

**REGISTRARS OF VOTERS EMPLOYEES'
RETIREMENT SYSTEM**

ACTUARIAL VALUATION AS OF
JUNE 30, 2020

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Actuarial Services

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October 21, 2020

Board of Trustees
Registrars of Voters Employees' Retirement System
P.O. Box 1959
Gonzales, Louisiana 70707

Ladies and Gentlemen:

We are pleased to present our report on the actuarial valuation of the Registrars of Voters 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 administrator and accountants. This report was prepared at the request of the Board of Trustees of the Registrars of Voters Employees' Retirement System. 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 Registrars of Voters 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.

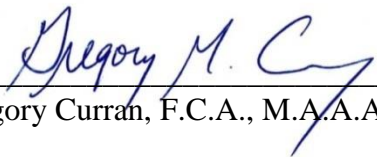
By: 
Gregory Curran, F.C.A., M.A.A.A., A.S.A.

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SUMMARY OF VALUATION RESULTS REGISTRARS OF VOTERS EMPLOYEES' RETIREMENT SYSTEM

Valuation Date:	June 30, 2020	June 30, 2019
Census Summary:		
Active Members	237	238
Retired Members and Survivors	172	160
Terminated Due a Deferred Benefit	5	5
Terminated Due a Refund	32	30
Payroll:	\$ 13,345,544	\$ 13,486,619
Benefits in Payment:	\$ 6,144,328	\$ 5,552,865
Present Value of Future Benefits	\$ 154,707,876	\$ 151,252,706
Actuarial Accrued Liability (EAN):	\$ 126,089,287	\$ 119,488,829
Funding Deposit Account Credit Balance	\$ 3,589,555	\$ 2,801,029
Actuarial Value of Assets (AVA):	\$ 108,190,984	\$ 103,472,404
Market Value of Assets (MVA):	\$ 107,614,909	\$ 104,539,975
Ratio of AVA to Actuarial Accrued Liability (EAN):	85.81%	86.60%
	Fiscal 2020	Fiscal 2019
Market Rate of Return:	4.1%	7.4%
Actuarial Rate of Return:	5.7%	4.8%
	Fiscal 2021	Fiscal 2020
Employers' Normal Cost (Mid-year):	\$ 4,609,700	\$ 4,631,789
Estimated Administrative Cost	\$ 462,775	\$ 465,379
Projected Ad Valorem Tax Contributions	\$ 3,194,640	\$ 2,954,904
Projected Revenue Sharing Funds	\$ 110,085	\$ 110,079
Net Direct Employer Actuarially Required Contributions:	\$ 1,767,750	\$ 2,032,185
Projected Payroll:	\$ 13,549,699	\$ 14,072,994
Statutory Employee Contribution Rate:	7.00%	7.00%
Board Approved Net Direct Employer Contribution Rate:	18.00%	18.00%
Projected Ad Valorem Taxes and Revenue Sharing Funds as % of Payroll	24.39% †	21.78% †
Actuarially Required Net Direct Employer Contribution Rate:	13.05%	14.44%
	Fiscal 2022	Fiscal 2021
Minimum Recommended Net Direct Employer Contribution Rate:	13.00%	14.50%

† Percent of the aggregate amount of the ad valorem tax shown to be collected by the tax roll of each respective parish. State Revenue Sharing Funds are allocated based on the ad valorem tax rate.

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, our office electronically downloaded census information 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 237 active members, of whom, 129 members, including 18 participants in the Deferred Retirement Option Plan (DROP), have vested retirement benefits; 172 former members or their beneficiaries are receiving retirement benefits. An additional 37 former members have contributions remaining on deposit with the system; of this number 5 former members 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 administrator for verification and/or correction. Once the identified data has been researched and verified or corrected, it is returned to us for use in the valuation. Occasionally some requested information is either unavailable or impractical to obtain. In such cases, values may be assigned to missing data. For this valuation, the number of such records with imputed data is de minimis. The assigned values are based on information from similar records or based on information implied from other data in the record.

In addition to the statistical information provided on the system's participants, the system's administrative director furnished general information related to other aspects of the system's expenses, benefits and funding. Valuation asset values as well as income and expenses for the fiscal year were based on information furnished by the system's auditor, the firm of Duplantier, Hrapmann, Hogan & Maher, L.L.P. As indicated in the system's audit report, the net market value of assets was \$107,614,909 as of June 30, 2020. Net investment income for Fiscal 2020 measured on a market value basis was \$4,214,886. Contributions to the system for the fiscal year totaled \$6,618,274; benefits and expenses amounted to \$7,758,227.

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

COMMENTS ON ACTUARIAL METHODS AND ASSUMPTIONS

This valuation is based on the Aggregate Actuarial Cost Method. Under the Aggregate Cost Method, actuarial gains and losses are spread over future normal costs. Thus, favorable plan experience will lower future normal costs; unfavorable experience will cause future normal costs to increase. In addition, changes in benefits and assumptions are also spread over future normal costs.

The current year actuarial assumptions utilized for this report are based on the results of an actuarial experience study for the period July 1, 2014 – June 30, 2019, 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 2020 Registrars of Voters Employees' Retirement System Experience Study Report.

In reviewing the valuation interest rate, 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 although the 6.5% assumed rate of return used in the 2019 valuation remains within the reasonable range, a further reduction was warranted to reduce plan risk and to improve the probability of achieving the long-term assumption. 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 addition, changes were made to the system's demographic assumptions. This includes updated rates of withdrawal, rates of retirement, rates of DROP entry, rates of disability, rates of annual salary increase, expected Post-DROP service, family statistics, and mortality rates. In addition to updating the base table for mortality to use the Pub-2010 Public Retirement Plans Mortality tables created by the Society of Actuaries, a change was made in the methodology used to model system mortality. This valuation was prepared based upon full generational mortality.

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. Furthermore, it is probable that the costs of future COLAs will be offset with funds from the Funding Deposit Account. 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 used are based on estimates of future long-term experience for the system as described in the system's 2020 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 to contribution levels will be required. Such differences will be revealed in future actuarial valuations. The net effect of the changes in demographic assumptions on the normal cost accrual rate was an increase of 1.3060%. The net effect of the change in the valuation interest rate on the normal cost accrual rate was an increase of 1.3450%.

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 the plan. Future net noninvestment cash flows for the system will be determined based upon both the system maturity and future contribution levels. Hence, increases in future contributions due to adverse actuarial experience will tend to mitigate the potential of negative cash flows arising from the natural maturation of the system whereas reduced contribution levels resulting from positive experience will tend to increase the extent of negative cash flows. Absent a significant increase in the active membership of the system, the trend of higher proportions of retired

membership will continue and the current trend toward higher levels of negative noninvestment cash flows will continue in the near future.

In addition to asset risk, the plan is also subject to risks related to liabilities. These risks include longevity risk (the risk that retirees will live longer than expected), termination risk (the risk that fewer than the anticipated number of members will terminate service prior to retirement), and other factors that may have an impact on the liability structure of the plan. In a general sense, the short term effects of these risks on the cost structure of the plan are somewhat limited since changes in these factors tend to be gradual and follow long-term secular trends. Final average compensation plans are also vulnerable to unexpectedly large increases in salary for individual members near retirement. The effect of such events frequently relates to pay plan revisions where salaries “catch-up” after a number of years of slow growth. Revisions of this type usually depend on general economic conditions and can result in liability losses. However, they generally are infrequent and are more of a short term issue.

Liability risk also includes items such as data errors. Significant errors in plan data can distort or disguise plan liabilities. When data corrections are made, the plan may experience unexpected increases or decreases in liabilities. Even natural disasters and dislocations in the economy or other unforeseen events can present risks to the plan. These events can affect member payroll and plan demographics, both of which impact costs. The risk associated with either of these factors can vary 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 85.81% for the plan 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 system 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. Exhibit X gives 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. We have determined that based on current assets and demographics, for each percentage under (over) the assumed rate of return on the actuarial value of assets, there will be a corresponding increase (decrease) in the actuarially required contribution as a percentage of projected payroll of 0.88% for the fund.

Each pension plan has its own unique benefit structure and demographic profile. As a result each plan will respond to changes in interest rates in a unique way. As the expected rate of return on investments changes and the interest rate used to discount plan liabilities is adjusted, the shift in plan liabilities will depend upon the duration of the liabilities (which can be understood as the plan’s sensitivity to the

change in the interest rate). A slightly different measure of the duration for the plan can also be understood as an indicator of the plan's maturity. When a pension plan is first established, all of the participants are active members; as members retire and the plan matures, the duration of the plan decreases. A determination of the liability duration gives some insight into the investment time horizon of the plan. Thus the liability duration of a closed plan can be thought of as the weighted "center of gravity" of plan benefit cash flows with expected cash flows occurring both before and after the duration value. For open plans with a continuous flow of new entrants this measure is somewhat less informative since the duration horizon keeps changing as new members enter the plan. For this plan we have estimated the effective liability duration as 9.92.

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 46%; ten years ago this ratio was 23%.

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 13.67% of payroll. 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 system had no changes enacted during the 2020 Regular Session of the Louisiana Legislature.

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.

	<u>Market Value</u>	<u>Actuarial Value</u>
2011	16.4%	4.8%
2012	-5.0%	-0.3%
2013	10.1%	1.6%
2014	13.1%	7.9%
2015	-0.2%	6.1%
2016	-2.0%	3.0%
2017	12.4%	5.7%
2018	6.8%	5.5%
2019	7.4%	4.8%
2020	4.1%	5.7%

Geometric Average Market Rates of Return

5 year average (Fiscal 2016 – 2020)	5.6%
10 year average (Fiscal 2011 – 2020)	6.1%
15 year average (Fiscal 2006 – 2020)	4.2%
20 year average (Fiscal 2001 – 2020)	4.3%
25 year average (Fiscal 1996 – 2020)	5.1%
30 year average (Fiscal 1991 – 2020)	5.8%

The market rate of return gives a measure of investment return on a total return basis and includes realized and unrealized capital gains and losses as well as interest income and dividends. This rate of return gives an indication of performance for an actively managed portfolio where securities are bought and sold with the objective of producing the highest total rate of return. During 2020, the system earned \$3,123,773 dividends, interest and other recurring income. Net income was increased by realized and unrealized capital gains of \$1,562,983. Investment expenses reduced income by \$471,870.

The actuarial rate of return is presented for comparison to the assumed long-term rate of return of 6.50% applicable for Fiscal 2020 (6.40% beginning July 1, 2020). This rate is calculated based on the actuarial value of assets and the market value income adjusted for actuarial smoothing as given in Exhibit VI. Investment income used to calculate this yield is based upon a smoothing of investment income above or below the valuation interest rate over a five year period subject to limits as described in the section detailing actuarial assumptions. The difference between rates of return on an actuarial and market value basis results from the smoothing utilized. In the future, yields in excess of the 6.40% assumption will reduce future costs; yields below 6.40% will increase future costs. For Fiscal 2020, the

system earned net actuarial investment income totaling \$830,708 less than the actuarial assumed earnings rate of 6.50% in effect for Fiscal 2020. This shortfall in earnings produced an actuarial loss, which increased the normal cost accrual rate by 0.6756%.

DEMOGRAPHICS AND LIABILITY EXPERIENCE

A reconciliation of the census for the plan is given in Exhibit IX. The average active member (including DROP participants) is 52 years old with 12.89 years of service and an annual salary of \$56,310. The system's active membership decreased by 1 members during the fiscal year. The plan has experienced an increase in the active plan population of 6 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 below 60 age groups have decreased significantly while the proportion of active members in the 61 and above age group have increased. Over the same ten-year period, the proportion of members with 10-19 years of service increased with reductions in the proportion of members with fewer than 10 years of service.

The average service retiree is 73 years old with a monthly benefit of \$3,463. The average age at retirement for regular retirees is 63. The number of retirees and beneficiaries receiving benefits from the system increased by 12 during the fiscal year; over the last five years the number of retirees has increased by 16. During this same period, annual benefits in payment increased by \$1,913,019.

