:			
Retirement Benefits	$ 11,698,412		
DROP Disbursements	1,419,208		
Refunds of Contributions	556,488		
Transfers to other Systems	200,188		
Administrative Expenses	257,297		
TOTAL Expenses		$	14,131,593
Net Market Value Income for Fiscal 2019 (Income - Expenses)		$	$53,092,415
Unadjusted Fund Balance as of December 31, 2019 (Fund Balance Previous Year + Net Income)		$	379,393,047
Adjustment for Actuarial Smoothing		$	(33,606,558)
Actuarial Value of Assets (December 31, 2019)		$	345,786,489

EXHIBIT XVII
PLAN B: FUNDING DEPOSIT ACCOUNT

Funding Deposit Account Balance as of December 31, 2018	$	6,220,583
Interest on Opening Balance at 6.50%		404,338
Contributions to the Funding Deposit Account		303,126
Withdrawals from the Funding Deposit Account		0
Funding Deposit Account Balance as of December 31, 2019	$	6,928,047

EXHIBIT XVIII – SCHEDULE A
PLAN B: PENSION BENEFIT OBLIGATION

Present Value of Credited Projected Benefits Payable to Current Employees	$	191,779,992
Present Value of Benefits Payable to Terminated Employees		12,079,817
Present Value of Benefits Payable to Current Retirees and Beneficiaries		123,409,266
TOTAL PENSION BENEFIT OBLIGATION	$	327,269,075
NET ACTUARIAL VALUE OF ASSETS	$	345,786,489
Ratio of Net Actuarial Value of Assets to Pension Benefit Obligation		105.66%

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

Accrued Liability for Active Employees	$	212,600,620
Accrued Liability for Terminated Employees		12,079,817
Accrued Liability for Current Retirees and Beneficiaries		123,409,266
TOTAL ENTRY AGE NORMAL ACCRUED LIABILITY	$	348,089,703
NET ACTUARIAL VALUE OF ASSETS	$	345,786,489
Ratio of Net Actuarial Value of Assets to Entry Age Normal Accrued Liability		99.34%

EXHIBIT XIX
PLAN B: CENSUS DATA

	Active	Terminated with Funds on Deposit	DROP	Retired	Total
Number of members as of December 31, 2018	2,338	1,862	91	896	5,187
Additions to Census					
Initial membership	321	7			328
Death of Another Member				10	10
Omitted in error last year				2	2
Adjustment for multiple records					
Change in Status during Year					
Actives terminating service	(121)	121			
Actives who retired	(36)			36	
Actives entering DROP	(24)		24		
Term. members rehired	13	(13)			
Term. members who retire		(12)		12	
Retirees who are rehired					
Refunded who are rehired	3	1			4
DROP participants retiring			(19)	19	
DROP returned to work	16		(16)		
Omitted in error last year					
Eliminated from Census					
Refund of contributions	(126)	(45)			(171)
Deaths	(2)			(32)	(34)
Included in error last year				(1)	(1)
Adjustment for multiple records					
Number of members as of December 31, 2019	2,382	1,921	80	942	5,325

PLAN B - ACTIVES CENSUS BY AGE:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
16 - 20	13	5	18	26,362	474,513
21 - 25	62	50	112	30,067	3,367,462
26 - 30	84	118	202	35,494	7,169,745
31 - 35	80	134	214	40,050	8,570,615
36 - 40	114	156	270	44,989	12,147,158
41 - 45	91	142	233	47,285	11,017,487
46 - 50	133	148	281	47,092	13,232,924
51 - 55	155	186	341	47,492	16,194,835
56 - 60	206	167	373	48,480	18,082,950
61 - 65	149	115	264	50,601	13,358,737
66 - 70	56	39	95	50,615	4,808,418
71 - 75	38	11	49	52,646	2,579,655
76 - 80	6	3	9	57,974	521,766
81 - 85	1	0	1	42,688	42,688
TOTAL	1,188	1,274	2,462	45,316	111,568,953

THE ACTIVE CENSUS INCLUDES 1,207 ACTIVES WITH VESTED BENEFITS, INCLUDING 80 DROP PARTICIPANTS AND 58 ACTIVE FORMER DROP PARTICIPANTS.

PLAN B - TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
26 - 30	1	0	1	4,563	4,563
31 - 35	4	2	6	6,312	37,872
36 - 40	10	9	19	8,442	160,399
41 - 45	3	9	12	7,984	95,813
46 - 50	7	14	21	13,104	275,193
51 - 55	6	21	27	14,068	379,836
56 - 60	20	19	39	10,682	416,615
61 - 65	11	9	20	7,377	147,549
66 - 70	3	3	6	6,687	40,124
81 - 85	0	1	1	499	499
TOTAL	65	87	152	10,253	1,558,463

PLAN B - TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

Contributions Ranging From		To	Number	Total Contributions
0	-	99	1,071*	27,161 *
100	-	499	311	77,843
500	-	999	123	88,621
1000	-	1999	96	141,639
2000	-	4999	114	358,331
5000	-	9999	42	279,010
10000	-	19999	12	163,803
	TOTAL		1,769	1,136,408

* Includes 718 members due a refund who were not included in the data provided to the actuary because they are maintained external to the computer system.

