# PAROCHIAL EMPLOYEES' RETIREMENT SYSTEM 

ACTUARIAL VALUATION AS OF DECEMBER 31, 2015

# G. S. CURRAN \& COMPANY, LTD. 

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June 13, 2016

Board of Trustees
Parochial Employees' Retirement System
P.O. Box 14619

Baton Rouge, LA 70898-4619
Ladies and Gentlemen:
We are pleased to present our report on the actuarial valuation of the Parochial Employees' Retirement System for the fiscal year ending December 31, 2015. Our report is based on the actuarial assumptions specified and relies on the data supplied by the system's administrators and accountants. This report was prepared at the request of the Board of Trustees of the Parochial Employees' Retirement System. The primary purposes of the report are to determine the actuarially required contribution for the retirement system for the fiscal year ending December 31, 2016, to recommend the net direct employer contribution rate for fiscal 2017. This report does not contain the information necessary for accounting disclosures as required by Governmental Accounting Standards Board (GASB) Statements 67 and 68; that information is included in a separate report. This report was prepared exclusively for the Parochial Employees' Retirement System for a specific limited purpose. It is not for the use or benefit of any third party for any purpose.

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

Sincerely,

## G. S. CURRAN \& COMPANY, LTD.



## TABLE OF CONTENTS

Subject Page
PLAN A - SUMMARY OF VALUATION RESULTS ..... 1
PLAN B - SUMMARY OF VALUATION RESULTS ..... 2
COMMENTS ON DATA ..... 3
COMMENTS ON ACTUARIAL METHODS AND ASSUMPTIONS ..... 4
CHANGES IN PLAN PROVISIONS ..... 5
ASSET EXPERIENCE ..... 5
PLAN A - DEMOGRAPHICS AND LIABILITY EXPERIENCE ..... 7
PLAN B - DEMOGRAPHICS AND LIABILITY EXPERIENCE ..... 7
FUNDING ANALYSIS AND RECOMMENDATIONS ..... 7
COST OF LIVING INCREASES ..... 10
GRAPHS ..... 11
EXHIBIT I - PLAN A: ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS ..... 21
EXHIBIT II - PLAN A: PRESENT VALUE OF FUTURE BENEFITS ..... 22
EXHIBIT III - SCHEDULE A - PLAN A: MARKET VALUE OF ASSETS ..... 23
EXHIBIT III - SCHEDULE B - PLAN A: ACTUARIAL VALUE OF ASSETS ..... 24
EXHIBIT IV - PLAN A: PRESENT VALUE OF FUTURE CONTRIBUTIONS ..... 25
EXHIBIT V - PLAN A: RECONCILIATION OF CONTRIBUTIONS ..... 25
EXHIBIT VI - PLAN A: ANALYSIS OF CHANGE IN ASSETS ..... 26
EXHIBIT VII - PLAN A: PENSION BENEFIT OBLIGATION ..... 27
EXHIBIT VIII - PLAN A: ENTRY AGE NORMAL ACCRUED LIABILITIES ..... 27
EXHIBIT IX - PLAN A: CENSUS DATA ..... 28
EXHIBIT X - PLAN A: YEAR-TO-YEAR COMPARISON ..... 36
EXHIBIT XI - PLAN B: ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS ..... 39
EXHIBIT XII - PLAN B: PRESENT VALUE OF FUTURE BENEFITS ..... 40
EXHIBIT XIII - SCHEDULE A PLAN B: MARKET VALUE OF ASSETS ..... 41
EXHIBIT XIII - SCHEDULE B PLAN B: ACTUARIAL VALUE OF ASSETS ..... 42
EXHIBIT XIV - PLAN B: PRESENT VALUE OF FUTURE CONTRIBUTIONS ..... 43
EXHIBIT XV - PLAN B: RECONCILIATION OF CONTRIBUTIONS ..... 43
EXHIBIT XVI - PLAN B: ANALYSIS OF CHANGE IN ASSETS ..... 44
EXHIBIT XVII - PLAN B: PENSION BENEFIT OBLIGATION ..... 45
EXHIBIT XVIII - PLAN B: ENTRY AGE NORMAL ACCRUED LIABILITIES ..... 45
EXHIBIT XIX - PLAN B: CENSUS DATA ..... 46
EXHIBIT XX - PLAN B: YEAR-TO-YEAR COMPARISON ..... 54
SUMMARY OF PRINCIPAL PLAN PROVISIONS ..... 56
ACTUARIAL ASSUMPTIONS ..... 59
ACTUARIAL TABLES AND RATES ..... 62
PRIOR YEAR ACTUARIAL ASSUMPTIONS ..... 64
GLOSSARY ..... 68

# SUMMARY OF VALUATION RESULTS PAROCHIAL EMPLOYEES' RETIREMENT SYSTEM - PLAN A 

Valuation Date:

| Census Summary: | Active Me <br> Retired M <br> Terminate <br> Terminate |
| :--- | :--- |
| Payroll: |  |
| Benefits in Payment: |  |
| Funding Deposit Account: |  |
| Market Value of Assets: |  |
| Actuarial Asset Value (AVA): |  |
| Actuarial Accrued Liability (EAN): |  |

December 31, 2015

14,232
6,783
678
7,182
\$ 577,600,460

46,994,475
\$ 49,644,401
$\$ 3,124,593,132 \quad \$ \quad 3,175,649,999$
\$ 3,220,157,028 \$ 3,032,888,183
\$ 3,316,128,533

December 31, 2014

14,061
6,523
660
7,026
\$ $566,547,812$
\$ 137,309,161
\$ 23,781,823
\$ 3,133,179,431
96.80\%
*************************************************************************************************** 20162015

| Employers' Normal Cost (January 1): | $\$$ | $65,880,315$ | $\$$ | $64,081,938$ |
| :--- | :--- | :--- | :--- | ---: |
| Interest Adjusted Actuarially Required Contributions |  |  |  |  |
| Including Estimated Administrative Costs: | $\$$ | $69,559,660$ | $\$$ | $67,704,648$ |
| Projected Ad Valorem and Revenue Sharing | $\$$ | $7,485,214$ | $\$$ | $7,445,244$ |
| Actuarially Required Net Direct Employer Contributions | $\$$ | $62,074,446$ | $\$$ | $60,259,404$ |
| Actuarially Required Net Direct Employer Contribution Rate |  | $10.52 \%$ | $10.40 \%$ |  |
| Actual Net Direct Employer Contribution Rate: | $13.00 \%$ | $14.50 \%$ |  |  |

***************************************************************************************************

## Minimum Net Direct Employer Contribution Rate: For Fiscal 2017: 10.50\% For Fiscal 2016: 10.50\%

## Employee Contribution Rate: $9.50 \%$ of Payroll

Actuarial Cost Method: The Aggregate Actuarial Cost Method
Valuation Interest Rate: $7.00 \%$ (Net of Investment Expense)
Census Exclusions: All individuals submitted by the system were included in the valuation.
Basis of Actuarial Asset Value: The actuarial value of assets is based on the market value of assets adjusted to average in asset earnings above or below the assumed rate of return over a five-year period subject to a corridor limit of $85 \%$ to $115 \%$ of the market value of assets. If the smoothed value lies outside of the corridor limit the actuarial value is determined by averaging the smoothed value with the corridor limit.

Changes in Valuation Methods, Assumptions, and Amortization Periods: The valuation interest rate was reduced from 7.25\% to $7.00 \%$. All other assumptions were also reviewed and updated as detailed in the 2015 experience study report.

Method of Recognizing Gains and Losses: Under the Aggregate Actuarial Cost Method, actuarial gains and losses are spread over future normal costs.

# SUMMARY OF VALUATION RESULTS PAROCHIAL EMPLOYEES' RETIREMENT SYSTEM - PLAN B 

| Valuation Date: | December 31, 2015 | December 31, 2014 |
| :---: | :---: | :---: |
| Census Summary: Active Members | 2,413 | 2,321 |
| Retired Members | 747 | 714 |
| Terminated Due a Deferred Benefit | 139 | 135 |
| Terminated Due a Refund | 1,554 | 1,531 |
| Payroll: | \$ 98,127,898 | \$ 91,698,297 |
| Benefits in Payment: | \$ 8,150,175 | \$ 7,448,991 |
| Funding Deposit Account: | \$ 4,622,489 | \$ 2,281,164 |
| Market Value of Assets: | \$ 255,103,397 | \$ 253,501,744 |
| Actuarial Asset Value: | \$ 263,849,591 | \$ 242,977,968 |
| Actuarial Accrued Liability (EAN): | \$ 267,985,810 | \$ 249,207,071 |
|  |  |  |
|  |  |  |
|  |  |  |
| Employers' Normal Cost (January 1): | \$ 8,010,680 | \$ 7,291,606 |
| Interest Adjusted Actuarially Required Contributions |  |  |
| Including Estimated Administrative Costs: | \$ 8,526,285 | \$ 7,768,249 |
| Projected Ad Valorem and Revenue Sharing | \$ 1,271,654 | \$ 1,275,783 |
| Actuarially Required Net Direct Employer Contributions | \$ 7,254,631 | \$ 6,492,466 |
| Actuarially Required Net Direct Employer Contribution Rate | 7.20\% | 6.91\% |
| Actual Net Direct Employer Contribution Rate: | $8.00 \%$ | $9.00 \%$ |

Minimum Net Direct Employer Contribution Rate: For Fiscal 2017: 7.25\% For Fiscal 2016: 7.00\%
Employee Contribution Rate: $3.00 \%$ of salary
Actuarial Cost Method: The Aggregate Actuarial Cost Method
Valuation Interest Rate: 7.00\% (Net of Investment Expense)
Census Exclusions: All individuals submitted by the system were included in the valuation.
Basis of Actuarial Asset Value: The actuarial value of assets is based on the market value of assets adjusted to average in asset earnings above or below the assumed rate of return over a five-year period subject to a corridor limit of $85 \%$ to $115 \%$ of the market value of assets. If the smoothed value lies outside of the corridor limit the actuarial value is determined by averaging the smoothed value with the corridor limit

Changes in Valuation Methods, Assumptions, and Amortization Periods: The valuation interest rate was reduced from $7.25 \%$ to $7.00 \%$. All other assumptions were also reviewed and updated as detailed in the 2015 experience study report.

Method of Recognizing Gains and Losses: Under the Aggregate Actuarial Cost Method, actuarial gains and losses are spread over future normal costs.

## COMMENTS ON DATA

For the valuation, the administrative director of the system furnished a census on magnetic diskette derived from the system's master data processing file indicating each active covered employee's sex, date of birth, service credit, annual salary, and accumulated contributions. Information on retirees detailing dates of birth of retirees and beneficiaries, as well as option categories and benefit amounts, was provided in like manner. In addition, data was supplied on former employees who are vested or who have contributions remaining on deposit. As illustrated in Exhibit IX, there are 14,232 active members in Plan A, of whom, 7,507 members, including 576 participants in the Deferred Retirement Option Plan (DROP), have vested retirement benefits; 6,783 former members of Plan A or their beneficiaries are receiving retirement benefits. An additional 7,860 former members of Plan A have contributions remaining on deposit with the system. This includes 678 former members who have vested rights or have filed reciprocal agreements for future retirement benefits. Census data on members of Plan B may be found in Exhibit XIX. There are 2,413 active members in Plan B, of whom, 1,209 members, including 61 DROP participants, have vested retirement benefits; 747 former members of Plan B or their beneficiaries are receiving retirement benefits. An additional,1,693 former members of Plan B have contributions remaining on deposit with the system. Of this number, 139 have vested rights or have filed reciprocal agreements for future retirement benefits. All individuals submitted were included in the valuation.

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

In addition to the statistical information provided on the system's participants, the system's administrative director furnished general information related to other aspects of the system's expenses, benefits and funding. Valuation asset values, as well as income and expenses for the fiscal year, were based on information furnished by the system's auditor, the firm of Duplantier, Hrapmann, Hogan \& Maher, L.L.P. As indicated in the system's audit report, the net market value of Plan A's assets was $\$ 3,124,593,132$ as of December 31, 2015. For Plan A, the net investment income for fiscal 2015 measured on a market value basis amounted to a loss of $\$ 18,772,102$. Contributions to Plan A for the fiscal year totaled $\$ 145,572,332$; benefits and expenses amounted to $\$ 177,857,097$.

The net market value of Plan B's assets was $\$ 255,103,397$ as of December 31, 2015. For Plan B, the net investment income for fiscal 2015 measured on a market value basis amounted to a loss of $\$ 1,801,444$.

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Contributions to Plan B for the fiscal year totaled $\$ 13,305,959$; benefits and expenses amounted to \$9,902,862.

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

## COMMENTS ON ACTUARIAL METHODS AND ASSUMPTIONS

Plan A was previously funded under the Frozen Attained Age Normal Cost Method. The Frozen Unfunded Accrued Liability was fully amortized in fiscal 2012. Hence, for the fiscal 2013 valuation, the system's funding method was changed to the Aggregate Actuarial Cost Method. Plan B is funded utilizing the Aggregate Actuarial Cost Method. This method does not develop an unfunded actuarial liability. Under the Aggregate Cost Method, actuarial gains and losses are spread over future normal costs. Thus, favorable plan experience will lower future normal costs; unfavorable experience will cause future normal costs to increase. In both plans, benefit and assumption changes are also spread over future normal costs. Effective with fiscal 2008, for both Plans A and B, any excess funds collected pursuant to R. S. 11:105 or R. S. 11:107 are allocated to the Funding Deposit Account. The Funding Deposit Account credit balance as of the end of the prior fiscal year for Plans A and B was $\$ 23,781,823$ and $\$ 2,281,164$, respectively. Both accounts were increased with interest at $7.25 \%$ for the year. A freeze in the employer contribution rate in Plan A for fiscal 2015 resulted in a contribution gain of $\$ 24,138,396$ as of December 31, 2015. A freeze in the employer contribution rate in Plan B for fiscal 2015 resulted in a contribution gain of $\$ 2,175,941$ as of December 31, 2015. When interest and additional contributions were added to the Funding Deposit Accounts, the resulting balances as of December 31, 2015 for Plans A and B were $\$ 49,644,401$ and $\$ 4,622,489$, respectively.

The current year actuarial assumptions utilized for this report are based on the results of an actuarial experience study for the period January 1, 2010 - December 31, 2014, unless otherwise specified in this report. The new assumptions are listed in the back of this report. Based on the results of this study and expectations of future experience, retirement, DROP entry, disability, and withdrawal rates were changed. Family statistics were also updated based on more recent measures available from the United States Census Bureau. In the case of mortality, data was collected over the period of Fiscal 2010 through Fiscal 2014. The data was then assigned credibility weighting and combined with a standard table to produce current levels of mortality. This mortality was then projected forward to a period equivalent to the estimated duration of the fund's liabilities. The RP-2000 Healthy Annuitant Mortality Table set forward two years for males and set forward one year for females and projected to 2031 using Scale AA was selected for healthy annuitants and beneficiaries.

For disabled annuitants, the RP-2000 Disabled Lives Mortality Table set back 5 years for males and 3 years for females was selected. For active employees, the RP-2000 Employee Table set back 4 years for males and 3 years for females was used.

In determining the valuation interest rate, consideration was given to several factors, including consensus estimates of rates of return, standard deviations, and correlation coefficients for asset classes derived from various asset consulting firms. These factors were used to derive forward estimates of the Fund's portfolio. The salary increase rate for the report is $5.25 \%$ based on forward estimates of future

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increases in pay resulting from three sources; inflation, merit, and productivity. An inflation rate of $2.50 \%$ was implicit in both the assumed rate of return and rate of salary increases. Additional information related to the assumptions utilized is given in the 2015 Experience Report for the system.

Although the board of trustees has authority to grant ad hoc Cost of Living Adjustments (COLAs) under limited circumstances, these COLAs have not been shown to have a historical pattern, the amounts of the COLAs have not been relative to a defined cost-of-living or inflation index, and there is no evidence to conclude that COLAs will be granted on a predictable basis in the future. Therefore, for purposes of determining the present value of benefits, these COLAs were deemed not to be substantively automatic and the present value of benefits excludes COLAs not previously granted by the board of trustees.

The current year actuarial assumptions utilized for the report are outlined on pages fifty-nine through sixty-seven. All assumptions used are based on estimates of future long-term experience for the fund. All calculations, recommendations, and conclusions are based on the assumptions specified. To the extent that prospective experience differs from that assumed, adjustments will be required to contribution levels. Such differences will be revealed in future actuarial valuations.

## CHANGES IN PLAN PROVISIONS

The following changes in plan provisions were enacted during the 2015 Regular Session of the Louisiana Legislature:

ACT 370 allows the Parochial Employees' Retirement System to provide a cost of living increase pursuant to the requirements of R.S. 11:243(G)(3), notwithstanding the provisions of R.S. 11:243(G)(1), from the balance in the systems' funding deposit account.