Plan liability experience for Fiscal 2020 was somewhat favorable. Most decrements were near projected levels. Liability experience gains were produced primarily by withdrawals above projected levels and salary increases and DROP entries below projected levels. These tend to reduce costs. These savings were partially offset by deaths slightly below projected levels and disability retirements slightly above projected levels. DROP returned to work and service retirements were near projected levels. In aggregate, plan liability gains decreased the normal cost accrual rate by 0.2552%.

FUNDING ANALYSIS AND RECOMMENDATIONS DEFINED BENEFIT PLAN

Actuarial funding of a retirement system is a process whereby funds are accumulated over the working lifetimes of employees in such a manner as to have sufficient assets available at retirement to pay for the lifetime benefits accrued by each member of the system. The required contributions are determined by an actuarial valuation based on rates of mortality, termination, disability, and retirement, as well as investment return and other statistical measures specific to the particular group. Each year a determination is made of the normal cost, and the actuarially required contributions are based on the sum of this value and administrative expenses. Under the funding method used for the plan, changes in plan experience, benefits, or assumptions increase or decrease future normal costs. In addition excess or deficient contributions can decrease or increase future costs.

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

The derivation of the actuarially required contribution for the current fiscal year is given in Exhibit I. The normal cost for Fiscal 2021 is \$4,468,912. The total actuarially required contribution is determined by adjusting the value for interest (since payments are made throughout the fiscal year) and adding estimated administrative expenses. As given on line 12 of Exhibit I the total actuarially required contribution for Fiscal 2021 is \$5,072,475. When this amount is reduced by projected tax contributions and revenue sharing funds, the resulting employers' net direct actuarially required contribution for Fiscal 2021 is \$1,767,750 or 13.05% of projected payroll.

Liability and asset experience as well as changes in assumptions and benefits can increase or decrease plan costs. In addition to these factors, any COLA granted in the prior fiscal year which is not funded by withdrawals from the Funding Deposit Account would increase required contributions. New entrants to the system can also increase or decrease costs as a percent of payroll depending upon their demographic distribution and other factors related to prior plan experience. Finally, contributions above or below requirements may reduce or increase future costs.

The effects of various factors on the fund's cost structure are outlined below:

Employer's Normal Cost Accrual Rate – Fiscal 2020	33.1678%
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Factors Increasing the Normal Cost Accrual Rate:

Reduction in Valuation Interest Rate	1.3450%
Demographic Assumption Changes	1.3060%
Asset Experience Loss	0.6756%

Factors Decreasing the Normal Cost Accrual Rate:

New Members	1.4105%
Plan Liability Experience Gain	0.2552%

Employer's Normal Cost Accrual Rate – Fiscal 2021	34.8287%
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In addition to the above factors, required net direct employer contributions are also affected by the projected ad valorem taxes and revenue sharing funds which the system is expected to receive each year. When these funds change as a percentage of payroll, net direct employer contributions are adjusted accordingly. Based on a weighted average of the growth rates over the past three years, we estimate that these funds will increase by 2.61% of payroll in Fiscal 2021.

Although the minimum recommended net direct employer contribution rate for Fiscal 2020 was 17.00%, the Board voted to maintain the employer contribution rate at 18.00%. For Fiscal 2020, this system experienced a contribution gain of \$606,459. In accordance with R.S. 11:107.1, these additional contributions were credited to the system's Funding Deposit Account as of June 30, 2020. Although the minimum recommended net direct employer contribution rate for Fiscal 2021 is 13.05%; the actual employer contribution rate for Fiscal 2021 is 18.00% of payroll. Since the contribution rate for Fiscal 2021 was held at 18.00% by the Board, any surplus in employer contributions collected during the fiscal year will be credited to the Funding Deposit Account.

R.S. 11:103 requires that the net direct employer contributions be rounded to the nearest 0.25%, hence we are recommending a minimum net direct employer contribution rate of 13.00% for Fiscal 2022. Under the provisions of RS 11:105, R.S. 11:106 and RS 11:107, the Board of Trustees may set the net direct employer contribution for Fiscal 2022 at any level between the minimum recommended employer contribution rate of 13.00% and 18.00%. If the Board sets the net direct employer contribution rate above the minimum rate, any excess funds collected will be deposited in the Funding Deposit Account. Funds in this account can be used to reduce either future required contributions in a particular year or the normal cost accrual rate. In addition, if the system may grant a cost of living increase to retirees, such increase may be paid from funds in the Funding Deposit Account.

FUNDING ANALYSIS AND RECOMMENDATIONS DEFINED CONTRIBUTION PLAN

Funding for the retirement system's defined contribution account is contingent upon the availability of funds from ad valorem taxes and revenue sharing above the requirements of the defined benefit plan. The maximum amount of ad valorem taxes available to the system is 0.0625% of the ad valorem taxes shown to be collected each year. For Fiscal 2021, we project that the system will receive ad valorem taxes in an amount insufficient to meet the requirements of the defined benefit plan. Therefore, there is no funding available for the defined contribution account for Fiscal 2021.

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. 11:2073, R.S. 11:246, and R.S. 11:241. R.S. 11:2073 allows the Board to grant annual cost of living increases of up to 3% of each retiree's original benefit. This applies only to members who have been retired for at least two years. R.S. 11:246 provides cost of living increases to retirees and beneficiaries over the age of 65 of up 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.

Statutory requirements provide that such COLA's may be paid only when the system has investment earnings above the valuation interest rate or when sufficient funds are available in the Funding Deposit Account and the system complies with the provisions of R. S. 11:243(G)(3). For Fiscal 2020, the system had no such excess earnings.

R.S. 11:243 sets forth the funding criteria necessary in order to grant cost of living adjustments to regular retirees and beneficiaries (who are neither the surviving spouse nor children of the retiree). The criteria for the system to qualify as eligible to grant any such increase is as follows: a funded ratio of at least 70% if the system has not granted a benefit increase to retirees, survivors, or beneficiaries in any of the three most recent fiscal years; a funded ratio of at least 80% if the system has not granted such an increase in any of the two most recent fiscal years; or a funded ratio of at least 90% if the system has not granted such an increase in the most recent fiscal year. The funded ratio at any fiscal year end is the ratio of the actuarial value of assets to the actuarial accrued liability under the funding

method prescribed by the legislative auditor (currently the Projected Unit Credit Method for this system).

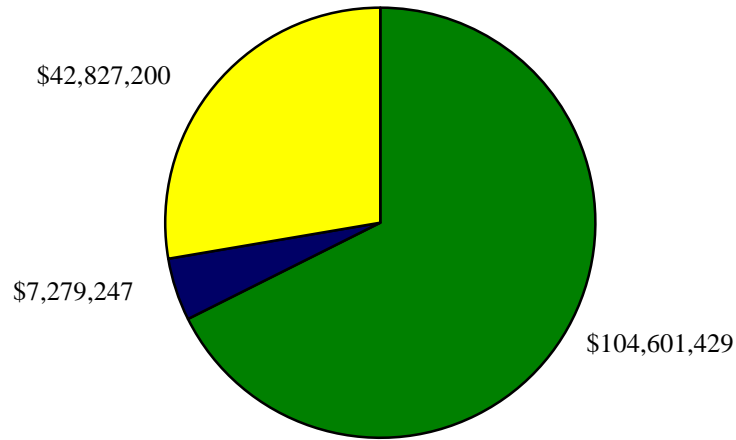
The system qualifies under the requirements of R.S. 11:243 since the system's funded ratio for COLA purposes is 84.67% (i.e. the actuarial value of assets divided by the pension benefit obligation) and the system has not granted a benefit increase to retirees, survivors, and beneficiaries of the system within the prior two fiscal years. Since the system experienced net actuarial investment losses of \$830,708, the Board may only authorize the payment of a COLA out of the Funding Deposit Account. Since the actuarial cost of providing the cost of living increase described in R. S. 11:241 cannot be determined without a significant amount of administrative research to determine the amount of service credit that was earned prior to retirement for each retiree and survivor in payment at the implementation of the system's computer database, we have not quoted an estimated actuarial cost of this form of COLA..

The estimated impact of granting the COLA's described above are as follows:

	<u>Increase In Annual Benefits</u>	<u>Increase In Present Value</u>	<u>Equivalent Increase in Normal Cost Accrual Rate</u> *
R.S. 11:2073 - 3% of base	\$ 148,113	\$ 1,391,749	1.13%
R.S. 11:246 - 2% of base to over age 65	\$ 85,595	\$ 756,028	0.61%

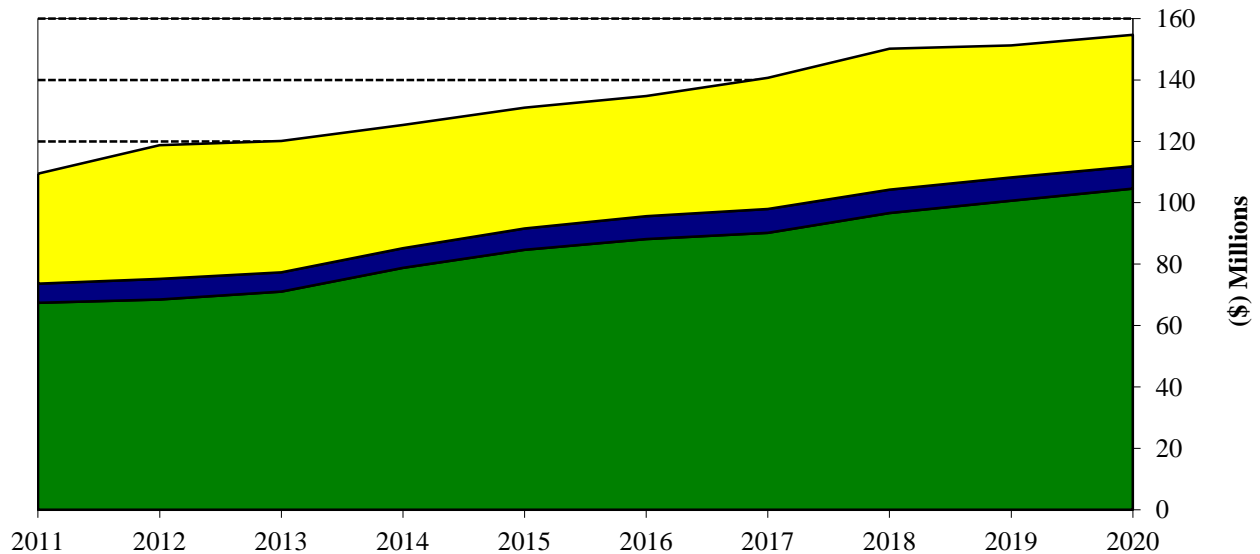
* Note: Should either of the above COLA's be granted there will be no increase in the system's normal cost accrual rate since funds equivalent to the present value of additional benefits will be withdrawn from the Funding Deposit Account. The Equivalent Increase in Normal Cost Accrual Rate is provided for informational purposes only.