PLAN B - REGULAR RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
51 - 55	2	1	3	25,298	75,893
56 - 60	13	9	22	26,347	579,625
61 - 65	59	68	127	18,493	2,348,578
66 - 70	112	102	214	14,697	3,145,090
71 - 75	98	77	175	12,161	2,128,252
76 - 80	66	53	119	11,179	1,330,334
81 - 85	38	32	70	9,414	658,979
86 - 90	7	27	34	10,266	349,050
91 - 99	2	14	16	8,077	129,229
TOTAL	397	383	780	13,776	10,745,030

PLAN B - DISABILITY RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
36 - 40	1	0	1	7,401	7,401
41 - 45	2	1	3	8,179	24,537
46 - 50	1	1	2	11,170	22,339
51 - 55	4	1	5	10,784	53,920
56 - 60	4	4	8	11,182	89,455
61 - 65	1	6	7	8,350	58,452
76 - 80	0	1	1	20,976	20,976
TOTAL	13	14	27	10,262	277,080

PLAN B - SURVIVORS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
36 - 40	0	1	1	3,490	3,490
41 - 45	1	1	2	7,271	14,541
51 - 55	1	1	2	8,754	17,507
56 - 60	0	8	8	9,791	78,330
61 - 65	1	16	17	10,011	170,181
66 - 70	3	17	20	8,715	174,307
71 - 75	2	23	25	10,966	274,150
76 - 80	0	33	33	8,767	289,306
81 - 85	1	17	18	6,031	108,563
86 - 90	0	4	4	3,829	15,315
91 - 99	1	4	5	3,173	15,867
TOTAL	10	125	135	8,604	1,161,557

PLAN B - ACTIVE MEMBERS:

Attained Ages	Completed Years of Service: 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 20	11	6	1									18
21 - 25	41	34	21	7	5	4						112
26 - 30	52	39	35	23	26	26	1					202
31 - 35	44	29	27	13	17	62	21	1				214
36 - 40	34	31	23	19	17	66	56	23	1			270
41 - 45	34	20	27	8	9	47	46	28	14			233
46 - 50	30	20	21	18	8	51	44	39	31	17	2	281
51 - 55	28	22	20	10	22	63	61	36	45	21	13	341
56 - 60	22	20	22	19	24	61	61	44	36	24	40	373
61 - 65	15	5	5	9	17	61	50	35	31	18	18	264
66 - 70	2	2	5	2	6	23	13	21	8	7	6	95
71 & Over	3		1	2	2	7	14	10	3	6	11	59
Totals	316	228	208	130	153	471	367	237	169	93	90	2,462

PLAN B - AVERAGE ANNUAL SALARY OF ACTIVE MEMBERS:

Attained Ages	Completed Years of Service: 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Salary
0 - 20	26,595	25,669	27,957									26,362
21 - 25	27,574	30,185	31,709	35,374	32,932	33,118						30,067
26 - 30	31,860	32,725	33,159	40,452	39,060	41,692	46,244					35,494
31 - 35	33,003	37,817	43,276	37,164	47,319	42,984	40,526	49,722				40,050
36 - 40	36,278	38,365	43,948	49,283	39,530	49,087	47,171	51,448	40,578			44,989
41 - 45	33,587	45,881	43,707	31,659	46,874	55,641	52,355	50,695	47,124			47,285
46 - 50	40,393	46,247	38,990	45,391	43,868	43,092	55,153	45,581	52,227	57,454	55,808	47,092
51 - 55	30,899	47,997	34,493	50,071	42,686	49,519	48,976	49,477	56,649	50,004	50,491	47,492
56 - 60	32,086	35,148	40,122	50,297	43,765	43,947	49,822	50,466	50,342	60,120	64,747	48,480
61 - 65	33,033	39,248	39,222	47,359	42,652	46,366	57,710	49,335	52,444	64,364	60,817	50,601
66 - 70	42,884	39,001	36,329	120,195	39,467	44,900	58,835	43,923	67,864	51,237	60,718	50,615
71 & Over	28,287		31,507	40,985	45,522	56,258	63,446	49,580	53,026	58,679	51,430	53,290
Average	32,773	37,799	38,530	45,175	42,300	46,687	51,605	48,847	53,305	57,408	59,807	45,316

PLAN B - TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Attained Ages	Years Until Retirement Eligibility 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 25												0
26 - 30											1	1
31 - 35										2	4	6
36 - 40									4	13	2	19
41 - 45								8	3	1		12
46 - 50							11	8	2			21
51 - 55	1					21	4	1				27
56 - 60	5	5	6	4	10	9						39
61 - 65	11		5	1	1	2						20
66 - 70	5	1										6
71 - 75												0
76 - 80												0
81 - 85	1											1
86 & Over												0
Totals	23	6	11	5	11	32	15	17	9	16	7	152

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

Attained Ages	Years Until Retirement Eligibility 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 25												0
26 - 30											4,563	4,563
31 - 35										7,993	5,472	6,312
36 - 40									12,236	7,465	7,205	8,442
41 - 45								8,079	8,840	4,660		7,984
46 - 50							12,759	14,556	9,199			13,104
51 - 55	57,248					13,871	5,033	11,163				14,068
56 - 60	10,363	7,207	13,178	10,185	14,099	7,552						10,682
61 - 65	7,622		6,227	6,540	9,985	8,021						7,377
66 - 70	7,119	4,527										6,687
71 - 75												0
76 - 80												0
81 - 85	499											499
86 & Over												0
Average	9,957	6,761	10,018	9,456	13,725	11,728	10,698	11,309	10,429	7,356	5,837	10,253