## 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.

| $\frac{\text { Plan A }}{2006}$ | Market Value | $\underline{\text { Actuarial Value }}$ |
| :---: | :---: | :---: |
| 2007 | $12.8 \%$ | $11.3 \%$ |
| 2008 | $7.9 \%$ | $*-4.1 \%$ |
| 2009 | $-25.7 \%$ | $9.9 \%$ |
| 2010 | $20.6 \%$ | $4.4 \%$ |
| 2011 | $15.2 \%$ | $2.9 \%$ |
| 2012 | $-0.7 \%$ | $4.2 \%$ |
| 2013 | $15.6 \%$ | $13.0 \%$ |
| 2014 | $18.1 \%$ | $10.5 \%$ |
| 2015 | $4.9 \%$ | $7.3 \%$ |
|  | $-0.6 \%$ | $\underline{\text { Actuarial Value }}$ |
| $\frac{\text { Plan B }}{2006}$ | $\underline{\text { Market Value }}$ | $9.8 \%$ |
| 2007 | $11.6 \%$ | $* 13.4 \%$ |
|  | $7.7 \%$ |  |
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| 2008 | $-25.0 \%$ | $* *-5.2 \%$ |
| :---: | ---: | ---: |
| 2009 | $20.7 \%$ | $8.8 \%$ |
| 2010 | $15.4 \%$ | $4.6 \%$ |
| 2011 | $-0.7 \%$ | $3.2 \%$ |
| 2012 | $15.8 \%$ | $4.8 \%$ |
| 2013 | $17.6 \%$ | $12.8 \%$ |
| 2014 | $4.9 \%$ | $10.3 \%$ |
| 2015 | $-0.7 \%$ | $7.1 \%$ |

[^0]The market rate of return gives a measure of investment return on a total return basis and includes realized and unrealized capital gains and losses as well as interest income. This rate of return gives an indication of performance for an actively managed portfolio where securities are bought and sold with the objective of producing the highest total rate of return. During 2015, Plan A earned $\$ 45,759,232$ and Plan B earned $\$ 3,643,359$ of dividends, interest and other recurring income. In addition, Plan A had net realized and unrealized capital losses and other non-recurring income on investments of \$52,233,753 while the total of such losses for Plan B amounted to $\$ 4,439,536$. Investment expenses were $\$ 12,297,581$ for Plan A and $\$ 1,005,267$ for Plan B. The geometric mean of the market value rates of return measured over the last ten years was $5.9 \%$ for Plan A and $5.9 \%$ for Plan B. For the last twentyfive years, the geometric mean returns were $7.9 \%$ for Plan A and $7.8 \%$ for Plan B.

The actuarial rate of return is presented for comparison to the assumed long-term rate of return of $7.25 \%$ for fiscal 2015. This rate is calculated based on the smoothed value of assets subject to constraints as given in Exhibit III-B for Plan A and Exhibit XIII-B for Plan B. Investment income used to calculate this yield is based upon a smoothing of investment income above or below the valuation interest rate. The difference between rates of return on an actuarial and market value basis results from the smoothing utilized. In the future, yields in excess of the $7.00 \%$ assumption will reduce future costs; yields below $7.00 \%$ will increase future costs. Net actuarial investment earnings exceeded the actuarial assumed earnings rate of $7.25 \%$, used for fiscal 2015, by $\$ 819,063$ for Plan A and were less than the actuarial assumed earnings rate of $7.25 \%$, used for fiscal 2015, by $\$ 268,581$ for Plan B. These earnings surpluses for Plan A produced actuarial gains, which decreased the normal cost accrual rate by $0.0170 \%$ and the earnings shortfals for Plan B produced actuarial losses, which increased the normal cost accrual rate by $0.0317 \%$ for Plan B.

At the end of each fiscal year, a review of the data is made to identify current members of Plan A and Plan B who have consecutive service credit in both plans that have not been addressed in previous transfers of assets and liabilities between the Plan A and Plan B trust funds pursuant to the provisions of R.S. 11:2012. In the course of reviewing data for the December 31, 2015 valuation we found members of Plan A and Plan B with such service and recommend a transfer of $\$ 236,637$ be made from the Plan A trust to the Plan B trust for fiscal 2015.

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## PLAN A - DEMOGRAPHICS AND LIABILITY EXPERIENCE

A reconciliation of the census for the plan is given in Exhibit IX. The average active member is 46 years old with 9.94 years of service and an annual salary of $\$ 40,585$. The plan's active membership, inclusive of DROP participants, increased by 171 members during the fiscal year. The plan has experienced a decrease in the active plan population of 559 members over the last five years. A review of the active census by age indicates that over the last ten years the population under age fifty has decreased while the proportion of active members age fifty-one and above increased. Over the same ten-year period the plan showed a fairly stable distribution among the various service groups. The average regular retiree is 71 years old with a monthly benefit of $\$ 2,010$. The number of retirees and beneficiaries receiving benefits from the system increased by 260 during the fiscal year; over the last five years the number of retirees has increased by 1,252 ; during the same period, benefits in payment increased by $\$ 49,343,833$.

Plan liability experience for fiscal 2015 was favorable. Retirements, DROP entries, and disabilities were below projected levels. Salary increases were also below projected levels. These factors tend to reduce costs. Partially offsetting these factors were deaths and withdrawals below projected levels. In aggregate, plan liability gains decreased the normal cost accrual rate by $0.8823 \%$.

## PLAN B - DEMOGRAPHICS AND LIABILITY EXPERIENCE

A reconciliation of the census for the plan is given in Exhibit XIX. The average active member is 47 years old with 9.55 years of service and an annual salary of $\$ 40,666$. The plan's active membership, inclusive of DROP participants, increased by 92 members during the fiscal year. The plan has experienced an increase in the active plan population of 100 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 thirty to fifty year age group has decreased while the proportion of active members over age fifty increased. Over the same ten-year period the distribution by service has been relatively stable. The average regular retiree is 73 years old with a monthly benefit of $\$ 1,000$. The number of retirees and beneficiaries receiving benefits from the system increased by 33 during the fiscal year; over the last five years the number of retirees has increased by 171 ; during the same period benefits in payment increased by $\$ 2,800,861$.

Plan liability experience for fiscal 2015 was favorable. Retirements, DROP entries, and disabilities were below projected levels for the year. Salary increases were below projected levels for the year. Retiree deaths were above projected levels for the year. All of these factors tend to reduce costs. Partially offsetting these factors were withdrawals below projected levels. In aggregate, plan liability gains decreased the normal cost accrual rate by $0.3147 \%$.

## FUNDING ANALYSIS AND RECOMMENDATIONS

Actuarial funding of a retirement system is a process whereby funds are accumulated over the working lifetimes of employees in such a manner as to have sufficient assets available at retirement to pay for the lifetime benefits accrued by each member of the system. The required contributions are determined by an actuarial valuation based on rates of mortality, termination, disability, and retirement, as well as investment return and other statistical measures specific to the particular group. Each year a

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

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

Under the provisions of R.S. 11:103, excess or deficient contributions typically decrease or increase future normal costs. However, if the minimum net direct employer contribution is scheduled to decrease, the board may maintain the contribution rate at some level above the minimum recommended rate. Pursuant to R. S. 11:105 and R. S. 11:107, such excess contributions are credited to the Funding Deposit Account.

For Plan A, the derivation of the actuarially required contribution for the current fiscal year is given in Exhibit I. The normal cost for fiscal 2016 as of January 1, 2016 is $\$ 65,880,315$. 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 2016 is $\$ 69,559,660$. When this amount is reduced by projected tax contributions and revenue sharing funds, the resulting employers' net direct actuarially required contribution for fiscal 2016 is $\$ 62,074,446$. This is $10.52 \%$ of the projected Plan A payroll for fiscal 2016.

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

The effects of various factors on the cost structure for Plan A are outlined below:
Employer's Normal Cost Accrual Rate - Fiscal 2015 12.1773\%
Factors Increasing the Normal Cost Accrual Rate: Assumption Changes
$1.3589 \%$
Factors Decreasing the Normal Cost Accrual Rate:

| Asset Experience Gain | $0.0170 \%$ |
| :--- | ---: |
| Plan Liability Experience Gain | $0.8823 \%$ |
| New Members | $0.3029 \%$ |
|  |  |
| 's Normal Cost Accrual Rate - Fiscal 2016 | $12.3340 \%$ |

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Required net direct employer contributions are also affected by the available ad valorem taxes and revenue sharing funds which the system receives each year. When these funds change as a percentage of payroll, net direct employer contributions are adjusted accordingly. We estimate that for Plan A these funds collected in fiscal 2016 will decrease by $0.01 \%$ of payroll. The net effect of the above changes in the cost structure of the system resulted in a minimum actuarially required net direct employer contribution rate for fiscal 2017 for Plan A of $10.52 \%$; the actual employer contribution rate for fiscal 2016 is $13.00 \%$ of payroll. R.S. 11:103 requires that the net direct employer contributions be rounded to the nearest $0.25 \%$, hence we are recommending a minimum net direct employer contribution rate for Plan A of $10.50 \%$ for fiscal 2017.

For Plan B, the derivation of the actuarially required contribution for the current fiscal year is given in Exhibit XI. The normal cost for fiscal 2016 as of January 1, 2015 is $\$ 8,010,680$. The total actuarially required contribution is determined by adjusting the value for interest (since payments are made throughout the fiscal year) and adding estimated administrative expenses. As given on line 12 of Exhibit XI the total actuarially required contribution for fiscal 2016 is $\$ 8,526,285$. When this amount is reduced by projected tax contributions and revenue sharing funds, the resulting employers' net direct actuarially required contribution for fiscal 2016 is $\$ 7,254,631$. This is $7.20 \%$ of the projected Plan B payroll for fiscal 2016.

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

$$
\text { Employer's Normal Cost Accrual Rate - Fiscal } 2015 \quad 8.6307 \%
$$

Factors Increasing the Normal Cost Accrual Rate:

$$
\begin{array}{ll}
\text { Assumption Changes } & 0.5846 \% \\
\text { Asset Experience Loss } & 0.0317 \%
\end{array}
$$

Factors Decreasing the Normal Cost Accrual Rate:

| Plan Liability Experience Gain | $0.3147 \%$ |
| :--- | :--- |
| New Members | $0.1099 \%$ |
|  |  |
| r's Normal Cost Accrual Rate - Fiscal 2016 | $8.8224 \%$ |

We estimate that for Plan B the funds collected from ad valorem taxes and revenue sharing funds in fiscal 2016 will decrease by $0.10 \%$ of payroll. The net effect of the above changes in the cost structure of the system resulted in a minimum actuarially required net direct employer contribution rate for fiscal 2016 for Plan B of $7.20 \%$; the actual employer contribution rate for fiscal 2016 is $8.00 \%$ of payroll. R.S. 11:103 requires that the net direct employer contributions be rounded to the nearest $0.25 \%$, hence we are recommending a minimum net direct employer contribution rate for Plan B of $7.25 \%$ for fiscal 2017.

For Plan A, the Board may set the net direct employer contribution at any rate between $10.50 \%$ and $13.00 \%$ based on the provisions of R. S. 11:107. For Plan B, the board may set the rate at any rate between $7.25 \%$ and $8.00 \%$. Should the net direct employer contribution rate be set at a level above the minimum rate under R.S. 11:107, the resulting additional contributions paid by the employers, if they

## G. S. Curran \& Company, Ltd.

exceed any potential contribution losses, would be added to the Funding Deposit Account for both Plans $A$ and $B$.

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

We have, however, calculated the sensitivity of the plans' costs to two factors. First, based on current assets and demographics, for each percentage under (over) performance of the return on the actuarial value of assets, there will be a corresponding increase (reduction) in the normal cost accrual rate of $0.67 \%$ for Plan A and $0.31 \%$ for Plan B. We have also determined that a $1 \%$ reduction in the valuation interest rate for Plan A would increase the actuarially required contribution rate for fiscal 2017 by $10.32 \%$; for Plan B the increase would be $5.74 \%$.

In addition to calculating the actuarially required contribution to the fund, we have also calculated the ratio of the system's assets to liabilities. When the actuarial value of assets is divided by the entry age normal accrued liability for Plans A and B, the result is $97.11 \%$ for Plan A and $98.46 \%$ for Plan B as of December, 31 2015. This value in isolation does not give a measure of the ability of the fund to pay benefits in the future or indicate that future contributions are likely to be greater or less than current contributions. In addition, the ratio cannot be used to compare the relative strength of different retirement systems. However, the trend of this ratio over time can give some insight into the financial health of the plan. Even in this regard caution is warranted since market fluctuations in asset values and changes in plan assumptions can distort the underlying trends in this value.

## COST OF LIVING INCREASES

During calendar 2015 the actual cost of living (as measured by the U.S. Department of Labor CPI-U) increased by $0.73 \%$. Cost of living provisions for the system are detailed in R.S. 11:1937 and R.S. 11:246. The former statute allows the board to use interest earnings in excess of the normal requirements to grant annual cost of living increases of $2.50 \%$ of the current benefit to retirees aged 62 or over, who have been retired at least one year. R.S. 11:246 provides cost of living increases to retirees and beneficiaries over the age of 65 equal to $2 \%$ of the benefit in payment on October 1, 1977, or the date the benefit was originally received if retirement commenced after that date. R.S. 11:241 provides that cost of living benefits shall be in the form (unless the board otherwise specifies) of $\$ \mathrm{X} \times(\mathrm{A}+\mathrm{B})$ where X is at most $\$ 1$ and "A" represents the number of years of credited service accrued at retirement or at death of the member or retiree and " B " is equal to the number of years since retirement or since death of the member or retiree to December $31^{\text {st }}$ of the initial year of such increase. The provisions of this subpart do not repeal provisions relative to cost of living adjustments contained within the individual laws governing systems; however, they are to be controlling in cases of conflict.

All of the above provisions require that the system earn sufficient excess interest earnings to fund the increases. For fiscal 2015, despite having excess interest earnings in Plan A, since a cost of living increase was granted as of January 1, 2015, neither plan may pay a cost of living increase based upon the criteria established in R.S. 11:243.

## G. S. Curran \& Company, Ltd.

# Plan A - Components of Present Value of Future Benefits December 31, 2015 


$\square$ Present Value of Future Employer Normal Cost (Net of Funding Deposit Account)

- Present Value of Future Employee Contributions
$\square$ Actuarial Value of Assets

Plan A - Components of Present Value of Future Benefits



Projected Tax Contributions consist of Projected Ad Valorem and Revenue Sharing Funds as a percent of payroll
Plan A - Actuarial Value of Assets vs. EAN Accrued Liability

-12-
G. S. Curran \& Company, Ltd.

Plan A - Net Non-Investment Income


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


|  |  | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- |
| Total Income (\$Mil) |  | 315.9 | 260.2 | -419.2 | 446.2 | 435.7 | 130.1 | 494.4 | 616.3 | 298.5 | 126.8 |
| Benefits and Expenses (\$Mil) |  | 90.1 | 94.1 | 102.3 | 108.1 | 114.8 | 124.6 | 140.9 | 156.8 | 166.4 | 177.9 |
| Net Change in MVA (\$Mil) |  |  | 225.8 | 166.1 | -521.5 | 338.1 | 320.9 | 5.5 | 353.5 | 459.5 | 132.1 |

Plan A - Active - Census By Age


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

-14-
G. S. Curran \& Company, Ltd.

Plan A - Historical Asset Yield

-15-
G. S. Curran \& Company, Ltd.