Components of Present Value of Future Benefits June 30, 2020



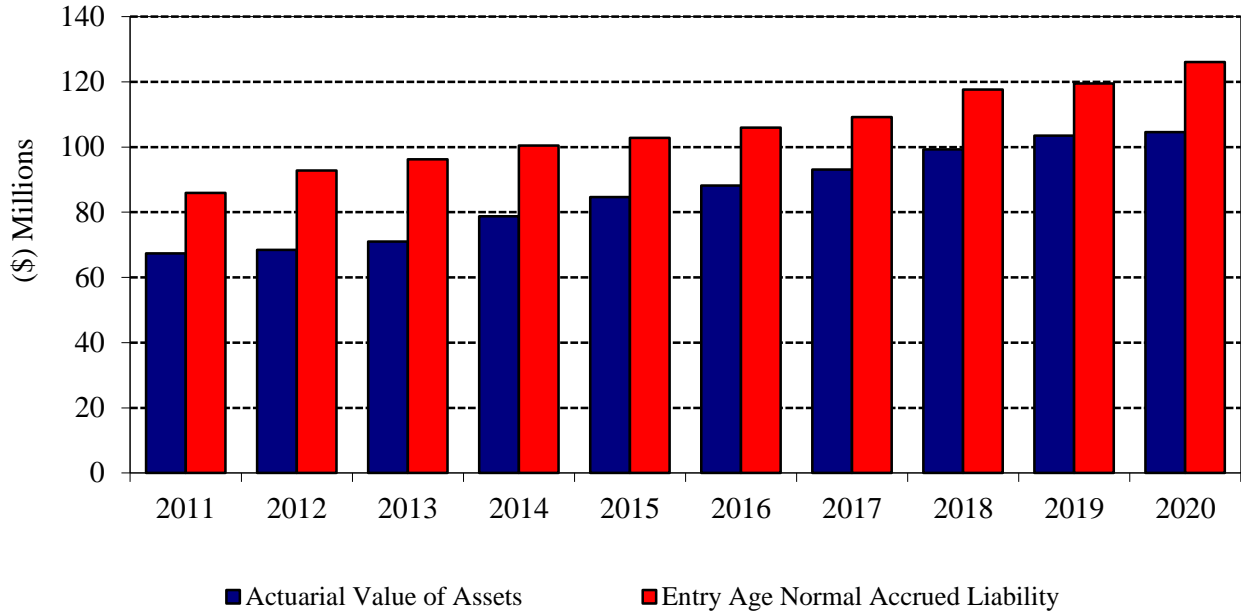
- Actuarial Value of Assets (Net of Funding Deposit Account)
- Present Value of Future Employee Contributions
- Present Value of Future Employer Normal Cost

Components of Present Value of Future Benefits

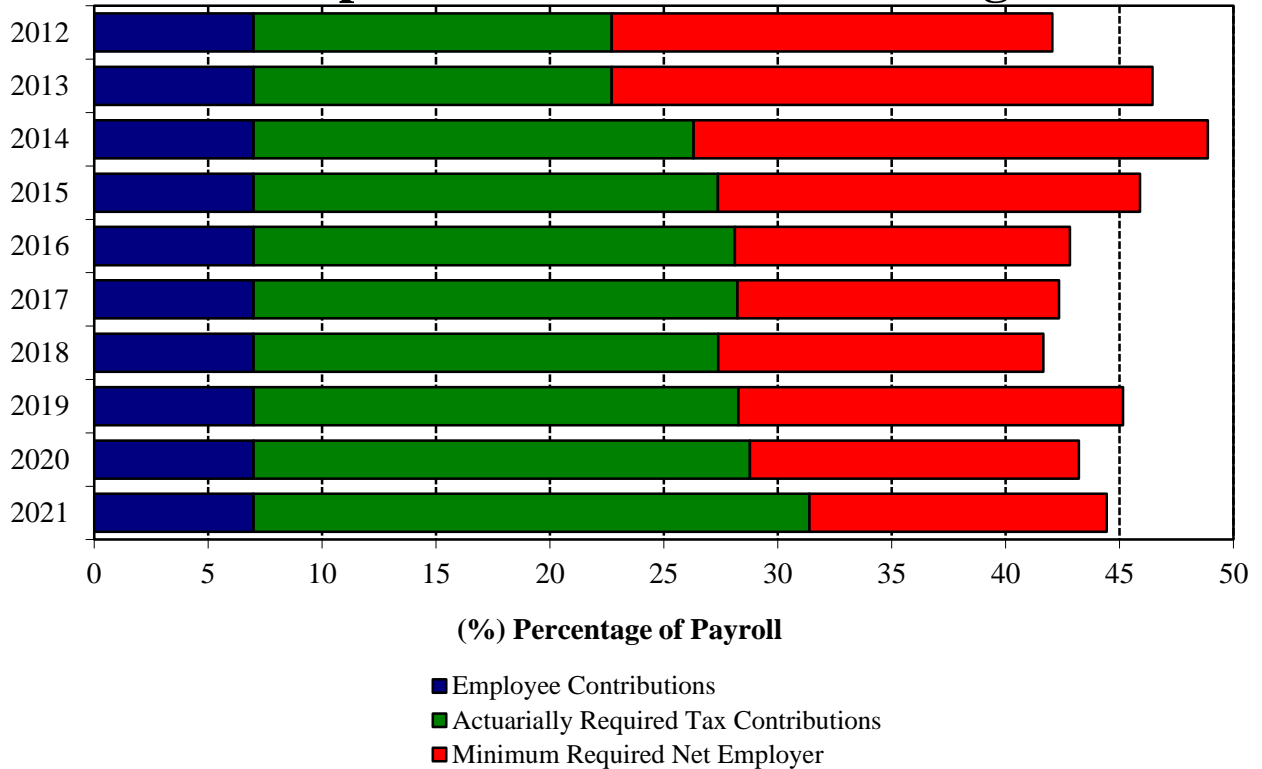


- Present Value of Future Employer Normal Cost
- Present Value of Future Employee Contributions
- Actuarial Value of Assets (Net of Funding Deposit Account)

Actuarial Value of Assets vs. EAN Accrued Liability

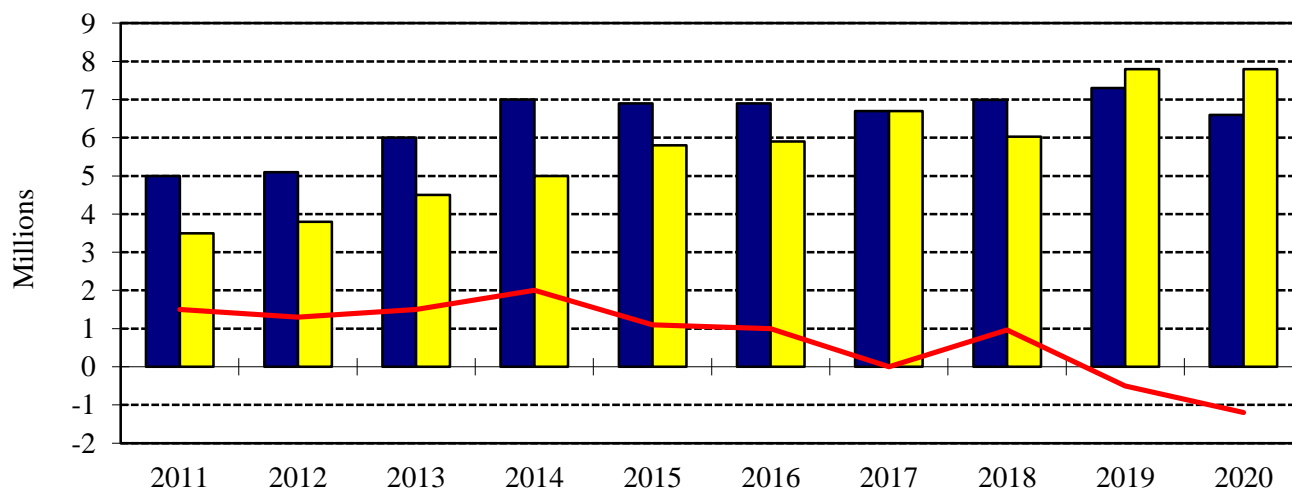


Components of Actuarial Funding



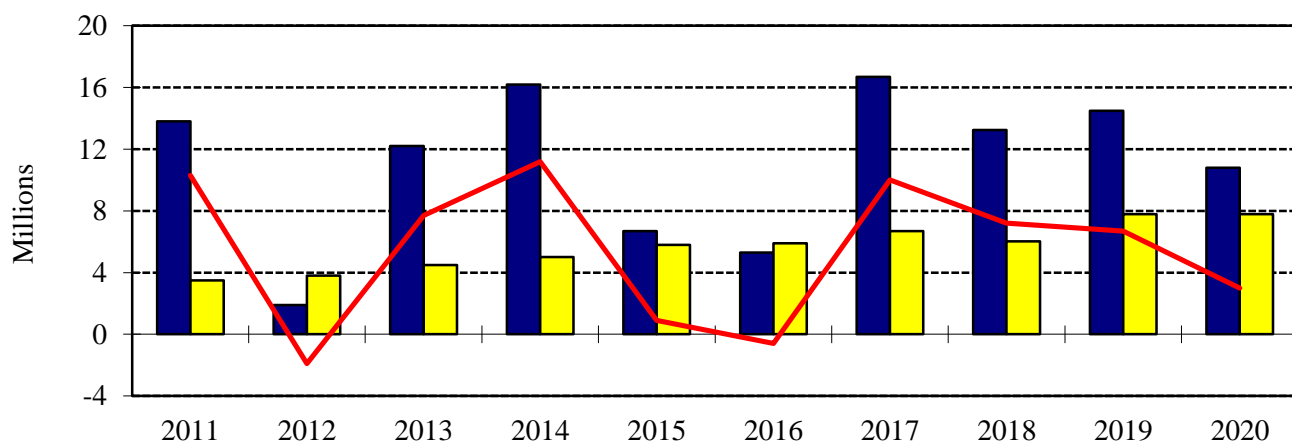
Actuarially Required Tax Contributions consist of the lesser of Actuarially Required Contributions and amount of taxes divided by the projected valuation payroll.

Net Non-Investment Income



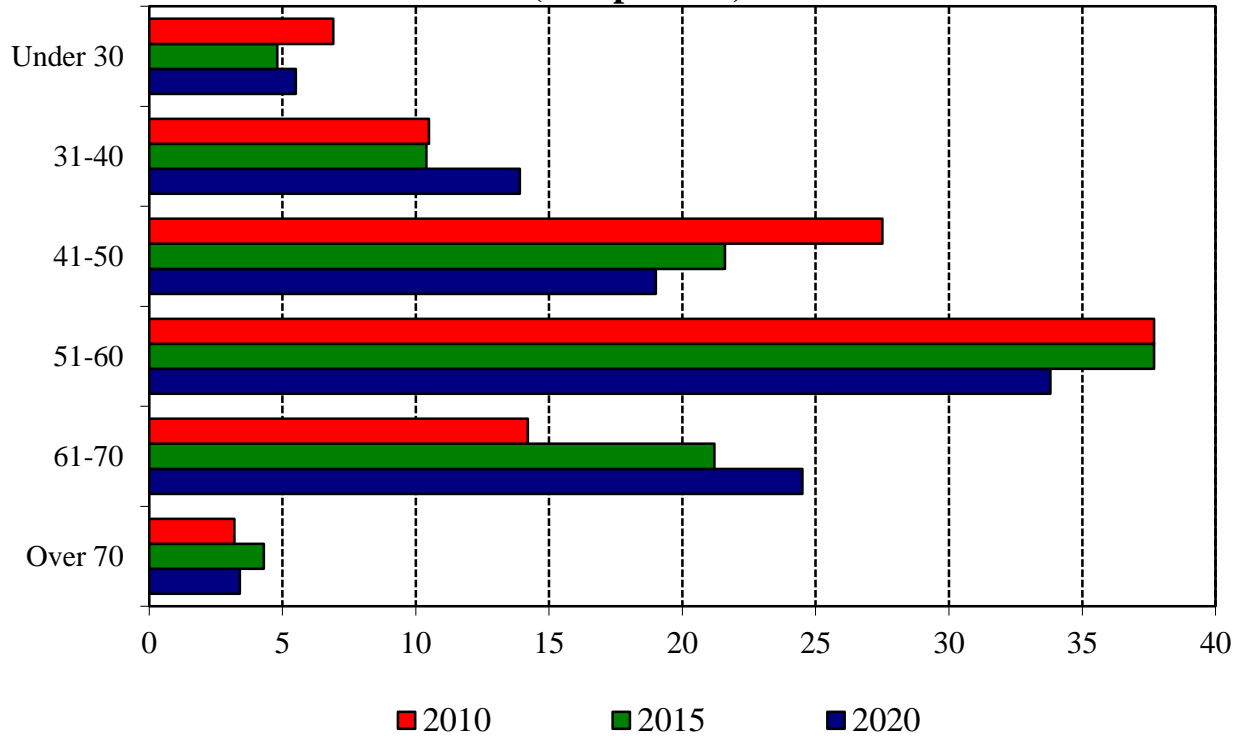
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Non-Investment Income (\$Mil)	■	5.0	5.1	6.0	7.0	6.9	6.9	6.7	7.0	7.3	6.6
Benefits and Expenses (\$Mil)	■	3.5	3.8	4.5	5.0	5.8	5.9	6.7	6.0	7.8	7.8
Net Non-Investment Income (\$Mil)	—	1.5	1.3	1.5	2.0	1.1	1.0	0.0	1.0	-0.5	-1.2

