THE PUBLIC SCHOOL EMPLOYEES' RETIREMENT SYSTEM OF PENNSYLVANIA

## ACTUARIAL VALUATION

JUNE 30, 2005

# buckconsultants <br> an ACS company 

January 18, 2006

The Retirement Board
Public School Employees’
Retirement System of Pennsylvania
P.O. Box 125

Harrisburg, Pennsylvania 17108
Ladies and Gentlemen:
This report presents the results of the annual actuarial valuation of the Public School Employees' Retirement System of Pennsylvania as of June 30, 2005.

The valuation takes into account all of the promised benefits to which members are entitled as of June 30, 2005, including pension and survivor benefits; and as required by the Retirement Code is the basis for the contribution rate for fiscal year 2006/2007. The fiscal year 2006/2007 employer contribution rate certified by the Board is 6.46\%.

The valuation was based on the actuarial assumptions and methods as adopted by the Board of Trustees, including a valuation interest rate of $81 / 2 \%$ per annum compounded annually. As a result of the July 1, 2000 - June 30, 2005 experience review the actuarial assumptions and methods used to determine the contribution were changed from last year. Changes adopted by the Board at its December 2005 meeting include a minor change to the actuarial cost method, and changes in the assumptions for post-retirement mortality, death in service, disability retirement, and non-vested withdrawal. The assumed rate of inflation was changed from $3.5 \%$ to $3.25 \%$, and the assumed real rate of return on assets was increased from $5 \%$ to $5.25 \%$. The interest rate assumption is unchanged at $8.5 \%$, and the salary increase assumption has declined by 25 basis points to a career average of $6 \%$.

## Assets and Membership Data

The Retirement System reported the individual data for members of the System as of the valuation date to the actuary. While we did not verify the data at their source, we did perform tests for internal consistency and reasonableness. The amount of assets in the trust fund taken into account in the valuation was based on statements prepared for us by the Retirement System.

The Retirement Board
Public School Employees’
Retirement System of Pennsylvania
January 18, 2006
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## Funding Adequacy

At its December 2005 meeting the Board adopted a package of assumption changes whose fiscal impact had not previously been determined by the actuary. At the meeting the actuary estimated that the required fiscal year 2006/2007 employer contribution rate would be $6.46 \%$, and the Board certified this rate. The actuary subsequently confirmed that the $6.46 \%$ rate is adequate for funding future benefits. (The calculated rate, based on the actual package of changes adopted by the Board, would have been $6.41 \%$.) The total funded ratio of the plan (for Pensions and Health Insurance combined) is $83.7 \%$ based on the accrued liability and the actuarial value of assets as of June 30, 2005.

## Financial Results and Membership Data

Detailed summaries of the financial results of the valuation and membership data used in preparing the valuation are shown in the valuation report. The actuary prepared supporting schedules included in the Actuarial and Statistical Section of the PSERS Comprehensive Annual Financial Report (CAFR), and also prepared the trend data schedules included in the Financial Section of the CAFR.

Qualified actuaries completed the valuation in accordance with accepted actuarial procedures as prescribed by the Actuarial Standards Board. The qualified actuaries are members of the American Academy of Actuaries and are experienced in performing actuarial valuations of public employee retirement systems. To the best of our knowledge, this report is complete and accurate and has been prepared in accordance with generally accepted actuarial principles and practice.

Respectfully submitted,


Kim M. Nicholl, F.S.A.
Principal, Consulting Actuary

S. Lynn Hill

Director, Retirement Consulting

KMN/SLH:pl

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## Executive Summary

This report presents the actuarial valuation as of June 30, 2005 for the Public School Employees'
Retirement System of Pennsylvania.

The principal valuation results include:

- The employer contribution rate for fiscal year 2006/2007 which is $6.46 \%$.
- The total funded ratio of the plan determined as of June 30 , 2005, which is $83.7 \%$ based on the accrued liability and the actuarial value of assets for Pensions and Health Insurance as of that date.
- The determination of the actuarial gain or loss as of June 30, 2005, which is a loss of \$3.5 billion.
- Annual disclosure as of June 30, 2005 as required by Statement No. 25 of the Governmental Accounting Standards Board.

The valuation was completed based upon membership and financial data submitted by the Retirement System. Detailed summaries of the financial results of the valuation and membership data used in preparing the valuation are included in the valuation report. The actuary prepared supporting schedules included in the Actuarial and Statistical Section of the PSERS Comprehensive Annual Financial Report (CAFR), and also prepared the trend data schedules included in the Financial Section of the CAFR.

## Changes Since Last Year

## Legislative and Administrative Changes

There were no legislative or administrative changes since the prior valuation.

The benefit provisions and contribution provisions are summarized in Table 13.

## Actuarial Assumptions and Methods

As a result of the July 1, 2000 - June 30, 2005 experience review the actuarial assumptions and methods used to determine the contribution were changed from last year. The changes are effective for the June 30, 2005 actuarial valuation, and were adopted by the Board at its December, 2005 meeting.

The change in method was a minor change in the Entry Age Normal actuarial cost method. Previously the average normal cost rate was the total of the rates for all active members divided by the number of active members. That is, each active member's normal cost rate had an equal weight in the calculation of the average rate. Individual member normal cost rates are still being determined, but the average rate is now a pay-weighted average. The assumptions for postretirement mortality, death in service, disability retirement, and non-vested withdrawal were changed to better reflect recent experience, and also to reflect expected future improvements in mortality. The assumed rate of inflation was changed from $3.5 \%$ to $3.25 \%$, and the assumed real rate of return on assets was increased from $5 \%$ to $5.25 \%$. The interest rate assumption is unchanged at $8.5 \%$, and the salary increase assumption has declined by 25 basis points to a career average of $6 \%$.

The actuarial assumptions and methods are outlined in Table 12.

## Contribution Rates

The results of the valuation as of June 30, 2005 determine the employer contribution rate for fiscal year 2006/2007. At its December 2005 meeting the Board adopted a package of assumption changes whose fiscal impact had not previously been determined by the actuary. At the meeting the actuary estimated that the required fiscal year 2006/2007 employer contribution rate would be $6.46 \%$ of payroll, and the Board certified this rate. The actuary subsequently confirmed that the $6.46 \%$ rate is adequate for funding future benefits. The calculated rate, based on the actual package of changes adopted by the Board, is $6.41 \%$ of payroll, including $5.67 \%$ of payroll for pension benefits plus $0.74 \%$ of payroll for the health insurance premium assistance program.

