MUNICIPAL EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL VALUATION AS OF
JUNE 30, 2020

G. S. CURRAN & COMPANY, LTD.

Actuarial Services

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December 7, 2020

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

Ladies and Gentlemen:

We are pleased to present our report on the actuarial valuation of the Municipal Employees' Retirement System for the fiscal year ending June 30, 2020. Our report is based on the actuarial assumptions specified and relies on the data supplied by the system's administrators and accountants. This report was prepared at the request of the Board of Trustees of the Municipal Employees' Retirement System of the State of Louisiana. The primary purpose of this report is to determine the actuarially required contribution for the retirement system for the fiscal year ending June 30, 2021, and to recommend the net direct employer contribution rate for Fiscal 2022. This report does not contain the information necessary for accounting disclosures as required by Governmental Accounting Standards Board (GASB) Statements 67 and 68; that information is included in a separate report. This report was prepared exclusively for the Municipal Employees' Retirement System for a specific limited purpose. It is not for the use or benefit of any third party for any purpose.

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

Sincerely,

G. S. CURRAN & COMPANY, LTD.

By: Gregory M. Curran

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

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

Valuation Date:		June 30, 2020	June 30, 2019
Census Summary:	Active Members	4,783	4,795
	Retired Members and Survivors	3,618	3,552
	Terminated Due a Deferred Benefit	213	199
	Terminated Due a Refund	3,322	3,191
Payroll:		$ 188,745,713	$ 183,483,655
Benefits in Payment:		$ 69,264,254	$ 66,516,731
Present Value of Future Benefits:		$ 1,403,364,260	$ 1,358,641,079
Actuarial Accrued Liability (EAN):		$ 1,203,027,922	$ 1,165,954,887
Frozen Unfunded Actuarial Accrued Liability:		$ 62,368,613	$ 65,648,756
Funding Deposit Account Credit Balance:		$ 10,000,835	$ 9,346,575
Actuarial Value of Assets (AVA):		$ 829,419,184	$ 806,503,031
Market Value of Assets (MVA):		$ 786,276,078	$ 765,059,686
Ratio of AVA to Actuarial Accrued Liability (EAN):		68.94%	69.17%

	Fiscal 2020	Fiscal 2019
Market Rate of Return:	2.9%	4.9%
Actuarial Rate of Return:	2.9%	1.7%

	Fiscal 2021	Fiscal 2020
Employers' Normal Cost (Mid-year):	$ 53,772,836	$ 52,012,558
Amortization Cost (Mid-year):	$ 7,921,125	$ 7,613,587
Estimated Administrative Cost:	$ 1,537,946	$ 1,898,365
Projected Ad Valorem Tax Contributions:	$ 6,820,604	$ 6,460,959
Projected Revenue Sharing Funds:	$ 113,690	$ 113,397
Net Direct Employer Actuarially Required Contributions:	$ 56,297,613	$ 54,950,154
Projected Payroll:	$ 192,910,572	$ 187,660,646
Board Approved Employee Contribution Rate:	10.00%	9.50%
Board Approved Net Direct Employer Contribution Rate:	29.50%	27.75%
Actuarially Required Net Direct Employer Contribution Rate:	29.18%	29.28%

	Fiscal 2022	Fiscal 2021
Minimum Recommended Net Direct Employer Contribution Rate:	29.25%	29.50%

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

Valuation Date:		June 30, 2020	June 30, 2019
Census Summary:	Active Members	2,037	2,063
	Retired Members and Survivors	1,107	1,076
	Terminated Due a Deferred Benefit	103	97
	Terminated Due a Refund	1,629	1,556
Payroll:		$ 76,799,634	$ 75,213,353
Benefits in Payment:		$ 12,823,215	$ 12,223,991
Present Value of Future Benefits:		$ 316,173,970	$ 304,082,748
Actuarial Accrued Liability (EAN):		$ 264,774,249	$ 254,292,446
Funding Deposit Account Credit Balance:		$ 1,748,191	$ 1,633,823
Actuarial Value of Assets (AVA):		$ 187,812,515	$ 180,085,046
Market Value of Assets (MVA):		$ 177,974,097	$ 170,871,104
Ratio of AVA to Actuarial Accrued Liability (EAN):		70.93%	70.82%

	Fiscal 2020	Fiscal 2019
Market Rate of Return:	2.8%	4.8%
Actuarial Rate of Return:	3.0%	1.9%

	Fiscal 2021	Fiscal 2020
Employers' Normal Cost (Mid-year):	$ 14,226,379	$ 13,718,748
Estimated Administrative Cost:	$ 625,782	$ 778,175
Projected Ad Valorem Tax Contributions:	$ 2,775,268	$ 2,648,467
Projected Revenue Sharing Funds:	$ 46,260	$ 46,483
Net Direct Employer Actuarially Required Contributions:	$ 12,030,633	$ 11,801,973
Projected Payroll:	$ 78,419,765	$ 76,952,056
Board Approved Employee Contribution Rate:	5.00%	5.00%
Board Approved Net Direct Employer Contribution Rate:	15.50%	14.00%
Actuarially Required Net Direct Employer Contribution Rate:	15.34%	15.34%

	Fiscal 2022	Fiscal 2021
Minimum Recommended Net Direct Employer Contribution Rate:	15.25%	15.50%

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 to ascribe a greater degree of accuracy to the results than is warranted. In fact, neither of these assessments is valid. Actuarial calculations by their very nature involve estimations. As such, it is likely that eventual results will differ from those presented. The degree to which such differences evolve will depend on several factors including the completeness and accuracy of the data utilized, the degree to which assumptions approximate future experience, and the extent to which the mathematical model accurately describes the plan's design and future outcomes.

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

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

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

COMMENTS ON DATA

For the valuation, the administrative director of the system furnished a census on electronic media derived from the system's master data processing file indicating each active covered employee's sex, date of birth, service credit, annual salary, and accumulated contributions. Information on retirees detailing dates of birth of retirees and beneficiaries, as well as option categories and benefit amounts, was provided in like manner. In addition, data was supplied on former employees who are vested or who have contributions remaining on deposit. As illustrated in Exhibit IX, there are 4,783 active members in Plan A, of whom, 1,767 members, including 216 participants in the Deferred Retirement Option Plan (DROP), have vested retirement benefits; 3,618 former Plan A members or their beneficiaries are receiving retirement benefits. An additional 3,535 former members of Plan A have contributions remaining on deposit with the system. This includes 213 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 2,037 active members in Plan B, of whom, 785 members, including 88 DROP participants, have vested retirement benefits; 1,107 former members of Plan B or their beneficiaries are receiving retirement benefits. An additional, 1,732 former members of Plan B have contributions remaining on deposit with the system. Of this number, 103 have vested rights for future retirement benefits. All individuals submitted were included in the valuation.

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

In addition to the statistical information provided on the system's participants, the system's administrative director furnished general information related to other aspects of the system's expenses, benefits and funding. Except as stated below, valuation asset values as well as income and expenses for the fiscal year were based on information furnished by the system's auditor, the firm of Hawthorn, Waymouth, and Carroll, L.L.P. As indicated in the system's audit report, the net market value of Plan A's assets was $786,276,078 as of June 30, 2020. For Plan A, the net investment income for Fiscal 2020 measured on a market value basis amounted to $21,910,415. Contributions to Plan A for the fiscal year totaled $78,326,928; benefits and expenses amounted to $79,020,951.

The net market value of Plan B's assets was $177,974,097 as of June 30, 2020. For Plan B, the net investment income for Fiscal 2020 measured on a market value basis amounted to $4,833,885.

Contributions to Plan B for the fiscal year totaled $17,893,003; benefits and expenses amounted to $15,623,895.

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

COMMENTS ON ACTUARIAL METHODS AND ASSUMPTIONS

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

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

The current year actuarial assumptions utilized for this report are based on the results of an actuarial experience study for the period July 1, 2013 – June 30, 2018, 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. Details related to the study are contained within the 2019 Municipal Employees' Retirement System Experience Study Report.

In February of 2017, a recommendation was made to the Board of Trustees to reduce the long-term rate of return assumption. The recommendation was formed after an analysis of the system's portfolio along with expected long-term rates of return, standard deviations of return, and correlations between asset classes collected from a number of investment consulting firms in addition to the system's investment consultants, Meketa Investment Group. Based on this analysis and after discussions with the Board, a plan was approved to reduce the 7.5% valuation interest rate in effect for the Fiscal 2016 actuarial valuation to 7.0% over the coming four actuarial valuations with reductions of 0.10% in 2017, 0.125% in 2018, 0.10% in 2019, and 0.175% in 2020 for Plans A and B. This plan would have resulted in a valuation interest rate for the Fiscal 2019 valuation of 7.175% and a valuation rate for Fiscal 2020 of 7.00%. Despite the original plan, after an updated review of the valuation interest rate was performed in conjunction with the system's 2019 plan experience study which incorporated updated capital market assumptions, the Board elected to speed up the implementation of the final rate in the original plan. Therefore, the assumed rate of return for the Fiscal 2019 valuation was set at 7.0% for Plans A and B. After further review of the valuation interest rate prior to the Fiscal 2020 valuation, the Board elected to further reduce the valuation interest rate to 6.95%.

In reviewing the valuation interest rate for Fiscal 2020, consideration was given to several factors. The Fund's target asset allocation was reviewed based upon the G. S. Curran & Company consultant average return study for 2020. The study found that the 7.0% assumed rate of return used in the 2019 valuation is at the top of the updated reasonable range. The reasonable range was set by developing 10,000 stochastic trials based on the expected long-term arithmetic return for the Fund's target allocation and the consultant average portfolio standard deviation. In October of 2020, the Board of Trustees approved the use of a lower valuation interest rate for Fiscal 2020. Therefore, the assumed rate of return for the Fiscal 2020 valuation was set at 6.95% for Plans A and B. For 2020, an assumed rate of inflation of 2.5% was implicit in the assumed rate of return for Plans A and B.

Although the Board of Trustees has authority to grant ad hoc Cost of Living Increases (COLAs) under limited circumstances, these COLAs have not been shown to have a historical pattern, the amounts of the COLAs have not been relative to a defined cost-of-living or inflation index, and there is no evidence to conclude that COLAs will be granted on a predictable basis in the future. No COLAs have been provided since 2009. Furthermore, the Board of Trustees has the right to set aside funds in its Funding Deposit Account for a variety of purposes, including the prefunding of COLAs. 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 at the end of this report. All assumptions are based on estimates of future long-term experience for the system as described in the system's 2019 Experience Study report. 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. The net effect of all changes in assumptions was to increase the normal cost accrual rate by 0.1025% in Plan A and 0.3031% in Plan B.

RISK FACTORS

Defined benefit pension plans are subject to a number of risks. These can be related either to plan assets or liabilities. In order to pay benefits, the plan must have sufficient assets. Several factors can lead to asset levels which are below those required to pay promised benefits. The first risk in this regard is the failure to contribute adequate funds to the plan. In some ways, this is the greatest risk, since other risks can usually be addressed by adequate actuarial funding. 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 graph and 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 slightly exceed annual contributions to Plan A and annual contributions exceed annual benefit payments to Plan B. Future net noninvestment cash flows for each plan will be determined based upon both the plan's 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 plan 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 Plan A, the trend of higher proportions of retired membership will continue, and the current trend toward higher levels of negative noninvestment cash flows will continue in the near future. Absent a significant increase in the active membership of Plan B, the trend of higher proportions of retired membership will continue, and the plan could begin to experience negative noninvestment cash flows.

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 (such as pandemics like COVID-19) 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 depending upon the severity of the event, and cannot be easily forecast.

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. The ratio is 68.94% for Plan A and 70.93% for Plan B as of June 30, 2020. 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. Note that 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 this plan, we have determined that based on current assets and demographics, for each percentage under the assumed rate of return on the actuarial value of assets, there will be a corresponding increase in the actuarially required contribution as a percentage of projected payroll of 0.62% for Plan A and 0.35% for Plan B.

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 system, we have estimated the effective liability duration as 9.85 for Plan A and 10.31 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 2020, this ratio is 37% for Plan A and 17% for Plan B. Ten years ago this ratio was 26% for Plan A and 11% 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 related to the assumed rate of return suggest that a decrease in the assumption 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 2021 by 9.45% of payroll for Plan A and 5.71% 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 affect 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 2020 Regular Session of the Louisiana Legislature:

Act 30 authorizes the Board of Trustees to deduct certain monthly insurance premiums from benefits payable to members or beneficiaries.

Act 31 clarifies the terminology surrounding the termination of members from service prior to their eligibility to receive a refund of accumulated contributions.

Act 298 provides that any employee first employed on or after November 1, 2020, by any department created by the Home Rule Charter for the Lafayette City-Parish Consolidated Government, other than employees first employed by the police and fire departments who are enrolled in the Municipal Police Employees' Retirement System or the Firefighters' Retirement System, and any employee first employed on or after November 1, 2020 by the City Court of Lafayette, inclusive of the office of marshal but exclusive of the judges of the city court, shall, as a condition of employment become a member of the Parochial Employees' Retirement System if they otherwise meet the requirements for membership eligibility. With some exceptions related to layoffs or vacant positions, in cases where an employer eliminates any position from coverage in the Municipal Employees' Retirement System, the employer must remit that portion of the unfunded accrued liability existing on the June thirtieth immediately prior to the date of elimination which is attributable to the eliminated position.

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
2011	10.5%	4.2%
2012	-4.8% †	0.7%
2013	4.3%	0.7%
2014	12.3%	5.8%
2015	-3.1%	3.7%
2016	-2.9%	0.8%
2017	4.7%	2.3%
2018	6.1%	2.8%
2019	4.9%	1.7%
2020	2.9%	2.9%

Plan B	Market Value	Actuarial Value
2011	10.5%	4.2%
2012	-4.7% †	1.0%
2013	4.1%	0.9%
2014	11.7%	5.6%
2015	-3.2%	3.5%
2016	-2.9%	0.7%
2017	4.6%	2.2%
2018	6.0%	2.7%
2019	4.8%	1.9%
2020	2.8%	3.0%

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

Geometric Average Market Rates of Return – Plan A

5 year average	(Fiscal 2016 – 2020)	3.1%
10 year average	(Fiscal 2011 – 2020)	3.4%
15 year average	(Fiscal 2006 – 2020)	3.7%
20 year average	(Fiscal 2001 – 2020)	3.5%
25 year average	(Fiscal 1996 – 2020)	5.1%
30 year average	(Fiscal 1991 – 2020)	5.9%

Geometric Average Market Rates of Return – Plan B

5 year average	(Fiscal 2016 – 2020)	3.0%
10 year average	(Fiscal 2011 – 2020)	3.2%
15 year average	(Fiscal 2006 – 2020)	3.6%
20 year average	(Fiscal 2001 – 2020)	3.3%
25 year average	(Fiscal 1996 – 2020)	4.9%
30 year average	(Fiscal 1991 – 2020)	5.7%

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 2020, Plan A earned $2,259,117 and Plan B earned $677,693 of dividends and interest income. In addition, Plan A had net realized and unrealized capital gains on investments of $21,486,720 while the total of such gains for Plan B amounted to $4,550,031. Investment expenses were $1,835,422 for Plan A and $393,839 for Plan B.

The actuarial rate of return is presented for comparison to the assumed long-term rate of return of 7.00% used for the prior valuation. This rate is calculated based on the smoothed value of assets subject to constraints as given in Exhibit VI for Plan A and Exhibit XVI for Plan B. Investment income used to calculate this yield is based upon a smoothing of investment income above or below the valuation interest rate. The difference between rates of return on an actuarial and market value basis results from the smoothing utilized. In the future, yields in excess of the valuation interest rate assumption will reduce future costs; yields below the valuation interest rate assumption will increase future costs. For Plan A, the net actuarial investment earnings for Fiscal 2020 were $32,821,156 less than the actuarial assumed earnings rate of 7.00%, and were $7,225,668 less for Plan B. These actuarial losses increased the normal cost accrual rate by 2.4612% for Plan A and 1.3488% for Plan B.

At the end of each fiscal year, a review of the data is made to identify current members of Plan A and Plan B who have consecutive service credit in both plans that have not been addressed in previous transfers of assets and liabilities between the Plan A and Plan B trust funds pursuant to the provisions of R.S. 11:1862(F). In the course of reviewing data for the June 30, 2020 valuation we found 13 members of Plan A with Plan B service credit and 12 such members of Plan B with Plan A service for whom a transfer must be made. Based upon a valuation of the liabilities for service in the previous plan, we recommend a transfer of $212,580 with accrued interest thereon from June 30, 2020 be made from the Plan B trust to the Plan A trust for Fiscal 2020.

PLAN A – DEMOGRAPHICS AND LIABILITY EXPERIENCE

A reconciliation of the census for the plan is given in Exhibit IX. The average active member is 49 years old with 9.5 years of service and an annual salary of $39,462. The plan's active membership, inclusive of DROP participants, decreased by 12 members during the fiscal year. The plan has experienced a decrease in the active plan population of 143 members over the last five years. A review of the active census by age indicates that over the last ten years the population under age forty and above age fifty has increased while the proportion of active members age forty-one through fifty has decreased. Over the same ten-year period the plan showed an increase in members with less than ten years of service.