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

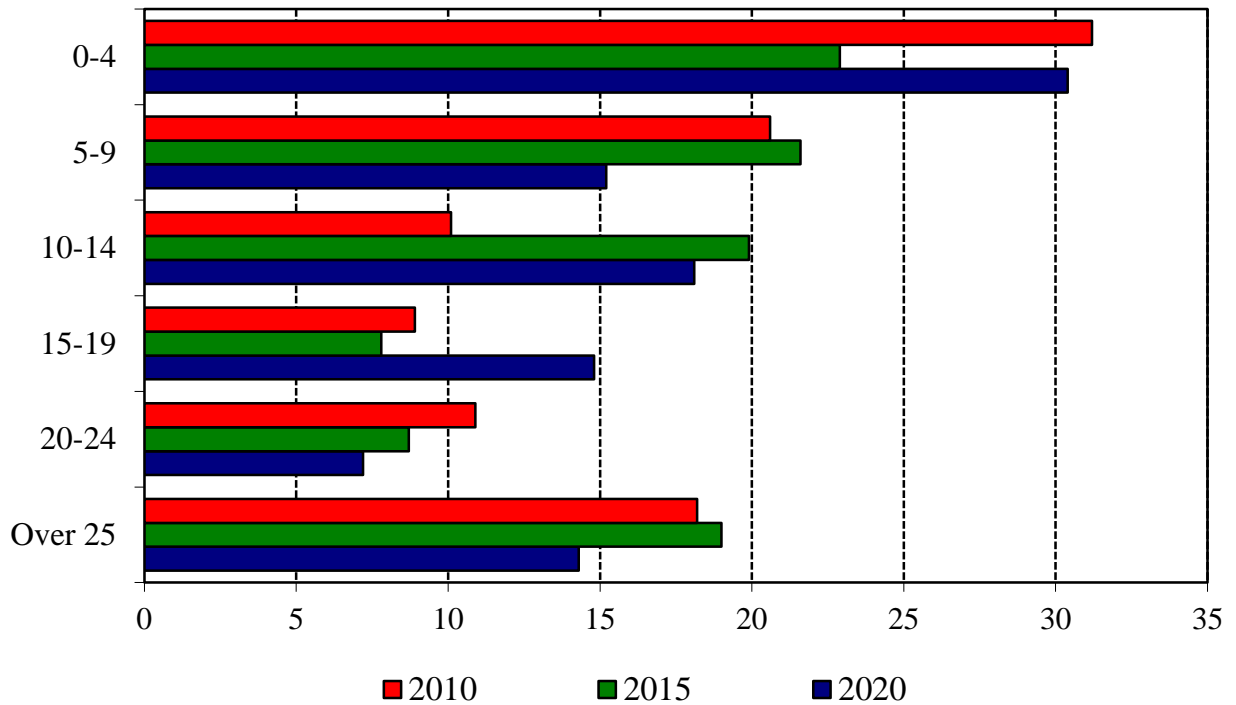


		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Income (\$Mil)	■	13.8	1.9	12.2	16.2	6.7	5.3	16.7	13.2	14.5	10.8
Benefits and Expenses (\$Mil)	■	3.5	3.8	4.5	5.0	5.8	5.9	6.7	6.0	7.8	7.8
Net Change in MVA (\$Mil)	—	10.3	-1.9	7.7	11.2	0.9	-0.6	10.0	7.2	6.7	3.0

Active – Census By Age (as a percent)



Active – Census By Service (as a percent)



Historical Asset Yield

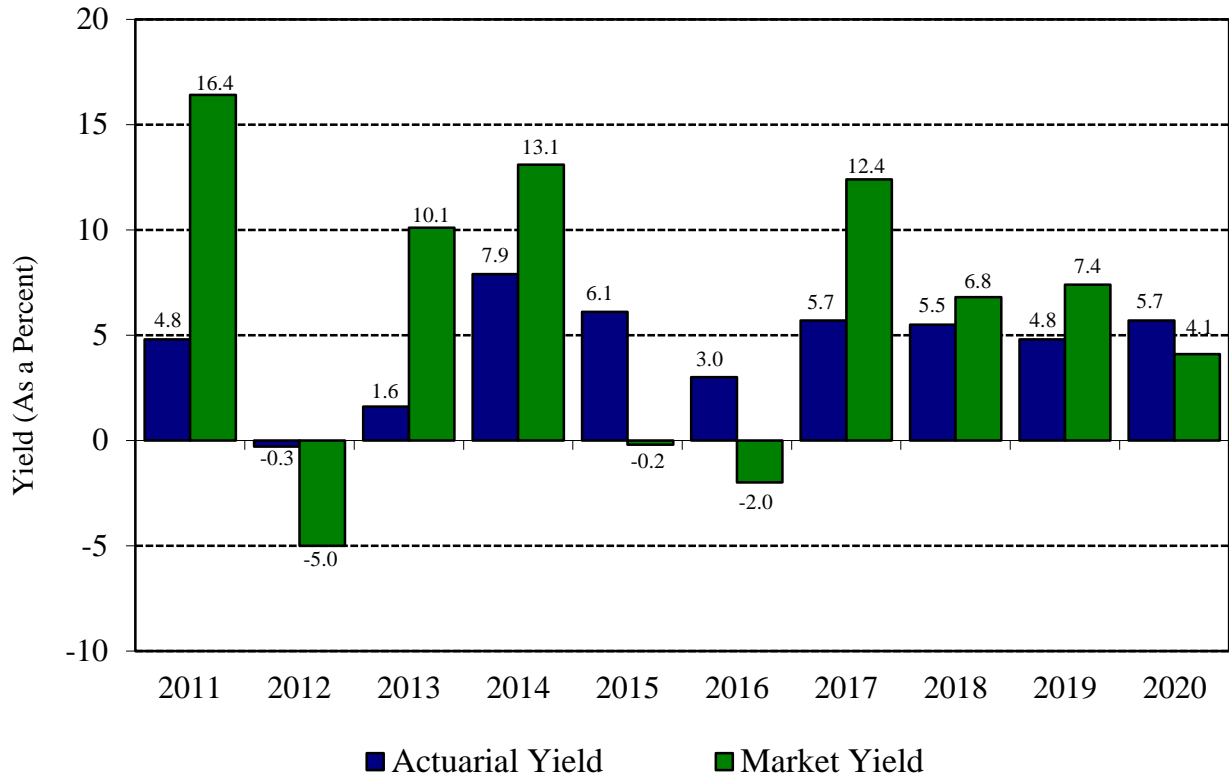


EXHIBIT I
ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS
TO THE DEFINED BENEFIT PLAN

1. Present Value of Future Benefits	\$ 154,707,876
2. Funding Deposit Account Credit Balance	\$ 3,589,555
3. Actuarial Value of Assets	\$ 108,190,984
4. Present Value of Future Employee Contributions	\$ 7,279,247
5. Present Value of Future Employer Normal Costs (1 + 2 – 3 – 4)	\$ 42,827,200
6. Present Value of Future Salaries.....	\$ 122,965,265
7. Employer Normal Cost Accrual Rate (5 ÷ 6)	34.828697%
8. Projected Fiscal 2021 Salary for Current Membership	\$ 12,831,119
9. Employer Normal Cost as of July 1, 2020 (7 × 8).....	\$ 4,468,912
10. Employer Normal Cost Interest Adjusted for Mid-year Payment	\$ 4,609,700
11. Estimated Administrative Cost for Fiscal 2021	\$ 462,775
12. GROSS Employer Actuarially Required Contribution for Fiscal 2021 (10 + 11)	\$ 5,072,475
13. Projected Ad Valorem Tax Contributions for Fiscal 2021	\$ 3,194,640
14. Projected Revenue Sharing Funds for Fiscal 2021	\$ 110,085
15. Net Direct Employer Actuarially Required Contribution for Fiscal 2021 (12 – 13 – 14)	\$ 1,767,750
16. Projected Payroll for Fiscal 2021	\$ 13,549,699
17. Employers' Minimum Net Direct Actuarially Required Contribution as a percentage of Projected Payroll for Fiscal 2021 (15 ÷ 16).....	13.05%
18. Board Approved Employer Contribution Rate for Fiscal 2021	18.00%
19. Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2022 (17, Rounded to nearest 0.25%)	13.00%

EXHIBIT II
PRESENT VALUE OF FUTURE BENEFITS

PRESENT VALUE OF FUTURE BENEFITS FOR ACTIVE MEMBERS:

Retirement Benefits	\$ 87,299,312
Survivor Benefits.....	1,039,555
Disability Benefits	486,798
Vested Termination Benefits.....	2,216,619
Refunds of Contributions	487,794

TOTAL Present Value of Future Benefits for Active Members..... \$ 91,530,078

PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:

Terminated Vested Members Due Benefits at Retirement.....	\$ 849,646
Terminated Members with Reciprocals	
Due Benefits at Retirement	0
Terminated Members Due a Refund	118,978

TOTAL Present Value of Future Benefits for Terminated Members \$ 968,624

PRESENT VALUE OF FUTURE BENEFITS FOR RETIREES:

Regular Retirees

Maximum.....	\$ 10,378,648
Option 1	12,926,385
Option 2	9,004,620
Option 3	6,020,087
Option 4	17,880,779

TOTAL Regular Retirees \$ 56,210,519

Disability Retirees..... 990,841

Survivors & Widows..... 4,946,441

DROP Annuities Certain Payable to Retirees..... 21,099

Lifetime DROP Annuities Payable to Retirees..... 40,274

TOTAL Present Value of Future Benefits for Retirees & Survivors..... \$ 62,209,174

TOTAL Present Value of Future Benefits..... \$ 154,707,876

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

CURRENT ASSETS:

Cash in Banks	\$ 1,294,592
Contributions and Taxes Receivable.....	291,655
Accrued Interest and Dividends.....	104,319
Investments Receivable	176,999

TOTAL CURRENT ASSETS..... \$ 1,867,565

Property, Plant & Equipment..... \$ 36,606

INVESTMENTS:

Cash Equivalents.....	\$ 1,215,871
Equities	62,346,976
Fixed Income	34,764,388
Real Estate	7,260,645
Alternative Investments	288,090

TOTAL INVESTMENTS..... \$ 105,875,970

TOTAL ASSETS

\$ 107,780,141

CURRENT LIABILITIES:

Accounts Payable.....	\$ 8,574
Investments Payable.....	156,658

TOTAL CURRENT LIABILITIES

\$ 165,232

MARKET VALUE OF ASSETS..... \$ 107,614,909

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

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

Fiscal year 2020.....	\$ (2,543,747)
Fiscal year 2019.....	919,816
Fiscal year 2018	90,122
Fiscal year 2017.....	4,354,921
Fiscal year 2016.....	(7,321,613)
Total for Five Years	\$ (4,500,501)

Deferral of Excess (Shortfall) of Invested Income:

Fiscal year 2020 (80%).....	\$ (2,034,998)
Fiscal year 2019 (60%).....	551,890
Fiscal year 2018 (40%).....	36,049
Fiscal year 2017 (20%).....	870,984
Fiscal year 2016 (0%).....	0
Total Deferred for Year.....	\$ (576,075)