# Plan B - Components of Present Value of Future Benefits December 31, 2015 


$\square$ Present Value of Future Employer Normal Cost (Net of Funding Deposit Account)

- Present Value of Future Employee Contributions
$\square$ Actuarial Value of Assets


## Plan B - Components of Present Value of Future Benefits



- Present Value of Future Employee Contributions
$\square$ Actuarial Value of Assets


Projected Tax Contributions consist of Projected Ad Valorem and Revenue Sharing Funds as a percent of payroll
Plan B - Actuarial Value of Assets vs. EAN Accrued Liability


Plan B - Net Non-Investment Income


## Plan B - Total Income vs. Expenses

(Based on Market Value of Assets)


|  |  | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Total Income (\$Mil) |  |  | 19.8 | 16.6 | -28.8 | 31.3 | 32.9 | 10.8 | 38.7 | 48.5 |
| Benefits and Expenses (\$Mil) | $\square$ | 4.8 | 5.1 | 5.6 | 6.1 | 6.1 | 6.9 | 7.7 | 7.7 | 8.4 |
| Net Change in MVA (\$Mil) |  |  | 15.0 | 11.5 | -34.4 | 25.2 | 26.8 | 3.9 | 31.0 | 40.8 |


G. S. Curran \& Company, Ltd.

Plan B - Historical Asset Yield


## EXHIBIT I <br> PLAN A: ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS

1. Present Value of Future Benefits ..... \$ 4,169,347,064
2. Funding Deposit Account Credit Balance ..... \$
49,644,401
3. Actuarial Value of Assets ..... \$ 3,220,157,028
4. Present Value of Future Employee Contributions ..... \$ 405,879,187
5. Present Value of Future Employer Normal Costs (1+2-3-4) ..... \$ 592,955,250
6. Present Value of Future Salaries ..... \$ 4,807,484,489
7. Employer Normal Cost Accrual Rate $(5 \div 6)$ ..... $12.334002 \%$
8. Projected Fiscal 2016 Salary for Current Membership ..... \$ ..... 534,135,755
9. Employer Normal Cost as of January 1, $2016(7 \times 8)$ ..... \$ ..... 65,880,315
10. Employer Normal Cost Interest Adjusted for Midyear Payment ..... \$ ..... 68,147,128
11. Estimated Administrative Cost for Fiscal 2016 ..... \$ ..... 1,412,532
12. TOTAL Administrative and Interest Adjusted Actuarial Costs $(10+11)$ ..... \$ ..... 69,559,660
13. Estimated Ad Valorem Tax Contributions for Fiscal 2016 ..... \$ ..... 7,349,416
14. Estimated Revenue Sharing Funds for Fiscal 2016 ..... \$ ..... 135,798
15. Employers' Minimum Net Direct Actuarially Required Contribution for Fiscal 2016 (12-13-14) ..... \$ ..... 62,074,446
16. Projected Payroll for Fiscal 2016 ..... \$ ..... 589,987,903
17. Employers' Minimum Net Direct Actuarially Required Contribution as a \% of Projected Payroll for Fiscal $2016(15 \div 16)$ ..... $10.52 \%$
18. Actual Employer Contribution Rate for Fiscal 2016 ..... $13.00 \%$
19. Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2017 (17, Rounded to Nearest 0.25\%) ..... 10.50\%

## EXHIBIT II PLAN A: PRESENT VALUE OF FUTURE BENEFITS

## PRESENT VALUE OF FUTURE BENEFITS FOR ACTIVE MEMBERS:

Retirement Benefits ..... \$ 2,371,933,274Survivor Benefits.33,165,417
Disability Benefits ..... 108,947,734
Vested Termination Benefits ..... 78,059,238
Refunds of Contributions ..... 61,325,969
TOTAL Present Value of Future Benefits for Active Members ..... \$ 2,653,431,632
PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:
Terminated Vested Members Due Benefits at Retirement.. \$ 70,097,125
Terminated Members with ReciprocalsDue Benefits at Retirement94,621
Terminated Members Due a Refund ..... 9,144,323
TOTAL Present Value of Future Benefits for Terminated Members ..... \$ ..... 79,336,069
PRESENT VALUE OF FUTURE BENEFITS FOR RETIREES:
Regular Retirees
Maximum ..... \$ 625,093,909
Option 1 ..... 1,740,956
Option 2 ..... 389,507,107
Option 3 ..... 188,364,111
Option 4 ..... 62,893,471
TOTAL Regular Retirees ..... \$ 1,267,599,554
Disability Retirees ..... 80,876,597
Survivors \& Widows ..... 86,314,214
Reserve for Accrued Retiree DROP Account Balances ..... 1,788,998
TOTAL Present Value of Future Benefits for Retirees \& Survivors ..... \$ 1,436,579,363
TOTAL Present Value of Future Benefits ..... \$ 4,169,347,064

## EXHIBIT III - SCHEDULE A PLAN A: MARKET VALUE OF ASSETS

CURRENT ASSETS:
Cash in Banks ..... \$
16,330,730
Contributions and Taxes Receivable ..... 32,781,001
Accrued Interest and Dividends ..... 483,289
Investments Receivable. ..... 57,739
Due from Other Funds ..... 1,504,352
Due (to)/from Plan B ..... $(236,637)$
Other Current Assets ..... 13
TOTAL CURRENT ASSETS ..... \$ 50,920,487
Property Plant \& Equipment ..... \$ ..... 641,714
INVESTMENTS:
Cash Equivalents ..... \$ 80,031,384
Equities ..... 1,644,650,040
Fixed Income ..... 1,071,046,581
Real Estate ..... 137,284,408
Alternative Investments ..... 157,460,560
TOTAL INVESTMENTS ..... \$ 3,090,472,973
TOTAL ASSETS ..... \$ 3,142,035,174
CURRENT LIABILITIES:
Accounts Payable ..... \$ ..... 2,043,922
Benefits Payable ..... 13,707,337
Refunds Payable ..... 497,445
Investments Payable ..... 660,228
Other Post-Employment Benefits Payable ..... 533,110
TOTAL CURRENT LIABILITIES ..... \$ ..... $17,442,042$
MARKET VALUE OF ASSETS ..... \$ 3,124,593,132

## EXHIBIT III - SCHEDULE B PLAN A - ACTUARIAL VALUE OF ASSETS

Excess (Shortfall) of invested income
for current and previous 4 years: for current and previous 4 years:
Fiscal year 2015
\$ $(247,856,881)$
Fiscal year 2014 $(70,960,087)$
Fiscal year 2013 272,966,174
Fiscal year 2012 180,555,953
Fiscal year 2011 $(182,360,994)$
Total for five years
\$ $(47,655,835)$

Deferral of excess (shortfall) of invested income:
Fiscal year 2015 (80\%)
\$ $(198,285,505)$
Fiscal year 2014 (60\%)
$(42,576,052)$
Fiscal year 2013 (40\%) 109,186,470
Fiscal year 2012 (20\%) 36,111,191
Fiscal year 2011 ( 0\%) 0

Total deferred for year \$
$(95,563,896)$

Market value of plan net assets, end of year
\$ 3,124,593,132

Preliminary actuarial value of plan assets, end of year
\$ 3,220,157,028

Actuarial value of assets corridor
85\% of market value, end of year ............................................................................. \$ 2,655,904,162
$115 \%$ of market value, end of year
\$ 3,593,282,102

Final actuarial value of plan net assets, end of year
\$ 3,220,157,028

## EXHIBIT IV PLAN A: PRESENT VALUE OF FUTURE CONTRIBUTIONS

Employee Contributions to the Annuity Savings Fund ..... \$ ..... 405,879,187
Employer Normal Contributions to the Pension Accumulation Fund ..... 592,955,250
Funding Deposit Account Credit Balance ..... (49,644,401)
TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS ..... \$ 949,190,036
EXHIBIT V
PLAN A: RECONCILIATION OF CONTRIBUTIONS
Employer Normal Cost for Prior Year ..... \$ ..... 64,081,938
Interest on the Normal Cost ..... 4,645,941
Administrative Expenses ..... 1,334,292
Interest on Expenses ..... 47,523
TOTAL Interest Adjusted Actuarially Required Employer Contributions ..... \$
Direct Employer Contributions ..... \$ 83,730,525
Interest on Employer Contributions ..... 2,982,125
Ad Valorem Taxes and Revenue Sharing ..... 7,276,289
Interest on Ad Valorem Taxes and Revenue Sharing Funds ..... 259,151
TOTAL Interest Adjusted Employer Contributions ..... \$ ..... 94,248,090
CONTRIBUTION SURPLUS (DEFICIENCY) ..... \$ ..... 24,138,396

## EXHIBIT VI <br> PLAN A: ANALYSIS OF CHANGE IN ASSETS

Actuarial Value of Assets (December 31, 2014) ..... \$ 3,032,888,183
INCOME:
Member Contributions ..... \$ 51,345,556
Employer Contributions ..... 83,730,525
Irregular Contributions ..... 3,456,599
Ad Valorem and Revenue Sharing Funds ..... 7,276,289
Transfer (to)/from Plan B ..... $(236,637)$
Total Contributions\$ 145,572,332
Net Depreciation in Fair Value of Investments \$ $(52,358,876)$
Interest \& Dividends ..... 45,759,232
Class Action Settlement ..... 130,075
Miscellaneous Income ..... $(4,952)$
Investment Expense ..... (12,297,581)
Net Investment Income ..... \$ $(18,772,102)$
TOTAL Income ..... \$ 126,800,230
EXPENSES:
Retirement Benefits ..... \$ 143,168,464
DROP Disbursements ..... 20,040,544
Refunds of Contributions ..... 10,977,072
Transfers to another System ..... 2,336,725
Administrative Expenses ..... 1,334,292
TOTAL Expenses ..... \$ 177,857,097
Net Market Value Income for Fiscal 2015 (Income - Expenses) ..... \$ $(51,056,867)$
Unadjusted Fund Balance as of December 31, 2015
(Fund Balance Previous Year + Net Income) ..... \$ 2,981,831,316
Adjustment for Actuarial Smoothing ..... \$ 238,325,712
Actuarial Value of Assets: (December 31, 2015) ..... \$ 3,220,157,028

## EXHIBIT VII PLAN A: PENSION BENEFIT OBLIGATION

Present Value of Credited Projected Benefits Payable to Current Employees ..... \$ 1,712,816,822
Present Value of Benefits Payable to Terminated Employees ..... 79,336,069
Present Value of Benefits Payable to Current Retirees and Beneficiaries ..... 1,436,579,363
TOTAL PENSION BENEFIT OBLIGATION ..... \$ 3,228,732,254
NET ACTUARIAL VALUE OF ASSETS ..... \$ 3,220,157,028
Ratio of Net Actuarial Value of Assets to Pension Benefit Obligation. ..... 99.73\%
EXHIBIT VIII
PLAN A: ENTRY AGE NORMAL ACCRUED LIABILITIESAccrued Liability for Active Employees
$\qquad$\$ 1,800,213,101
Accrued Liability for Terminated Employees ..... 79,336,069
Accrued Liability for Current Retirees and Beneficiaries ..... 1,436,579,363
TOTAL ENTRY AGE NORMAL ACCRUED LIABILITY ..... \$ 3,316,128,533
NET ACTUARIAL VALUE OF ASSETS ..... \$ 3,220,157,028
Ratio of Net Actuarial Value of Assets to Entry Age Normal Accrued Liability

$\qquad$ ..... 97.11\%

## EXHIBIT IX <br> PLAN A - CENSUS DATA

|  | Active | Terminated with Funds on Deposit | DROP | Retired | Total |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Number of members as of December 31, 2014 | 13,425 | 7,686 | 636 | 6,523 | 28,270 |
| Additions to Census <br> Initial membership <br> Death of another member <br> Omitted in error last year <br> Adjustment for multiple records | $1,702$ | 13 <br> 1 |  | 59 | $\begin{array}{r}1715 \\ 59 \\ 1 \\ 1 \\ \hline\end{array}$ |
| Change in Status during Year <br> Actives terminating service <br> Actives who retired <br> Actives entering DROP <br> Term. members rehired <br> Term. members who retire <br> Retirees who are rehired <br> Refunded who are rehired <br> DROP participants retiring DROP returned to work Omitted in error last year | $\begin{array}{r} (422) \\ (226) \\ (200) \\ 42 \\ 2 \\ 31 \\ 100 \end{array}$ | (42) <br> (38) <br> 12 | 200 <br> (158) <br> (100) $1$ | $226$ <br> 38 <br> (2) <br> 158 | $31$ $13$ |
| Eliminated from Census <br> Refund of contributions <br> Deaths <br> Included in error last year <br> Adjustment for multiple records | $\begin{array}{r} (767) \\ (32) \end{array}$ | (189) <br> (5) | (3) | (206) <br> (9) <br> (4) | (956) <br> (246) <br> (9) <br> (4) |
| Number of members as of December 31, 2015 | 13,656 | 7,860 | 576 | 6,783 | 28,875 |

PLAN A - ACTIVES CENSUS BY AGE:

| Age | Number <br> Male | Number <br> Female | Total <br> Number | Average <br> Salary | Total <br> Salary |
| :---: | :---: | :---: | :---: | :---: | ---: |
| $16-20$ | 63 |  | 23 | 86 | 22,469 |

THE ACTIVE CENSUS INCLUDES 7,507 ACTIVES WITH VESTED BENEFITS, INCLUDING 576 DROP PARTICIPANTS AND 364 ACTIVE FORMER DROP PARTICIPANTS.

PLAN A - TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

| Age | Number Male | Number <br> Female | Total Number | Average Benefit | Total Benefit |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 26-30 | 2 | 1 | 3 | 6,774 | 20,322 |
| $31-35$ | 7 | 11 | 18 | 10,557 | 190,028 |
| $36-40$ | 22 | 31 | 53 | 13,218 | 700,529 |
| 41-45 | 28 | 56 | 84 | 17,039 | 1,431,262 |
| $46-50$ | 44 | 74 | 118 | 18,372 | 2,167,862 |
| 51-55 | 62 | 74 | 136 | 20,142 | 2,739,273 |
| $56-60$ | 84 | 100 | 184 | 15,581 | 2,866,933 |
| 61-65 | 27 | 35 | 62 | 13,301 | 824,654 |
| $66-70$ | 10 | 1 | 11 | 5,401 | 59,415 |
| $71-75$ | 4 | 3 | 7 | 3,393 | 23,754 |
| 81-85 | 0 | 1 | 1 | 1,713 | 1,713 |
| $86-90$ | 0 | 1 | 1 | 581 | 581 |
| TOTAL | 290 | 388 | 678 | 16,263 | 11,026,326 |

PLAN A - TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

| Contributions |  | Ranging |  | Total |
| :---: | :---: | :---: | :---: | :---: |
| From |  | To | Number | Contributions |
| 0 | - | 99 | 4,411 | 118,370 |
| 100 | - | 499 | 1,059 | 258,082 |
| 500 | - | 999 | 405 | 289,960 |
| 1000 | - | 1999 | 314 | 443,113 |
| 2000 | - | 4999 | 442 | 1,433,048 |
| 5000 | - | 9999 | 278 | 2,014,625 |
| 10000 | - | 19999 | 193 | 2,753,885 |
| 20000 | - | 99999 | 80 | 2,296,046 |
|  | TO' | TAL | 7,182 | 9,607,129 |

-29-
G. S. Curran \& Company, Ltd.

PLAN A - REGULAR RETIREES:

| Age | Number <br> Male | Number <br> Female | Total <br> Number | Average <br> Benefit | Total <br> Benefit |
| ---: | :---: | :---: | :---: | :---: | ---: |
| $46-50$ | 2 | 1 | 3 | 62,895 | 188,686 |
| $51-55$ | 78 | 58 | 136 | 50,132 | $6,817,903$ |
| $56-60$ | 205 | 188 | 393 | 46,266 | $18,182,399$ |
| $61-65$ | 440 | 450 | 890 | 31,127 | $27,702,971$ |
| $66-70$ | 663 | 566 | 1,229 | 24,093 | $29,610,229$ |
| $71-75$ | 534 | 422 | 956 | 20,429 | $19,529,867$ |
| $76-80$ | 434 | 344 | 778 | 17,139 | $13,333,965$ |
| $81-85$ | 281 | 247 | 528 | 15,177 | $8,013,365$ |
| $86-90$ | 138 | 160 | 298 | 13,534 | $4,033,055$ |
| $91-99$ | 51 | 72 | 123 | 10,287 | $1,265,310$ |
| TOTAL | 2,826 | 2,508 | 5,334 | 24,124 | $128,677,750$ |

PLAN A - DISABILITY RETIREES:

| Age | Number Male | Number <br> Female | Total Number | Average <br> Benef | Total Benefit |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $36-40$ | 2 | 2 | 4 | 15,976 | 63,902 |
| 41-45 | 6 | 2 | 8 | 14,363 | 114,905 |
| 46-50 | 18 | 16 | 34 | 15,815 | 537,726 |
| 51-55 | 41 | 31 | 72 | 18,644 | 1,342,394 |
| 56-60 | 74 | 43 | 117 | 16,708 | 1,954,872 |
| 61-65 | 94 | 48 | 142 | 14,382 | 2,042,194 |
| 66-70 | 64 | 34 | 98 | 13,724 | 1,344,930 |
| $71-75$ | 26 | 18 | 44 | 10,188 | 448,264 |
| $76-80$ | 10 | 6 | 16 | 5,932 | 94,917 |
| $81-85$ | 3 | 0 | 3 | 3,900 | 11,701 |
| $86-90$ | 1 | 0 | 1 | 9,317 | 9,317 |
| TOTAL | 339 | 200 | 539 | 14,778 | 7,965,122 |

PLAN A - SURVIVORS:

| Age | Number Male | Number Female | Total Number | Average Benefit | Total Benefit |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0-25 | 12 | 9 | 21 | 12,817 | 269,147 |
| $26-30$ | 0 | 1 | 1 | 7,266 | 7,266 |
| $31-35$ | 2 | 0 | 2 | 7,824 | 15,647 |
| $36-40$ | 1 | 0 | 1 | 4,365 | 4,365 |
| 41-45 | 1 | 4 | 5 | 21,751 | 108,754 |
| $46-50$ | 1 | 16 | 17 | 18,264 | 310,493 |
| 51-55 | 5 | 20 | 25 | 15,017 | 375,437 |
| $56-60$ | 7 | 27 | 34 | 14,976 | 509,168 |
| 61-65 | 16 | 73 | 89 | 13,611 | 1,211,392 |
| 66-70 | 7 | 113 | 120 | 13,147 | 1,577,686 |
| $71-75$ | 25 | 141 | 166 | 12,202 | 2,025,555 |
| $76-80$ | 16 | 142 | 158 | 11,032 | 1,743,092 |
| $81-85$ | 6 | 119 | 125 | 8,664 | 1,082,955 |
| $86-90$ | 2 | 94 | 96 | 8,080 | 775,701 |
| 91-99 | 2 | 48 | 50 | 6,699 | 334,945 |
| TOTAL | 103 | 807 | 910 | 11,375 | 10,351,603 |