PLAN B - SERVICE RETIREES:

Attained Ages	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
	Completed Years Since Retirement											
0 - 50												0
51 - 55	3											3
56 - 60	11	4	1	1	4	1						22
61 - 65	21	23	24	25	7	17	5	3	1	1		127
66 - 70	22	32	28	20	28	62	16	4	2			214
71 - 75	3	4	8	9	16	74	48	9	2	1	1	175
76 - 80	1	2	7	1	3	22	35	43	4	1		119
81 - 85	1	1		2	1	6	12	27	18	2		70
86 - 90							1	5	13	12	3	34
91 & Over								2		5	9	16
Totals	62	66	68	58	59	182	117	93	40	22	13	780

PLAN B - AVERAGE ANNUAL BENEFITS PAYABLE TO SERVICE RETIREES:

Attained Ages	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
	Completed Years Since Retirement											
0 - 50												0
51 - 55	25,298											25,298
56 - 60	27,351	29,231	16,618	17,131	27,330	18,769						26,347
61 - 65	15,710	16,340	19,424	23,492	21,658	21,083	10,298	5,506	5,064	6,270		18,493
66 - 70	13,699	12,478	16,451	15,984	15,728	14,084	18,534	11,515	3,978			14,697
71 - 75	8,961	7,156	9,548	14,386	11,969	12,404	12,077	16,777	5,834	11,416	3,751	12,161
76 - 80	18,988	12,151	17,847	6,737	11,800	10,133	10,341	10,356	21,536	3,678		11,179
81 - 85	6,179	6,018		18,257	9,362	13,777	8,984	9,043	9,170	606		9,414
86 - 90							6,008	8,839	9,170	11,960	12,040	10,266
91 & Over								7,185		9,261	7,617	8,077
Average	17,098	14,409	16,834	18,911	15,891	13,593	11,995	10,340	9,878	9,654	8,341	13,776

PLAN B - DISABILITY RETIREES:

Attained Ages	Completed Years Since Retirement											
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 35												0
36 - 40	1											1
41 - 45	2							1				3
46 - 50				1		1						2
51 - 55		1		1		1	2					5
56 - 60	1				1	5		1				8
61 - 65		1				6						7
66 - 70												0
71 - 75												0
76 - 80							1					1
81 & Over												0
Totals	4	2	0	2	1	13	3	2	0	0	0	27

PLAN B - AVERAGE ANNUAL BENEFITS PAYABLE TO DISABILITY RETIREES:

Attained Ages	Completed Years Since Retirement											
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 35												0
36 - 40	7,401											7,401
41 - 45	9,622							5,293				8,179
46 - 50				12,642		9,697						11,170
51 - 55		15,080		19,346		7,188	6,153					10,784
56 - 60	10,826				8,507	12,958		5,335				11,182
61 - 65		5,883				8,762						8,350
66 - 70												0
71 - 75												0
76 - 80							20,976					20,976
81 & Over												0
Average	9,368	10,482	0	15,994	8,507	10,326	11,094	5,314	0	0	0	10,262

PLAN B - SURVIVING BENEFICIARIES OF FORMER MEMBERS:

Attained Ages	Completed Years Since Retirement											
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 35												0
36 - 40									1			1
41 - 45							1	1				2
46 - 50												0
51 - 55				1		1						2
56 - 60			2			3	2	1				8
61 - 65			1			5	7	2	1	1		17
66 - 70		1	1			6	3	5	4			20
71 - 75			1	2	1	5	8	6	2			25
76 - 80				1	1	3	11	8	8	1		33
81 - 85							3	5	4	5	1	18
86 - 90								1		1	2	4
91 & Over											5	5
Totals	0	1	5	4	2	23	35	29	20	8	8	135

PLAN B - AVERAGE ANNUAL BENEFITS PAYABLE TO SURVIVORS OF FORMER MEMBERS:

Attained Ages	Completed Years Since Retirement											
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 35												0
36 - 40									3,490			3,490
41 - 45							12,078	2,463				7,271
46 - 50												0
51 - 55				11,208		6,299						8,753
56 - 60			8,392			13,356	7,064	7,350				9,791
61 - 65			20,047			8,330	10,173	13,217	3,284	7,556		10,011
66 - 70		13,418	18,627			8,061	6,318	11,313	4,595			8,715
71 - 75			9,411	5,239	12,725	8,504	12,029	14,738	7,177			10,966
76 - 80				10,446	6,321	8,684	8,970	11,637	6,589	2,009		8,767
81 - 85							8,457	4,700	7,041	5,967	1,694	6,031
86 - 90								3,908		1,595	4,906	3,829
91 & Over											3,173	3,173
Average	0	13,418	12,974	8,033	9,523	8,911	9,619	10,405	6,019	5,124	3,422	8,604