The average contribution rate payable by the members is $7.21 \%$. Effective January 1, 2002, the employee contribution rate for members who elected to have prior school service and intervening military service converted to Class T-D service increased by $1.25 \%$. However, anyone who enrolls (or re-enrolls) in PSERS on or after July 1, 2001 is automatically a member of Class T-D with regard to all subsequent school service and subsequent intervening military service, with a member rate equal to $7.5 \%$. The average member contribution rate of $7.21 \%$ is a pay-weighted average of member rates that vary based on date of hire and based on Class T-D membership.

## Reasons for Change in the Rate Calculated by the Actuary

The employer contribution rate calculated by the actuary increased from $4.69 \%$ for fiscal year $2005 / 2006$ to $6.41 \%$ for fiscal year 2006/2007. The increase of $1.72 \%$ is due to the following reasons:

- Decrease due to change in normal rate*
- Increase due to payroll growth*
- Increase due to actuarial loss on assets*
- Increase due to actuarial loss on liabilities* 0.66
- Increase due to change in health insurance contribution rate*
- Impact of the $4 \%$ floor on employer contribution rate under Act $40^{*}$
- Decrease due to FY 2005 over-contribution*
- Decrease due to assumption and method changes
- Total
* Before assumption and method changes.


## Summary of Principal Results

Summarized below are the principal financial results for the Public School Employees' Retirement System based upon the actuarial valuation as of June 30, 2005. Comparable results from the June 30, 2004 valuation are also shown.


## Five-Year History of Principal Financial Results

Five-Year History of Contribution Rates
(As a \% of Payroll)

|  |  | Employer Contributions |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Fiscal <br> Year | Member <br> Contributions | Normal <br> Cost | Unfunded <br> Accrued <br> Liability | Health <br> Care | Total* |
| $2006 / 2007$ | $7.21 \%$ | $6.62 \%$ | $(0.95) \%$ | $0.74 \%$ | $6.46 \%$ |
| $2005 / 2006$ | 7.16 | 7.61 | $(4.28)$ | .69 | 4.69 |
| $2004 / 2005$ | 7.12 | 7.48 | $(7.10)$ | .23 | 4.23 |
| $2003 / 2004$ | 7.08 | 7.25 | $(4.27)$ | .79 | 3.77 |
| $2002 / 2003$ | 7.10 | 7.20 | $(10.03)$ | .97 | 1.15 |

* Certified by the Board.

The following chart shows a five-year history of employer contribution rates:

Five-Year History of Employer Contribution Rates


## Funded Ratio

The financing objective of the System is to:

- Fully fund all current costs based on the normal contribution rate determined under the funding method; and
- Liquidate the unfunded accrued liability based on the amortization schedules as required by the retirement code, i.e., a schedule of 10 or 30 years for each change in the unfunded accrued liability according to Act 40.

The total contribution rate of $6.46 \%$ of payroll payable by employers, when taken together with the contributions payable by the members and asset returns, is sufficient to achieve the financing objective.

The System's total funded ratio on the funding basis is measured by comparing the actuarial value of assets (based on a 5-year moving average market value) with the accrued liability. The accrued liability for Pensions is the present value of benefits accumulated to date under the System's funding method and reflects future pay increases for active employees. The accrued liability for Health Insurance equals the assets in the Health Insurance account.

On this basis, the System's total funded ratio (for Pensions and Health Insurance combined) is $83.7 \%$ as of June 30 , 2005. This funded ratio is based on an actuarial value of assets of $\$ 51.2$ billion and an accrued liability of $\$ 61.2$ billion. The funded ratio for Pensions alone is $83.6 \%$ as of June 30, 2005, based on an actuarial value of assets of $\$ 51.1$ billion, and an accrued liability of $\$ 61.1$ billion

## Reasons for Change in the Total Funded Ratio

The total funded ratio decreased from $91.2 \%$ as of June 30, 2004 to $83.7 \%$ as of June 30, 2005. The change in assumptions and methods caused the funded ratio to decrease by $0.9 \%$. The remaining decrease is due to the asset and liability losses.

Five-Year History of Total Funded Ratio*
(\$ Amounts in Millions)

| Valuation as <br> of June 30 | Accrued <br> Liability | Actuarial <br> Value of <br> Assets | Unfunded <br> Accrued <br> Liability | Funded Ratio |
| :---: | :---: | :---: | :---: | :---: |
| 2005 | $\$ 61,226.6$ | $\$ 51,219.3$ | $\$ 10,007.3$ | $83.7 \%$ |
| 2004 | $57,123.0$ | $52,094.5$ | $5,028.5$ | 91.2 |
| 2003 | $54,443.8$ | $52,900.5$ | $1,543.3$ | 97.2 |
| 2002 | $51,796.5$ | $54,296.4$ | $(2,499.9)$ | 104.8 |
| 2001 | $47,917.3$ | $54,830.3$ | $(6,913.0)$ | 114.4 |

*For Pensions and Health Insurance

The following chart shows a five-year history of the accrued liability and the actuarial value of assets:

Five-Year History of Accrued Liability and Actuarial Value of Assets


The following chart shows a ten-year history of the total funded ratio for Pensions and Health Insurance:

## Ten-Year History of Total Funded Ratio

(1996-2005)


## GASB No. 25 Disclosure

Statement No. 25 of the Governmental Accounting Standards Board established reporting standards for the annual financial reports of defined benefit pension plans. The System complied with Statement No. 25 beginning with the June 30, 1996 valuation. The statement requires disclosure of the "schedule of funding progress" and the "schedule of employer contributions" in the System's financial statements.

The "schedule of funding progress" shows historical trend information about the System's actuarial value of pension assets, the actuarial accrued liability for pensions and the unfunded actuarial accrued liability for pensions. The actuarial funded ratio for pensions is measured by comparing the actuarial value of pension assets (based on a 5-year moving average market value) with the accrued liability for pensions. The accrued liability is the present value of pension benefits accumulated to date under the System's funding method and reflects future pay increases for active employees. On this basis, the System's funded ratio for pensions is $83.6 \%$ as of June 30, 2005. This funded ratio is based on an actuarial value of pension assets of $\$ 51.1$ billion and an accrued liability for pensions of $\$ 61.1$ billion.

The "schedule of employer contributions" shows historical trend information about the annual required contributions (ARC) for pensions of the employer and the percentage of the ARC contributed to the System. The ARC is equal to the normal cost for pensions plus amortization of the unfunded actuarial accrued liability for pensions. The maximum period of amortizing the unfunded actuarial accrued liability permitted by GASB No. 25 is 40 years. The maximum amortization period decreases to 30 years in 2006. The employer contributions to the System are equal to the normal cost plus a payment towards each change in the unfunded accrued liability, which are amortized over 10 or 30-year periods. The actual employer pension contributions for the six fiscal years ending June 30, 2005 are equal to $100 \%$ of the ARC, as shown in Table 8.