Market Value of Plan Net Assets, End of Year..... \$ 107,614,909

Preliminary Actuarial Value of Plan Assets, End of Year..... \$ 108,190,984

Actuarial Value of Assets Corridor

85% of market value, end of year.....	\$ 91,472,673
115% of market value, end of year.....	\$ 123,757,145

Final Actuarial Value of Plan Net Assets, End of Year..... \$ 108,190,984

**EXHIBIT IV
PRESENT VALUE OF FUTURE CONTRIBUTIONS**

Employee Contributions to the Annuity Savings Fund	\$ 7,279,247
Employer Normal Contributions to the Pension Accumulation Fund	42,827,200
Funding Deposit Account Credit Balance	(3,589,555)
TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS	\$ 46,516,892

**EXHIBIT V
RECONCILIATION OF CONTRIBUTIONS**

Employer Normal Cost for Prior Year.....	\$ 4,488,218
Interest on the Normal Cost.....	291,734
Administrative Expenses	401,224
Interest on Expenses	12,835
TOTAL Interest Adjusted Actuarially Required Contributions	\$ 5,194,011
Direct Employer Contributions.....	\$ 2,452,012
Interest on Employer Contributions.....	78,437
Ad Valorem Taxes and Revenue Sharing.....	3,168,661
Interest on Ad Valorem Taxes and Revenue Sharing Funds.....	101,361
TOTAL Interest Adjusted Employer Contributions	\$ 5,800,471
CONTRIBUTION SURPLUS/(SHORTFALL).....	\$ 606,460

**EXHIBIT VI
ANALYSIS OF CHANGE IN ASSETS**

Actuarial Value of Assets (June 30, 2019)	\$	103,472,404
INCOME:		
Member Contributions	\$	824,295
Employer Contributions		2,452,012
Irregular Contributions		173,306
Ad Valorem Tax Revenue		3,059,547
Revenue Sharing Funds		109,114
Total Contributions	\$	6,618,274
Net Appreciation (Depreciation) of Investments	\$	1,561,497
Interest & Dividends		2,774,772
Alternative Investment Income		349,001
Class Action Settlement		1,486
Investment Expense		(471,870)
Net Investment Income	\$	4,214,886
TOTAL Income	\$	10,833,160
EXPENSES:		
Retirement Benefits	\$	5,903,446
DROP Disbursements		1,363,750
Refunds of Contributions		89,196
Transfers to Other Systems		611
Administrative Expenses		401,224
TOTAL Expenses	\$	7,758,227
Net Market Value Income for Fiscal 2020 (Income – Expenses)	\$	3,074,933
Unadjusted Fund Balance as of June 30, 2020 (Fund Balance Previous Year + Net Income)	\$	106,547,337
Adjustment for Actuarial Smoothing	\$	1,643,647
Actuarial Value of Assets: (June 30, 2020)	\$	108,190,984

**EXHIBIT VII
FUNDING DEPOSIT ACCOUNT**

Funding Deposit Account Balance as of June 30, 2019	\$	2,801,029
Interest on Opening Balance at 6.50%		182,067
Contributions to the Funding Deposit Account		606,459
Withdrawals from the Funding Deposit Account		0
Funding Deposit Account Balance as of June 30, 2020	\$	3,589,555

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

Present Value of Credited Projected Benefits Payable to Current Employees.....	\$	64,597,742
Present Value of Benefits Payable to Terminated Employees		968,624
Present Value of Benefits Payable to Current Retirees and Beneficiaries		62,209,174
TOTAL PENSION BENEFIT OBLIGATION	\$	127,775,540
NET ACTUARIAL VALUE OF ASSETS	\$	108,190,984
Ratio of Net Actuarial Value of Assets to Pension Benefit Obligation.....		84.67%

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

Accrued Liability for Active Employees	\$	62,911,489
Accrued Liability for Terminated Employees		968,624
Accrued Liability for Current Retirees and Beneficiaries		62,209,174
TOTAL ENTRY AGE NORMAL ACCRUED LIABILITY	\$	126,089,287
NET ACTUARIAL VALUE OF ASSETS	\$	108,190,984
Ratio of Net Actuarial Value of Assets to Entry Age Normal Accrued Liability		85.81%

**EXHIBIT IX
CENSUS DATA**

	Active	Terminated with Funds on Deposit	DROP	Retired	Total
Number of members as of June 30, 2019	215	35	23	160	433
Additions to Census					
Initial membership	23	3			26
Omitted in error last year				1	1
Death of another member				1	1
Adjustment for multiple records					
Change in Status during Year					
Actives terminating service	(4)	4			
Actives who retired	(6)			6	
Actives entering DROP	(6)		6		
Term. members rehired					
Term. members who retire		(1)		1	
Retirees who are rehired					
Refunded who are rehired					
DROP participants retiring			(7)	7	
DROP returned to work	4		(4)		
Omitted in error last year					
Eliminated from Census					
Refund of contributions	(7)	(4)			(11)
Deaths				(4)	(4)
Included in error last year					
Adjustment for multiple records					
Number of members as of June 30, 2020	219	37	18	172	446

ACTIVES CENSUS BY AGE:

Age	Number Male	Number Female	Total Number	Average Salary	Total Salary
16 - 20	0	1	1	29,639	29,639
21 - 25	0	3	3	34,431	103,294
26 - 30	1	8	9	38,127	343,142
31 - 35	4	16	20	38,638	772,756
36 - 40	1	12	13	45,355	589,614
41 - 45	1	12	13	56,895	739,640
46 - 50	6	26	32	47,523	1,520,723
51 - 55	3	37	40	63,540	2,541,619
56 - 60	2	38	40	62,905	2,516,184
61 - 65	6	34	40	57,262	2,290,478
66 - 70	2	16	18	59,546	1,071,822
71 - 75	3	3	6	104,125	624,747
76 - 80	1	1	2	100,943	201,886
TOTAL	30	207	237	56,310	13,345,544

THE ACTIVE CENSUS INCLUDES 129 ACTIVES WITH VESTED BENEFITS, INCLUDING 18 DROP PARTICIPANTS AND 15 ACTIVE FORMER DROP PARTICIPANTS.

TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
41 - 45	0	1	1	18,621	18,621
46 - 50	0	1	1	29,637	29,637
51 - 55	0	1	1	19,063	19,063
56 - 60	0	2	2	18,458	36,915
TOTAL	0	5	5	20,847	104,236

TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

Contributions Ranging From	To	Number	Total Contributions
0 -	99	6	254
100 -	499	10	2,753
500 -	999	6	4,841
1000 -	1999	3	4,718
2000 -	4999	1	2,909
5000 -	9999	4	31,460
10000 -	19999	1	10,260
20000 -	99999	1	41,172
TOTAL		32	98,367

REGULAR RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
56 - 60	2	5	7	66,478	465,349
61 - 65	1	20	21	50,790	1,066,580
66 - 70	3	30	33	46,763	1,543,193
71 - 75	3	19	22	43,117	948,579
76 - 80	2	22	24	37,296	895,101
81 - 85	1	13	14	22,201	310,820
86 - 90	2	5	7	25,849	180,942
91 - 99	1	3	4	18,786	75,145
TOTAL	15	117	132	41,558	5,485,709

DISABILITY RETIREES:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
51 - 55	0	1	1	26,392	26,392
56 - 60	1	0	1	36,164	36,164
76 - 80	0	1	1	14,832	14,832
TOTAL	1	2	3	25,796	77,388

SURVIVORS:

Age	Number Male	Number Female	Total Number	Average Benefit	Total Benefit
41 - 45	1	0	1	9,853	9,853
46 - 50	0	1	1	3,004	3,004
56 - 60	1	0	1	15,055	15,055
61 - 65	3	3	6	14,157	84,940
66 - 70	2	3	5	22,581	112,904
71 - 75	4	3	7	17,115	119,803
76 - 80	0	7	7	20,772	145,405
81 - 85	2	1	3	7,840	23,519
86 - 90	1	2	3	11,314	33,943
91 - 99	1	2	3	10,935	32,805
TOTAL	15	22	37	15,709	581,231

ACTIVE MEMBERS:

Attained Ages	Completed Years of Service											Total	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over		
0 - 20	1												1
21 - 25	2		1										3
26 - 30	1	3	1	2	1	1	2						9
31 - 35	5	5	2	1	1	4	2						20
36 - 40	2			1		2	5	3					13
41 - 45	2	1		1		2	4	1	2				13
46 - 50	4	2		1	8	6	7	2	2				32
51 - 55	3	3	1	1		6	8	8	6	1			40
56 - 60	1	2	2	2	2	5	7	4	2	6			40
61 - 65	2	1	1	1	1	6	7	9	3	5			40
66 - 70		1		1	1	3	2	5	1				18
71 & Over					1	1	1	3	1				8
Totals	23	18	8	9	14	36	43	35	17	12	22		237

AVERAGE ANNUAL SALARY OF ACTIVE MEMBERS:

Attained Ages	Completed Years of Service											Average Salary	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over		
0 - 20	29,639												29,639
21 - 25	29,639		44,016										34,431
26 - 30	29,639	38,376	35,095	32,799	24,722	72,960	45,018						38,127
31 - 35	31,608	37,080	28,336	45,568	41,855	48,796	53,745						38,638
36 - 40	33,242			42,230		43,177	53,745	41,941					45,355
41 - 45	29,639	91,846		35,011		32,001	67,592	88,165	65,486				56,895
46 - 50	35,179	34,284		95,269	36,894	46,673	58,650	52,600	62,616				47,523
51 - 55	35,390	58,784	38,445	63,749	45,520	55,885	51,034	71,214	71,626	86,934			63,540
56 - 60	29,639	33,382	40,815	63,749	17,680	39,725	62,389	57,191	105,188	75,303			62,905
61 - 65	64,452	25,096	53,512	39,597	34,383	48,201	58,746	53,832	53,935	61,166			57,262
66 - 70		83,761				39,686	82,449	46,635	76,187	80,192			59,546
71 & Over						96,120	146,114	64,238	189,800	100,943			103,329
Average	35,121	45,162	38,671	50,085	36,060	48,246	60,626	57,944	77,890	70,382	87,244		56,310

TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

Attained Ages	Years Until Retirement Eligibility										Total	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29		30&Over
0 - 40												0
41 - 45								1				1
46 - 50							1					1
51 - 55						1						1
56 - 60	1											1
61 & Over												2
Totals	1	1	0	0	0	1	1	1	0	0	0	5

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

Attained Ages	Years Until Retirement Eligibility										Average Benefit	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29		30&Over
0 - 40												0
41 - 45								18,621				18,621
46 - 50							29,637					29,637
51 - 55						19,063						19,063
56 - 60	30,685	6,230										18,457
61 & Over												0
Average	30,685	6,230	0	0	0	19,063	29,637	18,621	0	0	0	20,847

SERVICE RETIREES:

Attained Ages	Completed Years Since Retirement											Total	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over		
0 - 55													0
56 - 60	2	1		2	3	2							7
61 - 65	2	3	3	2	3	7	1						21
66 - 70	6	3	2	3		13	5	1					33
71 - 75	2	3	1	3	1	5	7						22
76 - 80	1	1	2		1	3	9	5	2				24
81 - 85						2	5	1	4	2			14
86 - 90						1	5		2	1			7
91 & Over						1	1		2		2	4	4
Totals	13	11	8	10	5	33	28	7	8	3	6		132

AVERAGE ANNUAL BENEFITS PAYABLE TO SERVICE RETIREES:

Attained Ages	Completed Years Since Retirement											Average Benefit	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over		
0 - 55													0
56 - 60	43,348	54,871		67,277	47,156	94,614	50,311						66,478
61 - 65	31,930	63,515	71,742	51,986		43,028	31,641						50,790
66 - 70	64,932	67,350	17,897	49,251		44,947	31,641	25,482					46,763
71 - 75	64,310	25,304	71,749	38,245	41,724	48,302	39,190						43,117
76 - 80	18,042	40,358	97,858		96,193	64,610	26,736	16,541	13,814				37,296
81 - 85						31,996	24,266	19,798	19,847	13,156			22,201
86 - 90						55,096	32,841	15,282	15,282	20,386			25,849
91 & Over											21,027	18,786	18,786
Average	52,832	51,249	64,810	50,101	55,877	49,369	31,345	18,284	17,198	15,566	19,533		41,558