The average regular retiree is 71 years old with a monthly benefit of $1,801. The average age at retirement for regular retirees is 60. The number of retirees and beneficiaries receiving benefits from the system increased by 66 during the fiscal year; over the last five years the number of retirees has increased by 356 and benefit payments have increased by $14,472,922.

Plan liability experience for Fiscal 2020 was favorable. Withdrawals were below expected levels while retirements were above projected levels. These factors tend to increase costs. DROP entries, disabilities, salary increases, and retiree deaths were near projected levels. Salary increases at many durations were below expected levels which would tend to lower plan costs. Plan liability gains decreased the normal cost accrual rate by 0.3153%.

PLAN B – DEMOGRAPHICS AND LIABILITY EXPERIENCE

A reconciliation of the census for the plan is given in Exhibit XIX. The average active member is 49 years old with 9.52 years of service and an annual salary of $37,702. The plan's active membership, inclusive of DROP participants, decreased by 26 members during the fiscal year. The plan has experienced a decrease in the active plan population of 163 members over the last five years. A review of the active census by age indicates that over the last ten years the population in the under sixty age group on average has decreased while the proportion of active members over age sixty increased. Over the same ten-year period the plan showed relatively the same number of members at almost all service durations.

The average regular retiree is 73 years old with a monthly benefit of $1,059. The average age at retirement for regular retirees is 64. The number of retirees and beneficiaries receiving benefits from the system increased by 31 during the fiscal year; over the last five years the number of retirees has increased by 148 and benefit payments have increased by $2,905,527.

Plan liability experience for Fiscal 2020 was favorable. Withdrawals were below expected levels while retirements and DROP entries were above projected levels. These factors tend to increase costs. Disabilities significantly below expected levels and salary increases below projected levels at many durations tend to reduce plan costs. Retiree deaths were near projected levels. Plan liability gains decreased the normal cost accrual rate by 0.3694%.

FUNDING ANALYSIS AND RECOMMENDATIONS

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

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

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

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 2021 adjusted for mid-year payment is $53,772,836. The amortization payment on the plan's frozen unfunded actuarial accrued liability adjusted for mid-year payment is $7,921,125. The total actuarially required contribution is determined by adding estimated administrative expenses to these two values. As given on line 16 of Exhibit I the gross actuarially required employer contribution for Fiscal 2021 is $63,231,907. When this amount is reduced by projected tax contributions and revenue sharing funds, the resulting employers' minimum net direct actuarially required contribution for Fiscal 2021 is $56,297,613. This is 29.18% of the projected Plan A payroll for Fiscal 2021.

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

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

Employer's Normal Cost Accrual Rate – Fiscal 2020	29.8567%
Factors Increasing the Normal Cost Accrual Rate:	
Asset Experience Loss	2.4612%
Assumption Changes	0.1025%
Contribution Loss	0.0281%
Factors Decreasing the Normal Cost Accrual Rate:	
New Members	1.9993%
Plan Liability Experience Gain	0.3153%
Employer's Normal Cost Accrual Rate – Fiscal 2021	30.1339%

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 2021 will increase by 0.09% of payroll. We also estimate the amortization payment on the fund's UAL will increase by 0.05% of projected payroll. The net effect of the above changes in the cost structure of the system resulted in a minimum actuarially required net direct employer contribution rate for Fiscal 2021 for Plan A of 29.18%; the board approved employer contribution rate for Fiscal 2021 is 29.50% of payroll. R.S. 11:103 requires that the net direct employer contributions be rounded to the nearest 0.25%, hence, after accounting for the anticipated contribution shortfall, we are recommending a minimum net direct employer contribution rate for Plan A of 29.25% for Fiscal 2022.

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 2021 adjusted for mid-year payment is $14,226,379. Based upon the Board of Trustees' decision to use a portion of the credit balance in the plan's Funding Deposit Account to pay off the remaining balance on the frozen unfunded accrued liability in Fiscal 2018, there is no projected amortization payment in the calculation of the minimum recommended net direct employer contribution rate for Fiscal 2022. The total actuarially required contribution is determined by adding estimated administrative expenses to the normal cost accrual rate. As given on line 12 of Exhibit XI the gross actuarially required employer contribution for Fiscal 2021 is $14,852,161. When this amount is reduced by projected tax contributions and revenue sharing funds, the resulting employers' minimum net direct actuarially required contribution for Fiscal 2021 is $12,030,633. This is 15.34% of the projected Plan B payroll for Fiscal 2021.

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

Employer's Normal Cost Accrual Rate – Fiscal 2020	19.4618%
Factors Increasing the Normal Cost Accrual Rate:	
Asset Experience Loss	1.3488%
Assumption Changes	0.3031%
Contribution Loss	0.0807%
Factors Decreasing the Normal Cost Accrual Rate:	
New Members	1.0509%
Plan Liability Experience Gain	0.3694%
Employer's Normal Cost Accrual Rate – Fiscal 2021	19.7741%

We estimate that for Plan B, the funds collected from ad valorem taxes and revenue sharing funds in Fiscal 2021 will increase by 0.10% 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 2021 for Plan B of 15.34%; the actual employer contribution rate for Fiscal 2021 is 15.50% of payroll. R.S. 11:103 requires that the net direct employer contributions be rounded to the nearest 0.25%, hence, after accounting for the anticipated contribution shortfall, we are recommending a minimum net direct employer contribution rate for Plan B of 15.25% for Fiscal 2022.

Both Plan A and Plan B have Funding Deposit Account Credit Balances. Since neither plan experienced a contribution gain due to a net direct employer contribution rate above the minimum recommended employer contribution rate during Fiscal 2020, no additional funds were credited to the Funding Deposit Account during the year. In accordance with R.S. 11:107.1(D), the balances were adjusted for the accrual of interest at the valuation interest rate. The remaining funds in these accounts may be used to reduce the outstanding unfunded accrued liability, reduce the future normal costs, fund cost of living increases to retirees, or reduce contributions for specified fiscal years.

COST OF LIVING INCREASES

During Fiscal 2020 the actual cost of living (as measured by the US Department of Labor CPI-U) increased by 0.6%. Cost of living provisions for the system are detailed in R.S. 11:1761, R.S. 11:246, and R.S. 11:241. R.S. 11:1761 allows the Board to use interest earnings in excess of the normal requirements to grant annual cost of living increases of 2% of each retiree's original benefit. R.S. 11:246 provides cost of living increases of retirees and beneficiaries over the age of 65 equal to 2% of the benefit in payment on October 1, 1977, or the date the benefit was originally received if retirement commenced after that date. R.S. 11:241 provides for cost of living benefits payable based on a formula equal to up to $1 times the total of the number of years of credited service accrued at retirement or at death of the member or retiree plus the number of years since retirement or since death of the member or retiree to the system's fiscal year end preceding the payment of the benefit increase. The provisions of R.S. 11:241 do not repeal provisions relative to cost of living adjustments contained within the individual laws governing systems; however, they are to be controlling in cases of conflict.

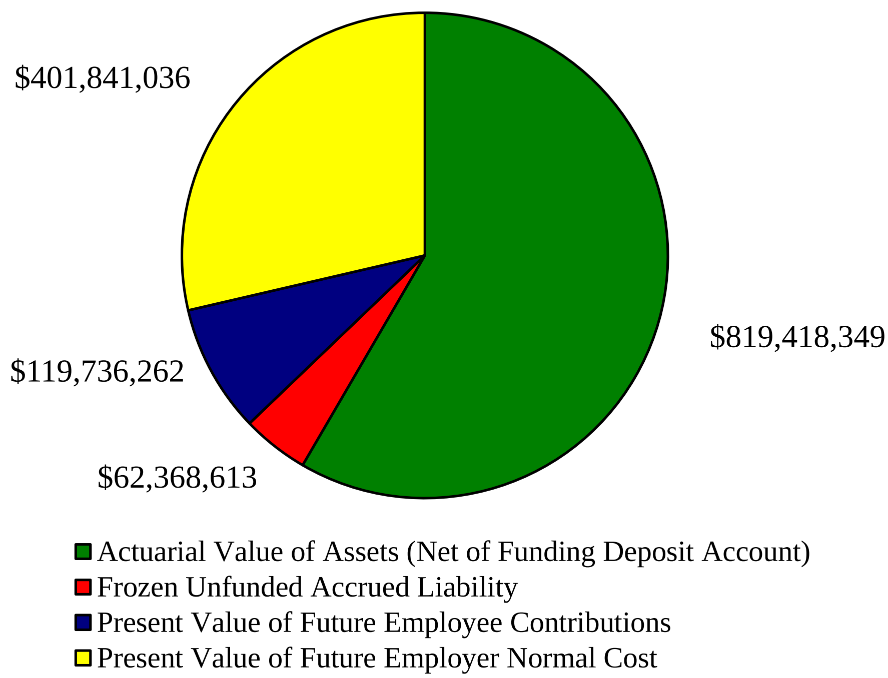
In addition, Act 113 of the 2008 Regular Legislation Session provides for a COLA of 3% of the normal monthly benefit but not less than $20 per month. Although this COLA is permanent, it may only be granted once. This one-time cost of living increase may only be paid from excess interest earnings.

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

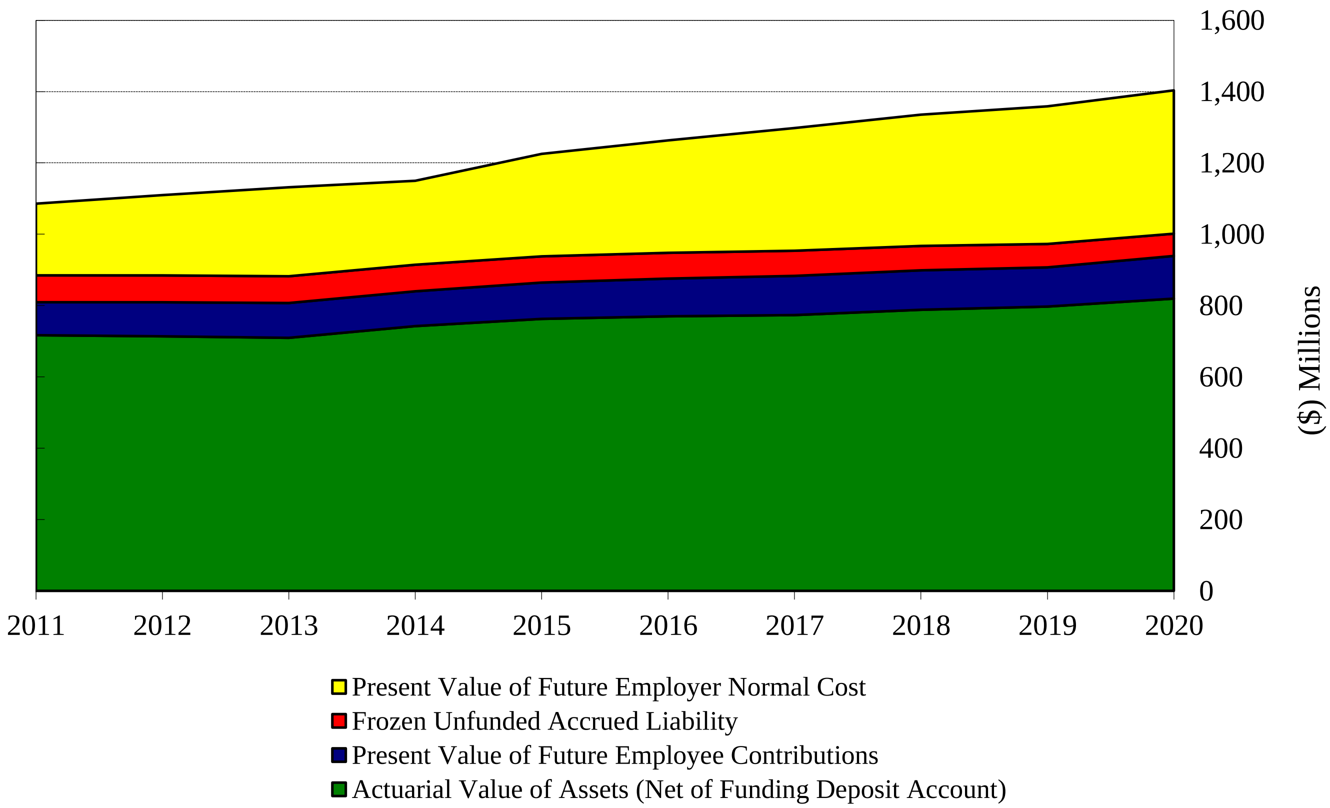
1. The system has a funded ratio of 90% or more and has not granted a benefit increase to retirees, survivors, and beneficiaries in the most recent fiscal year.
2. The system has a funded ratio of 80% or more and has not granted a benefit increase to retirees, survivors, and beneficiaries in the two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

We have determined that for Fiscal 2020, neither plan had excess interest earnings; hence no cost of living increase is payable to regular retirees unless paid out of the Funding Deposit Account.

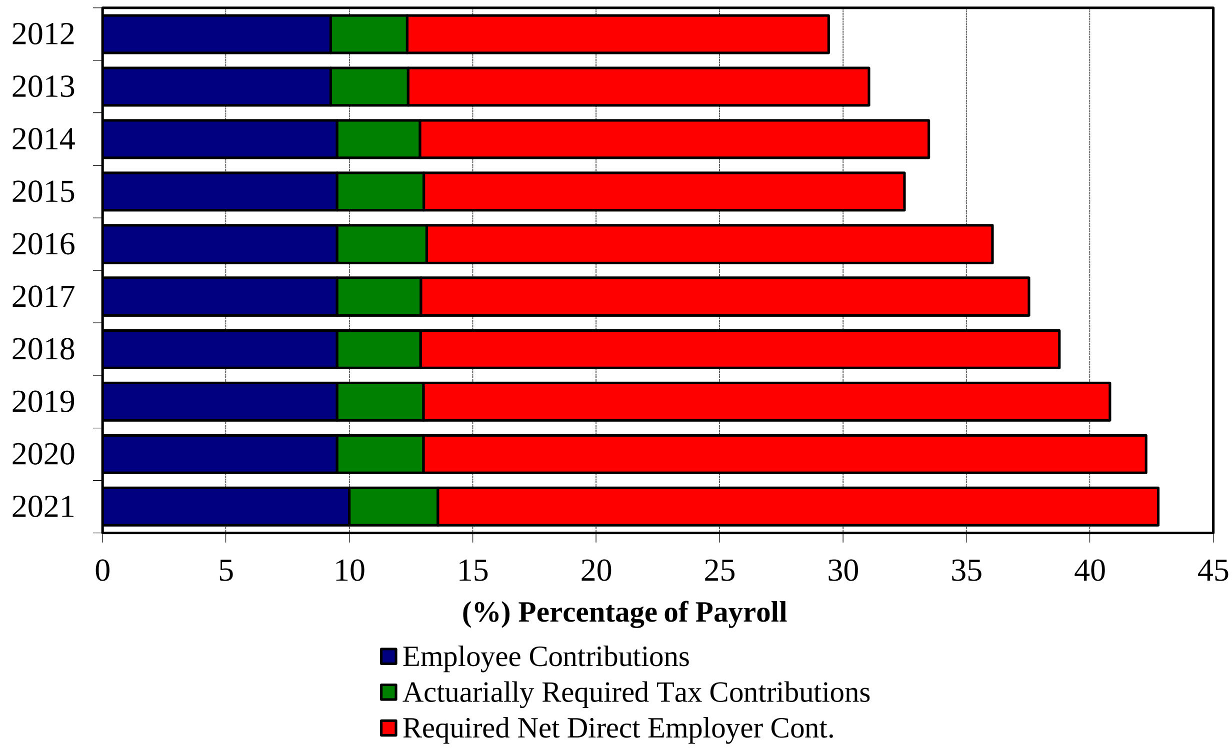
Plan A – Components of Present Value of Future Benefits
June 30, 2020