## Rate of Return

The investment return of the trust fund (i.e. total return including both realized and unrealized gains and losses) for fiscal years 2000/2001 through 2004/2005 is shown in the table below. The return based on the actuarial value of assets used for determining annual contribution rates is also shown.

The rate of return on market value reflects the investment earnings on the market value of assets from the beginning of the fiscal year to the end of the fiscal year. The actuarial assets are the assets recognized for valuation purposes. Actuarial assets are based on a smoothed market value that spreads the difference between the actual and expected return (beginning with the 2001/2002 fiscal year) over a period of five years. The rate of return on the actuarial value of assets is a measure of the increase in the actuarial value of assets from the beginning of the fiscal year to the end of the fiscal year.

| Fiscal <br> Year | Rate of Return Based on |  |
| :---: | :---: | :---: |
|  | Market Value | Actuarial Value |
| $2004 / 2005^{*}$ | $12.9 \%$ | $3.2 \%$ |
| $2003 / 2004^{*}$ | 19.7 | 2.6 |
| $2002 / 2003^{*}$ | 2.7 | 1.4 |
| $2001 / 2002^{*}$ | $(5.3)$ | 2.7 |
| $2000 / 2001$ | $(7.4)$ | 14.3 |

* Market Value Rate of return provided by Wilshire Associates Incorporated, the PSERS investment consultant.


## TABLE 1

## SUMMARY OF RESULTS OF ACTUARIAL VALUATION AS OF JUNE 30, 2005 <br> (\$ Amounts in Thousands)



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## TABLE 2

## SUMMARY OF SOURCES OF EMPLOYER CONTRIBUTION RATE AS OF JUNE 30, 2005 <br> (\$ Amounts in Thousands)



[^0]
## TABLE 3

## DETERMINATION OF HEALTH INSURANCE CONTRIBUTION RATE FOR FISCAL YEAR 2006/2007

(\$ Amounts in Thousands)

| Item | Amount |
| :---: | :---: |
| 1. Estimated Number of Eligible Annuitants in Fiscal 2007/2008 <br> 2. Estimated Number of Eligible Annuitants Who Elect Coverage <br> 3. Estimated Annual Health Insurance Payments During Fiscal 2007/2008 <br> (2) $\mathrm{x} \$ 100 \times 12$ <br> 4. Estimated Health Insurance Administrative Expenses During Fiscal 2007/2008 <br> 5. Total Estimated Health Insurance Account Disbursements During Fiscal 2007/2008 (3) + (4) <br> 6. Estimated Balance in Health Insurance Account for Prior Fiscal Year <br> 7. Estimated Shortfall in Health Insurance Account (5) - (6) <br> 8. Required Health Insurance Contribution Rate <br> (a) Estimated 2006/2007 Payroll <br> (b) Required Health Insurance Contribution Rate (7) / (8a) (rounded up) |  112,300 <br>  72,995 <br> \$ 87,594 <br>   <br>   <br>  2,113 <br> \$ 89,707 <br>  3,262 <br>  86,445 <br> \$  <br>  $11,821,951$ <br>  $0.74 \%$ |

## TABLE 4

## SUMMARY OF MARKET VALUE OF PLAN ASSETS AS OF JUNE 30, 2005

(\$ Amounts in Thousands)

## Market Value

1. Market Value of Assets as of June 30, 2004
2. Contributions During Fiscal 2004/2005
3. Disbursements During Fiscal 2004/2005
4. Investment Return During Fiscal 2004/2005
a) Net Investment Return
b) Administrative Expenses
c) Investment Return After Expenses (a) - (b)
5. Market Value of Assets as of June 30, 2005
(1) + (2) - (3) + (4c)
6. Rate of Return (per Wilshire)

## Asset Allocation by Account

1. Members' Savings Account
2. Annuity Reserve Account
3. State Accumulation Account
4. Health Care Account
5. Total $(1)+(2)+(3)+(4)$
\$ 48,484,506
1,246,118
3,741,395
\$ 6,078,851
34,546
\$ 6,044,305
\$ 52,033,534
12.87 \%
\$ 9,116,347

26,954,108

15,865,942

97,137
\$ 52,033,534

## TABLE 5

## DERIVATION OF ACTUARIAL VALUE OF ASSETS <br> AS OF JUNE 30, 2005 <br> (\$ Amounts in Thousands)

1. Market Value of Assets as of June 30, 2005
\$ 52,033,534
2. Determination of Deferred Gain (Loss)

| Fiscal Year | Return on Assets |  |  |  |  |  |  | Deferred <br> Amount |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Actual |  | Expected |  | Difference | \% Deferred |  |  |
| 2004/2005 | \$ | 6,044,305 | \$ | 4,321,981 | \$ | 1,722,324 | 80\% | \$ | 1,377,859 |
| 2003/2004 |  | 8,201,871 |  | 4,404,561 |  | 3,797,310 | 60\% |  | 2,278,386 |
| 2002/2003 |  | 985,646 |  | 4,525,288 |  | $(3,539,642)$ | 40\% |  | $(1,415,857)$ |
| 2001/2002 |  | $(2,555,630)$ |  | 4,575,102 |  | (7,130,732) | 20\% |  | $(1,426,147)$ |

\$ 814,241
3. Actuarial Value of Assets (1) - (2)
4. Actuarial Rate of Return * $3.19 \%$

* The actuarial rate of return is the investment return based on the change in the actuarial value of assets from the June 30, 2004 to the June 30, 2005 valuation.


## TABLE 6

## ANALYSIS OF CHANGE IN UNFUNDED ACCRUED LIABILITY AS OF JUNE 30, 2005 <br> (\$ Amounts in Thousands)

| Item | Amount |  |
| :---: | :---: | :---: |
| 1. Unfunded Accrued Liability at June 30, 2004 | \$ | 5,028,521 |
| 2. Interest Credit at $8.50 \%$ to June 30, 2005 |  | 427,424 |
| 3. Contributions Toward Unfunded Accrued Liability |  | $(785,598)$ |
| 4. Change due to FY 2005 Over-Contribution |  | $(400,366)$ |
| 5. Expected Unfunded Accrued Liability at June 30, 2005 $(1)+(2)-(3)+(4)$ | \$ | 5,841,177 |
| 6. Actual Unfunded Accrued Liability at June 30, 2005 | \$ | 10,007,288 |
| 7. Increase (Decrease) from Expected (6)-(5) | \$ | 4,166,111 |
| 8. Reasons for Increase (Decrease) |  |  |
| (a) Experience (Gains) Losses |  |  |
| (i) Loss from Investment Return on Actuarial Value of Assets | \$ | 2,701,891 |
| (ii) Gain from Salary Increases Less than Expected |  | $(118,605)$ |
| (iii) Loss from Retirement and Other Separation Experience |  | 766,982 |
| (iv) Loss from Annuitants' Mortality Experience |  | 122,856 |
| Subtotal | \$ | 3,473,124 |
| (b) Changes in Assumptions and Funding Method | \$ | 692,987 |
| (c) Grand Total | \$ | 4,166,111 |