-30-
G. S. Curran \& Company, Ltd.
PLAN A - ACTIVE MEMBERS:
Completed Years of Service

| Attained |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Ages | 0 | 1 | 2 | 3 | 4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30 \&Over | Total |
| $0-20$ | 72 | 12 | 2 |  |  |  |  |  |  |  |  | 86 |
| $21-25$ | 286 | 195 | 105 | 53 | 24 | 14 |  |  |  |  |  | 677 |
| 26-30 | 283 | 245 | 180 | 108 | 106 | 255 | 8 |  |  |  |  | 1,185 |
| $31-35$ | 199 | 180 | 139 | 95 | 88 | 446 | 177 | 21 |  |  |  | 1,345 |
| $36-40$ | 188 | 146 | 110 | 76 | 81 | 386 | 258 | 138 | 11 |  |  | 1,394 |
| 41-45 | 162 | 115 | 110 | 62 | 64 | 380 | 233 | 228 | 102 | 16 |  | 1,472 |
| $46-50$ | 175 | 131 | 109 | 96 | 73 | 398 | 249 | 261 | 184 | 123 | 20 | 1,819 |
| 51-55 | 166 | 149 | 122 | 101 | 85 | 469 | 288 | 293 | 252 | 166 | 149 | 2,240 |
| $56-60$ | 115 | 97 | 102 | 87 | 74 | 428 | 306 | 289 | 215 | 175 | 149 | 2,037 |
| 61-65 | 43 | 40 | 44 | 45 | 47 | 311 | 239 | 212 | 146 | 87 | 97 | 1,311 |
| $66-70$ | 15 | 4 | 13 | 15 | 9 | 87 | 78 | 88 | 54 | 47 | 43 | 453 |
| 71 \& Over | 3 | 5 | 6 | 6 | 4 | 31 | 25 | 39 | 39 | 26 | 29 | 213 |
| Totals | 1707 | 1319 | 1042 | 744 | 655 | 3205 | 1861 | 1569 | 1003 | 640 | 487 | 14232 |

PLAN A - AVERAGE ANNUAL SALARY OF ACTIVE MEMBERS:

| Average |
| :--- |
| Salary |


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$n$
0
0


## 

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& \dot{\sigma}
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PLAN A - TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

| Attained Ages | Years Until Retirement Eligibility |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 0 | 1 | 2 | 3 | 4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30 \& Over | Total |
| $0-25$ |  |  |  |  |  |  |  |  |  |  |  | 0 |
| $26-30$ |  |  |  |  |  |  |  |  |  |  | 3 | 3 |
| $31-35$ |  |  |  |  |  |  |  |  |  | 5 | 13 | 18 |
| $36-40$ |  |  |  |  |  |  |  |  | 23 | 30 |  | 53 |
| $41-45$ |  |  |  |  |  |  |  | 55 | 28 | 1 |  | 84 |
| 46-50 |  |  |  |  |  |  | 78 | 39 | 1 |  |  | 118 |
| $51-55$ |  | 1 |  |  |  | 102 | 32 | 1 |  |  |  | 136 |
| $56-60$ | 25 | 29 | 31 | 34 | 28 | 37 |  |  |  |  |  | 184 |
| $61-65$ | 42 | 2 | 4 | 7 | 7 |  |  |  |  |  |  | 62 |
| $66-70$ | 11 |  |  |  |  |  |  |  |  |  |  | 11 |
| $71-75$ | 7 |  |  |  |  |  |  |  |  |  |  | 7 |
| $76-80$ |  |  |  |  |  |  |  |  |  |  |  | 0 |
| $81-85$ | 1 |  |  |  |  |  |  |  |  |  |  | 1 |
| 86-90 | 1 |  |  |  |  |  |  |  |  |  |  | 1 |
| 91 \& Over |  |  |  |  |  |  |  |  |  |  |  | 0 |
| Totals | 87 | 32 | 35 | 41 | 35 | 139 | 110 | 95 | 52 | 36 | 16 | 678 |
| ```PLAN A - AVERAGE ANNUAL BENEFITS OF TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT: Years Until Retirement Eligibility``` |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Attained Ages |  |  |  |  |  |  |  |  |  |  |  | Average |
|  | 0 | 1 | 2 | 3 | 4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30 \& Over | Benefit |
| $0-250$ |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |  |  |  |  |  |
| $81-85$ | 1,713 |  |  |  |  |  |  |  |  |  |  | 1,713 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Average | 12,080 | 18,981 | 15,207 | 16,845 |  |  |  |  | 13,478 | 11,069 | 8,846 |  |

PLAN A - SERVICE RETIREES:

| Attained Ages | 0 | 1 | 2 | 3 | 4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30 \& Over | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $0-50$ | 1 | 2 |  |  |  |  |  |  |  |  |  | 3 |
| $51-55$ | 31 | 28 | 24 | 27 | 18 | 8 |  |  |  |  |  | 136 |
| $56-60$ | 81 | 65 | 58 | 63 | 28 | 91 | 7 |  |  |  |  | 393 |
| 61-65 | 129 | 140 | 146 | 117 | 90 | 206 | 60 | 2 |  |  |  | 890 |
| $66-70$ | 105 | 120 | 121 | 145 | 105 | 457 | 141 | 33 | 1 | 1 |  | 1,229 |
| $71-75$ | 29 | 34 | 31 | 43 | 37 | 315 | 336 | 95 | 30 | 5 | 1 | 956 |
| $76-80$ | 11 | 13 | 8 | 20 | 20 | 107 | 232 | 250 | 77 | 32 | 8 | 778 |
| $81-85$ | 4 | 1 | 6 | 8 | 9 | 41 | 60 | 145 | 181 | 57 | 16 | 528 |
| $86-90$ |  |  |  | 3 |  | 3 | 21 | 28 | 93 | 115 | 35 | 298 |
| 91 \& Over |  |  |  |  | 1 | 1 | 4 | 9 | 11 | 44 | 53 | 123 |
| Totals | 391 | 403 | 394 | 426 | 308 | 1229 | 861 | 562 | 393 | 254 | 113 | 5334 |

\footnotetext{
PLAN A - AVERAGE ANNUAL BENEFITS PAYABLE TO SERVICE RETIREES:
Completed Years Since Retirement

| Attained Ages | 0 | 1 | 2 | 3 | 4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30 \&Over | Average Benefit |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $0-50$ | 59,209 | 64,738 |  |  |  |  |  |  |  |  |  | 62,895 |
| $51-55$ | 56,173 | 51,712 | 48,444 | 48,156 | 45,671 | 42,956 |  |  |  |  |  | 50,132 |
| $56-60$ | 41,946 | 49,090 | 50,961 | 49,108 | 47,569 | 43, 943 | 30,512 |  |  |  |  | 46,266 |
| $61-65$ | 24,974 | 25,692 | 27,913 | 28,656 | 28,939 | 39,973 | 42,186 | 43,116 |  |  |  | 31,127 |
| $66-70$ | 21,676 | 20,305 | 21,992 | 18,894 | 20,290 | 24,387 | 35,716 | 34,614 | 34,259 | 9,190 |  | 24,093 |
| $71-75$ | 19,377 | 20,151 | 18,416 | 20,501 | 22,048 | 17,794 | 20,140 | 27,318 | 30,061 | 27,416 | 8,240 | 20,429 |
| $76-80$ | 9,509 | 12,578 | 19,968 | 15,104 | 18,825 | 16,790 | 15,499 | 16,209 | 24,338 | 25,043 | 13,468 | 17,139 |
| $81-85$ | 12,091 | 8,500 | 22,876 | 13,283 | 25,434 | 12,308 | 14,668 | 14,139 | 14,036 | 22,019 | 15,855 | 15,177 |
| $86-90$ |  |  |  | 16,309 |  | 12,296 | 10,974 | 14,859 | 13,030 | 12,575 | 18,365 | 13,534 |
| 91 \& Over |  |  |  |  | 18,885 | 7,656 | 15,719 | 12,269 | 10,114 | 9,471 | 10,142 | 10,287 |
| Average | 29,183 | 28,930 | 29,753 | 27,759 | 27,042 | 25,771 | 22,435 | 18,599 | 16,981 | 16,006 | 13,716 | 24,124 |

G. S. Curran \& Company, Ltd.
PLAN A－DISABILITY RETIREES：

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|  |  |  |  |  |  |  |  |  |  |  |  |  |
| $0-35$ |  |  |  |  |  |  |  |  |  |  |  | 0 |
| $36-40$ | 1 |  | 1 | 1 | 1 |  |  |  |  |  |  | 4 |
| $41-45$ | 1 | 1 | 1 |  | 1 | 3 | 1 |  |  |  |  | 8 |
| $46-50$ | 4 | 7 | 2 | 1 | 3 | 7 | 8 | 2 |  |  |  | 34 |
| $51-55$ | 8 | 11 | 6 | 6 | 5 | 17 | 11 | 5 | 3 |  |  | 72 |
| $56-60$ | 7 | 6 | 8 | 9 | 7 | 31 | 25 | 11 | 9 | 4 |  | 117 |
| $61-65$ | 2 | 2 | 8 | 5 | 16 | 31 | 31 | 20 | 17 | 6 | 4 | 142 |
| $66-70$ |  |  | 1 |  | 1 | 18 | 36 | 19 | 17 | 6 |  | 98 |
| $71-75$ |  |  |  |  | 1 | 2 | 11 | 16 | 9 | 2 | 3 | 44 |
| $76-80$ |  |  |  |  |  |  | 3 | 4 | 4 | 5 |  | 16 |
| $81-85$ |  |  |  |  |  |  |  |  | 2 | 1 |  | 3 |
| $86-90$ |  |  |  |  |  |  |  |  |  | 1 |  | 1 |
| 91 \＆Over |  |  |  |  |  |  |  |  |  |  |  | 0 |
| Totals | 23 | 27 | 27 | 22 | 35 | 109 | 126 | 77 | 61 | 25 | 7 | 539 |

Completed Years Since Retirement
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$36-40$
$41-45$
$46-50$
$51-55$
$56-60$
$61-65$
$66-70$
$71-75$
$76-80$
$81-85$
$86-90$
$91 \&$ Over
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G．S．Curran \＆Company，Ltd．
PLAN A－SURVIVING BENEFICIARIES OF FORMER MEMBERS：
Completed Years Since Retirement





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

## EXHIBIT X PLAN A: YEAR-TO-YEAR COMPARISON

Fiscal 2015 Fiscal 2014 Fiscal 2013 Fiscal 2012

| Number of Active Members |  | 14,232 |  | 14,061 |  | 13,866 |  | 14,370 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Number of Retirees \& Survivors |  | 6,783 |  | 6,523 |  | 6,242 |  | 5,991 |
| Number of Terminated Due Deferred Benefits |  | 678 |  | 660 |  | 683 |  | 561 |
| Number Terminated Due Refunds |  | 7,182 |  | 7,026 |  | 7,109 |  | 6,795 |
| Active Lives Payroll | \$ | 577,600,460 | \$ | 566,547,812 | \$ | 543,669,542 | \$ | 558,327,346 |
| Retiree Benefits in Payment | \$ | 146,994,475 | \$ | 137,309,161 | \$ | 124,299,785 | \$ | 114,515,106 |
| Market Value of Assets (MVA) | \$ | 3,124,593,132 | \$ | 3,175,649,999 | \$ | 3,043,479,814 | \$ | 2,583,983,506 |
| Entry Age Normal (EAN) Accrued Liability | \$ | 3,316,128,533 | \$ | 3,133,179,431 | \$ | 2,984,143,643 | \$ | 2,823,038,820 |
| Ratio of AVA to EAN Accrued Liability |  | 97.11\% |  | 96.80\% |  | 92.49\% |  | 86.73\% |
| Actuarial Value of Assets | \$ | 3,220,157,028 | \$ | 3,032,888,183 | \$ | 2,760,148,403 | \$ | 2,448,529,177 |
| Present Value of Future Employer Normal Cost | \$ | 592,955,250 | \$ | 560,647,763 | \$ | 651,806,943 | \$ | 773,908,389 |
| Present Value of Future Employee Contrib. | \$ | 405,879,187 | \$ | 389,156,042 | \$ | 370,352,485 | \$ | 378,465,400 |
| Funding Deposit Account Credit Balance | \$ | 49,644,401 | \$ | 23,781,823 | \$ | 4,918,053 | \$ | 4,574,933 |
| Frozen Unfunded Actuarial Accrued Liability | \$ | 0 | \$ | 0 | \$ | 0 | \$ | 0 |
| Present Value of Future Benefits | \$ | 4,169,347,064 | \$ | 3,958,910,165 | \$ | 3,777,389,778 | \$ | 3,596,328,033 |


|  | Fiscal 2016 | Fiscal 2015 | Fiscal 2014 | Fiscal 2013 |
| :---: | :---: | :---: | :---: | :---: |
| Employee Contribution Rate | 9.50\% | 9.50\% | 9.50\% | 9.50\% |
| Estimated Tax Contribution as \% of Payroll | 1.27\% | 1.28\% | 1.32\% | 1.16\% |
| Actuarially Required Net Direct Employer |  |  |  |  |
| Contribution Rate | 10.52\% | 10.40\% | 13.07\% | 15.56\% |
| Actual Employer Contribution Rate | 13.00\% | 14.50\% | 16.00\% | 16.75\% |


|  | Fiscal 2011 |  | Fiscal 2010 |  | Fiscal 2009 |  | Fiscal 2008 |  | Fiscal 2007 |  | Fiscal 2006 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 14,646 |  | 14,791 |  | 14,795 |  | 14,373 |  | 13,650 |  | 13,244 |
|  | 5,718 |  | 5,531 |  | 5,413 |  | 5,235 |  | 5,083 |  | 4,978 |
|  | 561 |  | 556 |  | 562 |  | 545 |  | 497 |  | 522 |
|  | 6,795 |  | 6,762 |  | 6,611 |  | 6,464 |  | 6,122 |  | 6,140 |
| \$ | 552,543,155 | \$ | 546,737,427 | \$ | 536,408,372 | \$ | 511,891,487 | \$ | 454,741,830 | \$ | 420,104,038 |
| \$ | 104,683,495 | \$ | 97,650,642 | \$ | 90,207,961 | \$ | 84,492,940 | \$ | 77,403,146 | \$ | 73,102,892 |
| \$ | 2,230,462,425 | \$ | 2,225,041,407 | \$ | 1,904,114,041 | \$ | 1,565,934,957 | \$ | 2,087,385,378 | \$ | 1,921,293,624 |
| \$ | 2,682,634,009 | \$ | 2,553,982,211 | \$ | 2,358,101,301 | \$ | 2,248,596,038 | \$ | 2,063,501,317 | \$ | 1,828,082,350 |
|  | 87.38\% |  | 88.46\% |  | 90.55\% |  | 86.43\% |  | 98.24\% |  | 94.02\% |
| \$ | 2,344,047,017 | \$ | 2,259,207,052 | \$ | 2,135,230,590 | \$ | 1,943,569,363 | \$ | 2,027,214,660 | \$ | 1,718,754,962 |
| \$ | 724,810,561 | \$ | 669,371,250 | \$ | 552,376,261 | \$ | 613,635,252 | \$ | 288,883,382 | \$ | 280,817,883 |
| \$ | 373,626,178 | \$ | 370,489,102 | \$ | 355,947,027 | \$ | 339,052,728 | \$ | 302,732,846 | \$ | 279,197,353 |
| \$ | 29,274,204 | \$ | 27,231,818 | \$ | 25,331,924 | \$ | 23,564,580 | \$ | 0 | \$ | 0 |
| \$ | 36,903,336 | \$ | 45,756,457 | \$ | 53,552,388 | \$ | 60,381,793 | \$ | 66,328,358 | \$ | 89,762,521 |
| \$ | 3,450,112,888 | \$ | 3,317,592,043 | \$ | 3,071,774,342 | \$ | 2,933,074,556 | \$ | 2,685,159,246 | \$ | 2,368,532,719 |


| Fiscal 2012 | Fiscal 2011 | Fiscal 2010 | Fiscal 2009 | Fiscal 2008 | Fiscal 2007 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $9.50 \%$ | $9.50 \%$ | $9.50 \%$ | $9.50 \%$ | $9.50 \%$ | $9.50 \%$ |
| $1.09 \%$ | $1.05 \%$ | $1.13 \%$ | $1.15 \%$ | $1.11 \%$ | $1.05 \%$ |
| $16.72 \%$ | $15.58 \%$ | $13.46 \%$ | $15.40 \%$ | $8.98 \%$ | $9.58 \%$ |
| $15.75 \%$ | $15.75 \%$ | $15.75 \%$ | $12.25 \%$ | $12.75 \%$ | $13.25 \%$ |

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## G. S. Curran \& Company, Ltd.