Plan A – Components of Present Value of Future Benefits

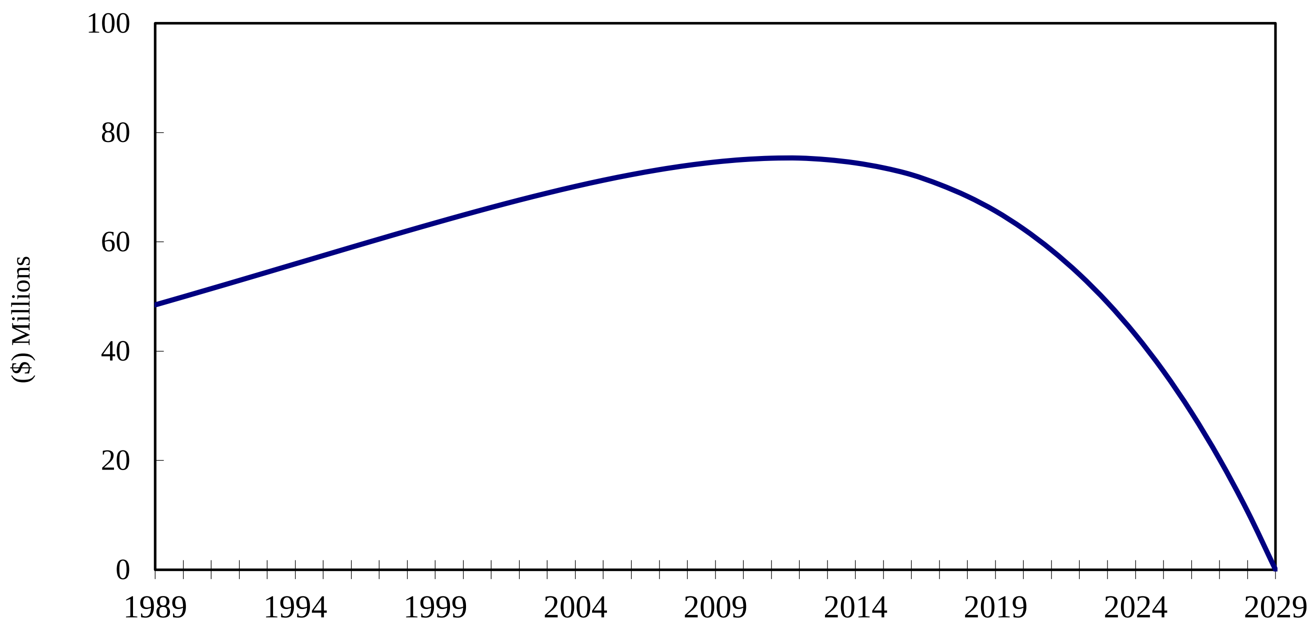


Plan A – Components of Actuarial Funding

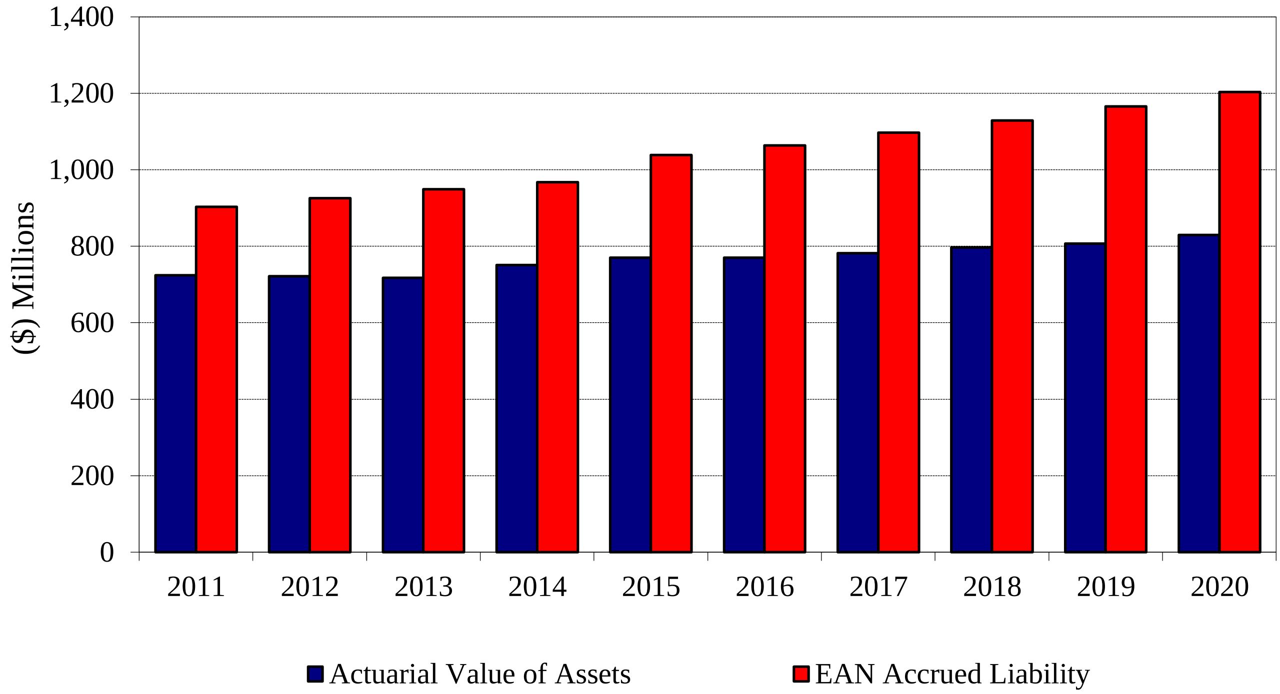


Projected Tax Contributions consist of Projected Ad Valorem and Revenue Sharing Funds as a percent of payroll

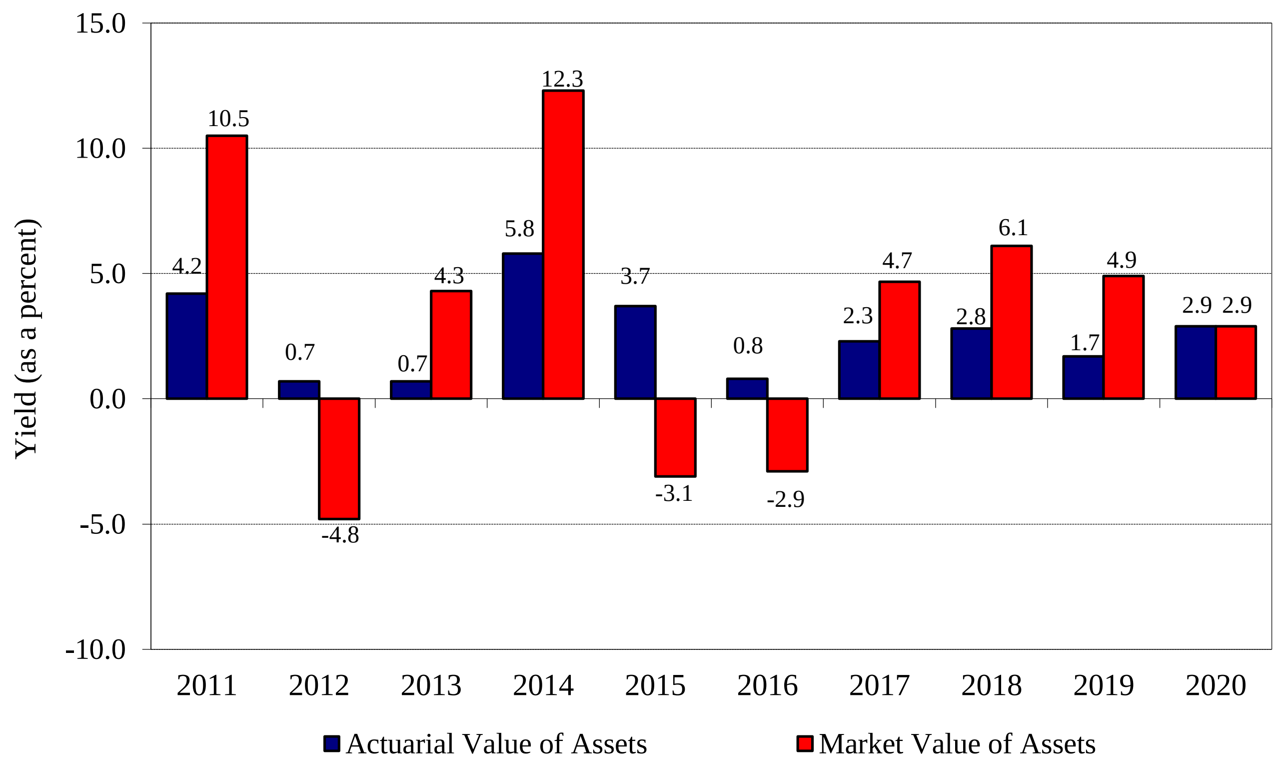
Plan A – Frozen Unfunded Accrued Liability



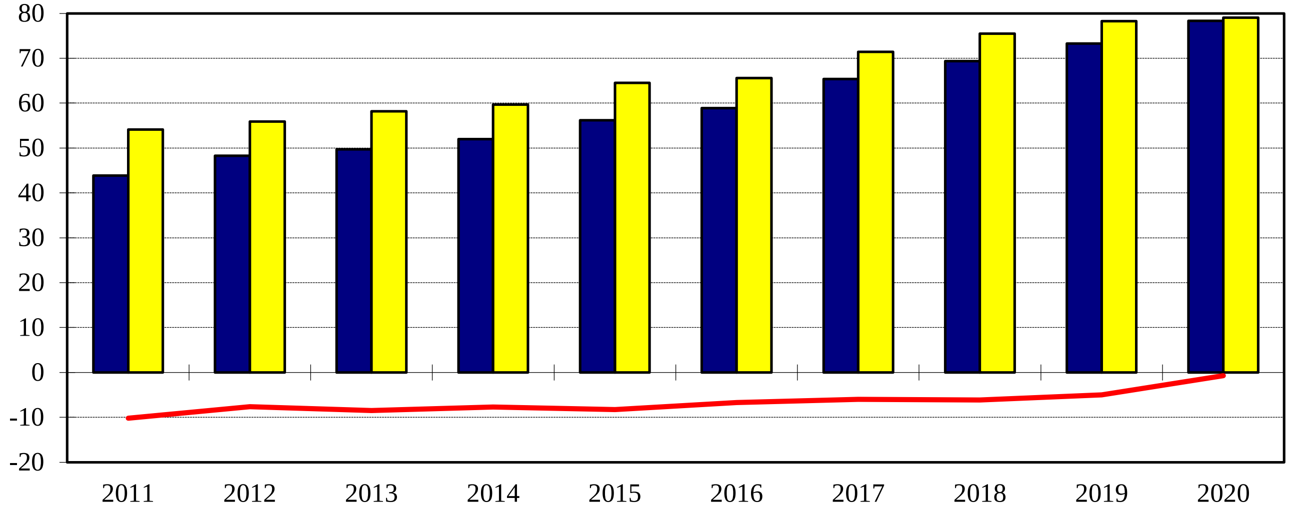
Plan A – Actuarial Value of Assets vs. EAN Accrued Liability



Plan A – Historical Asset Yield

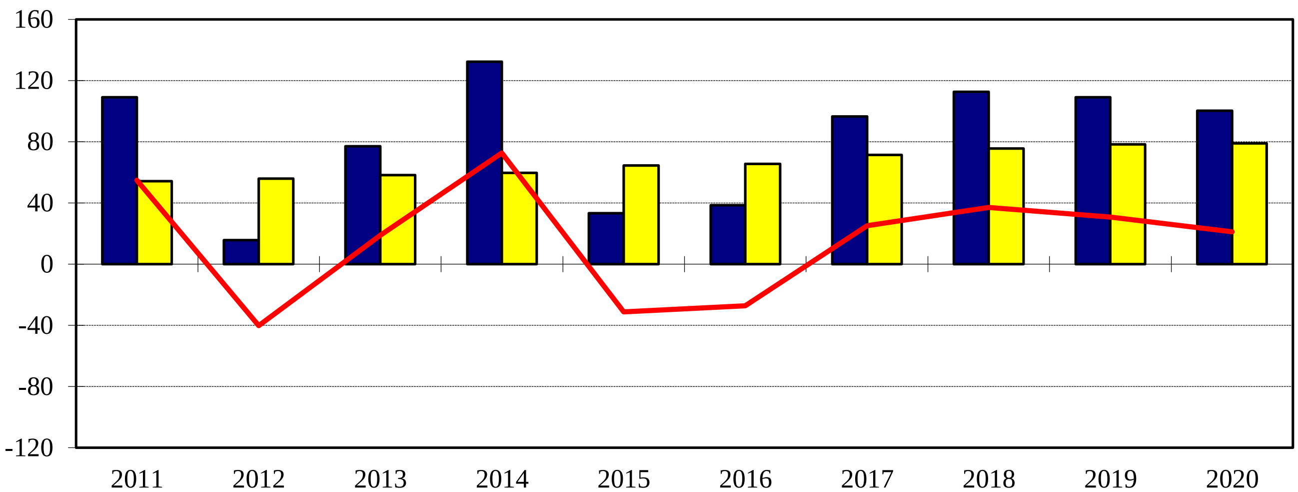


Plan A – Net Non-Investment Income



		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Non-Investment Income ($Mil)		43.9	48.3	49.7	52.0	56.2	58.9	65.4	69.4	73.3	78.3
Benefits and Expenses ($Mil)		54.1	55.9	58.2	59.7	64.5	65.6	71.4	74.5	78.3	79.0
Net Non-Investment Income ($Mil)		-10.2	-7.6	-8.5	-7.7	-8.3	-6.7	-6.0	-5.1	-5.0	-0.7

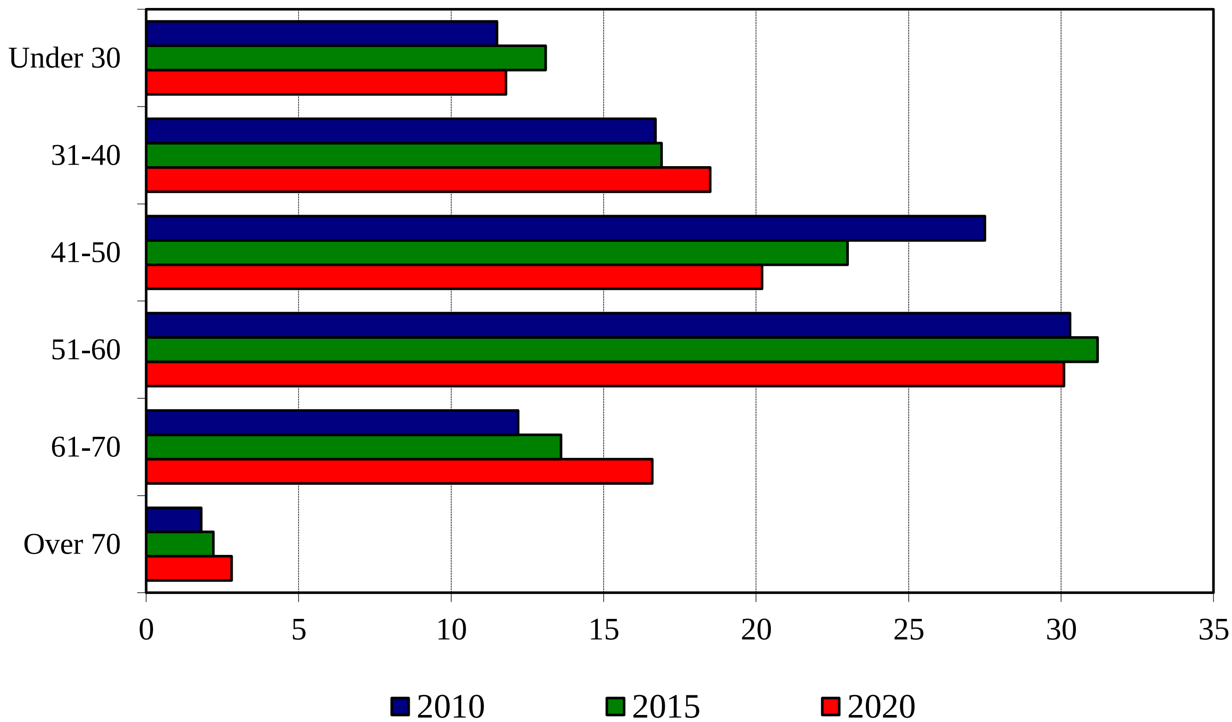
Plan A – Total Income vs. Expenses
(Based on Market Value of Assets)



		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Income ($Mil)		108.9	15.8	77.0	132.4	33.4	38.5	96.6	111.7	109.1	100.2
Benefits and Expenses ($Mil)		54.1	55.9	58.2	59.7	64.5	65.6	71.4	74.5	78.3	79.0
Net Change in MVA ($Mil)		54.8	-40.1	18.8	72.7	-31.1	-27.1	25.2	37.2	30.8	21.2