DISABILITY RETIREES:

Attained Ages	Completed Years Since Retirement										Total	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29		30&Over
0 - 50												0
51 - 55	1											1
56 - 60			1									1
61 - 65												0
66 - 70												0
71 - 75												0
76 - 80							1					1
81 & Over												0
Totals	1	0	1	0	0	0	0	1	0	0	0	3

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 - 50												0
51 - 55	26,392											26,392
56 - 60			36,164									36,164
61 - 65												0
66 - 70												0
71 - 75												0
76 - 80							14,832					14,832
81 & Over												0
Average	26,392	0	36,164	0	0	0	0	14,832	0	0	0	25,796

SURVIVING BENEFICIARIES OF FORMER MEMBERS:

Attained Ages	Completed Years Since Retirement											Total	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30&Over		
0 - 40													0
41 - 45								1					1
46 - 50						1							1
51 - 55													0
56 - 60											1		1
61 - 65						1	2			1			6
66 - 70						2		1		2			5
71 - 75	1				1		2	1					7
76 - 80								1	1				7
81 - 85								1					3
86 - 90									1				3
91 & Over		1				1				1		1	3
Totals	1	1	0	0	1	5	5	5	2	5	12		37

AVERAGE ANNUAL BENEFITS PAYABLE TO SURVIVORS OF FORMER MEMBERS:

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								9,853					9,853
46 - 50						3,004							3,004
51 - 55													0
56 - 60						6,185	33,674			5,534		15,055	15,055
61 - 65						20,289		63,181				2,937	14,157
66 - 70							35,201	9,209		7,441		4,573	22,581
71 - 75	48,700				76,787		21,253	13,284	7,477		5,905		17,115
76 - 80								6,442	7,933		2,675		20,772
81 - 85										9,144			7,840
86 - 90										4,533			11,314
91 & Over		9,076				13,622					10,107		10,935
Average	48,700	9,076	0	0	76,787	12,678	29,011	20,394	7,705	6,819	7,229		15,709

EXHIBIT X
YEAR-TO-YEAR COMPARISON

	Fiscal 2020	Fiscal 2019	Fiscal 2018	Fiscal 2017
Number of Active Members	237	238	238	244
Number of Retirees & Survivors	172	160	155	163
Number of Terminated Due Deferred Benefits	5	5	5	4
Number Terminated Due Refunds	32	30	25	20
Active Lives Payroll	\$13,345,544	\$13,486,619	\$13,637,926	\$13,692,608
Retiree Benefits in Payment	\$6,144,328	\$5,552,865	\$5,172,876	\$4,927,865
Market Value of Assets	\$107,614,909	\$104,539,975	\$97,863,964	\$90,656,567
Entry Age Normal Accrued Liability	\$126,089,287	\$119,488,829	\$117,626,619	\$109,217,320
Ratio of AVA to EAN Accrued Liability	85.81%	86.60%	84.40%	85.27%
Actuarial Value of Assets	\$108,190,984	\$103,472,404	\$99,281,861	\$93,125,749
Present Value of Future Employer Normal Cost	\$42,827,200	\$43,010,138	\$45,913,257	\$42,728,816
Present Value of Future Employee Contrib.	\$7,279,247	\$7,571,193	\$7,616,191	\$7,763,556
Funding Deposit Account Balance	\$3,589,555	\$2,801,029	\$2,630,074	\$2,920,894
Present Value of Future Benefits	\$154,707,876	\$151,252,706	\$150,181,235	\$140,697,227
	Fiscal 2021	Fiscal 2020	Fiscal 2019	Fiscal 2018
Employee Contribution Rate	7.00%	7.00%	7.00%	7.00%
Estimated Tax Contribution as a % of Payroll	24.39%	21.78%	21.27%	20.39%
Actuarially Required Net Direct Employer Contribution Rate	13.05%	14.44%	16.89%	14.27%
Actual Employer Contribution Rate	18.00%	18.00%	17.00%	17.00%

Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012	Fiscal 2011
246	231	241	241	245	248
154	156	151	146	143	147
5	5	5	5	6	6
33	32	30	35	29	29
\$13,643,192	\$13,071,698	\$13,079,549	\$13,086,633	\$13,386,956	\$13,027,410
\$4,564,062	\$4,231,309	\$3,715,197	\$3,398,509	\$3,145,379	\$3,112,965
\$80,683,761	\$81,330,087	\$80,478,691	\$69,206,200	\$61,490,163	\$63,415,774
\$105,994,592	\$102,837,754	\$100,506,025	\$96,236,913	\$92,853,873	\$85,924,089
83.18%	82.35%	78.40%	73.83%	73.75%	78.45%
\$88,165,103	\$84,688,309	\$78,797,020	\$71,052,280	\$68,481,599	\$67,405,502
\$41,455,694	\$39,380,381	\$40,146,082	\$42,794,452	\$43,553,440	\$35,835,681
\$7,454,359	\$6,934,846	\$6,396,240	\$6,278,416	\$6,721,009	\$6,237,947
\$2,068,558	\$882,567	\$ 0	\$ 0	\$ 0	\$ 0
\$135,006,598	\$130,120,969	\$125,339,342	\$120,125,148	\$118,756,048	\$109,479,130

Fiscal 2017	Fiscal 2016	Fiscal 2015	Fiscal 2014	Fiscal 2013	Fiscal 2012
7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
21.23%	21.12%	20.38%	19.30%	15.71%	15.71%
14.12%	14.70%	18.52%	22.58%	23.73%	19.34%
20.00%	22.50%	24.25%	24.25%	19.75%	15.50%

SUMMARY OF PRINCIPAL PLAN PROVISIONS

The Registrars of Voters Employees' Retirement System was established as of the first day of January nineteen hundred and fifty-five for the purpose of providing retirement allowances and other benefits. The following summary of plan provisions is for general informational purposes only and does not constitute a guarantee of benefits.

MEMBERSHIP – Membership should include the Registrars of Voters in each parish of the State of Louisiana, their deputies, and their permanent employees. In addition, membership should include any qualifying employee of the retirement system or the Louisiana Registrars of Voters Association. Elected or appointed officials who have retired from service under any publicly funded retirement system within the state and who are currently receiving benefits are not eligible to become members of the system.

CONTRIBUTION RATES – Under the provisions of R.S. 11:62 and 11:103, the system is financed by employee contributions of at least 7% but not more than 9% of earnable compensation as determined by the Board of Trustees. In addition, the system receives revenue sharing funds as appropriated each year by the legislature. Also, under R.S. 11:82, each sheriff and ex-officio tax collector remits the employers' share of the actuarially required contribution to fund the system's defined benefit and defined contribution plans up to a maximum of one-sixteenth of one percent of the aggregate amount of the tax shown to be collected by the tax roll of each respective parish. Should employee contributions and tax funds collected from ad valorem taxes and revenue sharing funds be insufficient to provide for the gross employer actuarially required contribution, the employer is required to make direct contributions as determined by the Public Retirement Systems' Actuarial Committee. Under R.S. 11:106, the Board of Trustees is authorized to require a net direct contribution rate of up to three percent more than the rate determined under R.S. 11:103. Under R.S. 11:105 and R.S. 11:107, in any fiscal year during which the net direct employer contribution rates would otherwise be decreased, the Board of Trustees is authorized to set the employer contribution rate at any point between the previous year's employer contribution rate and the decreased rate that would otherwise occur. Any excess funds resulting from the additional contributions will be credited to the Funding Deposit Account defined in R.S. 11:107.1.

CONTRIBUTION REFUNDS – Upon withdrawal from service, members not entitled to a retirement allowance are paid a refund of accumulated contributions upon request. Receipt of such a refund cancels all accrued rights in the system.

FINAL AVERAGE COMPENSATION – For a member whose first employment making him eligible for membership in the system began on or before 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, subject to certain transition rules. For those who retire on or before December 31, 2012, a thirty six month final average compensation period shall be used. For those retiring between January 1, 2013 and December 31, 2014 the number of months to be used in determining the final average compensation will be thirty-six plus the number of completed months since January 1, 2013. In no case shall the monthly final average compensation be less than the average monthly earnings during the member's highest thirty-six consecutive or joined months of service earned for employment before January 1, 2013. The earnings to be considered for each twelve month period within the sixty month period shall not exceed 115% of the preceding twelve month period.

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.

RETIREMENT BENEFITS – Members whose first employment making them eligible for membership occurred prior to January 1, 2013 with ten years of creditable service may retire at age sixty; such members with twenty years of service may retire at age fifty-five; such members with thirty years of service may retire regardless of age. The annual retirement allowance for such members is equal to three and one-third percent of the member's average final compensation for each year of creditable service. Creditable service at retirement includes membership service, service as certified on prior service certificates, and any unused sick leave and any unused annual leave in excess of 300 hours at the date of retirement.

Members whose first employment making them eligible for membership occurred on or after January 1, 2013 with ten years of creditable service may retire at age sixty-two; such members with twenty years of service may retire at age sixty; such members with thirty years of service may retire at age fifty-five. The annual retirement allowance for such members is equal to three percent of the member's average final compensation for each year of creditable service. The annual amount of the retirement allowance for any member, who has at least thirty years of total creditable service, with at least twenty years of creditable service in this system, is three and one-third percent of the average final compensation for each year of creditable service. Creditable service at retirement includes membership service, service as certified on prior service certificates, and any unused sick leave and any unused annual leave in excess of 300 hours at the date of retirement.

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

Option 1 – If the member dies before he has received in annuity payments the present value of his member's annuity as it was at the time of retirement the balance is paid to his beneficiary.

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

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

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

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

DISABILITY BENEFITS – Ten years of creditable service are required in order to be eligible for disability benefits. Disabled members receive a normal retirement allowance if eligible. Otherwise, the member whose first employment making them eligible for membership occurred prior to January 1,

2013 receives the lesser of three and one-third percent of average final compensation multiplied by the number of years of creditable service (not to be less than fifteen years), or three and one-third percent of average final compensation multiplied by years of service assuming continued service to age sixty. Any member whose first employment making them eligible for membership occurred after January 1, 2013 receives the lesser of three percent of average final compensation multiplied by the number of years of creditable service (not to be less than fifteen years), or three percent of average final compensation multiplied by years of service assuming continued service to age sixty-two. Disability benefits may not exceed two-thirds of earnable compensation.

SURVIVOR BENEFITS – If a member has less than five years of service credit, the surviving spouse or minor children receive a refund of the member's contributions. If the member has at least five years of service credit and is not eligible to retire, the spouse receives an automatic option 2 benefit based on the accrued benefits at the time of death with option 2 factors based on the age that the member and spouse would have been had the member survived, continued in service, and then retired on earliest normal retirement date. If the member is eligible to retire at the date of death, the surviving spouse receives automatic option 2 benefits. If there are surviving minor or handicapped children with no surviving spouse and the member has five or more years of service credit the children receive eighty percent of the accrued retirement benefit in equal portions until the age of majority or for the duration of the handicap for a handicapped child. The retirement system pays a lump sum refund equal to the difference between total monthly survivor benefits paid and total accrued contributions, if any, upon the cessation of all eligible monthly payments.

DEFERRED RETIREMENT OPTION PLAN – In lieu of terminating employment and accepting a service retirement allowance, any member who is eligible for 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, monthly retirement benefits that would have been payable, had the person elected to cease employment and receive a service retirement allowance, are paid into the DROP fund. This system does not earn interest. 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 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 fund will begin to be paid to the retiree. If a participant dies during the participation in the plan, a lump sum equal to his account balance in the plan fund shall be paid to his named beneficiary or, if none, to his estate. If employment is not terminated at the end of the three years, payments into the plan fund cease and the person resumes active contributing membership in the system.