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## EXHIBIT XI <br> PLAN B: ANALYSIS OF ACTUARIALLY REQUIRED CONTRIBUTIONS

1. Present Value of Future Benefits. ..... \$ ..... 357,606,663
2. Funding Deposit Account Credit Balance ..... \$
3. Actuarial Value of Assets ..... \$
4. Present Value of Future Employee Contributions ..... \$5. Present Value of Future Employer Normal Costs $(1+2-3-4)$
23,527,632\$
Pren Value of Future Employer Nomal Costs $(1+2-3-4)$4,622,489
263,849,59174,851,929
5. Present Value of Future Salaries ..... \$ ..... 848,429,115
6. Employer Normal Cost Accrual Rate $(5 \div 6)$ ..... 8.822414\%
7. Projected Fiscal 2016 Salary for Current Membership ..... \$ ..... 90,799,181
8. Employer Normal Cost as of January 1, $2016(7 \times 8)$. ..... \$ ..... 8,010,680
9. Employer Normal Cost Interest Adjusted for Midyear Payment ..... \$8,286,312
10. Estimated Administrative Cost for Fiscal 2016 ..... \$ ..... 239,973
11. TOTAL Administrative and Interest Adjusted Actuarial Costs $(10+11)$ ..... \$ ..... 8,526,285
12. Projected Ad Valorem Tax Contributions for Fiscal 2016. ..... \$ ..... 1,248,584
13. Projected Revenue Sharing Funds for Fiscal 2016 ..... \$ ..... 23,070
14. Employers' Net Direct Actuarially Required Contribution for Fiscal 2016 (12-13-14) ..... \$ ..... 7,254,631
15. Projected Payroll for Fiscal 2016 ..... \$ ..... $100,772,731$
16. Employers' Net Direct Actuarially Required Contribution as a \% of Projected Payroll for $2016(15 \div 16)$ ..... 7.20\%
17. Actual Employer Contribution Rate for Fiscal 2016 ..... 8.00\%
18. Minimum Recommended Net Direct Employer Contribution Rate for Fiscal 2017 (17, Rounded to Nearest 0.25\%) ..... 7.25\%

## EXHIBIT XII <br> PLAN B: PRESENT VALUE OF FUTURE BENEFITS

PRESENT VALUE OF FUTURE BENEFITS FOR ACTIVE MEMBERS:
Retirement Benefits ..... \$ ..... 239,237,957
Survivor Benefits ..... 4,620,021
Disability Benefits ..... 11,180,724
Vested Termination Benefits. ..... 11,708,455
Refunds of Contributions ..... 3,523,821
TOTAL Present Value of Future Benefits for Active Members ..... \$
PRESENT VALUE OF FUTURE BENEFITS FOR TERMINATED MEMBERS:
Terminated Vested Members Due Benefits at Retirement ..... \$ ..... 8,608,527
Terminated Members with Reciprocals
Due Benefits at Retirement ..... 105,897
Terminated Members Due a Refund ..... 664,501
TOTAL Present Value of Future Benefits for Terminated Members ..... \$ ..... 9,378,925
PRESENT VALUE OF FUTURE BENEFITS FOR PENSIONERS:
Regular Retirees by Option Selected:
Maximum....................................... \$ ..... 29,884,932
Option 1 ..... 100,875
Option 2 ..... 25,177,379
Option 3 ..... 6,608,882
Option 4 1,031,823
TOTAL Regular Retirees ..... \$ ..... 62,803,891
TOTAL Disability Retirees ..... \$ ..... 7,100,436
TOTAL Survivors \& Widows ..... \$ 8,031,732
Reserve for Accrued Retiree DROP Account Balances ..... \$ ..... 20,701
TOTAL Present Value of Future Benefits for Retirees \& Survivors ..... \$77,956,760TOTAL Present Value of Future Benefits\$357,606,663

## EXHIBIT XIII - SCHEDULE A PLAN B - MARKET VALUE OF ASSETS

CURRENT ASSETS:
Cash in Banks. ..... \$ ..... 877,763
Contributions and Taxes Receivable ..... 2,835,051
Accrued Interest and Dividends ..... 39,083
Investments Receivable ..... 4,642
Due (to)/from other Funds ..... $(1,504,352)$
Due (to)/from Plan A ..... 236,637
Other Current Assets ..... 6,595
TOTAL CURRENT ASSETS ..... \$
2,495,419
Property Plant \& Equipment ..... \$96,359
INVESTMENTS:
Cash Equivalents ..... \$ ..... 9,540,565
Equities ..... 130,970,179
Fixed Income ..... 90,169,050
Real Estate ..... 10,473,290
Alternative Investments ..... 12,331,169
TOTAL INVESTMENTS \$ ..... 253,484,253
TOTAL ASSETS ..... \$ 256,076,031
CURRENT LIABILITIES:
Retirements Payable ..... \$ ..... 167,290
Accounts Payable ..... 698,889
Investments Payable ..... 48,598
Refunds Payable ..... 57,857
TOTAL CURRENT LIABILITIES ..... \$MARKET VALUE OF ASSETS\$

## EXHIBIT XIII - SCHEDULE B PLAN B - ACTUARIAL VALUE OF ASSETS

Excess (Shortfall) of invested income
for current and previous 4 years:
Fiscal year 2015
\$ $(20,301,524)$
Fiscal year 2014
$(5,626,226)$
Fiscal year 2013 20,198,394
Fiscal year 2012 13,957,016
Fiscal year 2011 $(13,385,425)$
Total for five years
\$
$(5,157,765)$

Deferral of excess (shortfall) of invested income:
Fiscal year 2015 (80\%)
\$ $(16,241,219)$
Fiscal year 2014 (60\%)
(3,375,736)
Fiscal year 2013 (40\%)
8,079,358
Fiscal year 2012 (20\%)
2,791,403
Fiscal year 2011 ( 0\%) 0

Total deferred for year.
\$
$(8,746,194)$

Market value of plan net assets, end of year
\$ 255,103,397

Preliminary actuarial value of plan assets, end of year
\$ 263,849,591

Actuarial value of assets corridor
$85 \%$ of market value, end of year ............................................................................. \$ 216,837,887
$115 \%$ of market value, end of year ........................................................................... \$ 293,368,907

Final actuarial value of plan net assets, end of year ....................................................... \$ 263,849,591

## EXHIBIT XIV PLAN B: PRESENT VALUE OF FUTURE CONTRIBUTIONS

Employee Contributions to the Annuity Savings Fund ..... \$
Employer Normal Contributions to the Pension Accumulation Fund ..... 74,851,929
Funding Deposit Account Credit Balance$(4,622,489)$
TOTAL PRESENT VALUE OF FUTURE CONTRIBUTIONS ..... \$ ..... 93,757,072
EXHIBIT XV
PLAN B: RECONCILIATION OF CONTRIBUTIONS
Employer Normal Cost for Prior Year ..... \$ 7,291,606
Interest on Normal Cost ..... 528,641
Administrative Expenses ..... 218,483
Interest on Expenses

$\qquad$ ..... 7,782
TOTAL Interest Adjusted Actuarially Required Contributions ..... \$
8,046,512
Direct Employer Contributions ..... \$ 8,676,188
Interest on Employer Contributions ..... 309,010
Ad Valorem Taxes and Revenue Sharing Funds ..... 1,194,705
Interest on Taxes and Revenue Sharing Funds ..... 42,550
TOTAL Interest Adjusted Employer Contributions ..... \$ ..... 10,222,453
CONTRIBUTION SURPLUS (DEFICIENCY) ..... \$2,175,941

## EXHIBIT XVI <br> PLAN B: ANALYSIS OF CHANGE IN ASSETS

Actuarial Value of Assets (December 31, 2014) ..... \$ ..... 242,977,968
INCOME:
Member Contributions ..... \$ 2,782,356
Employer Contributions ..... 8,676,188
Irregular Contributions ..... 416,073
Ad Valorem Taxes and Revenue Sharing ..... 1,194,705
Transfer (to)/from Plan A ..... 236,637
Total Contributions ..... \$ 13,305,959
Net Depreciation in Fair Value of Investments ..... \$(4,446,671)
Interest \& Dividends ..... 3,643,359
Class Action Settlement ..... 7,222
Miscellaneous Investment Income. ..... (87)
Investment Expense ..... $(1,005,267)$
Net Investment Income ..... \$
$(1,801,444)$
TOTAL Income ..... \$ 11,504,515
EXPENSES:
Retirement Benefits ..... \$ 7,874,859
DROP Disbursements ..... 1,039,941
Refunds of Contributions ..... 601,666
Transfers to another System. ..... 167,913
Administrative Expenses ..... 218,483
TOTAL Expenses ..... \$
9,902,862
Net Market Value Income for Fiscal 2015 (Income - Expenses) ..... \$ 1,601,653
Unadjusted Fund Balance as of December 31, 2015
(Fund Balance Previous Year + Net Income) ..... \$ 244,579,621
Adjustment for Actuarial Smoothing ..... \$ 19,269,970
Actuarial Value of Assets (December 31, 2015) ..... \$ ..... 263,849,591

## EXHIBIT XVII <br> PLAN B: PENSION BENEFIT OBLIGATION

Present Value of Credited Projected Benefits Payable to Current Employees ..... \$ 163,374,592
Present Value of Benefits Payable to Terminated Employees ..... 9,378,925
Present Value of Benefits Payable to Current Retirees and Beneficiaries ..... 77,956,760
TOTAL PENSION BENEFIT OBLIGATION ..... \$ 250,710,277
NET ACTUARIAL VALUE OF ASSETS ..... \$ 263,849,591
Ratio of Net Actuarial Value of Assets to Pension Benefit Obligation ..... $105.24 \%$
EXHIBIT XVIII ENTRY AGE NORMAL ACCRUED LIABILITIES
Accrued Liability for Active Employees ..... \$ 180,650,125
Accrued Liability for Terminated Employees ..... 9,378,925
Accrued Liability for Current Retirees and Beneficiaries ..... 77,956,760
TOTAL ENTRY AGE NORMAL ACCRUED LIABILITY ..... \$ 267,985,810
NET ACTUARIAL VALUE OF ASSETS ..... \$ 263,849,591
Ratio of Net Actuarial Value of Assets to Entry Age Normal Accrued Liability ..... 98.46\%

## EXHIBIT XIX <br> CENSUS DATA - PLAN B

|  | Active | Terminated with Funds on Deposit | DROP | Retired | Total |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Number of members as of December 31, 2014 | 2,253 | 1,666 | 68 | 714 | 4,701 |
| Additions to Census <br> Initial membership <br> Death of Another Member <br> Omitted in error last year <br> Adjustment for multiple records | 339 |  |  | 16 | 339 16 |
| Change in Status during Year <br> Actives terminating service <br> Actives who retired <br> Actives entering DROP <br> Term. members rehired <br> Term. members who retire <br> Retirees who are rehired <br> Refunded who are rehired <br> DROP participants retiring <br> DROP returned to work <br> Omitted in error last year | (87) <br> (39) <br> (19) <br> 11 <br> 4 <br> 13 | 87 <br> (11) <br> (5) <br> 1 | 19 <br> (13) <br> (13) | 39 5 13 | 4 1 |
| Eliminated from Census <br> Refund of contributions <br> Deaths <br> Included in error last year <br> Adjustment for multiple records | (119) <br> (4) | (41) <br> (3) <br> (1) |  | (40) | (160) <br> (47) <br> (1) |
| Number of members as of December 31, 2015 | 2,352 | 1,693 | 61 | 747 | 4,853 |

PLAN B - ACTIVES CENSUS BY AGE:


PLAN B - TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:

| Age | Number Male | Number <br> Female | Total Number | Average Benefit | Total Benefit |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $31-35$ | 2 | 3 | 5 | 5,375 | 26,875 |
| $36-40$ | 5 | 6 | 11 | 8,645 | 95,094 |
| $41-45$ | 4 | 4 | 8 | 10,351 | 82,808 |
| $46-50$ | 7 | 17 | 24 | 10,530 | 252,718 |
| $51-55$ | 18 | 14 | 32 | 10,505 | 336,164 |
| $56-60$ | 20 | 17 | 37 | 10,228 | 378,436 |
| 61-65 | 8 | 10 | 18 | 6, 701 | 120,613 |
| $66-70$ | 0 | 3 | 3 | 7,509 | 22,527 |
| $76-80$ | 0 | 1 | 1 | 499 | 499 |
| TOTAL | 64 | 75 | 139 | 9,466 | 1,315,734 |

PLAN B - TERMINATED MEMBERS DUE A REFUND OF CONTRIBUTIONS:

| Contributions |  | Ranging |  | Total |
| :---: | :---: | :---: | :---: | :---: |
| From |  | To | Number | Contributions |
| 0 | - | 99 | 1,051 | 26,223 |
| 100 | - | 499 | 247 | 61,205 |
| 500 | - | 999 | 86 | 61,573 |
| 1000 | - | 1999 | 56 | 82,776 |
| 2000 | - | 4999 | 85 | 262,898 |
| 5000 | - | 9999 | 24 | 150,185 |
| 10000 | - | 19999 | 5 | 68,239 |
|  |  | TAL | 1,554 | 713,099 |

PLAN B - REGULAR RETIREES:

| Age | Number Male | Number <br> Female | Total Number | Average Benefit | Total Benefit |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 56-60 | 6 | 9 | 15 | 25,668 | 385,027 |
| 61-65 | 33 | 47 | 80 | 17,008 | 1,360,617 |
| 66-70 | 88 | 60 | 148 | 12,977 | 1,920,632 |
| $71-75$ | 65 | 54 | 119 | 11,148 | 1,326,629 |
| $76-80$ | 52 | 39 | 91 | 8,735 | 794,926 |
| $81-85$ | 25 | 29 | 54 | 9,108 | 491,819 |
| 86-90 | 9 | 20 | 29 | 7,593 | 220,211 |
| 91-99 | 2 | 13 | 15 | 7,663 | 114,938 |
| TOTAL | 280 | 271 | 551 | 12,005 | 6,614,799 |

PLAN B - DISABILITY RETIREES:

| Age | Number Male | Number <br> Female | Total <br> Number | Average Benefit | Total Benefit |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $36-40$ | 1 | 0 | 1 | 5,293 | 5,293 |
| $41-45$ | 1 | 0 | 1 | 9,697 | 9,697 |
| $46-50$ | 0 | 1 | 1 | 7,188 | 7,188 |
| $51-55$ | 5 | 4 | 9 | 10,257 | 92,310 |
| $56-60$ | 9 | 9 | 18 | 12,061 | 217,103 |
| $61-65$ | 21 | 8 | 29 | 7,174 | 208,058 |
| $66-70$ | 10 | 5 | 15 | 6,104 | 91,562 |
| $71-75$ | 5 | 4 | 9 | 5,539 | 49,853 |
| TOTAL | 52 | 31 | 83 | 8,206 | 681,064 |

PLAN B - SURVIVORS:

| Age | Number <br> Male | Number <br> Female | Total <br> Number | Average <br> Benefit | Total <br> Benefit |
| :---: | :---: | :---: | :---: | :---: | ---: |
| $36-40$ | 1 | 2 | 3 | 6,011 |  |
| $51-55$ | 0 | 3 | 3 | 11,624 | 18,032 |
| $56-60$ | 0 | 15 | 12 | 8,469 | 34,871 |
| $61-65$ | 2 | 13 | 15 | 10,336 | 14,037 |
| $66-70$ | 1 | 24 | 25 | 8,934 | 134,016 |
| $71-75$ | 1 | 20 | 8 | 8 | 2,301 |

PLAN B－ACTIVE MEMBERS：

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| $\begin{aligned} & \text { r} \\ & \text { N } \\ & 0 \\ & 0 \end{aligned}$ |  | $\stackrel{+}{m}$ |
| $\begin{aligned} & \sigma \\ & \neg \\ & 1 \\ & 1 \\ & -\quad \end{aligned}$ |  | $\stackrel{\sim}{N}$ |
| $\begin{aligned} & \vec{~} \\ & \overrightarrow{1} \\ & 0 \\ & - \end{aligned}$ |  | $\stackrel{\sim}{\mathrm{N}}$ |
| $\begin{gathered} \sigma \\ 1 \\ \text { ம } \end{gathered}$ |  | $\stackrel{\leftrightarrow}{\bullet}$ |
| $\varnothing$ |  | N $\sim$ $\sim$ |
| $m$ |  | $\stackrel{\sim}{\sim}$ |
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| Attained |
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| $0-20$ |
| $21-25$ |
| $26-30$ |
| $31-35$ |
| $36-40$ |
| $41-45$ |
| $46-50$ |
| $51-55$ |
| $56-60$ |
| $61-65$ |
| $66-70$ |
| $71 \&$ Over |
| Totals |

PLAN B－AVERAGE ANNUAL SALARY OF ACTIVE MEMBERS：
Completed Years of Service
Average
Salary

 30 \＆Over 3080

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PLAN B - TERMINATED MEMBERS DUE A DEFERRED RETIREMENT BENEFIT:


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

| Attained Ages | 0 | 1 | 2 | 3 | 4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30 \&Over | Average Benefit |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $0-30$ |  |  |  |  |  |  |  |  |  |  |  | 0 |
| 31-35 |  |  |  |  |  |  |  |  |  | 5,902 | 5,023 | 5,375 |
| 36-40 |  |  |  |  |  |  |  |  | 10,077 | 8,013 | 4,644 | 8,645 |
| 41-45 |  |  |  |  |  |  |  | 12,430 | 6,886 |  |  | 10,351 |
| 46-50 |  |  |  |  |  |  | 11,559 | 6,618 |  |  |  | 10,530 |
| 51-55 |  |  |  |  |  | 11,697 | 5,339 |  |  |  |  | 10,505 |
| 56-60 | 13,934 | 11,758 | 13,652 | 8,941 | 9,427 | 6,481 |  |  |  |  |  | 10,228 |
| 61-65 | 5,615 | 6,584 | 5,393 | 9,698 |  |  |  |  |  |  |  | 6,701 |
| 66-70 | 7,509 |  |  |  |  |  |  |  |  |  |  | 7,509 |
| 71-75 |  |  |  |  |  |  |  |  |  |  |  | 0 |
| 76-80 | 499 |  |  |  |  |  |  |  |  |  |  | 499 |
| 81 \& Over |  |  |  |  |  |  |  |  |  |  |  | 0 |
| Average | 7,438 | 10,166 | 10,555 | 9,278 | 9,427 | 10,470 | 10,066 | 9,524 | 8,881 | 7,410 | 4,928 | 9,466 |


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$7,410 \quad 4,928 \quad 9,466$
$9,524 \quad 8,881$

10,066
$\underset{m}{\square}$
$\stackrel{\rightharpoonup}{ }$
$\sigma$
Years Until Retirement Eligibility
Years Until Retirement Eligibility
PLAN B－SERVICE RETIREES：

|  | 0 | 1 | 2 | 3 | 4 | 5－9 | 10－14 | 15－19 | 20－24 | 25－29 | 30 \＆Over | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Attained Ages |  |  |  |  |  |  |  |  |  |  |  |  |
| $0-55$ |  |  |  |  |  |  |  |  |  |  |  | 0 |
| $56-60$ | 7 | 3 | 3 | 1 |  | 1 |  |  |  |  |  | 15 |
| 61－65 | 22 | 12 | 15 | 11 | 10 | 8 | 1 | 1 |  |  |  | 80 |
| 66－70 | 16 | 16 | 15 | 21 | 20 | 50 | 10 |  |  |  |  | 148 |
| $71-75$ | 5 | 4 | 4 | 7 | 7 | 41 | 46 | 4 | 1 |  |  | 119 |
| $76-80$ |  | 1 | 3 | 3 | 1 | 13 | 37 | 28 | 5 |  |  | 91 |
| $81-85$ | 1 |  |  | 1 |  | 3 | 7 | 25 | 13 | 3 | 1 | 54 |
| $86-90$ |  |  |  |  |  |  | 4 |  | 6 | 19 |  | 29 |
| 91 \＆Over |  |  |  |  |  |  |  |  | 2 | 7 | 6 | 15 |
| Totals | 51 | 36 | 40 | 44 | 38 | 116 | 105 | 58 | 27 | 29 | 7 | 551 |

PLAN B－AVERAGE ANNUAL BENEFITS PAYABLE TO SERVICE RETIREES：
Completed Years Since Retirement


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\text { PLAN B - DISABILITY RETIREES: } \\
\\
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\text { Ages }
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\end{array}
$$

-52-
G. S. Curran \& Company, Ltd.
PLAN B - SURVIVING BENEFICIARIES OF FORMER MEMBERS:

| Attained Ages | Completed Years Since Retirement |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 0 | 1 | 2 | 3 | 4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | $30 \&$ Over | Total |
| 0-35 |  |  |  |  |  |  |  |  |  |  |  | 0 |
| 36-40 |  |  |  |  |  | 1 | 1 | 1 |  |  |  | 3 |
| 41-45 |  |  |  |  |  |  |  |  |  |  |  | 0 |
| 46-50 |  |  |  |  |  |  |  |  |  |  |  | 0 |
| 51-55 |  |  | 1 |  | 1 |  | 1 |  |  |  |  | 3 |
| 56-60 |  |  | 1 | 1 | 1 | 7 | 3 | 1 | 1 |  |  | 15 |
| 61-65 |  | 1 |  | 2 |  | 4 | 3 | 1 | 3 |  |  | 14 |
| 66-70 |  |  |  | 2 | 3 | 5 | 3 | 2 |  |  |  | 15 |
| 71-75 | 1 | 2 |  | 1 | 1 | 7 | 7 | 4 | 2 |  |  | 25 |
| $76-80$ |  |  |  | 2 |  | 1 | 7 | 6 | 3 | 1 | 1 | 21 |
| $81-85$ |  |  |  |  |  |  |  | 2 | 6 |  |  | 8 |
| $86-90$ |  |  |  |  |  |  |  | 1 | 1 | 3 | 1 | 6 |
| 91 \& Over |  |  |  |  | 1 |  |  |  |  |  | 2 | 3 |
| Totals | 1 | 3 | 2 | 8 | 7 | 25 | 25 | 18 | 16 | 4 | 4 | 113 |
| PLAN B - AVERAGE ANNUAL BENEFITS PAYABLE TO SURVIVORS OF FORMER MEMBERS: |  |  |  |  |  |  |  |  |  |  |  |  |
| Completed Years Since Retirement |  |  |  |  |  |  |  |  |  |  |  |  |
| Attained Ages | 0 | 1 | 2 | 3 | 4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30 \&Over | Average Benefit |
| 0-35 |  |  |  |  |  |  |  |  |  |  |  | 0 |
| $36-40$ |  |  |  |  |  | 12,078 | 2,463 | 3,490 |  |  |  | 6,011 |
| 41-45 |  |  |  |  |  |  |  |  |  |  |  | 0 |
| 46-50 |  |  |  |  |  |  |  |  |  |  |  | 0 |
| 51-55 |  |  | 1,100 |  | 26,422 |  | 7,350 |  |  |  |  | 11,624 |
| $56-60$ |  |  | 12,546 | 14,133 | 7,070 | 5,949 | 13,965 | 2,191 | 7,556 |  |  | 8,469 |
| 61-65 |  | 22,154 |  | 9,678 |  | 11,998 | 12,422 | 5,776 | 4,051 |  |  | 10,336 |
| 66-70 |  |  |  | 4,377 | 9,196 | 8,080 | 14,300 | 7,188 |  |  |  | 8,934 |
| $71-75$ | 6,167 | 12,974 |  | 7,016 | 3,374 | 9,981 | 9,222 | 6,635 | 2,033 |  |  | 8,301 |
| $76-80$ |  |  |  | 6,529 |  | 3,084 | 6,128 | 6,222 | 6,441 | 3,419 | 1,653 | 5,751 |
| 81-85 |  |  |  |  |  |  |  | 8,037 | 3,771 |  |  | 4,837 |
| $86-90$ |  |  |  |  |  |  |  | 1,878 | 2,490 | 3,632 | 395 | 2,610 |
| 91 \& Over |  |  |  |  | 5,958 |  |  |  |  |  | 3,521 | 4,333 |
| Average | 6,167 | 16,034 | 6,823 | 7,790 | 10,059 | 8,603 | 9,573 | 5,981 | 4,263 | 3,579 | 2,272 | 7,560 |

## EXHIBIT XX <br> PLAN B: YEAR-TO-YEAR COMPARISON

Fiscal 2015 Fiscal 2014 Fiscal 2013 Fiscal 2012

| Number of Active Members |  | 2,413 |  | 2,321 |  | 2,288 |  | 2,298 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Number of Retirees \& Survivors |  | 747 |  | 714 |  | 688 |  | 657 |
| Number of Terminated Due Deferred Benefits |  | 139 |  | 135 |  | 135 |  | 132 |
| Number Terminated Due Refunds |  | 1,554 |  | 1,531 |  | 1,550 |  | 1,504 |
| Active Lives Payroll | \$ | 98,127,898 | \$ | 91,698,297 | \$ | 89,168,260 | \$ | 86,882,261 |
| Retiree Benefits in Payment | \$ | 8,150,175 | \$ | 7,448,991 | \$ | 6,779,114 | \$ | 6,334,153 |
| Market Value of Assets | \$ | 255,103,397 | \$ | 253,501,744 | \$ | 237,412,166 | \$ | 196,577,145 |
| Entry Age Normal (EAN) Accrued Liability | \$ | 267,985,810 | \$ | 249,207,071 | \$ | 233,321,224 | \$ | 212,489,491 |
| Ratio of AVA to EAN Accrued Liability |  | 98.46\% |  | 97.50\% |  | 92.60\% |  | 87.62\% |
| Actuarial Value of Assets | \$ | 263,849,591 | \$ | 242,977,968 | \$ | 216,066,754 | \$ | 186,172,779 |
| Present Value of Future Employer Normal Cost | \$ | 74,851,929 | \$ | 61,503,111 | \$ | 71,374,679 | \$ | 74,251,290 |
| Present Value of Future Employee Contrib. | \$ | 23,527,632 | \$ | 19,608,454 | \$ | 19,192,399 | \$ | 18,544,210 |
| Funding Deposit Account Credit Balance | \$ | 4,622,489 | \$ | 2,281,164 | \$ | 2,126,959 | \$ | 1,559,909 |
| Present Value of Future Benefits | \$ | 357,606,663 | \$ | 321,808,369 | \$ | 304,506,873 | \$ | 277,408,370 |

Employee Contribution Rate

Projected Tax Contribution as \% of Payroll

Actuarially Required Net Direct Employer Contribution Rate

Actual Employer Contribution Rate

Fiscal 2016
Fiscal 2015
$3.00 \%$
1.26\%
$7.20 \%$
8.00\%
3.00\%
1.36\%
$6.91 \%$
9.00\%

Fiscal 2014
3.00\%
1.21\%
8.60\%
9.25\%

Fiscal 2013
3.00\%
1.14\%
9.33\%
10.00\%

|  | Fiscal 2011 |  | Fiscal 2010 |  | Fiscal 2009 |  | Fiscal 2008 |  | Fiscal 2007 |  | Fiscal 2006 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2,303 |  | 2,313 |  | 2,290 |  | 2,194 |  | 2,030 |  | 1,990 |
|  | 611 |  | 576 |  | 560 |  | 548 |  | 530 |  | 508 |
|  | 129 |  | 125 |  | 118 |  | 108 |  | 97 |  | 98 |
|  | 1,471 |  | 1,430 |  | 1,426 |  | 1,410 |  | 1,353 |  | 1,369 |
| \$ | 84,237,202 | \$ | 81,999,193 | \$ | 79,373,895 | \$ | 74,891,671 | \$ | 62,859,807 | \$ | 59,155,664 |
| \$ | 5,746,033 | \$ | 5,349,314 | \$ | 4,986,096 | \$ | 4,744,664 | \$ | 4,400,123 | \$ | 4,029,570 |
| \$ | 165,603,549 | \$ | 161,776,161 | \$ | 134,940,283 | \$ | 109,749,342 | \$ | 144,163,791 | \$ | 132,695,110 |
| \$ | 198,962,892 | \$ | 186,118,552 | \$ | 171,160,473 | \$ | 162,127,929 | \$ | 144,913,286 | \$ | 125,969,852 |
|  | 87.13\% |  | 87.62\% |  | 87.90\% |  | 83.97\% |  | 97.82\% |  | 98.26\% |
| \$ | 173,354,490 | \$ | 163,075,793 | \$ | 150,446,497 | \$ | 136,139,102 | \$ | 141,756,387 | \$ | 123,781,772 |
| \$ | 71,951,379 | \$ | 67,556,191 | \$ | 60,488,525 | \$ | 63,985,978 | \$ | 36,302,827 | \$ | 30,194,074 |
| \$ | 18,084,026 | \$ | 17,527,008 | \$ | 16,221,775 | \$ | 15,422,566 | \$ | 13,275,174 | \$ | 12,440,078 |
| \$ | 1,012,867 | \$ | 334,656 | \$ | 311,308 | \$ | 289,589 | \$ | 0 | \$ | 0 |
| \$ | 262,377,028 | \$ | 247,824,336 | \$ | 226,845,489 | \$ | 215,258,057 | \$ | 191,334,388 | \$ | 166,415,924 |


| Fiscal 2012 | Fiscal 2011 | Fiscal 2010 | Fiscal 2009 | Fiscal 2008 | Fiscal 2007 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $3.00 \%$ | $3.00 \%$ | $3.00 \%$ | $3.00 \%$ | $3.00 \%$ | $3.00 \%$ |
| $1.09 \%$ | $1.05 \%$ | $1.13 \%$ | $1.13 \%$ | $1.11 \%$ | $1.05 \%$ |
| $9.31 \%$ | $9.07 \%$ | $8.60 \%$ | $9.56 \%$ | $6.13 \%$ | $5.39 \%$ |
| $10.00 \%$ | $10.00 \%$ | $10.00 \%$ | $6.25 \%$ | $6.00 \%$ | $6.00 \%$ |

-55-
G. S. Curran \& Company, Ltd.

## SUMMARY OF PRINCIPAL PLAN PROVISIONS

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

## PLAN A:

CONTRIBUTION RATES - The Plan A fund is financed by employee contributions at a rate determined by the Board subject to the statutory range of $8 \%$ through $11 \%$ of each member's earnings and employer contributions as determined by the Public Retirement Systems' Actuarial Committee. In addition, each sheriff and ex-officio tax collector deducts one-fourth of one percent of the aggregate amount of the tax shown to be collected by the tax roll of each respective parish, excepting Orleans Parish and East Baton Rouge Parish, and remits the money to the system on an annual basis. The system also receives revenue sharing funds each year as appropriated by the legislature. In any fiscal year in which employer contribution rate as actuarially determined is scheduled to decrease, the Board of Trustees may elect to maintain the existing rate or any rate between the existing and minimum rates.

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

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

## G. S. Curran \& Company, Ltd.

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

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

## PLAN B:

CONTRIBUTION RATES - The Plan B fund is financed by employee contributions at a rate determined by the Board subject to the statutory range of $3 \%$ through $5 \%$ of each member's earnings and employer contributions as determined by the Public Retirement Systems' Actuarial Committee. In addition, each sheriff and ex officio tax collector deducts one-fourth of one percent of the aggregate amount of the tax shown to be collected by the tax roll of each respective parish excepting, Orleans Parish and East Baton Rouge Parish, and remits the money to the system on an annual basis. The system also receives revenue sharing funds each year as appropriated by the legislature. In any fiscal year in which the employer contribution rate as actuarially determined is scheduled to decrease, the Board of Trustees may elect to maintain the existing rate or any rate between the existing and minimum rates.

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

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

## G. S. Curran \& Company, Ltd.

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

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

## DEFERRED RETIREMENT OPTION PLAN:

In lieu of terminating employment and accepting a service retirement allowance, any member of Plan A or Plan B who is eligible for a normal retirement may elect to participate in the Deferred Retirement Option Plan (DROP) for up to three years and defer the receipt of benefits. In terms of DROP eligibility, any member whose service, when combined with service in any other state or statewide public retirement system exceeds thirty years will be eligible to include reciprocally recognized service credit. Upon commencement of participation in the plan, employer contributions are payable but employee contributions cease. The monthly retirement benefits that would have been payable, had the person elected to cease employment and receive a service retirement allowance, are paid into the DROP fund. This fund does earn interest once the member terminates participation in DROP but continues their employment. The interest rate is based upon the rate of return of a short-term U.S. Treasury security, a group of short-term U.S. Treasury Securities, or an index of short-term U.S. Treasury securities to be selected by the board of trustees. This interest is to be credited to the individual's account balance on an annual basis. Additionally, no cost-of-living increases are payable to the participants until employment which made them eligible to become members of the system has been terminated for at least one full year. Upon termination of employment prior to, or at the end of, the specified period of participation, a participant in the plan may receive, at his option, a lump sum from the account equal to the payments into the account, a true annuity based upon his account balance in that fund, or any other method of payment if approved by the board of trustees. The monthly benefits that were being paid into the Deferred Retirement Option Plan fund will begin to be paid to the retiree. If a participant dies during the participation in the plan, a lump sum equal to his account balance in the plan fund shall be paid to his named beneficiary or, if none, to his estate. If employment is not terminated at the end of the three years, payments into the plan fund cease and the person resumes active contributing membership in the system. Additional accrued benefits are based on final average compensation used to calculate the member's original benefit unless the additional period of service is at least thirty-six months for those individuals hired on or before December 31, 2006; or at least sixty months for those individuals hired on or after January 1, 2007.

## G. S. Curran \& Company, Ltd.

## ACTUARIAL ASSUMPTIONS

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

Factor
Investment Earnings Rate
Annual Rate of Salary Increase
Rates of Retirement
Rates of Termination
Rates of Disability
Rates of Mortality

Increase in Factor Results in
Decrease in Cost
Increase in Cost
Increase in Cost
Decrease in Cost
Increase in Cost
Decrease in Cost

The following assumptions apply to both Plan A and Plan B unless stated otherwise.
ACTUARIAL COST METHOD: Plan A: The Aggregate Actuarial Cost Method with allocation based on earnings. The normal cost is interest adjusted for midyear payment.