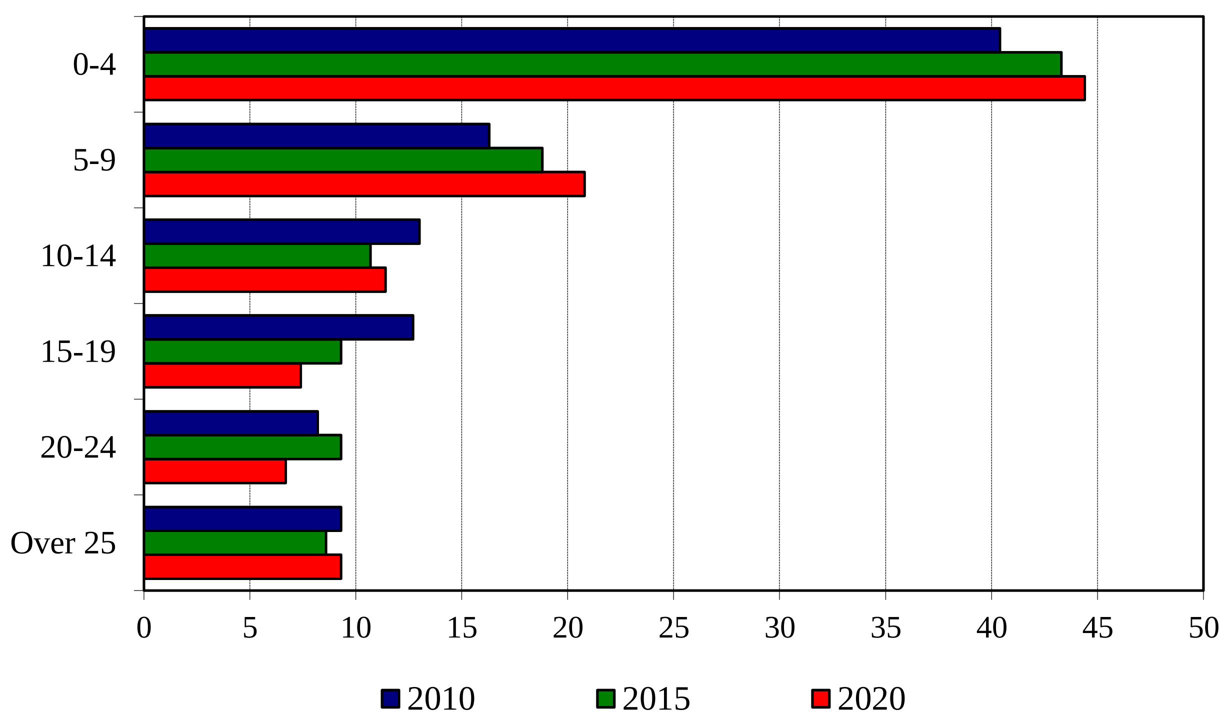
Plan A – Active – Census By Age

(as a percent)

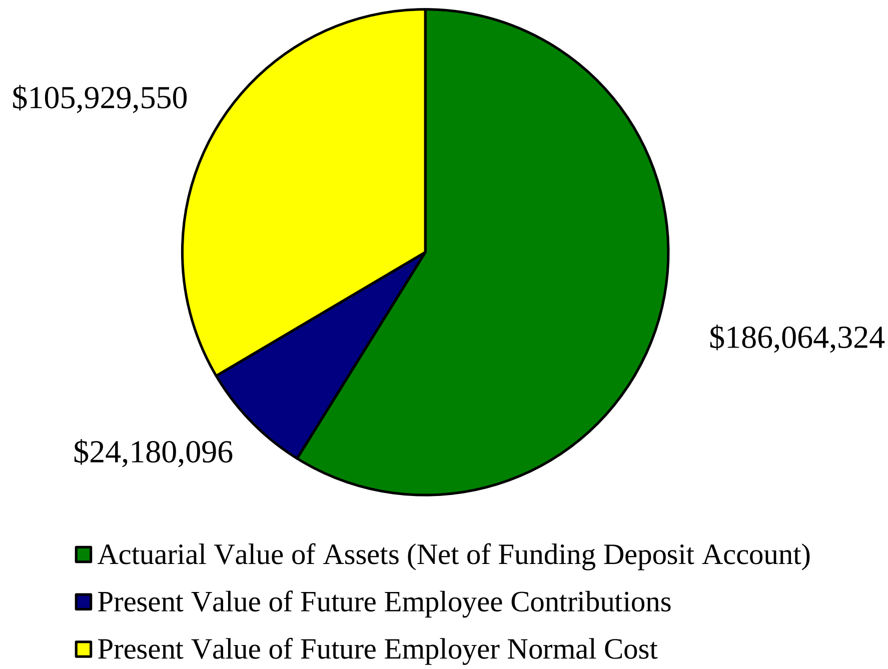


Plan A – Active – Census By Service

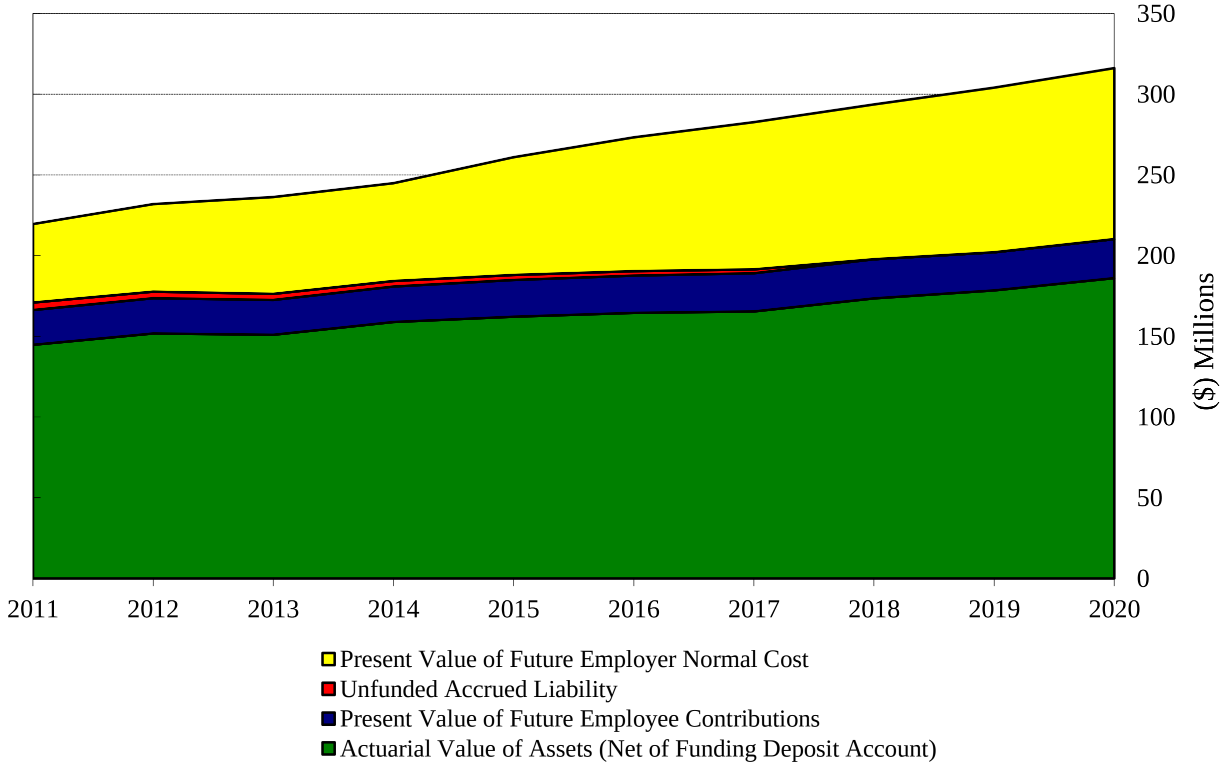
(as a percent)



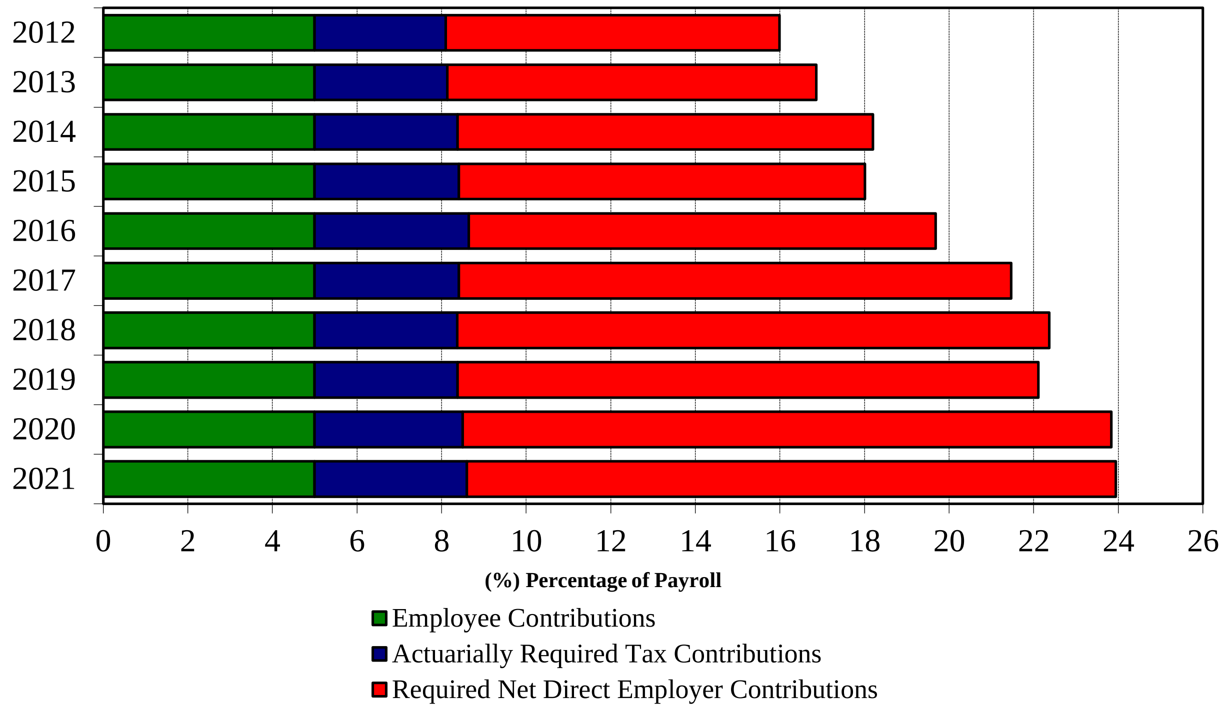
Plan B – Components of Present Value of Future Benefits
June 30, 2020



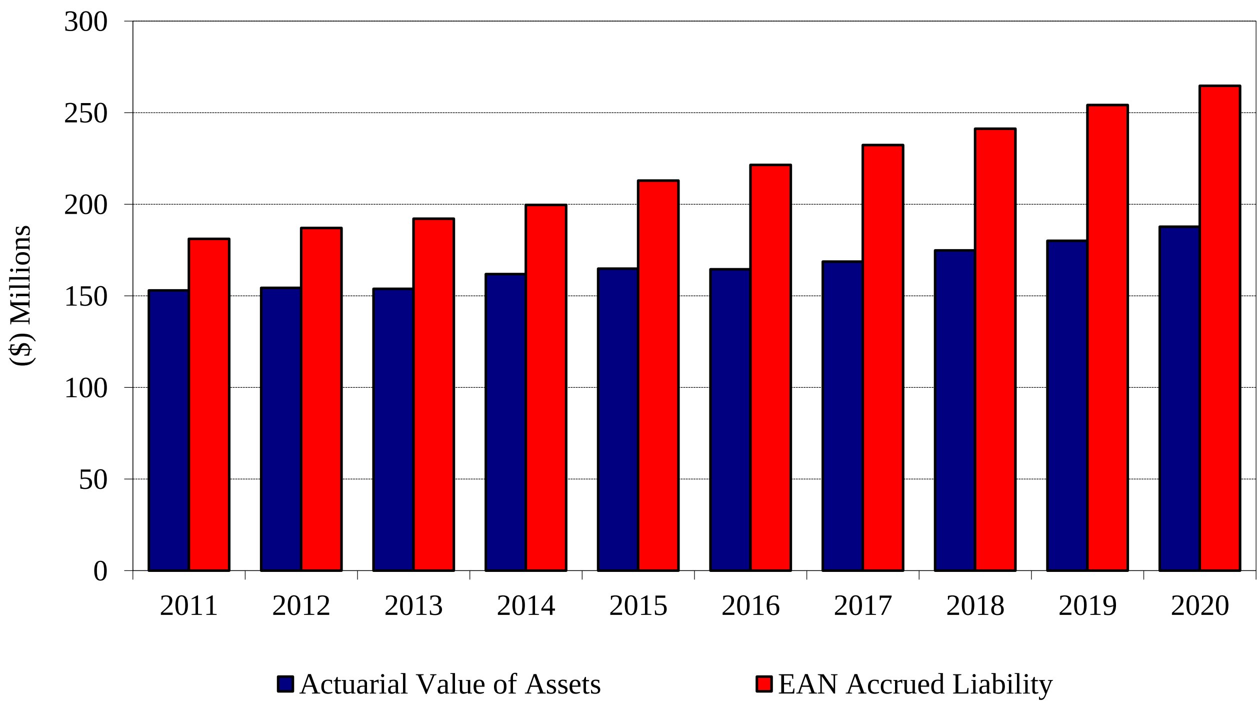
Plan B – Components of Present Value of Future Benefits



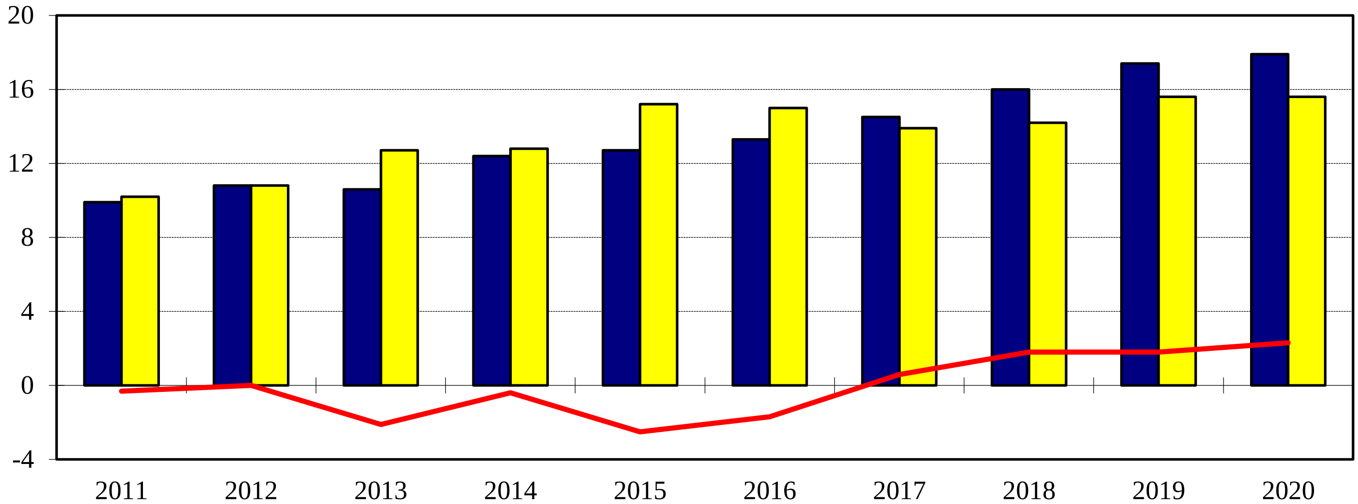
Plan B – Components of Actuarial Funding



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



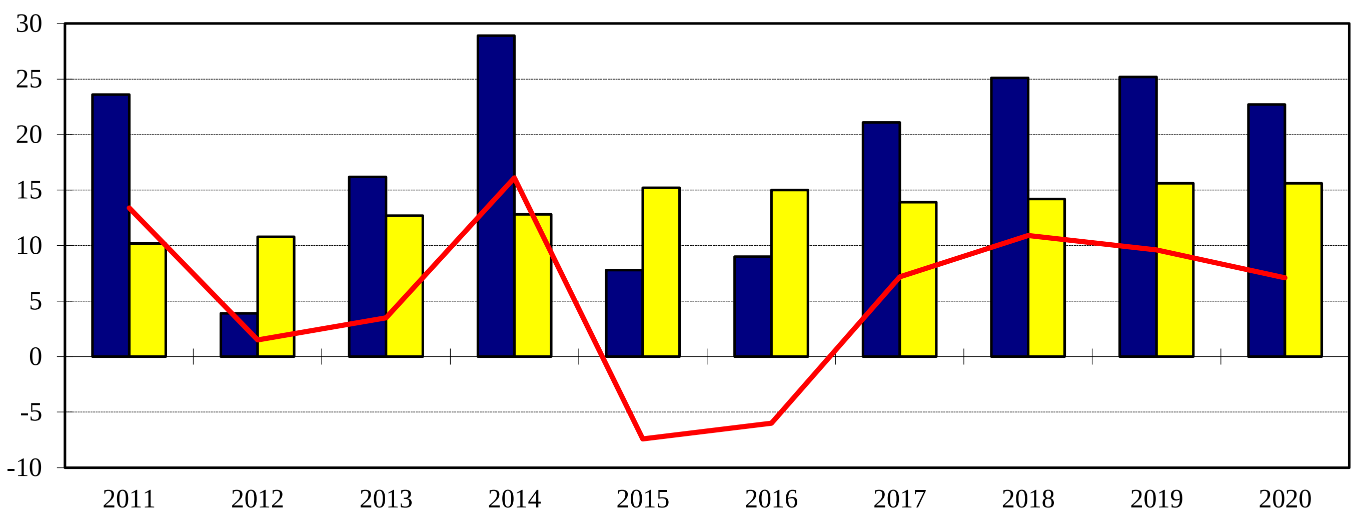
Plan B – Net Non-Investment Income



		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Non-Investment Income ($Mil)		9.9	10.8	10.6	12.4	12.7	13.3	14.5	16.0	17.4	17.9
Benefits and Expenses ($Mil)		10.2	10.8	12.7	12.8	15.2	15.0	13.9	14.2	15.6	15.6
Net Non-Investment Income ($Mil)		-0.3	0.0	-2.1	-0.4	-2.5	-1.7	0.6	1.8	1.8	2.3