EXHIBIT XX
PLAN B: YEAR-TO-YEAR COMPARISON

	Fiscal 2019	Fiscal 2018	Fiscal 2017	Fiscal 2016
Number of Active Members	2,462	2,429	2,459	2,415
Number of Retirees & Survivors	942	896	855	792
Number of Terminated Due Deferred Benefits	152	154	142	138
Number Terminated Due Refunds	1,769	1,708	1,637	1,608
Active Lives Payroll	$ 111,568,953	$ 105,914,905	$ 103,056,369	$ 100,932,377
Retiree Benefits in Payment	$ 12,183,667	$ 11,243,992	$ 10,430,299	$ 9,070,674
Market Value of Assets	$ 360,893,172	$ 307,800,757	$ 325,626,878	$ 275,756,021
Entry Age Normal (EAN) Accrued Liability	$ 348,089,703	$ 329,243,218	$ 307,480,656	$ 283,598,901
Ratio of AVA to EAN Accrued Liability	99.34%	99.11%	101.09%	100.38%
Actuarial Value of Assets	$ 345,786,489	$ 326,300,632	$ 310,818,392	$ 284,685,809
Present Value of Future Employer Normal Cost	$ 86,369,014	$ 83,679,498	$ 76,666,027	$ 71,874,582
Present Value of Future Employee Contrib.	$ 27,007,067	$ 25,843,520	$ 24,893,108	$ 24,084,343
Funding Deposit Account Credit Balance	$ 6,928,047	$ 6,220,583	$ 5,361,971	$ 5,602,259
Present Value of Future Benefits	$ 452,234,523	$ 429,603,067	$ 407,015,556	$ 375,042,475

	Fiscal 2020	Fiscal 2019	Fiscal 2018	Fiscal 2017
Employee Contribution Rate	3.00%	3.00%	3.00%	3.00%
Projected Tax Contribution as % of Payroll	1.31%	1.24%	1.22%	1.21%
Actuarially Required Net Direct Employer Contribution Rate	7.39%	7.53%	7.01%	6.75%
Actual Employer Contribution Rate	7.50%	7.50%	7.50%	8.00%

Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011	Fiscal 2010
2,413	2,321	2,288	2,298	2,303	2,313
747	714	688	657	611	576
139	135	135	132	129	125
1,554	1,531	1,550	1,504	1,471	1,430
$ 98,127,898	$ 91,698,297	$ 89,168,260	$ 86,882,261	$ 84,237,202	$ 81,999,193
$ 8,150,177	$ 7,448,991	$ 6,779,114	$ 6,334,153	$ 5,746,033	$ 5,349,314
$ 255,103,397	$ 253,501,744	$ 237,412,166	$ 196,577,145	$ 165,603,549	$ 161,776,161
$ 267,985,810	$ 249,207,071	$ 233,321,224	$ 212,489,491	$ 198,962,892	$ 186,118,552
98.46%	97.50%	92.60%	87.62%	87.13%	87.62%
$ 263,849,591	$ 242,977,968	$ 216,066,754	$ 186,172,779	$ 173,354,490	$ 163,075,793
$ 74,851,929	$ 61,503,111	$ 71,374,679	$ 74,251,290	$ 71,951,379	$ 67,556,191
$ 23,527,632	$ 19,608,454	$ 19,192,399	$ 18,544,210	$ 18,084,026	$ 17,527,008
$ 4,622,489	$ 2,281,164	$ 2,126,959	$ 1,559,909	$ 1,012,867	$ 334,656
$ 357,606,663	$ 321,808,369	$ 304,506,873	$ 277,408,370	$ 262,377,028	$ 247,824,336

Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011
3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
1.26%	1.36%	1.21%	1.14%	1.09%	1.05%
7.20%	6.91%	8.60%	9.33%	9.31%	9.07%
8.00%	9.00%	9.25%	10.00%	10.00%	10.00%

SUMMARY OF PRINCIPAL PLAN PROVISIONS

All members of the Parochial Employees' Retirement System are participants in either Plan A or Plan 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.

PLAN A PROVISIONS:

CONTRIBUTION RATES – The Plan A fund is financed by employee contributions at a rate determined by the Board subject to the statutory range of 8% through 11% of each member's earnings and employer contributions as determined by the Public Retirement Systems' Actuarial Committee. 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 East Baton Rouge Parish, and remits the money to the system on an annual basis. The system also receives revenue sharing funds each year as appropriated by the legislature. In any fiscal year in which employer contribution rate as actuarially determined is scheduled to decrease, the Board of Trustees may elect to maintain the existing rate or any rate between the existing and minimum rates.

RETIREMENT BENEFITS – Members hired on or before December 31, 2006, with seven years of creditable service may retire at age sixty-five; ten years of creditable service may retire at age sixty; members with twenty-five years of service may retire at age fifty-five; members with thirty years of service may retire regardless of age. Members hired on or after January 1, 2007, with seven years of creditable service may retire at age sixty-seven; ten years of creditable service may retire at age sixty-two; members with thirty years of service may retire at age fifty-five. The retirement allowance is equal to three percent of the member's final compensation multiplied by his years of creditable service; however, any employee who was a member of the supplemental plan only prior to the revision date has the benefit earned for service credited prior to the revision date on the basis of one percent of final compensation plus two dollars per month for each year of service credited prior to the revision date, and three percent of final compensation for each year of service credited after the revision date. All accumulated annual leave for which payment cannot be made in accordance with law and all unused sick leave accumulated at the time of retirement is included in the member's creditable service for retirement computation purposes. The retirement allowance may not exceed the greater of one hundred percent of member's final salary or final compensation. Final compensation for members hired before January 1, 2007 refers to the highest 36 months of consecutive or joined service; final compensation for members hired after December 31, 2006 refers to the highest 60 months of consecutive or joined service.