## TABLE 7

## SCHEDULE OF FUNDING PROGRESS FOR PENSIONS* GASB STATEMENT NO. 25 DISCLOSURE

(\$ Amounts in Thousands)

| Valuation as of June 30 | Actuarial <br> Value of <br> Assets | Actuarial Accrued Liability | Unfunded <br> Actuarial <br> Accrued <br> Liability | Funded <br> Ratio | Covered <br> Payroll | Unfunded <br> Accrued <br> Liability as a <br> Percentage of <br> Covered Payroll |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2005 | \$ 51,122,156 | 61,129,444 | 10,007,288 | 83.6 \% | 10,527,668 | 95.1 \% |
| 2004 | 51,949,622 | 56,978,143 | 5,028,521 | 91.2 | 10,030,705 | 50.1 |
| 2003 | 52,770,018 | 54,313,328 | 1,543,310 | 97.2 | 9,652,881 | 16.0 |
| 2002 | 54,193,064 | 51,693,207 | $(2,499,857)$ | 104.8 | 9,378,944 | (26.7) |
| 2001 | 54,783,928 | 47,870,922 | $(6,913,006)$ | 114.4 | 9,414,884 | (73.4) |
| 2000 | 49,241,819 | 39,771,604 | $(9,470,215)$ | 123.8 | 8,939,598 | (105.9) |

* The amounts reported do not include assets or liabilities for Health Insurance. In previous valuations, the amounts reported did include assets and liabilities for Health Insurance.

TABLE 8

## SCHEDULE OF EMPLOYER CONTRIBUTIONS FOR PENSIONS GASB STATEMENT NO. 25 DISCLOSURE

(\$ Amounts in Thousands)

| Fiscal <br> Year <br> Ended <br> June 30 | Annual <br> Required <br> Contribution | Percentage <br> Contributed |
| :---: | ---: | ---: |
|  |  |  |
| 2005 | $\$$ | 431,556 |
| 2004 | 321,091 | $100 \%$ |
| 2003 | 20,831 | 100 |
| 2002 | 539 | 100 |
| 2001 | 158,193 | 100 |
| 2000 | 390,504 | 100 |
|  |  | 100 |

The information presented above was determined as part of the actuarial valuation as of two years prior to the dates indicated (i.e., the contribution determined by the valuation completed as of June 30, 2002 was contributed in the fiscal year ending June 30, 2004).

Additional information as of the latest actuarial valuation follows:

Valuation Date:
Actuarial Cost Method:
Amortization Method:
Remaining Amortization Period:
Asset Valuation Method:

Actuarial Assumptions:

- Investment Rate of Return *
8.50\%
-Projected Salaried Increases *
* Includes Inflation at:
3.25\%


## TABLE 9

## SOLVENCY TEST

COMPARATIVE SUMMARY OF ACCRUED LIABILITY AND ACTUARIAL VALUE OF ASSETS*
(\$ Amounts in Thousands)

*The amounts reported include assets and liabilities for Pensions and Health Insurance.

TABLE 10
HISTORY AND PROJECTION OF CONTRIBUTION RATES AND FUNDED RATIOS*

| Fiscal Year <br> Ending June | Appropriation Payroll (thousands) | Contribution Rates |  |  |  |  |  | Funded <br> Ratio |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Employee | Employer <br> Normal Cost | Unfunded Liability Rate | Preliminary Employer Pension Rate | Health Care <br> Contribution | Total Employer Rate |  |
| 1998 | \$ 8,091,481 | 5.65 \% | 6.44 \% | 2.17 \% | 8.61 \% | 0.15 \% | 8.76 \% | 110.6 \% |
| 1999 | 8,247,602 | 5.69 | 6.33 | (0.44) | 5.89 | 0.15 | 6.04 | 119.0 |
| 2000 | 8,939,598 | 5.72 | 6.40 | (2.04) | 4.36 | 0.25 | 4.61 | 123.8 |
| 2001 | 9,414,884 | 5.77 | 6.29 | (4.65) | 1.64 | 0.30 | 1.94 | 114.4 |
| 2002 | 9,378,944 | 6.43 | 5.63 | (6.05) | (0.42) | 1.09 | 1.09 | 104.8 |
| 2003 | 9,652,881 | 7.10 | 7.20 | (10.03) | 1.00 | 0.97 | 1.15 | 97.2 |
| 2004 | 10,030,705 | 7.08 | 7.25 | (4.27) | 2.98 | 0.79 | 3.77 | 91.2 |
| 2005 | 11,062,589 | 7.12 | 7.48 | (7.10) | 4.00 | 0.23 | 4.23 | 83.7 |
| 2006 | 11,505,093 | 7.16 | 7.61 | (4.28) | 4.00 | 0.69 | 4.69 | 80.9 |
| 2007 | 11,821,951 | 7.21 | 6.62 | (0.95) | 5.67 | 0.74 | $6.46{ }^{* *}$ | 80.7 |
| 2008 | 12,015,696 | 7.23 | 6.60 | (0.21) | 6.39 | 0.76 | 7.15 | 81.6 |
| 2009 | 12,272,752 | 7.25 | 6.58 | (0.57) | 6.01 | 0.77 | 6.78 | 81.3 |
| 2010 | 12,526,362 | 7.27 | 6.57 | (1.51) | 5.06 | 0.77 | 5.83 | 80.3 |
| 2011 | 12,778,938 | 7.30 | 6.54 | (1.82) | 4.72 | 0.78 | 5.50 | 79.1 |
| 2012 | 13,039,623 | 7.32 | 6.53 | (1.85) | 4.68 | 0.78 | 5.46 | 77.9 |
| 2013 | 13,315,696 | 7.35 | 6.51 | 15.24 | 21.75 | 0.77 | 22.52 | 79.2 |
| 2014 | 13,611,415 | 7.37 | 6.49 | 14.31 | 20.80 | 0.77 | 21.57 | 80.4 |
| 2015 | 13,928,825 | 7.39 | 6.48 | 13.00 | 19.48 | 0.76 | 20.24 | 81.5 |
| 2016 | 14,283,124 | 7.41 | 6.46 | 12.67 | 19.13 | 0.76 | 19.89 | 82.5 |
| 2017 | 14,675,532 | 7.43 | 6.45 | 12.33 | 18.78 | 0.74 | 19.52 | 83.5 |

* The projection of contribution rates is based on the assumption that there are no changes in demographics or economic assumptions no changes in benefit provisions, and no actuarial gains or losses other than gains or losses on the actuarial value of assets that result from recognizing currently deferred gains or losses on the market value of assets.
** $6.46 \%$ total employer contribution rate for fiscal year 2006/2007 adopted by the Board on December 9, 2005.