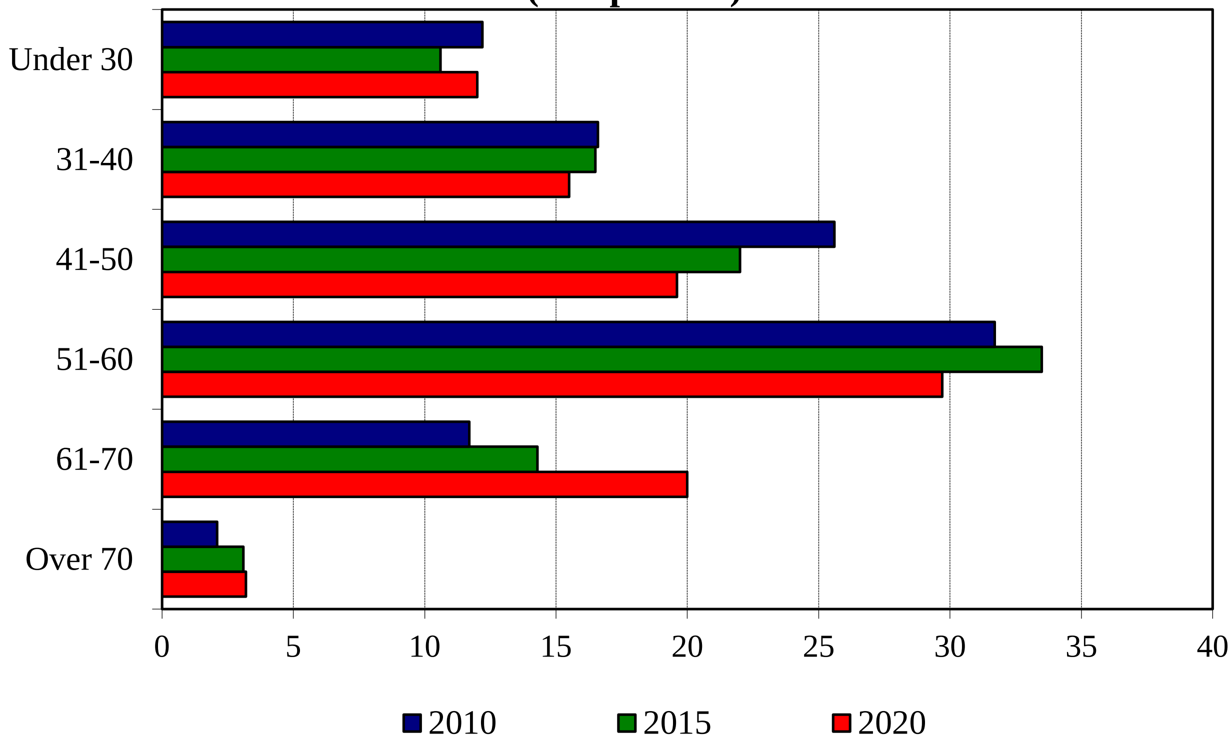
Plan B – Total Income vs. Expenses

(Based on Market Value of Assets)

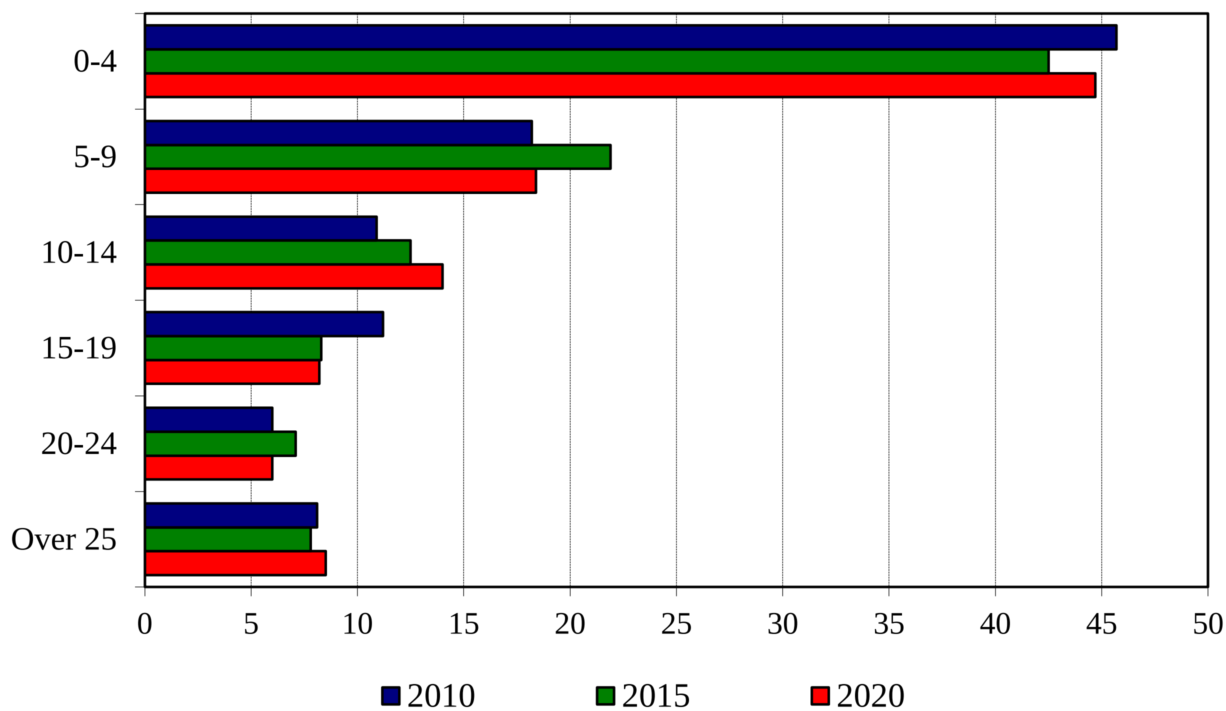


		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Income ($Mil)		23.6	3.9	16.2	28.9	7.8	9.0	21.1	25.1	25.2	22.7
Benefits and Expenses ($Mil)		10.2	10.8	12.7	12.8	15.2	15.0	13.9	14.2	15.6	15.6
Net Change in MVA ($Mil)		13.4	1.5	3.5	16.1	-7.4	-6.0	7.2	10.9	9.6	7.1

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



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



Plan B – Historical Asset Yield

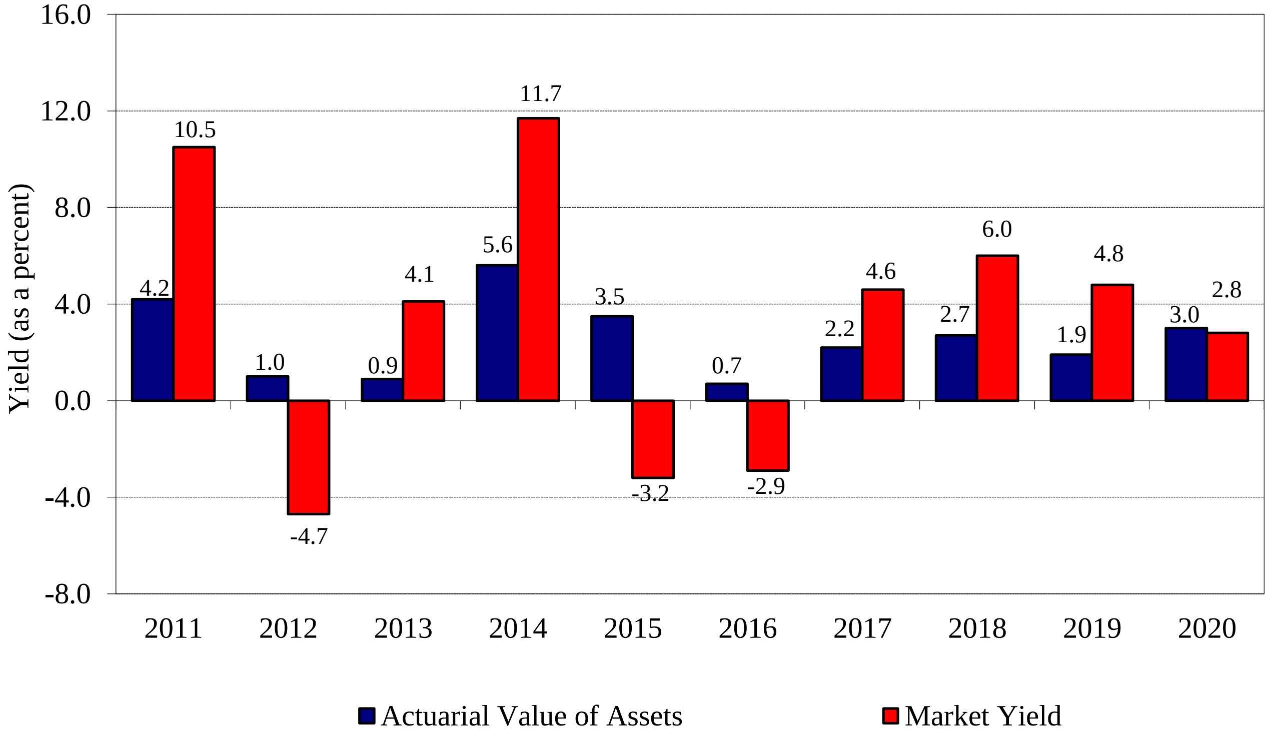


EXHIBIT I
PLAN A: ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS

1.	Present Value of Future Benefits	$	1,403,364,260
2.	Funding Deposit Account Credit Balance	$	10,000,835
3.	Frozen Unfunded Actuarial Accrued Liability	$	62,368,613
4.	Actuarial Value of Assets	$	829,419,184
5.	Present Value of Future Employee Contributions	$	119,736,262
6.	Present Value of Future Employer Normal Costs (1 + 2 – 3 – 4 – 5)	$	401,841,036
7.	Present Value of Future Salaries	$	1,333,516,597
8.	Employer Normal Cost Accrual Rate (6 ÷ 7)		30.133936%
9.	Projected Fiscal 2021 Salary for Current Membership	$	172,550,685
10.	Employer Normal Cost as of July 1, 2020 (8 × 9)	$	51,996,313
11.	Employer Normal Cost Interest Adjusted for Mid-year Payment	$	53,772,836
12.	Amortization Payment on Frozen Unfunded Accrued Liability with Payments Increasing at 4.25% per year	$	7,659,430
13.	Amortization Payment Interest Adjust for Mid-year Payment	$	7,921,125
14.	TOTAL Employer Normal Cost & Amortization Payment (11 + 13)	$	61,693,961
15.	Estimated Administrative Cost for Fiscal 2021	$	1,537,946
16.	Gross Employer Actuarially Required Contribution for Fiscal 2021 (14 + 15)	$	63,231,907
17.	Projected Ad Valorem Tax Contributions for Fiscal 2021	$	6,820,604
18.	Projected Revenue Sharing Funds for Fiscal 2021	$	113,690
19.	Employers' Minimum Net Direct Actuarially Required Contribution for Fiscal 2021 (16 – 17 – 18)	$	56,297,613
20.	Projected Payroll for Fiscal 2021	$	192,910,572
21.	Employers' Minimum Net Direct Actuarially Required Contribution as a % of Projected Payroll for Fiscal 2021 (19 ÷ 20)		29.18%
22.	Board Approved Employer Contribution Rate for 2021		29.50%
23.	Contribution Shortfall (Excess) as a Percentage of Payroll (21 – 22)		(0.32%)
24.	Increase (Reduction) to Following Year Payment for Contribution Shortfall (Excess)		(0.04%)
25.	Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2022 (21 + 24, Rounded to the nearest 0.25%)		29.25%

EXHIBIT II
PLAN A: PRESENT VALUE OF FUTURE BENEFITS

PRESENT VALUE OF FUTURE BENEFITS FOR ACTIVE MEMBERS:

Retirement Benefits	$ 590,579,772	
Survivor Benefits	13,441,526	
Disability Benefits	12,450,806	
Vested Termination Benefits	48,216,429	
Refunds of Contributions	24,925,770	
TOTAL Present Value of Future Benefits for Active Members		$ 689,614,303

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement	$ 22,292,059	
Terminated Members with Reciprocals Due Benefits at Retirement	1,070,349	
Terminated Members Due a Refund	5,964,649	
TOTAL Present Value of Future Benefits for Terminated Members		$ 29,327,057

PRESENT VALUE OF FUTURE BENEFITS FOR RETIREES:

Regular Retirees			
Maximum	$ 246,541,590		
Option 2	260,942,947		
Option 3	82,861,585		
Option 4	3,009,177		
TOTAL Regular Retirees		$ 593,355,299	
Disability Retirees		15,183,057	
Survivors		68,311,955	
Reserve for Accrued Retiree DROP Account Balances		7,572,589	
TOTAL Present Value of Future Benefits for Retirees & Survivors			$ 684,422,900
TOTAL Present Value of Future Benefits			$ 1,403,364,260

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

CURRENT ASSETS:				
Cash in Banks	$	13,511,999		
Contributions and Taxes Receivable		4,359,295		
Accrued Interest and Dividends		144,557		
Investments Receivable		2,531,818		
Due (to) from Other Funds		5,222,278		
TOTAL CURRENT ASSETS			$	25,769,947
Property, Plant & Equipment			$	1,795,660
INVESTMENTS:				
Cash Equivalents	$	1,833,255		
Equities		389,767,224		
Fixed Income		275,499,509		
Real Estate		58,495,714		
Alternative Investments		12,917,278		
Other Investments		20,823,127		
TOTAL INVESTMENTS			$	759,336,107
TOTAL ASSETS			$	786,901,714
CURRENT LIABILITIES:				
Accounts Payable	$	214,047		
Benefits Payable		25,393		
Refunds Payable		257,674		
Investments Payable		17,562		
Due to/(from) Plan B		(212,580)		
Other Post-Employment Benefits		256,739		
Other Current Liabilities		66,801		
TOTAL CURRENT LIABILITIES			$	625,636
MARKET VALUE OF ASSETS			$	786,276,078

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

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

Fiscal year 2020	$	(31,619,883)
Fiscal year 2019		(17,395,262)
Fiscal year 2018		(9,067,158)
Fiscal year 2017		(18,915,901)
Fiscal year 2016		(72,602,401)
Total for Five Years	$	(149,600,605)

Deferral of Excess (Shortfall) of Invested Income:

Fiscal year 2020 (80%)	$	(25,295,906)
Fiscal year 2019 (60%)		(10,437,157)
Fiscal year 2018 (40%)		(3,626,863)
Fiscal year 2017 (20%)		(3,783,180)
Fiscal year 2016 (0%)		0
Total Deferred for Year	$	(43,143,106)

Market Value of Plan Net Assets, End of Year	$	786,276,078
Preliminary Actuarial Value of Plan Assets, End of Year	$	829,419,184

Actuarial Value of Assets Corridor

85% of Market Value, End of Year	$	668,334,666
115% of Market Value, End of Year	$	904,217,490

Final Actuarial Value of Plan Net Assets, End of Year	$	829,419,184

EXHIBIT IV
PLAN A: PRESENT VALUE OF FUTURE CONTRIBUTIONS

Employee Contributions to the Annuity Savings Fund	$	119,736,262
Employer Normal Contributions to the Pension Accumulation Fund		401,841,036
Employer Amortization Payments to the Pension Accumulation Fund		62,368,613
Funding Deposit Account Debit (Credit) Balance		(10,000,835)
TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS	$	573,945,076

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

Prior Year Frozen Unfunded Accrued Liability			$	65,648,756
Interest on Frozen Unfunded Accrued Liability	$	4,595,413		
TOTAL Interest Adjusted Cost Elements			$	4,595,413
Amortization Payment on the Unfunded Accrued Liability	$	7,360,332		
Interest on Amortization Payment		515,224		
Credited Withdrawals from Funding Deposit Account		0		
TOTAL Interest Adjusted Employer Contributions			$	7,875,556
NET Change in Frozen Unfunded Accrued Liability			$	(3,280,143)
CURRENT YEAR FROZEN UNFUNDED ACCRUED LIABILITY			$	62,368,613