DISABILITY BENEFITS – Five years of creditable service are required in order to be eligible for disability benefits for members hired on or before December 31, 2006. Seven years of creditable service are required in order to be eligible for disability benefits for members hired on or after January 1, 2007. Disabled members receive a normal retirement allowance if eligible. Otherwise, the member receives the lesser of three percent of compensation multiplied by his years of service, not to be less than fifteen years, or the accrual percentage as defined for retirement benefits multiplied by final compensation multiplied by years of service assuming continued service to age sixty for members hired on or before December 31, 2006 or age sixty-two for members hired on or after January 1, 2007.

SURVIVOR BENEFITS – Five years of creditable service is required in order to be eligible for survivor benefits. If a member is eligible for normal retirement at the time of death, the surviving spouse receives an automatic option 2 benefit. If the member was not eligible for a normal retirement, the surviving unmarried spouse with minor children receives sixty percent of final compensation. If the member was not eligible for a normal retirement, the surviving unmarried spouse with no minor children receives forty percent of final compensation payable upon the attainment of age sixty by the spouse, or upon becoming disabled. Minor children with no unmarried spouse receive thirty percent of final compensation each, not to exceed a total of sixty percent of final compensation.

CONTRIBUTION REFUNDS – Upon withdrawal from service, members not entitled to a retirement allowance are paid a refund of accumulated contributions upon request. Receipt of such a refund cancels all accrued rights in the system. If a member receives a refund of contributions and is subsequently rehired on or after January 1, 2007, the provisions applicable to members initially hired on or after January 1, 2007 will apply.

PLAN B PROVISIONS:

CONTRIBUTION RATES – The Plan B fund is financed by employee contributions at a rate determined by the Board subject to the statutory range of 3% through 5% of each member's earnings and employer contributions as determined by the Public Retirement Systems' Actuarial Committee. 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 East Baton Rouge Parish, and remits the money to the system on an annual basis. The system also receives revenue sharing funds each year as appropriated by the legislature. In any fiscal year in which the employer contribution rate as actuarially determined is scheduled to decrease, the Board of Trustees may elect to maintain the existing rate or any rate between the existing and minimum rates.

RETIREMENT BENEFITS: – Members hired on or before December 31, 2006, with seven years of creditable service may retire at age sixty-five; ten years of creditable service may retire at age sixty; members with thirty years of service may retire at age fifty-five. Members hired on or after January 1, 2007, with seven years of creditable service may retire at age sixty-seven; ten years of creditable service may retire at age sixty-two; members with thirty years of service may retire at age fifty-five. The retirement allowance is equal to two percent of the member's final compensation multiplied by the years of creditable service. All accumulated annual leave for which payment cannot be made in accordance with law and all unused sick leave accumulated at the time of retirement is included in the member's creditable service for retirement computation purposes. Final compensation for members hired before January 1, 2007 refers to the highest 36 months of consecutive or joined service; final compensation for members hired after December 31, 2006 refers to the highest 60 months of consecutive or joined service.

DISABILITY BENEFITS – Five years of creditable service is required in order to be eligible for disability benefits for members hired on or before December 31, 2006. Seven years of creditable service is required in order to be eligible for disability benefits for members hired on or after January 1, 2007. Disabled members receive a normal retirement allowance, if eligible. Otherwise, the member receives the lesser of two percent of compensation multiplied by the years of service, not to be less than fifteen years, or two percent of final compensation multiplied by the years of service assuming continued service to age sixty for members hired on or before December 31, 2006 or age sixty-two for members hired on or after January 1, 2007.

SURVIVOR BENEFITS – The surviving spouse of a member who was eligible for normal retirement at the time of death receives an automatic option 2 benefit. The surviving spouse of a member with ten or more years of creditable service and not eligible for normal retirement at the time of death receives an option 2 benefit payable at attainment of age fifty by the spouse.

CONTRIBUTION REFUNDS – Upon withdrawal from service, members not entitled to a retirement allowance are paid a refund of accumulated contributions upon request. Receipt of such a refund cancels all accrued rights in the system. If a member receives a refund of contributions and is subsequently rehired on or after January 1, 2007, the provisions applicable to members initially hired on or after January 1, 2007 will apply.

PROVISIONS APPLICABLE TO BOTH PLAN A AND B:

OPTIONAL ALLOWANCES – Upon application for retirement any member may elect to receive their benefit in a retirement allowance payable throughout their life, or he may elect at that time to receive the actuarial equivalent of their retirement allowance in a reduced retirement allowance payable throughout life. A retiree cannot change the designation of beneficiary.

> **Option 2 –** Upon retirement, the member receives a reduced benefit. Upon the member’s death, the surviving spouse will continue to receive the same reduced benefit.
>
> **Option 3 –** Upon retirement, the member receives a reduced benefit. Upon the member’s death, the surviving spouse will receive one-half of the member’s reduced benefit.
>
> **Option 4 –** Upon retirement, the member may elect to receive a Board-approved benefit that is actuarially equivalent to the maximum benefit.