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TABLE 11

## HISTORY AND PROJECTION OF ANNUITANTS, BENEFICIARIES, SURVIVOR ANNUITANTS AND ACTIVE MEMBERS

| Valuation as of June 30 | New Annuitants During the Year | Annuitant Deaths During the Year | Annuitants at End of Year | Beneficiaries and Survivor Annuitants at End of Year | Total Annuitants, Beneficiaries and Survivor Annuitants | Active Members |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1996 |  |  | 113,007 | 5,719 | 118,726 | 213,906 |
| 1997 |  |  | 118,137 | 5,987 | 124,124 | 215,077 |
| 1998 |  |  | 120,665 | 6,149 | 126,814 | 220,703 |
| 1999 |  |  | 126,448 | 6,421 | 132,869 | 223,495 |
| 2000 |  |  | 127,404 | 6,654 | 134,058 | 234,210 |
| 2001 |  |  | 125,880 | 6,836 | 132,716 | 243,311 |
| 2002 |  |  | 134,300 | 7,114 | 141,414 | 242,616 |
| 2003 |  |  | 138,383 | 7,310 | 145,693 | 246,700 |
| 2004 |  |  | 143,997 | 7,555 | 151,552 | 247,901 |
| 2005 |  |  | 148,727 | 7,792 | 156,519 | 255,465 |
| 2006 | 12,442 | 4,080 | 157,089 | 8,209 | 165,298 | 255,465 |
| 2007 | 11,351 | 4,228 | 164,212 | 8,600 | 172,812 | 255,465 |
| 2008 | 11,712 | 4,405 | 171,519 | 8,959 | 180,478 | 255,465 |
| 2009 | 12,056 | 4,585 | 178,990 | 9,298 | 188,288 | 255,465 |
| 2010 | 12,096 | 4,759 | 186,327 | 9,620 | 195,947 | 255,465 |
| 2011 | 11,651 | 4,931 | 193,047 | 9,925 | 202,972 | 255,465 |
| 2012 | 11,732 | 5,114 | 199,665 | 10,225 | 209,890 | 255,465 |
| 2013 | 11,693 | 5,289 | 206,069 | 10,523 | 216,592 | 255,465 |
| 2014 | 11,527 | 5,465 | 212,131 | 10,816 | 222,947 | 255,465 |
| 2015 | 11,379 | 5,646 | 217,864 | 11,110 | 228,974 | 255,465 |

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## TABLE 12

## DESCRIPTION OF ACTUARIAL ASSUMPTIONS AND METHODS

## ASSUMPTIONS

Interest Rate: $8.5 \%$ per annum, compounded annually (adopted as of June 30, 1990). The components are $3.25 \%$ for inflation and $5.25 \%$ for the real rate of return (both adopted as of June 30, 2005). Actuarial equivalent benefits are determined based on $4 \%$ (since 1960).

Separation From Service: Illustrative rates of assumed separation from service are shown in the following table. (Rates of non-vested withdrawal, of death, and of disability were adopted as of June 30, 2005; other rates were adopted as of June 30, 2000):

|  | Annual Rate of: |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Vested W | drawal* |  |  |  |  |
| Age | Non-Vested Withdrawal | Less Than 10 Years of Service | 10 or More <br> Years of Service | Death | Disability | Early Retirement** | Superannuation Retirement |
|  |  |  |  | ALES |  |  |  |
| 25 | 12.40\% | 5.50\% | 1.40\% | .042\% | .024\% |  |  |
| 30 | 10.00 | 3.00 | 1.40 | . 057 | . 024 |  |  |
| 35 | 11.00 | 3.00 | 1.10 | . 062 | . 100 |  |  |
| 40 | 11.00 | 3.00 | . 80 | . 072 | . 180 |  |  |
| 45 | 11.00 | 3.00 | . 50 | . 100 | . 180 |  |  |
| 50 | 11.00 | 3.00 | 1.78 | . 152 | . 280 |  | 24.00\% |
| 55 | 10.50 | 3.00 | 3.50 | . 252 | . 430 | 10.00 | 24.00 |
| 60 | 10.00 | 2.40 | 4.50 | . 467 | . 580 | 10.00 | 28.00 |
| 65 |  |  |  | . 870 | . 100 |  | 20.00 |
| 69 |  |  |  | 1.335 | . 100 |  | 20.00 |
|  |  |  |  | MALES |  |  |  |
| 25 | 14.10\% | 9.50\% | 4.00\% | .019\% | .040\% |  |  |
| 30 | 14.10 | 7.50 | 4.00 | . 023 | . 040 |  |  |
| 35 | 14.10 | 5.50 | 2.00 | . 031 | . 080 |  |  |
| 40 | 10.90 | 3.50 | 1.00 | . 043 | . 130 |  |  |
| 45 | 10.90 | 3.00 | . 55 | . 061 | . 180 |  |  |
| 50 | 10.90 | 3.00 | 1.50 | . 085 | . 250 |  | 10.00\% |
| 55 | 10.90 | 3.00 | 3.00 | . 146 | . 480 | 10.00 | 10.00 |
| 60 | 10.90 | 3.50 | 5.90 | . 284 | . 480 | 15.00 | 25.00 |
| 65 |  |  |  | . 561 | . 160 |  | 28.00 |
| 69 |  |  |  | . 866 | . 160 |  | 20.00 |

* Vested Withdrawal - At least 5 years service but not eligible for Early or Superannuation retirement.
** Early Retirement - Age 55 with 25 years service, but not eligible for Superannuation retirement.
Death After Retirement: The Uninsured Pensioners 1994 Mortality Table (UP94) with mortality improvements projected 10 years, and with age set back one year for males and females, adopted in 2005, are used to project mortality for healthy annuitants and for dependent beneficiaries. Special mortality tables based on PSERS' experience are used for disability retirements. (The 1995 George B. Buck Mortality Tables, rated forward one year for males and unadjusted for females, adopted in 2000, are used to determine actuarial equivalent benefits.)