EXHIBIT VI
PLAN A: ANALYSIS OF CHANGE IN ASSETS

Actuarial Value of Assets (June 30, 2019)			$	806,503,031
INCOME:				
Member Contributions	$	17,250,443		
Employer Contributions		53,587,883		
Ad Valorem Taxes and Revenue Sharing		6,784,028		
Transfers from Other Plan/Systems		704,574		
Total Contributions			$	78,326,928
Net Appreciation in Fair Value of Investments	$	21,486,720		
Interest & Dividend Income		2,259,117		
Investment Expense		(1,835,422)		
Net Investment Income			$	21,910,415
TOTAL Income			$	100,237,343
EXPENSES:				
Retirement Benefits	$	67,567,996		
DROP Disbursements		4,897,693		
Refunds of Contributions		3,652,378		
Funds Transferred to another System		2,007,205		
Other Benefits/Transfer to/(from) Plan B		(212,580)		
Administrative Expenses		1,108,259		
TOTAL Expenses			$	79,020,951
Net Market Value Income for Fiscal 2020 (Income – Expenses)			$	21,216,392
Unadjusted Fund Balance as of June 30, 2020 (Fund Balance Previous Year + Net Income)			$	827,719,423
Adjustment for Actuarial Smoothing			$	1,699,761
Actuarial Value of Assets: (June 30, 2020)			$	829,419,184

EXHIBIT VII
PLAN A: FUNDING DEPOSIT ACCOUNT

Funding Deposit Account Balance as of June 30, 2019	$	9,346,575
Interest on Opening Balance at 7.00%		654,260
Contributions to the Funding Deposit Account		0
Withdrawals from the Funding Deposit Account		0
Funding Deposit Account Balance as of June 30, 2020	$	10,000,835

EXHIBIT VIII – SCHEDULE A
PLAN A: PENSION BENEFIT OBLIGATION

Present Value of Credited Projected Benefits Payable to Current Employees	$	470,569,718
Present Value of Benefits Payable to Terminated Employees		29,327,057
Present Value of Benefits Payable to Current Retirees and Beneficiaries		684,422,900
TOTAL PENSION BENEFIT OBLIGATION	$	1,184,319,675
NET ACTUARIAL VALUE OF ASSETS	$	829,419,184
Ratio of Net Actuarial Value of Assets to Pension Benefit Obligation		70.03%

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

Accrued Liability for Active Employees	$	489,277,965
Accrued Liability for Terminated Employees		29,327,057
Accrued Liability for Current Retirees and Beneficiaries		684,422,900
TOTAL ENTRY AGE NORMAL ACCRUED LIABILITY	$	1,203,027,922
ACTUARIAL VALUE OF ASSETS	$	829,419,184
Ratio of Net Actuarial Value of Assets to Entry Age Normal Accrued Liability		68.94%

EXHIBIT IX
CENSUS DATA – PLAN A

	Active	Terminated with Funds on Deposit	DROP	Retired	Total
Number of members as of June 30, 2019	4,587	3,390	208	3,552	11,737
Additions to Census					
Initial membership	610	87			697
Omitted in error last year					
Death of another member				53	53
Adjustment for multiple records		4			4
Change in Status during Year					
Actives terminating service	(247)	247			
Actives who retired	(106)			106	
Actives entering DROP	(69)		69		
Term. members rehired	28	(28)			
Term. members who retire		(16)		16	
Retirees who are rehired	2			(2)	
Refunded who are rehired	10	4			14
DROP participants retiring			(31)	31	
DROP returned to work	27		(27)		
Omitted in error last year					
Eliminated from Census					
Refund of contributions	(260)	(147)			(407)
Deaths	(14)	(4)	(3)	(137)	(158)
Included in error last year		(2)			(2)
Adjustment for multiple records	(1)			(1)	(2)
Number of members as of June 30, 2020	4,567	3,535	216	3,618	11,936

PLAN A - ACTIVES CENSUS BY AGE:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
16 - 20	20	2	22	24,313	534,888
21 - 25	132	47	179	27,519	4,925,927
26 - 30	234	128	362	32,509	11,768,107
31 - 35	256	154	410	35,233	14,445,637
36 - 40	311	163	474	39,435	18,692,378
41 - 45	268	179	447	37,962	16,969,150
46 - 50	342	179	521	40,065	20,873,882
51 - 55	461	215	676	42,555	28,766,998
56 - 60	496	269	765	41,638	31,853,408
61 - 65	369	178	547	42,363	23,172,832
66 - 70	151	95	246	46,228	11,372,112
71 - 75	58	29	87	41,403	3,602,092
76 - 80	25	10	35	39,914	1,396,983
81 - 85	9	3	12	30,943	371,319
TOTAL	3,132	1,651	4,783	39,462	188,745,713

THE ACTIVE CENSUS INCLUDES 1,767 ACTIVES WITH VESTED BENEFITS, INCLUDING 216 DROP PARTICIPANTS AND 178 ACTIVE FORMER DROP PARTICIPANTS.

PLAN A - TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
31 - 35	5	3	8	13,218	105,742
36 - 40	9	6	15	14,283	214,241
41 - 45	7	8	15	17,195	257,923
46 - 50	18	13	31	17,345	537,694
51 - 55	24	26	50	15,380	769,015
56 - 60	38	28	66	15,823	1,044,286
61 - 65	10	10	20	13,699	273,984
66 - 70	1	5	6	11,373	68,236
76 - 80	1	1	2	2,343	4,686
TOTAL	113	100	213	15,379	3,275,807

PLAN A - TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

Contributions Ranging From		To	Number	Total Contributions
0	-	99	1873	100,207
100	-	499	478	124,740
500	-	999	227	163,005
1000	-	1999	208	300,248
2000	-	4999	226	722,234
5000	-	9999	136	975,959
10000	-	19999	119	1,683,679
20000	-	99999	55	1,733,284
		TOTAL	3,322	5,803,356

PLAN A - REGULAR RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
41 - 45	3	1	4	18,494	73,974
46 - 50	19	4	23	30,189	694,337
51 - 55	35	17	52	32,670	1,698,829
56 - 60	162	73	235	30,713	7,217,585
61 - 65	305	167	472	27,236	12,855,622
66 - 70	413	182	595	22,528	13,404,137
71 - 75	366	186	552	19,313	10,660,939
76 - 80	275	111	386	17,101	6,601,109
81 - 85	164	70	234	15,205	3,557,953
86 - 90	86	43	129	13,862	1,788,242
91 - 99	40	28	68	13,152	894,321
TOTAL	1,868	882	2,750	21,617	59,447,048

PLAN A - DISABILITY RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
36 - 40	1	0	1	11,039	11,039
41 - 45	2	2	4	15,055	60,221
46 - 50	9	0	9	13,574	122,165
51 - 55	13	3	16	13,904	222,459
56 - 60	21	5	26	12,644	328,743
61 - 65	23	9	32	12,698	406,343
66 - 70	12	4	16	8,108	129,735
71 - 75	8	3	11	8,721	95,934
76 - 80	2	4	6	7,010	42,062
81 - 85	5	1	6	6,679	40,071
86 - 90	2	0	2	7,118	14,236
TOTAL	98	31	129	11,419	1,473,008

PLAN A - SURVIVORS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
0 - 25	5	7	12	12,083	145,000
26 - 30	0	1	1	4,611	4,611
31 - 35	1	2	3	11,755	35,264
36 - 40	1	2	3	6,556	19,668
41 - 45	3	4	7	6,366	44,564
46 - 50	2	7	9	12,631	113,682
51 - 55	4	23	27	11,101	299,737
56 - 60	9	47	56	11,577	648,336
61 - 65	5	59	64	13,053	835,367
66 - 70	9	83	92	13,640	1,254,840
71 - 75	7	86	93	12,970	1,206,227
76 - 80	5	128	133	10,283	1,367,581
81 - 85	9	100	109	10,849	1,182,560
86 - 90	4	79	83	9,379	778,491
91 - 99	0	47	47	8,687	408,270
TOTAL	64	675	739	11,291	8,344,198

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	14	8										22
21 - 25	64	57	37	12	3	6						179
26 - 30	94	80	44	37	38	66	3					362
31 - 35	75	58	38	34	37	130	35	3				410
36 - 40	79	55	41	26	42	133	60	35	3			474
41 - 45	58	63	36	28	21	97	72	42	26	4		447
46 - 50	52	57	32	27	31	102	64	45	51	57	3	521
51 - 55	54	67	47	43	35	125	79	48	78	68	32	676
56 - 60	56	68	42	46	52	146	103	71	62	68	51	765
61 - 65	37	31	28	28	25	112	72	64	63	44	43	547
66 - 70	12	14	6	14	11	59	32	27	29	15	27	246
71 & Over	3	7	8	5	8	19	24	17	9	15	19	134
Totals	598	565	359	300	303	995	544	352	321	271	175	4,783

PLAN A - AVERAGE ANNUAL SALARY OF ACTIVE MEMBERS:

Attained Ages	Completed Years of Service											
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Salary
0 - 20	24,207	24,499										24,313
21 - 25	25,409	26,732	29,608	36,377	22,493	29,426						27,519
26 - 30	28,373	30,985	34,280	34,935	34,821	35,857	43,856					32,509
31 - 35	30,303	32,981	31,928	32,424	37,445	39,255	38,714	33,601				35,233
36 - 40	32,122	29,998	34,608	36,583	38,781	42,599	49,526	49,855	41,282			39,435
41 - 45	32,186	29,856	34,416	37,203	34,350	39,281	43,459	44,524	45,726	55,315		37,962
46 - 50	28,488	34,226	37,826	32,389	36,886	38,726	40,952	43,236	47,643	53,586	70,819	40,065
51 - 55	35,068	32,840	40,228	31,732	39,526	39,382	40,965	44,151	51,946	55,582	60,151	42,555
56 - 60	29,920	36,231	34,839	39,432	38,836	38,293	41,602	44,914	46,762	49,763	60,191	41,638
61 - 65	35,655	41,254	40,959	35,183	38,540	40,192	41,551	45,804	42,976	46,735	53,274	42,363
66 - 70	30,991	52,103	40,998	42,466	51,006	41,658	45,070	41,333	49,656	56,006	58,261	46,228
71 & Over	46,440	33,249	37,736	34,119	35,267	30,513	43,375	45,467	28,170	48,733	45,552	40,078
Average	30,418	32,740	35,471	35,425	37,886	39,321	42,655	44,858	47,024	51,906	56,779	39,462

PLAN A - TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

	Years Until Retirement Eligibility											
Attained Ages	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 30												0
31 - 35										7	1	8
36 - 40								1	13	1		15
41 - 45								15				15
46 - 50				1		2	28					31
51 - 55						49		1				50
56 - 60	11	15	15	15	10							66
61 - 65	20											20
66 - 70	6											6
71 - 75												0
76 - 80	2											2
81 & Over												0
Totals	39	15	15	16	10	51	28	17	13	8	1	213

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

	Years Until Retirement Eligibility											
Attained Ages	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 30												0
31 - 35										13,770	9,350	13,218
36 - 40								17,638	14,707	5,410		14,283
41 - 45								17,195				17,195
46 - 50				25,170		9,647	17,615					17,345
51 - 55						15,437		12,604				15,380
56 - 60	15,675	15,220	15,392	14,963	18,823							15,823
61 - 65	13,699											13,699
66 - 70	11,373											11,373
71 - 75												0
76 - 80	2,343											2,343
81 & Over												0
Average	13,316	15,220	15,392	15,601	18,823	15,210	17,615	16,951	14,707	12,725	9,350	15,379

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	3	9	6	2	2	5						27
51 - 55	13	8	9	5	5	11	1					52
56 - 60	17	20	18	21	28	78	41	11			1	235
61 - 65	58	59	52	33	32	119	88	26	3		2	472
66 - 70	25	42	38	46	53	219	95	54	15	5	3	595
71 - 75	20	18	18	23	21	177	161	80	29	5		552
76 - 80	10	4	5	6	5	76	100	121	37	18	4	386
81 - 85		4	1	1	1	19	36	56	77	23	16	234
86 - 90	1		1		1	7	5	21	38	36	19	129
91 & Over		1			1		1	6		21	38	68
Totals	147	165	148	137	149	711	528	375	199	108	83	2,750

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	29,759	28,339	34,109	20,495	25,196	25,590						28,456
51 - 55	36,889	31,645	27,764	37,826	32,728	30,688	25,913					32,670
56 - 60	39,690	37,891	32,123	35,991	36,510	29,748	22,515	16,591			2,753	30,713
61 - 65	23,909	28,500	28,858	27,569	24,304	32,219	25,482	17,895	15,223		5,973	27,236
66 - 70	19,172	18,952	22,004	23,000	22,166	23,535	24,452	22,949	18,343	10,725	4,921	22,528
71 - 75	16,917	20,869	16,982	21,981	19,840	19,134	17,869	21,571	22,569	15,035		19,313
76 - 80	26,916	46,850	17,074	20,881	12,445	15,216	14,435	15,905	21,683	26,135	18,627	17,101
81 - 85		12,947	30,371	6,885	14,499	14,686	15,084	12,670	14,007	22,738	20,083	15,205
86 - 90	33,292		34,120		6,621	18,558	10,280	10,386	11,403	15,458	17,104	13,862
91 & Over		9,223			30,209		15,610	9,854		14,139	12,717	13,152
Average	25,513	26,470	25,845	26,215	24,960	23,525	19,782	17,397	16,530	18,293	14,862	21,617

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 - 35												0
36 - 40		1										1
41 - 45		3		1								4
46 - 50	4			2		2			1			9
51 - 55	4		3		2	1	4		2			16
56 - 60	4	2		4		7	3	3	2	1		26
61 - 65		3	1	1	1	10	6	5	4	1		32
66 - 70				3		1	5	4	3			16
71 - 75						1	1	3	3	1	2	11
76 - 80						1		2	2	1		6
81 - 85			1				1	2		1	1	6
86 - 90						1				1		2
91 & Over												0
Totals	12	9	5	11	3	24	20	19	17	6	3	129

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 - 35												0
36 - 40		11,039										11,039
41 - 45		14,503		16,713								15,055
46 - 50	16,301			10,161		14,071			8,496			13,574
51 - 55	13,571		14,305		12,981	10,663	15,381		13,556			13,904
56 - 60	12,961	11,785		11,444		15,805	15,461	8,945	7,773	8,158		12,644
61 - 65		11,498	12,972	7,859	16,294	13,134	14,244	12,835	10,119	13,274		12,698
66 - 70				6,929		17,537	7,993	7,926	6,580			8,108
71 - 75						6,473	9,951	8,285	9,705	19,233	3,154	8,721
76 - 80						8,368		5,141	5,719	11,974		7,010
81 - 85			4,628				5,321	7,267		6,435	9,154	6,678
86 - 90						8,244				5,992		7,118
91 & Over												0
Average	14,278	12,512	12,103	10,133	14,085	13,392	12,430	9,073	8,937	10,844	5,154	11,419

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	4		2	4						12
21 - 25												0
26 - 30	1											1
31 - 35			1				1	1				3
36 - 40						2	1					3
41 - 45			1			3	2	1				7
46 - 50	1	1		1		1	1	2	1	1		9
51 - 55	1	1	1	1	2	5	5	6	1		4	27
56 - 60	1	2	2	4	3	14	11	9	4	5	1	56
61 - 65		3	1	2	3	12	10	11	10	5	7	64
66 - 70	3	2	1	1	3	17	22	17	11	10	5	92
71 - 75	1	1	1			14	19	21	18	12	6	93
76 - 80						6	27	29	32	22	17	133
81 - 85		1		1		1	12	18	27	28	21	109
86 - 90		1				1	3	7	18	22	31	83
91 & Over						1		3	5	5	33	47
Totals	8	14	12	10	13	81	114	125	127	110	125	739

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		11,314	11,224		17,461	10,639						12,083
21 - 25												0
26 - 30	4,611											4,611
31 - 35			17,890				7,577	9,798				11,755
36 - 40						6,046	7,577					6,556
41 - 45			4,554			8,575	4,630	5,025				6,366
46 - 50	40,000	11,479		12,839		3,997	19,969	7,234	3,675	7,255		12,631
51 - 55	17,480	12,205	15,505	12,034	13,955	10,357	7,857	18,605	7,536		1,091	11,101
56 - 60	22,469	9,426	13,500	18,520	16,401	15,188	10,852	8,045	4,820	5,639	4,849	11,577
61 - 65		17,510	14,231	13,119	10,475	23,937	9,692	15,070	9,484	7,024	4,436	13,053
66 - 70	15,153	10,730	14,836	12,019	35,021	21,310	13,539	11,418	11,201	6,023	3,662	13,640
71 - 75	6,245	9,536	11,249			18,039	13,312	12,936	14,913	7,846	6,583	12,970
76 - 80						15,818	10,777	11,111	10,847	9,730	5,783	10,283
81 - 85		19,062		14,593		3,902	7,855	7,338	10,675	12,263	13,670	10,849
86 - 90		13,305				7,501	8,795	8,717	7,614	10,678	9,623	9,379
91 & Over						7,469		14,001	13,463	7,100	7,757	8,687
Average	17,033	12,933	12,513	15,180	19,117	16,847	11,073	11,218	10,682	9,571	8,302	11,291