DEFERRED RETIREMENT OPTION PLAN:
In lieu of terminating employment and accepting a service retirement allowance, any member of Plan A or Plan 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. In terms of DROP eligibility, any member whose service, when combined with service in any other state or statewide public retirement system exceeds thirty years will be eligible to include reciprocally recognized service credit. Upon commencement of 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 fund. This fund does earn interest once the member terminates participation in DROP but continues their employment. The interest rate is based upon the rate of return of a short-term U.S. Treasury security, a group of short-term U.S. Treasury Securities, or an index of short-term U.S. Treasury securities to be selected by the board of trustees. This interest is to be credited to the individual’s account balance on an annual basis. Additionally, no cost-of-living increases are payable to the participants until employment which made them eligible to become members of the system has been terminated for at least one full year.

Upon termination of employment prior to, or at the end of, the specified period of participation, a participant in the plan may receive, at his option, a lump sum from the account equal to the payments into the account, a true annuity based upon his account balance in that fund, or any other method of payment if approved by the board of trustees. The monthly benefits that were being paid into the Deferred Retirement Option Plan fund will begin to be paid to the retiree. If a participant dies during the participation in the plan, a lump sum equal to his account balance in the plan fund shall be paid to his named beneficiary or, if none, to his estate. If employment is not terminated at the end of the three years, payments into the plan fund cease and the person resumes active contributing membership in the system. 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 those individuals hired on or before December 31, 2006; or at least sixty months for those individuals hired on or after January 1, 2007.

COST OF LIVING INCREASES – Under R.S. 11:246, 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). Under R.S. 11:1937, 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 up to two and one-half percent of the member's current benefit to those age sixty-two and over. 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 other cost of living increases the Board may grant an increase to retirees in the form "X×(A&B)" where "A" is equal to the number of years of credited service accrued as retirement or death of the member or retiree and "B" is equal to the number of years since death of the member or retiree to June 30 of the initial year of increase and "X" is equal to any amount available for funding such increase up to a maximum of $1.00.

ACTUARIAL ASSUMPTIONS

In determining actuarial costs, certain assumptions must be made regarding future experience under the plan. These assumptions include the rate of investment return, mortality of plan members, rates of salary increase, rates of retirement, rates of termination, rates of disability, and various other factors that have an impact on the cost of the plan. To the extent that future experience varies from the assumptions selected for valuation, future costs will be either higher or lower than anticipated. The following chart illustrates the effect of emerging experience on the plan.

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

The following assumptions apply to both Plan A and Plan B unless stated otherwise.

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

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

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

VALUATION INTEREST RATE: 6.50%

ANNUAL SALARY INCREASE RATE: 4.75% (2.35% Merit / 2.40% Inflation) for Plan A
4.25% (1.85% Merit / 2.40% Inflation) for Plan B

ACTIVE MEMBER MORTALITY: Pub-2010 Public Retirement Plans Mortality Table for General Employees multiplied by 130% for males and 125% for females, each with full generational projection using the MP2018 scale.

ANNUITANT AND BENEFICIARY MORTALITY

Pub-2010 Public Retirement Plans Mortality Table for General Healthy Retirees multiplied by 130% for males and 125% for females, each with full generational projection using the MP2018 scale

DISABLED LIVES MORTALITY:

Pub-2010 Public Retirement Plans Mortality Table for General Disabled Retirees multiplied by 130% for males and 125% for females, each with full generational projection using the MP2018 scale

RETIREE COST OF LIVING INCREASE:

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

RATES OF RETIREMENT:

The table of these rates is included later in the report. All eligible persons age 85 and over in both plans are assumed to retire immediately. These rates apply only to those individuals eligible to retire.

RATES OF WITHDRAWAL:

The rates of withdrawal are applied based upon completed years of service:

PLAN A:

Service Duration ≤	Factor	Service Duration ≤	Factor
1	0.21	17	0.02
2	0.18	18	0.02
3	0.16	19	0.02
4	0.13	20	0.02
5	0.11	21	0.01
6	0.09	22	0.01
7	0.08	23	0.01
8	0.07	24	0.02
9	0.06	25	0.02
10	0.05	26	0.02
11	0.04	27	0.01
12	0.04	28	0.01
13	0.04	29	0.01
14	0.03	30	0.01
15	0.03	>30	0.01
16	0.03		

PLAN B

Service Duration ≤	Factor	Service Duration ≤	Factor
1	0.21	17	0.02
2	0.18	18	0.02
3	0.15	19	0.01
4	0.13	20	0.01
5	0.10	21	0.01
6	0.08	22	0.01
7	0.07	23	0.01
8	0.06	24	0.01
9	0.05	25	0.02
10	0.05	26	0.02
11	0.04	27	0.02
12	0.04	28	0.02
13	0.04	29	0.01
14	0.03	30	0.01
15	0.03	>30	0.01
16	0.02		

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

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

FAMILY STATISTICS: Assumptions used in determining the cost of various survivor benefits are listed below:

Age at Death	% with Children	# of Children	Average Age
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

VESTING ELECTING PERCENTAGE: The percent of those who are vested at termination and elect deferred benefits in lieu of contribution refunds are as follows:

Plan A:	Under Age 40:	30%
	Age 40 – 49:	45%
	Above Age 49:	60%
Plan B:	Under Age 40:	45%
	Age 40 – 49:	45%
	Above Age 49:	55%

SICK AND ANNUAL LEAVE: (Tier 1 members)	Retirees were assumed to convert 1.44 months for Plan A and 0.6 months for Plan B of sick and annual leave to retirement credit for each ten years of service credit.
RATES OF DROP ENTRY:	The table of these rates is included later in the report. These rates apply only to those individuals eligible to enter the DROP plan.
DROP PARTICIPATION:	All members who enter the DROP plan are assumed to participate for the full 3 year period and 50% are assumed to retire at the end of DROP participation with 50% assumed to work 2 years post DROP and then retire.
DISABILITY RATES:	40% of the disability rates used for the 21st valuation of the Railroad Retirement System for individuals with 10-19 years of service for Plan A. 40% of the disability rates used for the 21st valuation of the Railroad Retirement System for individuals with 10-19 years of service for Plan B. A table of the base rates is included later in the report.
RETIREMENT RATES FOR ACTIVE FORMER DROP PARTICIPANTS:	The table of these rates is included later in the report. All eligible persons age 85 and over in both plans are assumed to retire immediately. These rates only apply to members who return to work after completing the DROP plan and then subsequently retire.

ACTUARIAL TABLES AND RATES – PLAN A

Age	Remarriage Rates	Tier 1 Retirement Rates	Tier 2 Retirement Rates	Tier 1 DROP Entry Rates	Tier 2 DROP Entry Rates	Post-DROP Retirement Rates	Disability Rates
18	0.06124	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
19	0.06124	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
20	0.06124	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
21	0.05818	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
22	0.05524	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
23	0.05242	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
24	0.04971	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
25	0.04566	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
26	0.04335	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
27	0.04114	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
28	0.03902	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
29	0.03698	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
30	0.03502	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
31	0.03314	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
32	0.03134	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
33	0.02961	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
34	0.02795	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
35	0.02636	0.00000	0.00000	0.00000	0.00000	0.00000	0.0017
36	0.02483	0.00000	0.00000	0.00000	0.00000	0.00000	0.0019
37	0.02336	0.00000	0.00000	0.00000	0.00000	0.00000	0.0021
38	0.02195	0.00000	0.00000	0.00000	0.00000	0.00000	0.0024
39	0.02060	0.00000	0.00000	0.00000	0.00000	0.00000	0.0027
40	0.01930	0.00000	0.00000	0.00000	0.00000	0.00000	0.0031
41	0.01805	0.00000	0.00000	0.00000	0.00000	0.00000	0.0035
42	0.01686	0.00000	0.00000	0.00000	0.00000	0.00000	0.0039
43	0.01571	0.00000	0.00000	0.00000	0.00000	0.00000	0.0044
44	0.01461	0.00000	0.00000	0.00000	0.00000	0.00000	0.0050
45	0.01355	0.00000	0.00000	0.00000	0.00000	0.00000	0.0057
46	0.01253	0.09000	0.00000	0.27000	0.00000	0.38000	0.0065
47	0.01156	0.09000	0.00000	0.27000	0.00000	0.38000	0.0073
48	0.01063	0.09000	0.00000	0.27000	0.00000	0.38000	0.0083
49	0.00973	0.08000	0.00000	0.45000	0.00000	0.38000	0.0094
50	0.00887	0.07000	0.00000	0.47000	0.00000	0.38000	0.0107
51	0.00804	0.06000	0.00000	0.43000	0.00000	0.38000	0.0122
52	0.00725	0.08000	0.00000	0.42000	0.00000	0.38000	0.0138
53	0.00649	0.10000	0.00000	0.44000	0.00000	0.38000	0.0157
54	0.00576	0.12000	0.00000	0.41000	0.00000	0.38000	0.0178
55	0.00000	0.12000	0.12000	0.35000	0.35000	0.36000	0.0202
56	0.00000	0.10000	0.10000	0.28000	0.28000	0.33000	0.0230
57	0.00000	0.09000	0.09000	0.23000	0.23000	0.32000	0.0261
58	0.00000	0.08000	0.08000	0.19000	0.19000	0.32000	0.0296
59	0.00000	0.08000	0.08000	0.18000	0.18000	0.32000	0.0337
60	0.00000	0.08000	0.08000	0.17000	0.17000	0.31000	0.0488
61	0.00000	0.08000	0.08000	0.17000	0.17000	0.28000	0.0488
62	0.00000	0.08000	0.08000	0.16000	0.16000	0.25000	0.0488
63	0.00000	0.09000	0.09000	0.15000	0.15000	0.25000	0.0488
64	0.00000	0.11000	0.11000	0.14000	0.14000	0.26000	0.0488
65	0.00000	0.13000	0.14000	0.12000	0.12000	0.28000	0.0488
66	0.00000	0.15000	0.16000	0.10000	0.10000	0.27000	0.0488
67	0.00000	0.14000	0.15000	0.08000	0.08000	0.25000	0.0488
68	0.00000	0.13000	0.14000	0.08000	0.08000	0.23000	0.0488
69	0.00000	0.12000	0.13000	0.10000	0.09000	0.21000	0.0488
70	0.00000	0.12000	0.12000	0.12000	0.10000	0.22000	0.0488
71	0.00000	0.10000	0.11000	0.11000	0.11000	0.23000	0.0488
72	0.00000	0.08000	0.10000	0.10000	0.10000	0.22000	0.0488
73	0.00000	0.08000	0.11000	0.09000	0.09000	0.17000	0.0488
74	0.00000	0.10000	0.12000	0.07000	0.08000	0.13000	0.0488
75	0.00000	0.13000	0.14000	0.06000	0.06000	0.13000	0.0488