## TABLE 12

## DESCRIPTION OF ACTUARIAL ASSUMPTIONS AND METHODS

(Continued)

Salary Increase: Effective average of $6 \%$ per annum, compounded annually (adopted as of June 30, 2005). The components are $3.25 \%$ for inflation, $1 \%$ for real wage growth and $1.75 \%$ for merit or seniority increases. Representative values are as follows:

| Age | Annual Rate of <br> Salary Increase |
| :---: | :---: |
| 20 | $12.00 \%$ |
| 30 | 9.00 |
| 40 | 7.00 |
| 50 | 4.75 |
| 55 | 4.50 |
| 60 | 4.25 |
| 65 | 4.25 |
| 69 | 4.25 |

## MISCELLANEOUS

Option 4 Elections: 100\% of members are assumed to elect a refund of contributions and a reduced annuity.

Withdrawal Annuity: 90\% of members are assumed to commence payment immediately and $10 \%$ are assumed to defer payment to superannuation age.

## METHODS

Calculations: The actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement system, and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System.

Actuarial Cost Method: Entry Age Normal Cost Method (modified slightly as of June 30, 2005 to use a pay-weighted average normal contribution rate). The results of each June 30 valuation normally determine the employer contribution rate for the second succeeding fiscal year. The outstanding balance of the unfunded accrued liability as of June 30, 2001 and the decrease in the unfunded accrued liability due to the actuarial asset method change provided by Act 38 continue to be amortized over a 10-year period, with level dollar funding, beginning July 1 2002. The increases in the unfunded accrued liability due to the July 1, 2002 and July 1, 2003 cost-of-living adjustments provided by Act 38 were both recognized at June 30, 2002 and continue to be amortized over a 10-year period, with level dollar funding starting on July 1, 2003 and July 1, 2004, respectively. All other changes in the unfunded accrued liability at June 30, 2002 - including the Act 9 benefit changes - are amortized over a 30 -year period, with level dollar funding starting on July 1, 2003. Post June 30, 2002 benefit improvements for active members and retirees are amortized over a 10-year period with level dollar funding. Post June 30, 2002 gains and losses, and changes in the unfunded accrued liability resulting from changes

## TABLE 12

## DESCRIPTION OF ACTUARIAL ASSUMPTIONS AND METHODS

 (Continued)in actuarial assumptions and methods, are amortized over a 30-year period with level dollar funding. Act 40 also provided a $4.00 \%$ floor on the employer pension rate.

Asset Valuation Method: A five-year moving market average value of assets that recognizes the $8.5 \%$ actuarial expected investment return immediately and spreads the difference between the actual and expected return (beginning with the 2000/2001 fiscal year) over a period of five years (adopted as of June 30, 2001).

Health Care Contribution Rate: This is the rate necessary to establish reserves sufficient to provide premium assistance payments to all participating eligible annuitants during the fiscal year that immediately follows the year the employer contribution is made.

## DATA

Census and Assets: The valuation was based on members of the System as of June 30, 2005 and does not take into account future members. All census data was supplied by the System and was subject to reasonable consistency checks. The actuary adjusts the data to account for service and pay earned by members on or before the valuation that is not reported by the System until after the actuarial valuation is performed. Asset data was supplied by the System.

## TABLE 13

## SUMMARY OF BENEFIT AND CONTRIBUTION PROVISIONS

## MEMBERSHIP

For valuation purposes, all employees are considered to be full coverage. All employees who become members on and after January 1, 1966 are members of the dual coverage group. Dual coverage members contribute to both PSERS and to Social Security.

## BENEFITS <br> Superannuation Annuity

Eligibility

Amount
Age 62, or age 60 with 30 years of service, or 35 years of service regardless of age.
2.5\% of final average salary times years of school service and intervening military service. $2 \%$ of final average salary for non-school service and for members who do not elect Class T-D coverage. Minimum of $\$ 100$ per year of service. "Final average salary" means the highest average annual salary for any 3 years of service.

Annual salary is subject to a limit of $\$ 200,000$, as adjusted under Section 401(a)(17).

For members who elect coverage under Class T-D, the maximum benefit is equal to the limit established by Section 415 of the Internal Revenue Code.

## Early Retirement Annuity

Eligibility
Amount

Age 55 with 25 years of service.
Accrued benefit as of date of retirement, reduced $1 / 4 \%$ for each month by which commencement of payments precedes Superannuation Age.

For members who elect coverage under Class T-D, the maximum benefit is equal to the limit established by Section 415 of the Internal Revenue Code.

## TABLE 13

# SUMMARY OF BENEFIT AND CONTRIBUTION PROVISIONS <br> (Continued) 

## Withdrawal Annuity

Eligibility
Amount
5 years of service.
Accrued benefit deferred to superannuation retirement age or an actuarially reduced benefit payable immediately. Actuarially equivalent benefits are based on 4\% interest and the 1995 George B. Buck mortality tables, rated forward one year for males and unadjusted for females.

## Disability Annuity

Eligibility
Amount
5 years of service.
The standard single life annuity if the total number of credited service is greater than 16.667, otherwise the standard single life annuity multiplied by the lesser of the following ratios: $\left(\mathrm{Y}^{*} / \mathrm{Y}\right)$ or $(16.667 / \mathrm{Y})$ where Y is the number of years of credited service and $\mathrm{Y}^{*}$ is the total years of credited service if the member were to continue as a school employee until superannuation retirement age (or at current age, if later). Minimum of $\$ 100$ per year of service.

## Return of Contributions

Eligibility

Amount
Death or separation from service and member does not qualify for other benefits.

Refund of accumulated deductions includes interest (less annuity payments received prior to death in the case of a retired member).

## Death Benefit

Eligibility

Amount

Death of an active member or vestee who was eligible to receive an annuity.

The present value of the annuity which would have been effective if the member retired on the day before death. Option 1 (see next page) assumed payable if no other option elected.

## TABLE 13

## SUMMARY OF BENEFIT AND CONTRIBUTION PROVISIONS <br> (Continued)

## Normal and <br> Optional Forms of Benefits

Normal Form: Life annuity with a guaranteed payment equal to member contributions with interest.

Option 1: $\quad$ Reduced benefit with refund of balance of present value of annuity at retirement over payments received. If balance is less than $\$ 5,000$, benefit is paid in lump sum; otherwise, beneficiary may elect annuity and/or lump sum.

Option 2: Joint and 100\% survivorship annuity.
Option 3: Joint and $50 \%$ survivorship annuity.
Option 4: Benefit of equivalent actuarial value, including lump sum payment of member contributions.