EXHIBIT X
PLAN A: YEAR-TO-YEAR COMPARISON

	Fiscal 2020	Fiscal 2019	Fiscal 2018	Fiscal 2017
Number of Active Members	4,783	4,795	4,888	4,937
Number of Retirees & Survivors	3,618	3,552	3,468	3,417
Number of Terminated Due Deferred Benefits	213	199	185	184
Number Terminated Due Refunds	3,322	3,191	2,994	1,343
Active Lives Payroll	$ 188,745,713	$ 183,483,655	$ 181,786,660	$ 182,044,919
Retiree Benefits in Payment	$ 69,264,254	$ 66,516,731	$ 63,184,393	$ 60,663,715
Market Value of Assets (MVA)	$ 786,276,078	$ 765,059,686	$ 734,226,194	$ 697,057,939
Actuarial Value of Assets (AVA)	$ 829,419,184	$ 806,503,031	$ 797,679,469	$ 781,417,434
Entry Age Normal Accrued Liability	$ 1,203,027,922	$ 1,165,954,887	$ 1,129,080,666	$ 1,096,616,918
Ratio of AVA to EAN Accrued Liability	68.94%	69.17%	70.65%	71.26%
Frozen Unfunded Actuarial Accrued Liability	$ 62,368,613	$ 65,648,756	$ 68,334,864	$ 70,511,316
Present Value of Future Employer Normal Cost	$ 401,841,036	$ 385,947,438	$ 367,352,092	$ 344,034,117
Present Value of Future Employee Contrib.	$ 119,736,262	$ 109,888,429	$ 110,664,765	$ 109,901,879
Funding Deposit Account Balance	$ 10,000,835	$ 9,346,575	$ 8,712,724	$ 8,112,406
Present Value of Future Benefits	$ 1,403,364,260	$ 1,358,641,079	$ 1,335,318,466	$ 1,297,752,340

	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018
Employee Contribution Rate	10.00%	9.50%	9.50%	9.50%
Estimated Tax Contribution as a % of Payroll	3.59%	3.50%	3.50%	3.39%
Actuarially Required Net Direct Employer Contribution Rate	29.18%	29.28%	27.53%	25.88%
Actual Employer Contribution Rate	29.50%	27.75%	26.00%	24.75%

	Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011
	4,912	4,926	4,894	4,939	5,021	5,029
	3,345	3,262	3,177	3,106	3,040	3,001
	186	182	184	193	181	174
	2,826	2,731	2,667	2,672	2,632	2,594
	$ 177,777,678	$ 172,033,158	$ 167,852,836	$ 167,422,222	$ 167,511,550	$ 164,262,655
	$ 57,895,282	$ 54,791,332	$ 51,636,071	$ 48,994,132	$ 46,224,138	$ 44,218,709
	$ 671,876,210	$ 698,984,365	$ 730,072,543	$ 657,723,192	$ 639,209,518	$ 679,285,361
	$ 769,849,744	$ 770,402,847	$ 751,235,484	$ 717,816,409	$ 721,475,280	$ 723,942,801
	$ 1,063,558,257	$ 1,038,155,304	$ 967,584,136	$ 948,970,683	$ 925,638,084	$ 903,431,729
	72.38%	74.21%	77.64%	75.64%	77.94%	80.13%
	$ 72,227,730	$ 73,553,869	$ 74,454,702	$ 75,038,341	$ 75,337,890	$ 75,313,546
	$ 315,256,488	$ 287,312,026	$ 235,357,990	$ 249,506,497	$ 225,090,618	$ 201,003,138
	$ 105,774,692	$ 101,854,569	$ 97,716,362	$ 97,624,041	$ 95,445,659	$ 92,535,571
	$ 8,421,235	$ 7,833,707	$ 8,930,139	$ 8,287,832	$ 7,691,723	$ 7,121,966
	$ 1,254,687,419	$ 1,225,289,604	$ 1,149,834,399	$ 1,131,697,456	$ 1,109,657,724	$ 1,085,673,090

	Fiscal 2017	Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012
	9.50%	9.50%	9.50%	9.50%	9.25%	9.25%
	3.40%	3.64%	3.52%	3.36%	3.13%	3.09%
	24.64%	22.92%	19.48%	20.62%	18.67%	17.08%
	23.25%*	19.75%	20.75%†	18.75%	17.00%	16.75%

* Includes 0.5% from the Funding Deposit Account
† Includes 1.0% from the Funding Deposit Account

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EXHIBIT XI
PLAN B: ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS

1.	Present Value of Future Benefits	$	316,173,970
2.	Funding Deposit Account Credit Balance	$	1,748,191
3.	Actuarial Value of Assets	$	187,812,515
4.	Present Value of Future Employee Contributions	$	24,180,096
5.	Present Value of Future Employer Normal Costs (1 + 2 – 3 – 4)	$	105,929,550
6.	Present Value of Future Salaries	$	535,697,255
7.	Employer Normal Cost Accrual Rate (5 ÷ 6)		19.774145%
8.	Projected Fiscal 2021 Salary for Current Membership	$	69,567,477
9.	Employer Normal Cost as of July 1, 2020 (7 × 8)	$	13,756,374
10.	Employer Normal Cost Interest Adjusted for Mid-year Payment	$	14,226,379
11.	Estimated Administrative Cost for Fiscal 2021	$	625,782
12.	Gross Employer Actuarially Required Contribution for Fiscal 2021 (10 + 11)	$	14,852,161
13.	Projected Ad Valorem Tax Contributions for Fiscal 2021	$	2,775,268
14.	Projected Revenue Sharing Funds for Fiscal 2021	$	46,260
15.	Employers’ Minimum Net Direct Actuarially Required Contribution for Fiscal 2021 (12 – 13 – 14)	$	12,030,633
16.	Projected Payroll for Fiscal 2021	$	78,419,765
17.	Employers’ Minimum Net Direct Actuarially Required Contribution as a % of Projected Payroll for Fiscal 2021 (15 ÷ 16)		15.34%
18.	Board Approved Employer Contribution Rate for 2021		15.50%
19.	Contribution Shortfall (Excess) as a Percentage of Payroll (17 – 18)		(0.16%)
20.	Increase (Reduction) to Following Year Payment for Contribution Shortfall (Excess)		(0.02%)
21.	Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2022 (17 + 20, Rounded to the nearest 0.25%)		15.25%

EXHIBIT XII
PLAN B: PRESENT VALUE OF FUTURE BENEFITS

PRESENT VALUE OF FUTURE BENEFITS FOR ACTIVE MEMBERS:

Retirement Benefits	$	159,861,792		
Survivor Benefits		3,432,077		
Disability Benefits		6,568,856		
Vested Termination Benefits		11,143,153		
Refunds of Contributions		4,677,224		
TOTAL Present Value of Future Benefits for Active Members			$	185,683,102

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement	$	8,412,926		
Terminated Members with Reciprocals Due Benefits at Retirement		982,911		
Terminated Members Due a Refund		1,452,031		
TOTAL Present Value of Future Benefits for Terminated Members			$	10,847,868

PRESENT VALUE OF FUTURE BENEFITS FOR PENSIONERS:

Regular Retirees by Option Selected:						
Maximum	$	44,316,974				
Option 2		40,108,371				
Option 3		12,315,701				
TOTAL Regular Retirees			$	96,741,046		
TOTAL Disability Retirees			$	4,590,215		
TOTAL Survivors			$	17,000,220		
Reserve for Accrued Retiree DROP Account Balances			$	1,311,519		
TOTAL Present Value of Future Benefits for Retirees & Survivors					$	119,643,000
TOTAL Present Value of Future Benefits					$	316,173,970

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

CURRENT ASSETS:				
Cash in Banks	$	12,004,963		
Contributions and Taxes Receivable		971,441		
Accrued Interest and Dividends		39,166		
Investments Receivable		537,052		
Due (to) from Other Funds		(5,222,278)		
TOTAL CURRENT ASSETS			$	8,330,344
Property Plant & Equipment			$	688,139
INVESTMENTS:				
Cash Equivalents	$	7,532,780		
Equities		82,677,896		
Fixed Income		58,439,289		
Real Estate		12,408,181		
Alternative Investments		2,743,434		
Other Investments		5,572,776		
TOTAL INVESTMENTS			$	169,374,356
TOTAL ASSETS			$	178,392,839
CURRENT LIABILITIES:				
Accounts Payable	$	31,128		
Benefits Payable		4,294		
Refunds Payable		31,727		
Investments Payable		3,725		
Due to/(from) Plan A		212,580		
Other Post-Employment Benefits		105,547		
Other Current Liabilities		29,741		
TOTAL CURRENT LIABILITIES			$	418,742
MARKET VALUE OF ASSETS			$	177,974,097

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

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

Fiscal year 2020	$	(7,205,168)
Fiscal year 2019		(4,002,113)
Fiscal year 2018		(2,132,350)
Fiscal year 2017		(4,100,380)
Fiscal year 2016		(15,463,450)
Total for Five Years	$	(32,903,461)

Deferral of Excess (Shortfall) of Invested Income:

Fiscal year 2020 (80%)	$	(5,764,134)
Fiscal year 2019 (60%)		(2,401,268)
Fiscal year 2018 (40%)		(852,940)
Fiscal year 2017 (20%)		(820,076)
Fiscal year 2016 (0%)		0
Total Deferred for Year	$	(9,838,418)

Market Value of Plan Net Assets, End of Year	$	177,974,097
Preliminary Actuarial Value of Plan Assets, End of Year	$	187,812,515

Actuarial Value of Assets Corridor

85% of Market Value, End of Year	$	151,277,982
115% of Market Value, End of Year	$	204,670,212

Final Actuarial Value of Plan Net Assets, End of Year	$	187,812,515

EXHIBIT XIV
PLAN B: PRESENT VALUE OF FUTURE CONTRIBUTIONS

Employee Contributions to the Annuity Savings Fund	$	24,180,096
Employer Normal Contributions to the Pension Accumulation Fund		105,929,550
Employer Amortization Payments to the Pension Accumulation Fund		0
Funding Deposit Account Credit Balance		(1,748,191)
TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS	$	128,361,455

EXHIBIT XV
PLAN B: RECONCILIATION OF CONTRIBUTIONS

Employer Normal Cost for Prior Year	$ 13,262,414		
Interest on Normal Cost	928,369		
Administrative Expenses	454,298		
Interest on Expenses	15,633		
TOTAL Interest Adjusted Actuarially Required Employer Contributions		$	14,660,714
Direct Employer Contributions	$ 10,974,114		
Interest on Employer Contributions	377,598		
Ad Valorem Taxes and Revenue Sharing Funds	2,780,904		
Interest on Taxes and Revenue Sharing Funds	95,685		
TOTAL Interest Adjusted Employer Contributions		$	14,228,301
CONTRIBUTION SURPLUS (DEFICIENCY)		$	(432,413)

EXHIBIT XVI
PLAN B: ANALYSIS OF CHANGE IN ASSETS

Actuarial Value of Assets (June 30, 2019)			$	180,085,046
INCOME:				
Member Contributions	$	3,697,865		
Employer Contributions		10,974,114		
Ad Valorem Taxes and Revenue Sharing		2,780,904		
Transfers from Other Plan/Systems		440,120		
Total Contributions			$	17,893,003
Net Appreciation in Fair Value of Investments	$	4,550,031		
Interest & Dividend Income		677,693		
Investment Expense		(393,839)		
Net Investment Income			$	4,833,885
TOTAL Income			$	22,726,888
EXPENSES:				
Retirement Benefits	$	12,489,798		
DROP Disbursements		1,080,463		
Refunds of Contributions		922,512		
Funds Transferred to another System		464,244		
Other Benefits/Transfer (to)/from Plan A		212,580		
Administrative Expenses		454,298		
TOTAL Expenses			$	15,623,895
Net Market Value Income for Fiscal 2020 (Income – Expenses)			$	7,102,993
Unadjusted Fund Balance as of June 30, 2020 (Fund Balance Previous Year + Net Income)			$	187,188,039
Adjustment for Actuarial Smoothing			$	624,476
Actuarial Value of Assets: (June 30, 2020)			$	187,812,515

EXHIBIT XVII
PLAN B: FUNDING DEPOSIT ACCOUNT

Funding Deposit Account Balance as of June 30, 2019	$	1,633,823
Interest on Opening Balance at 7.00%		114,368
Contributions to the Funding Deposit Account		0
Withdrawals from the Funding Deposit Account		0
Funding Deposit Account Balance as of June 30, 2020	$	1,748,191

EXHIBIT XVIII – SCHEDULE A
PLAN B: PENSION BENEFIT OBLIGATION

Present Value of Credited Projected Benefits Payable to Current Employees	$	125,957,751
Present Value of Benefits Payable to Terminated Employees		10,847,868
Present Value of Benefits Payable to Current Retirees and Beneficiaries		119,643,000
TOTAL PENSION BENEFIT OBLIGATION	$	256,448,619
NET ACTUARIAL VALUE OF ASSETS	$	187,812,515
Ratio of Net Actuarial Value of Assets to Pension Benefit Obligation		73.24%

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

Accrued Liability for Active Employees	$	134,283,381
Accrued Liability for Terminated Employees		10,847,868
Accrued Liability for Current Retirees and Beneficiaries		119,643,000
TOTAL ENTRY AGE NORMAL ACCRUED LIABILITY	$	264,774,249
ACTUARIAL VALUE OF ASSETS	$	187,812,515
Ratio of Net Actuarial Value of Assets to Entry Age Normal Accrued Liability		70.93%

EXHIBIT XIX
CENSUS DATA – PLAN B

	Active	Terminated with Funds on Deposit	DROP	Retired	Total
Number of members as of June 30, 2019	1,985	1,653	78	1,076	4,792
Additions to Census					
Initial membership	260	49			309
Omitted in error last year					
Death of another member				19	19
Adjustment for multiple records		1		1	2
Change in Status during Year					
Actives terminating service	(128)	128			
Actives who retired	(43)			43	
Actives entering DROP	(34)		34		
Term. members rehired	11	(11)			
Term. members who retire		(8)		8	
Retirees who are rehired	1			(1)	
Refunded who are rehired	4	1			5
DROP participants retiring			(10)	10	
DROP returned to work	14		(14)		
Omitted in error last year					
Eliminated from Census					
Refund of contributions	(111)	(78)			(189)
Deaths	(6)	(2)		(48)	(56)
Included in error last year		(1)		(1)	(2)
Adjustment for multiple records	(4)				(4)
Number of members as of June 30, 2020	1,949	1,732	88	1,107	4,876

PLAN B - ACTIVES CENSUS BY AGE:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
16 - 20	22	1	23	23,988	551,734
21 - 25	67	19	86	27,670	2,379,587
26 - 30	102	33	135	29,774	4,019,529
31 - 35	86	41	127	33,915	4,307,187
36 - 40	120	69	189	36,385	6,876,787
41 - 45	126	60	186	38,095	7,085,677
46 - 50	136	77	213	38,984	8,303,518
51 - 55	180	94	274	40,597	11,123,604
56 - 60	221	111	332	38,503	12,783,062
61 - 65	193	109	302	40,930	12,360,710
66 - 70	76	29	105	42,290	4,440,486
71 - 75	27	15	42	42,202	1,772,479
76 - 80	18	2	20	33,270	665,390
81 - 85	2	0	2	17,942	35,884
86 - 90	1	0	1	94,000	94,000
TOTAL	1,377	660	2,037	37,702	76,799,634

THE ACTIVE CENSUS INCLUDES 785 ACTIVES WITH VESTED BENEFITS, INCLUDING 88 DROP PARTICIPANTS AND 77 ACTIVE FORMER DROP PARTICIPANTS.