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

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

VALUATION INTEREST RATE: 7.00\%
ANNUAL SALARY INCREASE RATE: $\quad 5.25 \%$ (2.75\% Merit /2.50\% Inflation)
ACTIVE MEMBER MORTALITY: RP-2000 Employee Table set back 4 years for males and set back 3 years for females

## G. S. Curran \& Company, Ltd.

and projected to 2031 using scale AA for males and RP2000 Healthy Annuitant table set forward 1 year and projected to 2031 using scale AA for females.

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

RATES OF RETIREMENT: The table of these rates is included later in the report. All eligible persons age 80 and over in both plans are assumed to retire immediately. These rates apply only to those individuals eligible to retire.

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

| PLAN A: | Service | Factor | Service | Factor |
| :--- | :---: | :---: | :---: | :---: |
|  | $<1$ | 0.25 | 11 | 0.04 |
|  | 1 | 0.21 | 12 | 0.03 |
|  | 2 | 0.15 | 13 | 0.03 |
|  | 3 | 0.12 | 14 | 0.02 |
|  | 4 | 0.10 | 15 | 0.02 |
|  | 5 | 0.09 | 16 | 0.02 |
|  | 6 | 0.08 | 17 | 0.02 |
|  | 7 | 0.07 | 18 | 0.02 |
|  | 8 | 0.06 | 19 | 0.02 |
|  | 9 | 0.05 | $>19$ | 0.01 |
|  | 10 | 0.04 |  |  |
|  | PLAN B: | Service | Factor | Service |
|  | $<$ | 0.23 | 11 | Factor |
|  | 1 | 0.18 | 12 | 0.04 |
|  | 2 | 0.16 | 13 | 0.04 |
|  | 3 | 0.14 | 14 | 0.04 |
|  | 4 | 0.10 | 15 | 0.03 |
|  | 5 | 0.09 | 16 | 0.03 |
|  | 6 | 0.07 | 17 | 0.03 |
|  | 7 | 0.06 | 18 | 0.02 |
|  | 8 | 0.05 | 19 | 0.02 |
|  | 9 | 0.05 | $>19$ | 0.01 |

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

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

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

| Age at <br> Death | \% with <br> Children | \# of <br> Children | Average <br> Age |
| :---: | :---: | :---: | :---: |
| 25 | $70 \%$ | 1.84 | 5 |
| 35 | $86 \%$ | 2.13 | 9 |
| 45 | $75 \%$ | 1.70 | 12 |
| 55 | $22 \%$ | 1.42 | 14 |
| 65 | $4 \%$ | 1.45 | 15 |

## DISABLED LIVES MORTALITY:

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

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

| Plan A: | Under Age 40: | $35 \%$ |
| :--- | :--- | :--- |
|  | Age 40 - 49: | $45 \%$ |
|  | Above Age 49: | $60 \%$ |
| Plan B: | Under Age 40: | $45 \%$ |
|  | Age 40 - 49: | $50 \%$ |
|  | Above Age 49: | $65 \%$ |

SICK AND ANNUAL LEAVE:
Retirees were assumed to convert 1.2 months of sick and annual leave to retirement credit for each ten years of service credit.

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

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

DISABILITY RATES: $50 \%$ of the disability rates used for the 21 st valuation of the Railroad Retirement System for individuals with 1019 years of service for Plan A. $40 \%$ of the disability rates used for the 21st valuation of the Railroad Retirement System for individuals with 10-19 years of service for Plan B. A table of these rates is included later in the report.
RETIREMENT RATES FOR ACTIVE FORMER DROP PARTICIPANTS:

Retirement rates for active former DROP participants are $24 \%$ for Plan A and Plan B provided the member is below age 80 . For members age 80 or over, the retirement rate is set at $100 \%$.

## G. S. Curran \& Company, Ltd.

## ACTUARIAL TABLES AND RATES

|  | Male <br> Employee <br> Mortality | Female Employee Mortality | Male <br> Retired Mortality | Female <br> Retired <br> Mortality | Male <br> Disabled <br> Mortality | Female Disabled Mortality | Remarriage Rates |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Age | Rates | Rates | Rates | Rates | Rates | Rates |  |
| 18 | 0.00025 | 0.00025 | 0.00019 | 0.00010 | 0.02257 | 0.00745 | 0.06124 |
| 19 | 0.00027 | 0.00027 | 0.00020 | 0.00011 | 0.02257 | 0.00745 | 0.06124 |
| 20 | 0.00028 | 0.00028 | 0.00020 | 0.00011 | 0.02257 | 0.00745 | 0.06124 |
| 21 | 0.00030 | 0.00030 | 0.00021 | 0.00011 | 0.02257 | 0.00745 | 0.05818 |
| 22 | 0.00032 | 0.00032 | 0.00022 | 0.00012 | 0.02257 | 0.00745 | 0.05524 |
| 23 | 0.00033 | 0.00033 | 0.00024 | 0.00013 | 0.02257 | 0.00745 | 0.05242 |
| 24 | 0.00035 | 0.00035 | 0.00025 | 0.00014 | 0.02257 | 0.00745 | 0.04971 |
| 25 | 0.00036 | 0.00036 | 0.00028 | 0.00016 | 0.02257 | 0.00745 | 0.04566 |
| 26 | 0.00037 | 0.00037 | 0.00033 | 0.00019 | 0.02257 | 0.00745 | 0.04335 |
| 27 | 0.00037 | 0.00037 | 0.00035 | 0.00020 | 0.02257 | 0.00745 | 0.04114 |
| 28 | 0.00038 | 0.00038 | 0.00038 | 0.00021 | 0.02257 | 0.00745 | 0.03902 |
| 29 | 0.00038 | 0.00038 | 0.00043 | 0.00023 | 0.02257 | 0.00745 | 0.03698 |
| 30 | 0.00038 | 0.00038 | 0.00048 | 0.00026 | 0.02257 | 0.00745 | 0.03502 |
| 31 | 0.00038 | 0.00038 | 0.00054 | 0.00030 | 0.02257 | 0.00745 | 0.03314 |
| 32 | 0.00039 | 0.00039 | 0.00060 | 0.00034 | 0.02257 | 0.00745 | 0.03134 |
| 33 | 0.00041 | 0.00041 | 0.00066 | 0.00037 | 0.02257 | 0.00745 | 0.02961 |
| 34 | 0.00044 | 0.00044 | 0.00072 | 0.00041 | 0.02257 | 0.00745 | 0.02795 |
| 35 | 0.00050 | 0.00050 | 0.00077 | 0.00044 | 0.02257 | 0.00745 | 0.02636 |
| 36 | 0.00056 | 0.00056 | 0.00083 | 0.00047 | 0.02257 | 0.00745 | 0.02483 |
| 37 | 0.00063 | 0.00063 | 0.00087 | 0.00051 | 0.02257 | 0.00745 | 0.02336 |
| 38 | 0.00070 | 0.00070 | 0.00090 | 0.00054 | 0.02257 | 0.00745 | 0.02195 |
| 39 | 0.00077 | 0.00077 | 0.00092 | 0.00057 | 0.02257 | 0.00745 | 0.02060 |
| 40 | 0.00084 | 0.00084 | 0.00095 | 0.00060 | 0.02257 | 0.00745 | 0.01930 |
| 41 | 0.00090 | 0.00090 | 0.00098 | 0.00064 | 0.02257 | 0.00745 | 0.01805 |
| 42 | 0.00096 | 0.00096 | 0.00102 | 0.00069 | 0.02257 | 0.00745 | 0.01686 |
| 43 | 0.00102 | 0.00102 | 0.00107 | 0.00073 | 0.02257 | 0.00745 | 0.01571 |
| 44 | 0.00108 | 0.00108 | 0.00111 | 0.00077 | 0.02257 | 0.00745 | 0.01461 |
| 45 | 0.00114 | 0.00114 | 0.00116 | 0.00082 | 0.02257 | 0.00745 | 0.01355 |
| 46 | 0.00122 | 0.00122 | 0.00120 | 0.00086 | 0.02257 | 0.00745 | 0.01253 |
| 47 | 0.00130 | 0.00130 | 0.00125 | 0.00090 | 0.02257 | 0.00745 | 0.01156 |
| 48 | 0.00140 | 0.00140 | 0.00324 | 0.00094 | 0.02257 | 0.00745 | 0.01063 |
| 49 | 0.00151 | 0.00151 | 0.00325 | 0.00138 | 0.02257 | 0.00818 | 0.00973 |
| 50 | 0.00162 | 0.00162 | 0.00321 | 0.00140 | 0.02257 | 0.00896 | 0.00887 |
| 51 | 0.00173 | 0.00173 | 0.00316 | 0.00146 | 0.02385 | 0.00978 | 0.00804 |
| 52 | 0.00186 | 0.00186 | 0.00310 | 0.00155 | 0.02512 | 0.01063 | 0.00725 |
| 53 | 0.00200 | 0.00200 | 0.00316 | 0.00171 | 0.02640 | 0.01154 | 0.00649 |
| 54 | 0.00214 | 0.00214 | 0.00327 | 0.00189 | 0.02769 | 0.01248 | 0.00576 |
| 55 | 0.00229 | 0.00229 | 0.00356 | 0.00217 | 0.02897 | 0.01346 | 0.00000 |
| 56 | 0.00245 | 0.00245 | 0.00393 | 0.00250 | 0.03027 | 0.01446 | 0.00000 |
| 57 | 0.00262 | 0.00262 | 0.00440 | 0.00289 | 0.03156 | 0.01550 | 0.00000 |
| 58 | 0.00281 | 0.00281 | 0.00497 | 0.00335 | 0.03286 | 0.01654 | 0.00000 |
| 59 | 0.00303 | 0.00303 | 0.00546 | 0.00376 | 0.03415 | 0.01760 | 0.00000 |
| 60 | 0.00331 | 0.00331 | 0.00601 | 0.00420 | 0.03544 | 0.01865 | 0.00000 |
| 61 | 0.00363 | 0.00363 | 0.00685 | 0.00481 | 0.03673 | 0.01971 | 0.00000 |
| 62 | 0.00400 | 0.00400 | 0.00758 | 0.00533 | 0.03803 | 0.02077 | 0.00000 |
| 63 | 0.00441 | 0.00441 | 0.00867 | 0.00607 | 0.03933 | 0.02184 | 0.00000 |
| 64 | 0.00488 | 0.00488 | 0.00960 | 0.00669 | 0.04067 | 0.02294 | 0.00000 |
| 65 | 0.00538 | 0.00538 | 0.01063 | 0.00737 | 0.04204 | 0.02408 | 0.00000 |
| 66 | 0.00592 | 0.00592 | 0.01213 | 0.00836 | 0.04347 | 0.02529 | 0.00000 |
| 67 | 0.00647 | 0.00647 | 0.01340 | 0.00918 | 0.04498 | 0.02660 | 0.00000 |
| 68 | 0.00703 | 0.00703 | 0.01434 | 0.00979 | 0.04658 | 0.02803 | 0.00000 |
| 69 | 0.00757 | 0.00757 | 0.01587 | 0.01081 | 0.04831 | 0.02959 | 0.00000 |
| 70 | 0.00810 | 0.00810 | 0.01708 | 0.01163 | 0.05017 | 0.03132 | 0.00000 |
| 71 | 0.00860 | 0.00860 | 0.01902 | 0.01293 | 0.05221 | 0.03323 | 0.00000 |
| 72 | 0.00907 | 0.00907 | 0.02122 | 0.01438 | 0.05445 | 0.03533 | 0.00000 |
| 73 | 0.00951 | 0.00951 | 0.02368 | 0.01593 | 0.05691 | 0.03764 | 0.00000 |
| 74 | 0.00992 | 0.00992 | 0.02639 | 0.01759 | 0.05961 | 0.04014 | 0.00000 |
| 75 | 0.02457 | 0.02457 | 0.03030 | 0.02000 | 0.06258 | 0.04285 | 0.00000 |

-62-

## ACTUARIAL TABLES AND RATES

|  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} \text { Plan A } \\ \text { Tier } 1 \end{gathered}$ | Plan A Tier 2 | Tier 1 | Plan A Tier 2 | Plan A | Plan B | $\begin{aligned} & \text { Plan B } \\ & \text { DROP } \end{aligned}$ | Plan B |
|  | Retirement | Retirement | DROP Entry | DROP Entry | Disability | Retirement | Entry | Disability |
|  | Rates | Rates | Rates | Rates | Rates | Rates | Rates | Rates |
| 18 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00075 | 0.00000 | 0.00000 | 0.00060 |
| 19 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00075 | 0.00000 | 0.00000 | 0.00060 |
| 20 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00075 | 0.00000 | 0.00000 | 0.00060 |
| 21 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00075 | 0.00000 | 0.00000 | 0.00060 |
| 22 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00075 | 0.00000 | 0.00000 | 0.00060 |
| 23 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00075 | 0.00000 | 0.00000 | 0.00060 |
| 24 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00075 | 0.00000 | 0.00000 | 0.00060 |
| 25 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00075 | 0.00000 | 0.00000 | 0.00060 |
| 26 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00075 | 0.00000 | 0.00000 | 0.00060 |
| 27 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00075 | 0.00000 | 0.00000 | 0.00060 |
| 28 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00075 | 0.00000 | 0.00000 | 0.00060 |
| 29 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00075 | 0.00000 | 0.00000 | 0.00060 |
| 30 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00075 | 0.00000 | 0.00000 | 0.00060 |
| 31 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00075 | 0.00000 | 0.00000 | 0.00060 |
| 32 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00075 | 0.00000 | 0.00000 | 0.00060 |
| 33 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00075 | 0.00000 | 0.00000 | 0.00060 |
| 34 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00075 | 0.00000 | 0.00000 | 0.00060 |
| 35 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00085 | 0.00000 | 0.00000 | 0.00068 |
| 36 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00095 | 0.00000 | 0.00000 | 0.00076 |
| 37 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00105 | 0.00000 | 0.00000 | 0.00084 |
| 38 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00120 | 0.00000 | 0.00000 | 0.00096 |
| 39 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00135 | 0.00000 | 0.00000 | 0.00108 |
| 40 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00155 | 0.00000 | 0.00000 | 0.00124 |
| 41 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00175 | 0.00000 | 0.00000 | 0.00140 |
| 42 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00195 | 0.00000 | 0.00000 | 0.00156 |
| 43 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00220 | 0.00000 | 0.00000 | 0.00176 |
| 44 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00250 | 0.00000 | 0.00000 | 0.00200 |
| 45 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00285 | 0.00000 | 0.00000 | 0.00228 |
| 46 | 0.15000 | 0.00000 | 0.50000 | 0.00000 | 0.00325 | 0.00000 | 0.00000 | 0.00260 |
| 47 | 0.15000 | 0.00000 | 0.50000 | 0.00000 | 0.00365 | 0.00000 | 0.00000 | 0.00292 |
| 48 | 0.15000 | 0.00000 | 0.50000 | 0.00000 | 0.00415 | 0.00000 | 0.00000 | 0.00332 |
| 49 | 0.15000 | 0.00000 | 0.50000 | 0.00000 | 0.00470 | 0.00000 | 0.00000 | 0.00376 |
| 50 | 0.15000 | 0.00000 | 0.50000 | 0.00000 | 0.00535 | 0.00000 | 0.00000 | 0.00428 |
| 51 | 0.15000 | 0.00000 | 0.50000 | 0.00000 | 0.00610 | 0.00000 | 0.00000 | 0.00488 |
| 52 | 0.15000 | 0.00000 | 0.50000 | 0.00000 | 0.00690 | 0.00000 | 0.00000 | 0.00552 |
| 53 | 0.15000 | 0.00000 | 0.50000 | 0.00000 | 0.00785 | 0.00000 | 0.00000 | 0.00628 |
| 54 | 0.15000 | 0.00000 | 0.50000 | 0.00000 | 0.00890 | 0.00000 | 0.00000 | 0.00712 |
| 55 | 0.15000 | 0.15000 | 0.35000 | 0.35000 | 0.01010 | 0.15000 | 0.50000 | 0.00808 |
| 56 | 0.11000 | 0.11000 | 0.27000 | 0.27000 | 0.01150 | 0.15000 | 0.40000 | 0.00920 |
| 57 | 0.11000 | 0.11000 | 0.27000 | 0.27000 | 0.01305 | 0.15000 | 0.25000 | 0.01044 |
| 58 | 0.11000 | 0.11000 | 0.27000 | 0.27000 | 0.01480 | 0.15000 | 0.25000 | 0.01184 |
| 59 | 0.11000 | 0.11000 | 0.27000 | 0.27000 | 0.01685 | 0.15000 | 0.15000 | 0.01348 |
| 60 | 0.11000 | 0.11000 | 0.22000 | 0.22000 | 0.02440 | 0.12000 | 0.15000 | 0.01952 |
| 61 | 0.11000 | 0.11000 | 0.16000 | 0.16000 | 0.02440 | 0.12000 | 0.11000 | 0.01952 |
| 62 | 0.11000 | 0.11000 | 0.16000 | 0.16000 | 0.02440 | 0.12000 | 0.11000 | 0.01952 |
| 63 | 0.11000 | 0.11000 | 0.16000 | 0.16000 | 0.02440 | 0.12000 | 0.11000 | 0.01952 |
| 64 | 0.11000 | 0.11000 | 0.16000 | 0.16000 | 0.02440 | 0.12000 | 0.11000 | 0.01952 |
| 65 | 0.14000 | 0.14000 | 0.16000 | 0.16000 | 0.02440 | 0.20000 | 0.11000 | 0.01952 |
| 66 | 0.14000 | 0.14000 | 0.16000 | 0.16000 | 0.02440 | 0.20000 | 0.05000 | 0.01952 |
| 67 | 0.14000 | 0.14000 | 0.16000 | 0.16000 | 0.02440 | 0.12000 | 0.05000 | 0.01952 |
| 68 | 0.14000 | 0.14000 | 0.16000 | 0.16000 | 0.02440 | 0.12000 | 0.05000 | 0.01952 |
| 69 | 0.14000 | 0.14000 | 0.16000 | 0.16000 | 0.02440 | 0.12000 | 0.05000 | 0.01952 |
| 70 | 0.14000 | 0.14000 | 0.16000 | 0.16000 | 0.02440 | 0.12000 | 0.05000 | 0.01952 |
| 71 | 0.14000 | 0.14000 | 0.08000 | 0.08000 | 0.02440 | 0.12000 | 0.05000 | 0.01952 |
| 72 | 0.14000 | 0.14000 | 0.08000 | 0.08000 | 0.02440 | 0.12000 | 0.05000 | 0.01952 |
| 73 | 0.14000 | 0.14000 | 0.08000 | 0.08000 | 0.02440 | 0.12000 | 0.05000 | 0.01952 |
| 74 | 0.14000 | 0.14000 | 0.08000 | 0.08000 | 0.02440 | 0.12000 | 0.05000 | 0.01952 |
| 75 | 0.14000 | 0.14000 | 0.08000 | 0.08000 | 0.02440 | 0.12000 | 0.05000 | 0.01952 |