## Health Care Premium Assistance

Eligibility

Amount

Retired members who:
(a) have $24 \frac{1}{2}$ or more years of service, or
(b) are disability annuitants, or
(c) have 15 or more years of service and who both terminated school service and retired after attaining superannuation age and
(d) participate in the PSERS health options program or in an employer-sponsored health insurance program.

Participating eligible annuitants receive health insurance premium assistance payments from the Health Insurance Account equal to the lesser of $\$ 100$ per month or the actual monthly premium. All administrative expenses necessary to operate the health insurance premium assistance program are to be funded by the Health Insurance Account. The Health Insurance Account is credited with contributions of the Commonwealth and the employers.

## TABLE 13

## SUMMARY OF BENEFIT AND CONTRIBUTION PROVISIONS <br> (Continued)

## CONTRIBUTIONS

By Members

By Commonwealth and School Districts

Members who elected coverage under Class T-D and who were most recently enrolled prior to July 22, 1983 contribute at a rate of $61 / 2 \%$ of compensation, while members who elected coverage under Class T-D and who were most recently enrolled on or after July 22, 1983 contribute at a rate of $71 / 2 \%$ of compensation. Members who did not elect coverage under Class T-D and who were most recently enrolled prior to July 22, 1983 contribute at a rate of $5 \frac{1}{4} \%$ of compensation, while members who did not elect coverage under Class T-D and who were most recently enrolled on or after July 22, 1983 and prior to July 1, 2001 contribute at a rate of $61 / 4 \%$ of compensation. Anyone who enrolls or re-enrolls on or after July 1, 2001 automatically has coverage under class T-D for subsequent school service and subsequent intervening military service, and must contribute at a rate of $71 / 2 \%$ of compensation. Reduction in rate for a joint coverage member: $40 \%$ of Social Security tax, exclusive of disability and medical coverage portion.

Balance of required contribution determined as normal contribution, accrued liability contribution, supplemental annuity contribution, experience adjustment factor and premium assistance contribution, is funded by the Commonwealth and the School Districts.

## TABLE 14

## SUMMARY OF MEMBERSHIP DATA AS OF JUNE 30, 2005

Active Members*

| Item | Male | Female | Total |
| :--- | ---: | ---: | ---: |
| Number of Members | 70,774 | 184,691 | 255,465 |
| Annual Salaries** | $\$$ | $3,355,836$ | $\$$ |
| Average Age | 44.9 | 45,833 | $\$ 10,527,668$ |
| Average Service | 12.6 | 45.0 | 45.0 |

* Excludes 58,720 inactive members and vestees.
** These salaries shown in the table above represent a rate of pay for members who were in active service on June 30, 2005.

Annuitants and Beneficiaries

| Item | Annual <br> Number | Average <br> Annuities <br> Annuities | Average <br> Age |  |
| :--- | ---: | ---: | ---: | :---: |
| Annuitants |  |  |  |  |
| (Normal, Early and Withdrawal) | 141,763 | $\$ 2,855,901$ | $\$$ | 20,146 |
| Survivors and Beneficiaries | 7,792 | 65,406 | 69.8 |  |
| Disabled Annuitants | 6,964 | 106,243 | $\boxed{3,394}$ | 75.8 |
| Total | 156,519 | $\$ 3,027,550$ | $\$ 8$ | $\underline{19,343}$ |

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## EXHIBIT I

## ACTIVE MEMBERSHIP DATA AS OF JUNE 30, 2005 NUMBER AND AVERAGE ANNUAL SALARY

| Age | Service |  |  |  |  |  |  |  |  | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40+ |  |
| Under 25 | 6,922 | 84 |  |  |  |  |  |  |  | 7,006 |
|  | \$26,535 | \$25,554 |  |  |  |  |  |  |  | \$26,523 |
| 25-29 | 17,823 | 5,173 | 26 |  |  |  |  |  |  | 23,022 |
|  | \$33,149 | \$43,263 | \$35,472 |  |  |  |  |  |  | \$35,424 |
| 30-34 | 9,595 | 13,158 | 2,667 | 67 |  |  |  |  |  | 25,487 |
|  | \$29,826 | \$44,945 | \$52,923 | \$37,430 |  |  |  |  |  | \$40,068 |
| 35-39 | 9,077 | 7,884 | 7,333 | 2,185 | 70 |  |  |  |  | 26,549 |
|  | \$23,724 | \$41,541 | \$54,783 | \$57,562 | \$39,061 |  |  |  |  | \$40,419 |
| 40-44 | 11,418 | 7,640 | 4,542 | 5,341 | 1,858 | 158 |  |  |  | 30,957 |
|  | \$19,724 | \$32,371 | \$47,758 | \$59,433 | \$58,412 | \$37,619 |  |  |  | \$36,222 |
| 45-49 | 10,783 | 9,493 | 5,601 | 4,683 | 4,745 | 3,473 | 202 |  |  | 38,980 |
|  | \$19,622 | \$29,636 | \$40,648 | \$53,739 | \$62,974 | \$64,502 | \$40,662 |  |  | \$38,566 |
| 50-54 | 7,438 | 7,674 | 6,552 | 6,151 | 4,187 | 9,303 | 7,968 | 109 |  | 49,382 |
|  | \$21,561 | \$30,920 | \$40,332 | \$50,151 | \$59,641 | \$68,924 | \$71,410 | \$45,251 |  | \$49,314 |
| 55-59 | 4,757 | 4,040 | 4,118 | 4,842 | 3,697 | 3,794 | 7,860 | 2,062 | 21 | 35,191 |
|  | \$21,529 | \$29,487 | \$36,826 | \$45,191 | \$53,694 | \$61,997 | \$72,180 | \$76,011 | \$54,685 | \$49,756 |
| 60-64 | 2,489 | 1,799 | 1,659 | 2,031 | 1,634 | 1,529 | 909 | 637 | 176 | 12,863 |
|  | \$18,574 | \$25,505 | \$30,938 | \$37,980 | \$42,747 | \$49,223 | \$58,522 | \$75,205 | \$74,249 | \$37,305 |
| Over 64 | 1,802 | 1,039 | 791 | 753 | 512 | 479 | 361 | 161 | 130 | 6,028 |
|  | \$12,718 | \$18,046 | \$21,862 | \$27,205 | \$29,823 | \$34,348 | \$37,221 | \$48,282 | \$68,972 | \$23,448 |
| Total | 82,104 | 57,984 | 33,289 | 26,053 | 16,703 | 18,736 | 17,300 | 2,969 | 327 | 255,465 |
|  | \$24,904 | \$36,122 | \$44,246 | \$50,754 | \$56,482 | \$63,946 | \$70,010 | \$73,205 | \$70,895 | \$41,210 |