PLAN B - TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
36 - 40	2	2	4	9,824	39,297
41 - 45	2	3	5	11,013	55,066
46 - 50	10	6	16	13,309	212,945
51 - 55	16	5	21	9,885	207,587
56 - 60	28	16	44	14,064	618,834
61 - 65	9	0	9	7,385	66,461
66 - 70	1	1	2	5,708	11,415
76 - 80	1	0	1	494	494
86 - 90	1	0	1	630	630
TOTAL	70	33	103	11,774	1,212,729

PLAN B - TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

Contributions Ranging From		To	Number	Total Contributions
0	-	99	824	25,837
100	-	499	384	93,602
500	-	999	135	97,089
1000	-	1999	111	152,740
2000	-	4999	102	325,838
5000	-	9999	53	392,592
10000	-	19999	16	195,398
20000	-	99999	4	91,140
		TOTAL	1,629	1,374,236

PLAN B - REGULAR RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
51 - 55	2	0	2	31,726	63,451
56 - 60	16	10	26	21,666	563,310
61 - 65	76	41	117	15,519	1,815,681
66 - 70	156	59	215	14,055	3,021,810
71 - 75	116	41	157	12,059	1,893,254
76 - 80	83	40	123	10,218	1,256,856
81 - 85	70	32	102	10,111	1,031,311
86 - 90	35	19	54	10,698	577,675
91 - 99	16	4	20	7,135	142,701
TOTAL	570	246	816	12,703	10,366,049

PLAN B - DISABILITY RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
41 - 45	1	0	1	6,935	6,935
46 - 50	3	0	3	7,097	21,290
51 - 55	3	1	4	9,345	37,379
56 - 60	12	4	16	11,245	179,918
61 - 65	11	4	15	11,402	171,035
71 - 75	1	0	1	12,210	12,210
TOTAL	31	9	40	10,719	428,767

PLAN B - SURVIVORS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
31 - 35	0	1	1	2,245	2,245
41 - 45	1	2	3	5,567	16,700
46 - 50	0	3	3	11,950	35,850
51 - 55	2	4	6	3,303	19,820
56 - 60	2	15	17	10,900	185,302
61 - 65	4	26	30	9,692	290,767
66 - 70	3	29	32	11,052	353,655
71 - 75	2	37	39	7,081	276,173
76 - 80	1	34	35	7,242	253,471
81 - 85	1	40	41	7,655	313,866
86 - 90	1	25	26	7,685	199,818
91 - 99	0	18	18	4,485	80,732
TOTAL	17	234	251	8,081	2,028,399

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	16	7										23
21 - 25	36	26	21	3								86
26 - 30	40	28	25	13	11	17	1					135
31 - 35	29	19	19	9	9	25	17					127
36 - 40	25	21	21	14	12	44	33	15	4			189
41 - 45	25	25	17	9	8	40	32	14	15	1		186
46 - 50	19	24	19	12	10	34	34	25	18	16	2	213
51 - 55	23	20	21	19	15	49	48	27	25	18	9	274
56 - 60	26	26	26	14	18	67	56	36	27	14	22	332
61 - 65	12	19	18	23	13	55	40	34	23	29	36	302
66 - 70	6	6	6	3	7	29	15	12	4	6	11	105
71 & Over	3	5	2	6	2	15	10	5	7	3	7	65
Totals	260	226	195	125	105	375	286	168	123	87	87	2,037

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	23,299	25,564										23,988
21 - 25	25,079	29,698	29,028	31,674								27,670
26 - 30	25,433	27,031	33,281	31,330	36,763	32,363	51,475					29,774
31 - 35	32,685	33,760	32,014	36,031	31,071	35,064	37,006					33,915
36 - 40	28,608	27,371	36,766	35,354	30,337	35,007	46,902	46,054	44,207			36,385
41 - 45	27,402	28,845	33,832	30,538	34,319	39,481	48,051	49,892	46,444	42,971		38,095
46 - 50	29,511	30,947	35,617	33,574	40,554	39,754	43,427	40,215	49,706	43,954	41,733	38,984
51 - 55	28,866	35,483	32,175	35,671	31,482	38,028	46,788	43,309	48,699	48,608	61,493	40,597
56 - 60	27,650	36,249	30,968	41,859	31,420	35,179	39,159	46,178	41,822	51,503	50,110	38,503
61 - 65	25,360	31,223	30,848	36,807	34,211	35,026	35,923	48,569	49,060	48,950	57,053	40,930
66 - 70	31,126	27,725	30,771	53,626	29,779	37,977	48,567	49,553	38,331	55,677	56,506	42,290
71 & Over	25,175	32,863	28,555	43,293	27,248	39,799	45,495	48,681	40,988	33,302	39,197	39,504
Average	27,504	30,814	32,573	36,242	33,082	36,648	43,012	45,928	46,207	48,227	53,899	37,702

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 - 35												0
36 - 40									4			4
41 - 45								5				5
46 - 50							16					16
51 - 55						21						21
56 - 60	9	15	4	10	6							44
61 - 65	7	1		1								9
66 - 70	2											2
71 - 75												0
76 - 80	1											1
81 - 85												0
86 - 90	1											1
91 & Over												0
Totals	20	16	4	11	6	21	16	5	4	0	0	103

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 - 35												0
36 - 40									9,824			9,824
41 - 45								11,013				11,013
46 - 50							13,309					13,309
51 - 55						9,885						9,885
56 - 60	17,757	11,592	9,469	16,547	13,632							14,064
61 - 65	8,648	1,080		4,848								7,385
66 - 70	5,707											5,707
71 - 75												0
76 - 80	494											494
81 - 85												0
86 - 90	630											630
91 & Over												0
Average	11,644	10,935	9,469	15,483	13,632	9,885	13,309	11,013	9,824	0	0	11,774

PLAN B - SERVICE RETIREES:

Attained Ages	Completed Years Since Retirement: 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Total
0 - 50												0
51 - 55		2										2
56 - 60	5		2	3	5	9	2					26
61 - 65	25	23	24	13	5	22	3	2				117
66 - 70	20	19	28	17	20	86	16	6	2	1		215
71 - 75	9	6	3	13	3	58	54	10		1		157
76 - 80	4	4	4	5	2	33	40	24	5	2		123
81 - 85	1	1	3	4		5	20	34	31	3		102
86 - 90	1		1	1		2	5	9	15	18	2	54
91 & Over						2	1	1	1	8	7	20
Totals	65	55	65	56	35	217	141	86	54	33	9	816

PLAN B - AVERAGE ANNUAL BENEFITS PAYABLE TO SERVICE RETIREES:

Attained Ages	Completed Years Since Retirement: 0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	Average Benefit
0 - 50												0
51 - 55		31,726										31,726
56 - 60	18,644		26,144	27,790	22,943	20,856	16,007					21,666
61 - 65	14,796	13,791	14,810	16,137	8,503	19,634	20,078	14,337				15,519
66 - 70	14,726	15,595	13,808	12,256	11,454	14,353	17,663	12,085	6,438	4,605		14,055
71 - 75	9,257	7,173	7,274	8,009	12,584	13,996	11,887	14,377		5,784		12,059
76 - 80	11,885	7,949	8,628	10,522	8,134	11,728	9,341	9,774	12,322	8,641		10,218
81 - 85	4,879	13,688	7,991	14,286		11,466	10,241	10,312	8,604	17,385		10,111
86 - 90	28,911		13,982	26,284		4,102	7,326	11,135	9,540	10,729	13,612	10,698
91 & Over						5,120	4,396	1,480	11,640	10,205	4,759	7,135
Average	14,189	13,918	13,671	13,244	12,581	14,417	11,604	10,835	9,184	10,745	6,726	12,703

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 - 40												0
41 - 45		1										1
46 - 50						2	1					3
51 - 55			2			1		1				4
56 - 60		1	2	2	1	3	4	2		1		16
61 - 65				1	1	9	1	1	1	1		15
66 - 70												0
71 - 75										1		1
76 & Over												0
Totals	0	2	4	3	2	15	6	4	1	3	0	40

PLAN B - AVERAGE ANNUAL BENEFITS PAYABLE TO DISABILITY RETIREES:

Attained Ages	Completed Years Since Retirement											Average Benefit
	0	1	2	3	4	5- 9	10-14	15-19	20-24	25-29	30&Over	
0 - 40												0
41 - 45		6,935										6,935
46 - 50						7,209	6,872					7,097
51 - 55			9,973			10,215		7,217				9,345
56 - 60		6,144	11,815	13,035	12,618	9,903	14,681	9,128		4,766		11,245
61 - 65				19,062	18,109	11,540	9,734	9,379	5,821	5,071		11,402
66 - 70												0
71 - 75										12,210		12,210
76 & Over												0
Average	0	6,540	10,894	15,044	15,363	10,547	12,555	8,713	5,821	7,349	0	10,719

PLAN B - SURVIVING BENEFICIARIES OF FORMER MEMBERS:

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 - 30												0
31 - 35									1			1
36 - 40												0
41 - 45						2			1			3
46 - 50			1			1			1			3
51 - 55					1	1	1	1	1	1		6
56 - 60		3		1	2	4	2	3	1		1	17
61 - 65	1	1	3	2	1	8	6	2	2	3	1	30
66 - 70	1	1		1	2	7	6	8	4	1	1	32
71 - 75		1	1	1		5	13	11	3	4		39
76 - 80		1				4	5	9	10	5	1	35
81 - 85		1				2	1	13	10	12	2	41
86 - 90						1	4	3	3	7	8	26
91 & Over							1	1	2	4	10	18
Totals	2	8	5	5	6	35	39	51	39	37	24	251

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

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 - 30												0
31 - 35									2,245			2,245
36 - 40												0
41 - 45						6,556			3,588			5,567
46 - 50			24,661			6,909			4,280			11,950
51 - 55					7,379	4,266	2,757	2,357	1,677	1,386		3,303
56 - 60		25,145		1,415	16,906	8,820	2,873	10,159	2,242		898	10,900
61 - 65	15,246	26,236	16,172	10,653	7,809	11,014	6,602	3,713	3,856	8,652	2,836	9,692
66 - 70	13,204	7,543		18,510	9,776	16,236	12,694	5,640	12,274	6,888	3,933	11,052
71 - 75		7,956	6,876	12,719		7,242	8,178	6,719	3,591	5,354		7,081
76 - 80		7,651				4,759	5,190	10,234	6,285	7,878	6,493	7,242
81 - 85		15,935				17,347	13,528	8,328	6,015	5,270	9,028	7,655
86 - 90						5,341	6,926	8,060	7,157	10,235	6,184	7,685
91 & Over							507	1,906	2,750	3,986	5,688	4,485
Average	14,225	17,594	16,011	10,790	11,425	10,189	7,648	7,564	5,938	6,645	5,773	8,081

EXHIBIT XX
PLAN B: YEAR-TO-YEAR COMPARISON

	Fiscal 2020	Fiscal 2019	Fiscal 2018	Fiscal 2017
Number of Active Members	2,037	2,063	2,128	2,125
Number of Retirees & Survivors	1,107	1,076	1,050	1,025
Number of Terminated Due Deferred Benefits	103	97	92	82
Number Terminated Due Refunds	1,629	1,556	1,419	1,331
Active Lives Payroll	$ 76,799,634	$ 75,213,353	$ 74,696,846	$ 73,275,324
Retiree Benefits in Payment	$ 12,823,215	$ 12,223,991	$ 11,522,493	$ 10,946,571
Market Value of Assets (MVA)	$ 177,974,097	$ 170,871,104	$ 161,284,802	$ 150,467,958
Actuarial Value of Assets (AVA)	$ 187,812,515	$ 180,085,046	$ 175,032,415	$ 168,698,012
Entry Age Normal Accrued Liability	$ 264,774,249	$ 254,292,446	$ 241,302,909	$ 232,425,916
Ratio of AVA to EAN Accrued Liability	70.93%	70.82%	72.54%	72.58%
Frozen Unfunded Actuarial Accrued Liability	$ 0	$ 0	$ 0	$ 2,382,456
Present Value of Future Employer Normal Cost	$ 105,929,550	$ 102,003,203	$ 95,920,724	$ 91,249,645
Present Value of Future Employee Contrib.	$ 24,180,096	$ 23,628,322	$ 24,253,572	$ 23,664,481
Funding Deposit Account Balance	$ 1,748,191	$ 1,633,823	$ 1,523,023	$ 3,286,730
Present Value of Future Benefits	$ 316,173,970	$ 304,082,748	$ 293,683,688	$ 282,707,864

	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018
Employee Contribution Rate	5.00%	5.00%	5.00%	5.00%
Estimated Tax Contribution as a % of Payroll	3.60%	3.50%	3.38%	3.37%
Actuarially Required Net Direct Employer Contribution Rate	15.34%	15.34%	13.73%	14.00%
Actual Employer Contribution Rate	15.50%	14.00%	14.00%	13.25%

Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011
2,142	2,200	2,168	2,128	2,155	2,175
975	959	916	900	879	865
71	71	74	61	61	62
1,258	1,218	1,170	1,155	1,100	1,062
$ 71,918,938	$ 69,909,530	$ 67,939,158	$ 65,928,929	$ 66,409,896	$ 65,427,477
$ 10,254,964	$ 9,917,688	$ 9,141,803	$ 8,793,050	$ 8,285,257	$ 7,953,795
$ 143,201,586	$ 149,268,995	$ 156,659,396	$ 140,744,063	$ 137,164,489	$ 144,028,034
$ 164,516,476	$ 165,154,609	$ 161,992,280	$ 153,851,774	$ 154,451,871	$ 152,966,837
$ 221,633,353	$ 212,961,895	$ 199,762,726	$ 192,160,973	$ 187,178,650	$ 181,142,563
74.23%	77.55%	81.09%	80.06%	82.52%	84.45%
$ 2,742,698	$ 3,088,551	$ 3,421,001	$ 3,740,857	$ 4,049,257	$ 4,346,525
$ 82,911,008	$ 72,948,195	$ 60,613,662	$ 60,012,141	$ 54,153,087	$ 49,451,626
$ 23,119,585	$ 22,770,216	$ 21,982,912	$ 21,589,199	$ 21,845,625	$ 21,582,459
$ 3,233,725	$ 3,008,116	$ 3,126,521	$ 2,901,644	$ 2,692,941	$ 2,493,464
$ 270,056,042	$ 260,953,455	$ 244,883,334	$ 236,292,327	$ 231,806,899	$ 225,853,983

Fiscal 2017	Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012
5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
3.41%	3.64%	3.41%	3.38%	3.14%	3.10%
13.06%	11.04%	9.60%	9.82%	8.72%	7.89%
11.25%*	9.50%	10.00%†	8.75%	8.00%	8.00%

* Includes 0.25% from the Funding Deposit Account
† Includes 0.50% from the Funding Deposit Account

SUMMARY OF PRINCIPAL PLAN PROVISIONS

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

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

PLAN A PROVISIONS:

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

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

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

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

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

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

PLAN B PROVISIONS:

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

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

RETIREMENT BENEFITS (Tier 2) – Employees whose first employment making them eligible for membership occurs on or after January 1, 2013 will become members of Tier 2. Normal retirement eligibility in Tier 2 is at age 67 with seven years of service credit, at age 62 with ten years of service credit, or age 55 with thirty years of service credit. Members are eligible for an actuarially reduced early retirement at twenty-five years of service credit. Retirement benefits are based on a 2% accrual rate. Employee contributions are set by the Board of Trustees within a range of 4% to 6%.

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

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

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

PROVISIONS APPLICABLE TO BOTH PLAN A AND B:

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

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

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

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

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

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

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

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

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

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

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

ACTUARIAL ASSUMPTIONS

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

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

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

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

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

VALUATION INTEREST RATE: 6.95% (Net of Investment Expense)

ANNUAL SALARY INCREASE RATE: Salary increases include 2.5% inflation. The gross rates including inflation and merit increases are as follows:

PLAN A

Years of Service (less than or equal to)	Salary Increase (in the following year)
1-4	6.4%
Above 4	4.5%

PLAN B

Years of Service (less than or equal to)	Salary Increase (in the following year)
1-4	7.4%
Above 4	4.9%

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

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

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

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

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

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

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

RETIREMENT RATES FOR ACTIVE FORMER DROP PARTICIPANTS: The table of these rates is included later in the report. These rates apply only to those active participants who were previously in DROP.

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

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

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

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

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

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

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

Member's Age	% With Children	Number 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

DISABLED LIVES MORTALITY: 120% of the PubNS-2010(B) Disabled Retiree Tables for males and females, each with each with the full generational MP2018 scale

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

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

PLAN A – ACTUARIAL TABLES AND RATES

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

PLAN B – ACTUARIAL TABLES AND RATES

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

PRIOR YEAR ASSUMPTIONS

VALUATION INTEREST RATE: 7.00% (Net of Investment Expense)

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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.

Amortization Payment – That portion of the pension plan contribution designated to pay interest and reduce the outstanding principal balance of unfunded actuarial accrued liability. If the amortization payment is less than the accrued interest on the unfunded actuarial accrued liability the outstanding principal balance will increase.

Contribution Shortfall (Excess) – The difference between contributions recommended in the prior valuation and the actual amount received.

Decrements – Events which result in the termination of membership in the system such as retirement, disability, withdrawal, or death.

Employer Normal Cost – That portion of the normal cost not attributable to employee contributions. It includes both direct contributions made by the employer and contributions from other non-employee sources such as revenue sharing and revenues related to taxes.

Funded Ratio – A measure of the ratio of assets to liabilities of the system according to a specific definition of those two values. Typically the assets used in the measure are the actuarial value of assets; the liabilities are defined by reference to some recognized actuarial funding method. Thus the funded ratio of a plan depends not only on the financial strength of the plan but also on the funding method used to determine the liabilities and the asset valuation method used to determine the assets in the ratio.

Normal Cost – That portion of the actuarial present value of pension plan benefits and expenses allocated to a valuation year by the actuarial cost method. This is analogous to one year's insurance premium.

Pension Benefit Obligation – The actuarial present value of benefits earned or credited to date based on the members expected final average compensation at retirement. For current retirees or terminated members this is equivalent to the actuarial present value of their accrued benefit.

Projected Benefits – The benefits expected to be paid in the future based on the provisions of the plan and the actuarial assumptions. The projected values are based on anticipated future advancement in age and accrual of service as well as increases in salary paid to the participant.

Unfunded Actuarial Accrued Liability – The excess of the actuarial accrued liability over the actuarial value of assets.

Vested Benefits – Benefits that the members are entitled to even if they withdraw from service.

NOTES