ACTUARIAL TABLES AND RATES – PLAN B

	Remarriage Rates	Tier 1 Retirement Rates	Tier 2 Retirement Rates	Tier 1 DROP Entry Rates	Tier 2 DROP Entry Rates	Post-DROP Retirement Rates	Plan B Disability Rates
18	0.06124	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
19	0.06124	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
20	0.06124	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
21	0.05818	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
22	0.05524	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
23	0.05242	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
24	0.04971	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
25	0.04566	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
26	0.04335	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
27	0.04114	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
28	0.03902	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
29	0.03698	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
30	0.03502	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
31	0.03314	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
32	0.03134	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
33	0.02961	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
34	0.02795	0.00000	0.00000	0.00000	0.00000	0.00000	0.0015
35	0.02636	0.00000	0.00000	0.00000	0.00000	0.00000	0.0017
36	0.02483	0.00000	0.00000	0.00000	0.00000	0.00000	0.0019
37	0.02336	0.00000	0.00000	0.00000	0.00000	0.00000	0.0021
38	0.02195	0.00000	0.00000	0.00000	0.00000	0.00000	0.0024
39	0.02060	0.00000	0.00000	0.00000	0.00000	0.00000	0.0027
40	0.01930	0.00000	0.00000	0.00000	0.00000	0.00000	0.0031
41	0.01805	0.00000	0.00000	0.00000	0.00000	0.00000	0.0035
42	0.01686	0.00000	0.00000	0.00000	0.00000	0.00000	0.0039
43	0.01571	0.00000	0.00000	0.00000	0.00000	0.00000	0.0044
44	0.01461	0.00000	0.00000	0.00000	0.00000	0.00000	0.0050
45	0.01355	0.00000	0.00000	0.00000	0.00000	0.00000	0.0057
46	0.01253	0.00000	0.00000	0.00000	0.00000	0.00000	0.0065
47	0.01156	0.00000	0.00000	0.00000	0.00000	0.00000	0.0073
48	0.01063	0.00000	0.00000	0.00000	0.00000	0.00000	0.0083
49	0.00973	0.00000	0.00000	0.00000	0.00000	0.00000	0.0094
50	0.00887	0.00000	0.00000	0.00000	0.00000	0.00000	0.0107
51	0.00804	0.00000	0.00000	0.00000	0.00000	0.00000	0.0122
52	0.00725	0.00000	0.00000	0.00000	0.00000	0.00000	0.0138
53	0.00649	0.00000	0.00000	0.00000	0.00000	0.00000	0.0157
54	0.00576	0.00000	0.00000	0.00000	0.00000	0.00000	0.0178
55	0.00000	0.08000	0.08000	0.31000	0.31000	0.02000	0.0202
56	0.00000	0.09000	0.09000	0.31000	0.31000	0.02000	0.0230
57	0.00000	0.09000	0.09000	0.27000	0.27000	0.02000	0.0261
58	0.00000	0.07000	0.07000	0.25000	0.25000	0.12000	0.0296
59	0.00000	0.06000	0.06000	0.23000	0.23000	0.24000	0.0337
60	0.00000	0.07000	0.07000	0.20000	0.20000	0.31000	0.0488
61	0.00000	0.09000	0.09000	0.15000	0.15000	0.33000	0.0488
62	0.00000	0.10000	0.11000	0.11000	0.11000	0.31000	0.0488
63	0.00000	0.10000	0.11000	0.10000	0.09000	0.26000	0.0488
64	0.00000	0.11000	0.13000	0.10000	0.09000	0.22000	0.0488
65	0.00000	0.15000	0.16000	0.09000	0.09000	0.20000	0.0488
66	0.00000	0.19000	0.18000	0.07000	0.07000	0.19000	0.0488
67	0.00000	0.20000	0.19000	0.04000	0.05000	0.20000	0.0488
68	0.00000	0.17000	0.17000	0.03000	0.04000	0.17000	0.0488
69	0.00000	0.13000	0.15000	0.03000	0.04000	0.14000	0.0488
70	0.00000	0.10000	0.15000	0.04000	0.05000	0.17000	0.0488
71	0.00000	0.10000	0.15000	0.04000	0.07000	0.25000	0.0488
72	0.00000	0.12000	0.15000	0.05000	0.08000	0.31000	0.0488
73	0.00000	0.15000	0.16000	0.04000	0.08000	0.29000	0.0488
74	0.00000	0.19000	0.16000	0.02000	0.05000	0.22000	0.0488
75	0.00000	0.21000	0.17000	0.01000	0.01000	0.21000	0.0488

GLOSSARY

Accrued Benefit – The pension benefit that an individual has earned as of a specific dated 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.

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.