COST OF LIVING INCREASES – Under the provisions of 11:2073, the Board of Trustees is authorized to grant retired members and widows of members who have retired at least two years, an annual cost of living increase of up to 3% of their original benefit. In addition, R.S. 11:246 provides for a 2% increase in the original benefit (or the benefit being received on October 1, 1977 if they retired prior to that time) for retired members and widows who are sixty-five years of age and older. In order for the Board to grant either of these increases the system must meet certain criteria detailed in the statute related to funding status and interest earnings. In lieu of 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.

DEFINED CONTRIBUTION PLAN – In accordance with R. S. 11:2139, dedicated taxes and revenue sharing funds contributed to the system in excess of those required contributions to the Pension Accumulation Fund, as established by the Public Retirement Systems Actuarial Committee, are deposited in the Members' Supplemental Savings Fund. The amount of funds deposited with the members' supplemental savings fund is three percent of the salaries paid to active contributing members during the prior fiscal year unless the Public Retirement Systems' Actuarial Committee recommends a lesser percentage based on available funds and the requirements of the Defined Benefit Plan. A member is entitled to payment of all contributions and interest credited to his account upon termination of employment. Payment to the member is made at the end of the calendar quarter following the quarter in which the member terminates. Interest and other earnings or losses are allocated at least once each year on the valuation date of the fund. Earnings or losses are allocated to members in proportion to their account balances as of the first day of the period for which earnings are credited.

The funds in the Member's Supplemental Savings Fund are invested separately from other funds held by the system and the funds constitute a separate trust. Payments, accruals, and allocations due to be made at the end of the fiscal year may be delayed until such time as the necessary financial information is available to the system's administrator, but in no event later than 6 months after the close of the fiscal year.

ACTUARIAL ASSUMPTIONS

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

Factor	Increase in Factor Results in
Investment Earnings Rate	Decrease in Cost
Annual Rate of Salary Increase	Increase in Cost
Rates of Retirement	Increase in Cost
Rates of Termination	Decrease in Cost
Rates of Disability	Increase in Cost
Rates of Mortality	Decrease in Cost
ACTUARIAL COST METHOD:	The Aggregate Actuarial Cost Method with allocation based on earnings.
VALUATION INTEREST RATE:	6.40% (Net of Investment Expense)
ACTUARIAL ASSET VALUES:	Assets are valued at market value adjusted to defer four-fifths of all earnings above or below the valuation interest rate in the valuation year, three-fifths of all earnings above or below the valuation interest rate in the prior year, two-fifths of all earnings above or below the valuation interest rate from two years prior, and one-fifth of all earnings above or below the valuation interest rate from three years prior. The resulting smoothed values are subject to a corridor of 85% to 115% of the market value of assets. If the smoothed value falls outside the corridor, the actuarial value is set equal to the average of the corridor limit and the smoothed value.
ANNUAL SALARY INCREASE RATE:	5.25% (2.30% inflation / 2.95% merit)
ACTIVE MEMBER MORTALITY:	Pub-2010 Public Retirement Plans Mortality Table for General Employees multiplied by 120% for males and 120% for females, each with full generational projection using the appropriate MP2019 scale.
ANNUITANT AND BENEFICIARY MORTALITY:	Pub-2010 Public Retirement Plans Mortality Table for General Healthy Retirees multiplied by 120% for males and 120% for females, each with full generational projection using the appropriate MP2019 scale.

DISABLED LIVES MORTALITY: Pub-2010 Public Retirement Plans Mortality Table for General Disabled Retirees multiplied by 120% for males and 120% for females, each with full generational projection using the appropriate MP2019 scale

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

RATES OF RETIREMENT: The table of these rates is included later in the report. These rates apply only to those individuals eligible to retire. The rate of retirement for persons who have completed DROP participation and have remained employed is 0.22. All such persons not previously retired or deceased are assumed to retire at age 80.

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

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

Service Duration	Factor	Service Duration	Factor
(≤) 1	0.160	(≤) 5-17	0.030
2	0.100	18	0.020
3	0.070	19	0.020
4	0.040	>19	0.010

Note: Withdrawal rates for members eligible to retire are assumed to be zero.

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

DROP PARTICIPATION: All persons who enter DROP are assumed to participate for the full three-year period and 1/2 are assumed to retire at the end of DROP participation with 1/2 assumed to work 2 years post-DROP and then retire.

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

FAMILY STATISTICS: Assumptions utilized in determining the costs of various survivor benefits as listed below, are derived from the information provided in the 2019 Table F1: Family Households, by Type, Age of Own Children, Age of Family Members, and Age of Householder provided by the U.S. Census Bureau:

<u>Member's Age</u>	<u>% With Children</u>	<u># of Children</u>	<u>Average Age</u>	<u>Remarriage Rates</u>
25	60%	1.77	4	0.04566
35	82%	2.11	8	0.02636
45	63%	1.75	11	0.01355
55	11%	1.42	14	N/A
65	2%	1.50	14	N/A

RATES OF DISABILITY: 30% of the disability rates used for the 27th valuation of the Railroad Retirement System for individuals with 10-19 years of service. The table of these rates is included later in the report.

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

SICK AND ANNUAL LEAVE: Members are assumed to accrue one year of unused sick and annual leave to be credited for retirement benefit accrual purposes for each 16.67 years of Pre-DROP creditable service. Members are assumed to convert 0.22 years of sick and annual leave for every year of DROP Participation service and Post-DROP service in their Post-DROP benefit.

ACTUARIAL TABLES AND RATES

Age	Pre 1/1/2013 Retirement Rates	Post 12/31/2012 Retirement Rates	Pre 1/1/2013 DROPP Entry Rates	Post 12/31/2012 DROPP Entry Rates	Disability Rates
18	0.00000	0.00000	0.00000	0.00000	0.00036
19	0.00000	0.00000	0.00000	0.00000	0.00036
20	0.00000	0.00000	0.00000	0.00000	0.00036
21	0.00000	0.00000	0.00000	0.00000	0.00036
22	0.00000	0.00000	0.00000	0.00000	0.00036
23	0.00000	0.00000	0.00000	0.00000	0.00036
24	0.00000	0.00000	0.00000	0.00000	0.00036
25	0.00000	0.00000	0.00000	0.00000	0.00036
26	0.00000	0.00000	0.00000	0.00000	0.00036
27	0.00000	0.00000	0.00000	0.00000	0.00036
28	0.00000	0.00000	0.00000	0.00000	0.00036
29	0.00000	0.00000	0.00000	0.00000	0.00036
30	0.00000	0.00000	0.00000	0.00000	0.00036
31	0.00000	0.00000	0.00000	0.00000	0.00036
32	0.00000	0.00000	0.00000	0.00000	0.00036
33	0.00000	0.00000	0.00000	0.00000	0.00036
34	0.00000	0.00000	0.00000	0.00000	0.00036
35	0.00000	0.00000	0.00000	0.00000	0.00039
36	0.00000	0.00000	0.00000	0.00000	0.00039
37	0.00000	0.00000	0.00000	0.00000	0.00039
38	0.00000	0.00000	0.00000	0.00000	0.00042
39	0.00000	0.00000	0.00000	0.00000	0.00045
40	0.00000	0.00000	0.00000	0.00000	0.00048
41	0.00000	0.00000	0.00000	0.00000	0.00051
42	0.00000	0.00000	0.00000	0.00000	0.00054
43	0.00000	0.00000	0.00000	0.00000	0.00060
44	0.00000	0.00000	0.00000	0.00000	0.00063
45	0.00000	0.00000	0.00000	0.00000	0.00072
46	0.10000	0.00000	0.35000	0.00000	0.00078
47	0.10000	0.00000	0.35000	0.00000	0.00087
48	0.10000	0.00000	0.35000	0.00000	0.00099
49	0.10000	0.00000	0.35000	0.00000	0.00114
50	0.05000	0.00000	0.35000	0.00000	0.00129
51	0.05000	0.00000	0.35000	0.00000	0.00147
52	0.05000	0.00000	0.35000	0.00000	0.00171
53	0.05000	0.00000	0.35000	0.00000	0.00198
54	0.05000	0.00000	0.35000	0.00000	0.00231
55	0.05000	0.05000	0.35000	0.35000	0.00270
56	0.05000	0.05000	0.15000	0.35000	0.00318
57	0.05000	0.05000	0.15000	0.35000	0.00375
58	0.05000	0.05000	0.15000	0.35000	0.00444
59	0.05000	0.05000	0.15000	0.35000	0.00525
60	0.05000	0.05000	0.15000	0.35000	0.00717
61	0.05000	0.05000	0.15000	0.35000	0.00873
62	0.05000	0.05000	0.15000	0.35000	0.00966
63	0.05000	0.05000	0.15000	0.15000	0.01014
64	0.05000	0.05000	0.15000	0.15000	0.00771
65	0.05000	0.05000	0.15000	0.15000	0.00621
66	0.05000	0.05000	0.15000	0.15000	0.00156
67	0.05000	0.05000	0.15000	0.15000	0.00156
68	0.05000	0.05000	0.15000	0.15000	0.00156
69	0.05000	0.05000	0.15000	0.15000	0.00156
70	0.05000	0.05000	0.15000	0.15000	0.00156
71	0.05000	0.05000	0.15000	0.15000	0.00156
72	0.05000	0.05000	0.15000	0.15000	0.00156
73	0.05000	0.05000	0.15000	0.15000	0.00156
74	0.10000	0.10000	0.15000	0.15000	0.00156
75	0.10000	0.10000	0.15000	0.15000	0.00156

PRIOR YEAR ASSUMPTIONS

VALUATION INTEREST RATE:	6.50% (Net of Investment Expense)																																
ANNUAL SALARY INCREASE RATE:	6.00% (2.40% inflation / 3.60% merit)																																
ACTIVE MEMBER MORTALITY:	RP 2000 Employee Table set back 4 years for males and set back 3 years for females																																
ANNUITANT AND BENEFICIARY MORTALITY:	RP 2000 Healthy Annuitant Table set forward 1 year and projected to 2030 using Scale AA for males and projected to 2030 using Scale AA for females.																																
RATES OF RETIREMENT:	The table of these rates is included later in the report. These rates apply only to those individuals eligible to retire. The rate of retirement for persons who have completed DROP participation and have remained employed is 0.17.																																
RATES OF WITHDRAWAL:	The rates of withdrawal are applied based upon completed years of service according to the following table:																																
	<table border="0" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Service Duration (\leq)</th> <th style="text-align: center;">Factor</th> <th style="text-align: center;">Service Duration (\leq)</th> <th style="text-align: center;">Factor</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0.100</td> <td style="text-align: center;">8</td> <td style="text-align: center;">0.030</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">0.080</td> <td style="text-align: center;">9</td> <td style="text-align: center;">0.030</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">0.060</td> <td style="text-align: center;">10</td> <td style="text-align: center;">0.020</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">0.050</td> <td style="text-align: center;">11</td> <td style="text-align: center;">0.020</td> </tr> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;">0.040</td> <td style="text-align: center;">12</td> <td style="text-align: center;">0.020</td> </tr> <tr> <td style="text-align: center;">6</td> <td style="text-align: center;">0.040</td> <td style="text-align: center;">13</td> <td style="text-align: center;">0.020</td> </tr> <tr> <td style="text-align: center;">7</td> <td style="text-align: center;">0.030</td> <td style="text-align: center;">>13</td> <td style="text-align: center;">0.010</td> </tr> </tbody> </table>	Service Duration (\leq)	Factor	Service Duration (\leq)	Factor	1	0.100	8	0.030	2	0.080	9	0.030	3	0.060	10	0.020	4	0.050	11	0.020	5	0.040	12	0.020	6	0.040	13	0.020	7	0.030	>13	0.010
Service Duration (\leq)	Factor	Service Duration (\leq)	Factor																														
1	0.100	8	0.030																														
2	0.080	9	0.030																														
3	0.060	10	0.020																														
4	0.050	11	0.020																														
5	0.040	12	0.020																														
6	0.040	13	0.020																														
7	0.030	>13	0.010																														
	Note: Withdrawal rates for members eligible to retire are assumed to be zero.																																
RATES OF DROP ENTRY:	A table of these rates is included later in the report. These rates apply only to those individuals eligible to enter DROP.																																
DROP PARTICIPATION:	All persons who enter DROP are assumed to participate for the full three-year period and retire after completing 1 year of Post-DROP service.																																
FAMILY STATISTICS:	Assumptions utilized in determining the costs of various survivor benefits as listed below, are																																

derived from the information provided in the 2015 U. S. Census:

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

RATES OF DISABILITY: 15% of the disability rates used for the 21st valuation of the Railroad Retirement System for individuals with 10-19 years of service. The table of these rates is included later in the report.