# PRIOR VALUATION ACTUARIAL ASSUMPTIONS 

VALUATION INTEREST RATE: 7.25\%
ANNUAL SALARY INCREASE RATE: $\quad 5.75 \%$ (2.75\% Merit $/ 3.00 \%$ Inflation)
ANNUITANT, BENEFICIARY AND RP2000 Combined Healthy table set back 1 year for ACTIVE MORTALITY males and RP2000 Combined Healthy Female Table for females.
RATES OF RETIREMENT: The table of these rates is included later in the report. All eligible persons age 80 and over in both plans are assumed to retire immediately. These rates apply only to those individuals eligible to retire. Rates are multiplied by a constant of 2 in the first year in which members become eligible for retirement.
RATES OF WITHDRAWAL: The rates of withdrawal are applied based upon completed years of service:

| PLAN A: | Service | Factor | Service | Factor |
| :---: | :---: | :---: | :---: | :---: |
|  | $<1$ | 0.25 | 11 | 0.04 |
|  | 1 | 0.21 | 12 | 0.03 |
|  | 2 | 0.15 | 13 | 0.03 |
|  | 3 | 0.12 | 14 | 0.02 |
|  | 4 | 0.10 | 15 | 0.02 |
|  | 5 | 0.09 | 16 | 0.02 |
|  | 6 | 0.08 | 17 | 0.02 |
|  | 7 | 0.07 | 18 | 0.02 |
|  | 8 | 0.06 | 19 | 0.02 |
|  | 9 | 0.05 | $>19$ | 0.01 |
|  | 10 | 0.04 |  |  |
|  | SLAN B: | Service | Factor | Service |
|  | 1 | 0.23 | 10 | Factor |
|  | 1 | 0.20 | 11 | 0.06 |
|  | 2 | 0.16 | 12 | 0.06 |
|  | 3 | 0.15 | 13 | 0.06 |
|  | 4 | 0.11 | 14 | 0.06 |
|  | 5 | 0.10 | 15 | 0.03 |
|  | 6 | 0.08 | 16 | 0.03 |
|  | 7 | 0.08 | 17 | 0.03 |
|  | 8 | 0.08 | $>17$ | 0.01 |

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

MARRIAGE STATISTICS: $80 \%$ of the members are assumed to be married; husbands are assumed to be three years older than wives.
FAMILY STATISTICS: Assumptions used in determining the cost of various survivor benefits are listed below:

| Age at <br> Death | \% with <br> Children | \# of <br> Children | Average <br> Age |
| :---: | :---: | :---: | :---: |
| 25 | $62 \%$ | 1.7 | 6 |
| 35 | $82 \%$ | 2.1 | 10 |
| 45 | $66 \%$ | 1.8 | 13 |
| 55 | $19 \%$ | 1.4 | 15 |
| 65 | $2 \%$ | 1.4 | 15 |

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

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

| Plan A: | Under Age 30: | $35 \%$ |
| :--- | :--- | :--- |
|  | Age 30-39: | $40 \%$ |
|  | Age 40-49: | $45 \%$ |
|  | Above Age 49: | $65 \%$ |
| Plan B: | Under Age 40: | $55 \%$ |
|  | Age 40 - 49: | $60 \%$ |
|  | Above Age 49: | $75 \%$ |

RATES OF DROP ENTRY: The table of these rates is included later in the report. These rates apply only to those individuals eligible to enter the DROP plan. Rates are multiplied by a constant in the first year in which a member becomes eligible to enter DROP. For members of Plan A who were first employed before January 1, 2007 and for members of Plan B this constant is 2. For members of Plan A who were first employed on or after January 1, 2007 the constant is 4 .

DISABILITY RATES:

RETIREMENT RATES FOR ACTIVE FORMER DROP PARTICIPANTS:
$30 \%$ of the disability rates used for the 21 st valuation of the Railroad Retirement System for individuals with 1019 years of service for Plan A and Plan B. A table of these rates is included later in the report.

Retirement rates for active former DROP participants are $22 \%$ for Plan A and $21 \%$ for Plan B provided the member is below age 80 . For members age 80 or over, the retirement rate is set at $100 \%$.

## PRIOR VALUATION ACTUARIAL TABLES AND RATES

(For Participants Who Were First Hired Before January 1, 2007)

| Age | Male Mortality Rates | Female <br> Mortality <br> Rates | Disability <br> Rates | Plan A Retirement Rates | Plan B Retirement Rates | Plan A DROP Entry Rates | Plan B DROP Entry Rates | Remarriage Rates |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 18 | 0.00030 | 0.00019 | 0.00045 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.05665 |
| 19 | 0.00032 | 0.00019 | 0.00045 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.05665 |
| 20 | 0.00033 | 0.00019 | 0.00045 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.05665 |
| 21 | 0.00035 | 0.00019 | 0.00045 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.05213 |
| 22 | 0.00036 | 0.00019 | 0.00045 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.04834 |
| 23 | 0.00037 | 0.00020 | 0.00045 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.04522 |
| 24 | 0.00037 | 0.00020 | 0.00045 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.04270 |
| 25 | 0.00038 | 0.00021 | 0.00045 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.04070 |
| 26 | 0.00038 | 0.00021 | 0.00045 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03915 |
| 27 | 0.00038 | 0.00022 | 0.00045 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03799 |
| 28 | 0.00038 | 0.00024 | 0.00045 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03714 |
| 29 | 0.00039 | 0.00025 | 0.00045 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03654 |
| 30 | 0.00041 | 0.00026 | 0.00045 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03611 |
| 31 | 0.00044 | 0.00031 | 0.00045 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03578 |
| 32 | 0.00050 | 0.00035 | 0.00045 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03549 |
| 33 | 0.00056 | 0.00039 | 0.00045 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03515 |
| 34 | 0.00063 | 0.00044 | 0.00045 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03471 |
| 35 | 0.00070 | 0.00047 | 0.00051 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03409 |
| 36 | 0.00077 | 0.00051 | 0.00057 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03286 |
| 37 | 0.00084 | 0.00055 | 0.00063 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03139 |
| 38 | 0.00090 | 0.00060 | 0.00072 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.02973 |
| 39 | 0.00096 | 0.00065 | 0.00081 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.02787 |
| 40 | 0.00102 | 0.00071 | 0.00093 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.02585 |
| 41 | 0.00108 | 0.00077 | 0.00105 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.02352 |
| 42 | 0.00114 | 0.00085 | 0.00117 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.02111 |
| 43 | 0.00122 | 0.00094 | 0.00132 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.01868 |
| 44 | 0.00130 | 0.00103 | 0.00150 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.01629 |
| 45 | 0.00140 | 0.00112 | 0.00171 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.01400 |
| 46 | 0.00151 | 0.00122 | 0.00195 | 0.20000 | 0.00000 | 0.35000 | 0.00000 | 0.01208 |
| 47 | 0.00162 | 0.00133 | 0.00219 | 0.20000 | 0.00000 | 0.35000 | 0.00000 | 0.01034 |
| 48 | 0.00173 | 0.00143 | 0.00249 | 0.20000 | 0.00000 | 0.35000 | 0.00000 | 0.00879 |
| 49 | 0.00186 | 0.00155 | 0.00282 | 0.20000 | 0.00000 | 0.35000 | 0.00000 | 0.00744 |
| 50 | 0.00200 | 0.00168 | 0.00321 | 0.20000 | 0.00000 | 0.35000 | 0.00000 | 0.00629 |
| 51 | 0.00214 | 0.00185 | 0.00366 | 0.20000 | 0.00000 | 0.35000 | 0.00000 | 0.00551 |
| 52 | 0.00245 | 0.00202 | 0.00414 | 0.20000 | 0.00000 | 0.35000 | 0.00000 | 0.00493 |
| 53 | 0.00267 | 0.00221 | 0.00471 | 0.11500 | 0.00000 | 0.35000 | 0.00000 | 0.00451 |
| 54 | 0.00292 | 0.00242 | 0.00534 | 0.11500 | 0.00000 | 0.35000 | 0.00000 | 0.00423 |
| 55 | 0.00320 | 0.00272 | 0.00606 | 0.11500 | 0.18000 | 0.35000 | 0.17000 | 0.00000 |
| 56 | 0.00362 | 0.00309 | 0.00690 | 0.11500 | 0.18000 | 0.22000 | 0.17000 | 0.00000 |
| 57 | 0.00420 | 0.00348 | 0.00783 | 0.11500 | 0.18000 | 0.22000 | 0.17000 | 0.00000 |
| 58 | 0.00469 | 0.00392 | 0.00888 | 0.11500 | 0.18000 | 0.22000 | 0.17000 | 0.00000 |
| 59 | 0.00527 | 0.00444 | 0.01011 | 0.11500 | 0.14000 | 0.22000 | 0.13500 | 0.00000 |
| 60 | 0.00595 | 0.00506 | 0.01464 | 0.11500 | 0.14000 | 0.22000 | 0.13500 | 0.00000 |
| 61 | 0.00675 | 0.00581 | 0.01464 | 0.11500 | 0.14000 | 0.10000 | 0.13500 | 0.00000 |
| 62 | 0.00768 | 0.00666 | 0.01464 | 0.11500 | 0.14000 | 0.10000 | 0.13500 | 0.00000 |
| 63 | 0.00876 | 0.00765 | 0.01464 | 0.11500 | 0.14000 | 0.10000 | 0.13500 | 0.00000 |
| 64 | 0.01001 | 0.00862 | 0.01464 | 0.11500 | 0.14000 | 0.10000 | 0.13500 | 0.00000 |
| 65 | 0.01128 | 0.00971 | 0.01464 | 0.11500 | 0.14000 | 0.10000 | 0.13500 | 0.00000 |

-66-
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PRIOR VALUATION ACTUARIAL TABLES AND RATES
(For Participants Who Were First Hired On or After January 1, 2007)

| Age | Male <br> Mortality Rates | Female <br> Mortality <br> Rates | Disability Rates | Plan A Retirement Rates | Plan B Retirement Rates | Plan A DROP Entry Rates | Plan B DROP Entry Rates | Remarriage Rates |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 18 | 0.00030 | 0.00019 | 0.00038 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.05665 |
| 19 | 0.00032 | 0.00019 | 0.00038 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.05665 |
| 20 | 0.00033 | 0.00019 | 0.00038 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.05665 |
| 21 | 0.00035 | 0.00019 | 0.00038 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.05213 |
| 22 | 0.00036 | 0.00019 | 0.00038 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.04834 |
| 23 | 0.00037 | 0.00020 | 0.00038 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.04522 |
| 24 | 0.00037 | 0.00020 | 0.00038 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.04270 |
| 25 | 0.00038 | 0.00021 | 0.00038 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.04070 |
| 26 | 0.00038 | 0.00021 | 0.00038 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03915 |
| 27 | 0.00038 | 0.00022 | 0.00038 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03799 |
| 28 | 0.00038 | 0.00024 | 0.00038 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03714 |
| 29 | 0.00039 | 0.00025 | 0.00038 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03654 |
| 30 | 0.00041 | 0.00026 | 0.00038 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03611 |
| 31 | 0.00044 | 0.00031 | 0.00038 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03578 |
| 32 | 0.00050 | 0.00035 | 0.00038 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03549 |
| 33 | 0.00056 | 0.00039 | 0.00038 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03515 |
| 34 | 0.00063 | 0.00044 | 0.00038 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03471 |
| 35 | 0.00070 | 0.00047 | 0.00043 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03409 |
| 36 | 0.00077 | 0.00051 | 0.00048 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03286 |
| 37 | 0.00084 | 0.00055 | 0.00053 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.03139 |
| 38 | 0.00090 | 0.00060 | 0.00060 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.02973 |
| 39 | 0.00096 | 0.00065 | 0.00068 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.02787 |
| 40 | 0.00102 | 0.00071 | 0.00078 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.02585 |
| 41 | 0.00108 | 0.00077 | 0.00088 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.02352 |
| 42 | 0.00114 | 0.00085 | 0.00098 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.02111 |
| 43 | 0.00122 | 0.00094 | 0.00110 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.01868 |
| 44 | 0.00130 | 0.00103 | 0.00125 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.01629 |
| 45 | 0.00140 | 0.00112 | 0.00143 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.01400 |
| 46 | 0.00151 | 0.00122 | 0.00163 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.01208 |
| 47 | 0.00162 | 0.00133 | 0.00183 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.01034 |
| 48 | 0.00173 | 0.00143 | 0.00208 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00879 |
| 49 | 0.00186 | 0.00155 | 0.00235 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00744 |
| 50 | 0.00200 | 0.00168 | 0.00268 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00629 |
| 51 | 0.00214 | 0.00185 | 0.00305 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00551 |
| 52 | 0.00245 | 0.00202 | 0.00345 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00493 |
| 53 | 0.00267 | 0.00221 | 0.00392 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00451 |
| 54 | 0.00292 | 0.00242 | 0.00445 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00423 |
| 55 | 0.00320 | 0.00272 | 0.00505 | 0.22800 | 0.22000 | 0.09600 | 0.19000 | 0.00000 |
| 56 | 0.00362 | 0.00309 | 0.00575 | 0.22800 | 0.22000 | 0.09600 | 0.19000 | 0.00000 |
| 57 | 0.00420 | 0.00348 | 0.00653 | 0.22800 | 0.22000 | 0.09600 | 0.19000 | 0.00000 |
| 58 | 0.00469 | 0.00392 | 0.00740 | 0.22800 | 0.22000 | 0.09600 | 0.19000 | 0.00000 |
| 59 | 0.00527 | 0.00444 | 0.00843 | 0.22800 | 0.22000 | 0.09600 | 0.19000 | 0.00000 |
| 60 | 0.00595 | 0.00506 | 0.01220 | 0.22800 | 0.22000 | 0.09600 | 0.19000 | 0.00000 |
| 61 | 0.00675 | 0.00581 | 0.01220 | 0.22800 | 0.22000 | 0.09600 | 0.19000 | 0.00000 |
| 62 | 0.00768 | 0.00666 | 0.01220 | 0.19000 | 0.17000 | 0.08000 | 0.15000 | 0.00000 |
| 63 | 0.00876 | 0.00765 | 0.01220 | 0.19000 | 0.17000 | 0.08000 | 0.15000 | 0.00000 |
| 64 | 0.01001 | 0.00862 | 0.01220 | 0.19000 | 0.17000 | 0.08000 | 0.15000 | 0.00000 |
| 65 | 0.01128 | 0.00971 | 0.01220 | 0.19000 | 0.17000 | 0.08000 | 0.15000 | 0.00000 |

## GLOSSARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## NOTES


[^0]:    * Includes effect of change in asset valuation method. Effective with the 2007 valuation the method was changed from smoothing capital gains and losses over 3 years to smoothing investment earnings above or below the assumed rate of return over a five year period with a $+/-10 \%$ of market value corridor limit.
    ** Includes effects of change in asset valuation method. Effective with the 2008 valuation the corridor limits on the smoothed value were changed from $+/-10 \%$ of market value to $+/-15 \%$ with smoothed values averaged with corridor limits when they fall outside the corridor limits.