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

ACTUARIAL TABLES AND RATES

Age	Male Employee Mortality Rates	Female Employee Mortality Rates	Male Retiree Mortality Rates	Female Retiree Mortality Rates	Male Disability Mortality Rates	Female Disability Mortality Rates	Disability Rates	Pre 1/1/2013 Hire Retirement Rates	Pre 1/1/2013 DROP Entry Rates	Post 2012 Hire Retirement Rates	Post 2012 Hire DROP Entry Rates
18	0.00025	0.00017	0.00019	0.00012	0.02257	0.00745	0.00023	0.00000	0.00000	0.00000	0.00000
19	0.00027	0.00018	0.00019	0.00012	0.02257	0.00745	0.00023	0.00000	0.00000	0.00000	0.00000
20	0.00028	0.00018	0.00020	0.00012	0.02257	0.00745	0.00023	0.00000	0.00000	0.00000	0.00000
21	0.00030	0.00019	0.00021	0.00011	0.02257	0.00745	0.00023	0.00000	0.00000	0.00000	0.00000
22	0.00032	0.00019	0.00022	0.00012	0.02257	0.00745	0.00023	0.00000	0.00000	0.00000	0.00000
23	0.00033	0.00019	0.00024	0.00012	0.02257	0.00745	0.00023	0.00000	0.00000	0.00000	0.00000
24	0.00035	0.00019	0.00025	0.00013	0.02257	0.00745	0.00023	0.00000	0.00000	0.00000	0.00000
25	0.00036	0.00019	0.00028	0.00014	0.02257	0.00745	0.00023	0.00000	0.00000	0.00000	0.00000
26	0.00037	0.00020	0.00032	0.00015	0.02257	0.00745	0.00023	0.00000	0.00000	0.00000	0.00000
27	0.00037	0.00020	0.00034	0.00016	0.02257	0.00745	0.00023	0.00000	0.00000	0.00000	0.00000
28	0.00038	0.00021	0.00035	0.00016	0.02257	0.00745	0.00023	0.00000	0.00000	0.00000	0.00000
29	0.00038	0.00021	0.00038	0.00017	0.02257	0.00745	0.00023	0.00000	0.00000	0.00000	0.00000
30	0.00038	0.00022	0.00043	0.00020	0.02257	0.00745	0.00023	0.00000	0.00000	0.00000	0.00000
31	0.00038	0.00024	0.00048	0.00024	0.02257	0.00745	0.00023	0.00000	0.00000	0.00000	0.00000
32	0.00039	0.00025	0.00054	0.00028	0.02257	0.00745	0.00023	0.00000	0.00000	0.00000	0.00000
33	0.00041	0.00026	0.00060	0.00030	0.02257	0.00745	0.00023	0.00000	0.00000	0.00000	0.00000
34	0.00044	0.00031	0.00067	0.00032	0.02257	0.00745	0.00023	0.00000	0.00000	0.00000	0.00000
35	0.00050	0.00035	0.00072	0.00034	0.02257	0.00745	0.00025	0.00000	0.00000	0.00000	0.00000
36	0.00056	0.00039	0.00078	0.00036	0.02257	0.00745	0.00029	0.00000	0.00000	0.00000	0.00000
37	0.00063	0.00044	0.00083	0.00037	0.02257	0.00745	0.00031	0.00000	0.00000	0.00000	0.00000
38	0.00070	0.00047	0.00085	0.00039	0.02257	0.00745	0.00036	0.00000	0.00000	0.00000	0.00000
39	0.00077	0.00051	0.00087	0.00041	0.02257	0.00745	0.00041	0.00000	0.00000	0.00000	0.00000
40	0.00084	0.00055	0.00090	0.00045	0.02257	0.00745	0.00047	0.00000	0.00000	0.00000	0.00000
41	0.00090	0.00060	0.00093	0.00049	0.02257	0.00745	0.00053	0.00000	0.00000	0.00000	0.00000
42	0.00096	0.00065	0.00096	0.00054	0.02257	0.00745	0.00058	0.00000	0.00000	0.00000	0.00000
43	0.00102	0.00071	0.00100	0.00060	0.02257	0.00745	0.00066	0.00000	0.00000	0.00000	0.00000
44	0.00108	0.00077	0.00105	0.00065	0.02257	0.00745	0.00075	0.00000	0.00000	0.00000	0.00000
45	0.00114	0.00085	0.00109	0.00069	0.02257	0.00745	0.00086	0.00000	0.00000	0.00000	0.00000
46	0.00122	0.00094	0.00114	0.00073	0.02257	0.00745	0.00098	0.12000	0.40000	0.00000	0.00000
47	0.00130	0.00103	0.00118	0.00077	0.02257	0.00745	0.00110	0.12000	0.40000	0.00000	0.00000
48	0.00140	0.00112	0.00123	0.00083	0.02257	0.00745	0.00125	0.12000	0.40000	0.00000	0.00000
49	0.00151	0.00122	0.00320	0.00090	0.02257	0.00818	0.00141	0.12000	0.40000	0.00000	0.00000
50	0.00162	0.00133	0.00321	0.00140	0.02257	0.00896	0.00161	0.12000	0.40000	0.00000	0.00000
51	0.00173	0.00143	0.00317	0.00152	0.02385	0.00978	0.00183	0.12000	0.40000	0.00000	0.00000
52	0.00186	0.00155	0.00312	0.00173	0.02512	0.01063	0.00207	0.12000	0.40000	0.00000	0.00000
53	0.00200	0.00168	0.00316	0.00202	0.02640	0.01154	0.00236	0.12000	0.40000	0.00000	0.00000
54	0.00214	0.00181	0.00322	0.00236	0.02769	0.01248	0.00267	0.12000	0.40000	0.00000	0.00000
55	0.00229	0.00197	0.00344	0.00277	0.02897	0.01346	0.00303	0.06000	0.20000	0.12000	0.30000
56	0.00245	0.00213	0.00374	0.00328	0.03027	0.01446	0.00345	0.06000	0.20000	0.12000	0.30000
57	0.00262	0.00232	0.00412	0.00377	0.03156	0.01550	0.00392	0.06000	0.20000	0.12000	0.30000
58	0.00281	0.00253	0.00461	0.00423	0.03286	0.01654	0.00444	0.06000	0.20000	0.12000	0.30000
59	0.00303	0.00276	0.00505	0.00476	0.03415	0.01760	0.00505	0.06000	0.20000	0.12000	0.30000
60	0.00331	0.00301	0.00555	0.00533	0.03544	0.01865	0.00732	0.06000	0.20000	0.06000	0.20000
61	0.00363	0.00329	0.00630	0.00595	0.03673	0.01971	0.00732	0.06000	0.20000	0.06000	0.20000
62	0.00400	0.00360	0.00696	0.00662	0.03803	0.02077	0.00732	0.06000	0.20000	0.06000	0.20000
63	0.00441	0.00393	0.00794	0.00732	0.03933	0.02184	0.00732	0.06000	0.20000	0.06000	0.20000
64	0.00488	0.00429	0.00879	0.00808	0.04067	0.02294	0.00732	0.06000	0.20000	0.06000	0.20000
65	0.00538	0.00466	0.00974	0.00892	0.04204	0.02408	0.00732	0.06000	0.20000	0.06000	0.20000
66	0.00592	0.00504	0.01112	0.00982	0.04347	0.02529	0.00732	0.06000	0.20000	0.06000	0.20000
67	0.00647	0.00543	0.01229	0.01079	0.04498	0.02660	0.00732	0.06000	0.20000	0.06000	0.20000
68	0.00703	0.00582	0.01317	0.01185	0.04658	0.02803	0.00732	0.06000	0.20000	0.06000	0.20000
69	0.00757	0.00621	0.01455	0.01304	0.04831	0.02959	0.00732	0.06000	0.20000	0.06000	0.20000
70	0.00810	0.00658	0.01561	0.01440	0.05017	0.03132	0.00732	0.06000	0.20000	0.06000	0.20000
71	0.00860	0.00695	0.01734	0.01551	0.05221	0.03323	0.00732	0.06000	0.20000	0.06000	0.20000
72	0.00907	0.00729	0.01931	0.01725	0.05445	0.03533	0.00732	0.06000	0.20000	0.06000	0.20000
73	0.00951	0.00761	0.02154	0.01861	0.05691	0.03764	0.00732	0.06000	0.20000	0.06000	0.20000
74	0.00992	0.01858	0.02404	0.02062	0.05961	0.04014	0.00732	0.06000	0.20000	0.06000	0.20000
75	0.02457	0.02067	0.02762	0.02209	0.06258	0.04285	0.00732	0.06000	0.20000	0.06000	0.20000

GLOSSARY

Accrued Benefit – The pension benefit that an individual has earned as of a specific date based on the provisions of the plan and the individual's age, service, and salary as of that date.

Actuarial Accrued Liability – The actuarial present value of benefits payable to members of the fund less the present value of future normal costs attributable to the members.

Actuarial Assumptions – Assumptions as to the occurrence of future events affecting pension costs. These assumptions include rates of mortality, withdrawal, disablement, and retirement. Also included are rates of investment earnings, changes in compensation, as well as statistics related to marriage and family composition.

Actuarial Cost Method – A procedure for determining the portion of the cost of a pension plan to be allocated to each year. Each cost method allocates a certain portion of the actuarial present value of benefits between the actuarial accrued liability and future normal costs. Once this allocation is made, a determination of the normal cost attributable to a specific year can be made along with the payment to amortize any unfunded actuarial accrued liability. To the extent that a particular funding method allocates a greater (lesser) portion of the actual present value of benefits to the actuarial accrued liability it will allocate less (more) to future normal costs.

Actuarial Equivalence – Payments or receipts with equal actuarial value on a given date when valued using the same set of actuarial assumptions.

Actuarial Gain (Loss) – The financial effect on the fund of the difference between the expected and actual experience of the fund. The experience may be related to investment earnings above (or below) those expected or changes in the liability structure due to fewer (or greater) than the expected numbers of retirements, deaths, disabilities, or withdrawals. In addition, other factors such as pay increases above (or below) those forecast can result in actuarial gains or losses. The effect of such gains (or losses) is to decrease (or increase) future costs.

Actuarial Present Value – The value, as of a specified date, of an amount or series of amounts payable or receivable thereafter, with each amount adjusted to reflect the time value of money (through accrual of interest) and the probability of payments. For example: if \$600 invested today will be worth \$1,000 in 10 years and there is a 50% probability that a person will live 10 years, then the actuarial present value of \$1,000 payable to that person if he should survive 10 years is \$300.

Actuarial Value of Assets – The value of cash, investments, and other property belonging to the pension plan as used by the actuary for the purpose of the actuarial valuation. This may correspond to the book value, market value, or some modification involving either or both book and market value. Adjustments to market values are often made to reduce the volatility of asset values.

Asset Gain (Loss) – That portion of the actuarial gain attributable to investment performance above (below) the expected rate of return in the actuarial assumptions.

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

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

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

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

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

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

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

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

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

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