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## EXHIBIT II

THE NUMBER AND AVERAGE ANNUAL ANNUITY AS OF JUNE 30, 2005

## RETIRED ON ACCOUNT OF SUPERANNUATION, EARLY RETIREMENT AND THOSE IN RECEIPT OF WITHDRAWAL ANNUITIES

| Age | Years of Service |  |  |  |  |  |  |  |  | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40+ |  |
| Under 50 | 11 | 1,182 | 1,351 | 436 | 137 | 27 | 4 |  |  | 3,148 |
|  | \$2,857 | \$754 | \$1,485 | \$3,748 | \$8,844 | \$13,497 | \$21,417 |  |  | \$1,978 |
| 50-54 | 5 | 232 | 1,366 | 537 | 329 | 360 | 287 | 15 |  | 3,131 |
|  | \$4,275 | \$1,465 | \$1,414 | \$4,085 | \$9,152 | \$20,268 | \$31,892 | \$31,674 |  | \$7,800 |
| 55-59 | 10 | 250 | 2,552 | 1,301 | 754 | 1,461 | 8,233 | 3,555 | 6 | 18,122 |
|  | \$29,665 | \$1,972 | \$1,714 | \$4,953 | \$10,196 | \$25,029 | \$39,992 | \$51,661 | \$56,756 | \$31,404 |
| 60-64 | 125 | 422 | 2,431 | 2,001 | 1,642 | 2,507 | 9,509 | 5,857 | 235 | 24,729 |
|  | \$1,946 | \$2,871 | \$2,980 | \$7,079 | \$13,644 | \$24,656 | \$35,753 | \$48,951 | \$53,474 | \$30,180 |
| 65-69 | 441 | 729 | 2,576 | 2,652 | 2,870 | 3,333 | 5,579 | 4,640 | 766 | 23,586 |
|  | \$869 | \$2,516 | \$3,686 | \$7,481 | \$12,358 | \$20,443 | \$30,124 | \$38,520 | \$49,699 | \$22,048 |
| 70-74 | 543 | 960 | 2,728 | 2,691 | 2,960 | 3,205 | 3,982 | 2,643 | 1,810 | 21,522 |
|  | \$590 | \$2,003 | \$3,435 | \$6,293 | \$10,816 | \$17,148 | \$25,767 | \$34,519 | \$41,730 | \$17,884 |
| 75-79 | 611 | 1,159 | 2,748 | 2,809 | 3,050 | 3,059 | 2,868 | 2,101 | 1,186 | 19,591 |
|  | \$512 | \$1,736 | \$3,321 | \$6,068 | \$10,619 | \$16,241 | \$22,651 | \$29,972 | \$39,768 | \$14,581 |
| 80-84 | 473 | 1,029 | 2,307 | 2,418 | 2,198 | 2,029 | 1,549 | 1,480 | 592 | 14,075 |
|  | \$523 | \$1,571 | \$3,283 | \$5,972 | \$10,032 | \$14,612 | \$19,711 | \$24,484 | \$35,004 | \$11,585 |
| 85-89 | 288 | 695 | 1,623 | 1,419 | 1,230 | 1,057 | 827 | 938 | 389 | 8,466 |
|  | \$602 | \$1,703 | \$3,478 | \$6,051 | \$9,417 | \$13,298 | \$18,229 | \$22,385 | \$27,652 | \$10,401 |
| Over 89 | 147 | 459 | 741 | 758 | 657 | 694 | 564 | 742 | 631 | 5,393 |
|  | \$690 | \$2,248 | \$4,203 | \$7,228 | \$10,666 | \$13,791 | \$18,059 | \$21,439 | \$24,905 | \$12,630 |
| Total | 2,654 | 7,117 | 20,423 | 17,022 | 15,827 | 17,732 | 33,402 | 21,971 | 5,615 | 141,763 |
|  | \$803 | \$1,761 | \$2,932 | \$6,272 | \$11,046 | \$18,728 | \$32,031 | \$39,913 | \$39,335 | \$20,146 |

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## EXHIBIT III

## THE NUMBER AND AVERAGE ANNUAL ANNUITY AS OF JUNE 30, 2005

## BENEFICIARIES AND SURVIVOR ANNUITANTS

| Age | Years of Service |  |  |  |  |  |  |  |  | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40+ |  |
| Under 50 | 1 | 18 | 53 | 43 | 49 | 33 | 28 | 18 | 16 | 259 |
|  | \$240 | \$1,707 | \$1,753 | \$2,875 | \$5,462 | \$7,612 | \$14,746 | \$14,304 | \$10,652 | \$6,205 |
| 50-54 | 1 | 10 | 14 | 19 | 29 | 32 | 41 | 20 | 10 | 176 |
|  | \$217 | \$1,056 | \$2,681 | \$4,067 | \$6,276 | \$11,270 | \$12,451 | \$12,552 | \$9,197 | \$8,646 |
| 55-59 | 2 | 8 | 33 | 28 | 42 | 53 | 113 | 90 | 21 | 390 |
|  | \$291 | \$2,473 | \$2,340 | \$3,031 | \$6,705 | \$12,085 | \$15,280 | \$15,919 | \$13,240 | \$11,646 |
| 60-64 | 2 | 15 | 42 | 53 | 44 | 59 | 146 | 130 | 31 | 522 |
|  | \$381 | \$1,402 | \$2,464 | \$4,778 | \$6,275 | \$10,845 | \$17,185 | \$19,940 | \$14,123 | \$13,091 |
| 65-69 | 10 | 21 | 94 | 84 | 81 | 74 | 141 | 157 | 54 | 716 |
|  | \$591 | \$1,738 | \$3,185 | \$4,381 | \$6,647 | \$10,611 | \$13,149 | \$18,404 | \$18,518 | \$10,862 |
| 70-74 | 8 | 39 | 119 | 119 | 108 | 101 | 194 | 162 | 101 | 951 |
|  | \$577 | \$1,675 | \$2,730 | \$4,432 | \$6,683 | \$9,001 | \$12,665 | \$15,045 | \$18,876 | \$9,836 |
| 75-79 | 23 | 53 | 168 | 167 | 160 | 186 | 205 | 239 | 121 | 1,322 |
|  | \$634 | \$1,416 | \$2,614 | \$3,790 | \$6,471 | \$8,334 | \$11,640 | \$12,362 | \$15,934 | \$8,333 |
| 80-84 | 21 | 96 | 202 | 184 | 174 | 206 | 216 | 307 | 108 | 1,514 |
|  | \$584 | \$1,233 | \$2,443 | \$3,537 | \$5,863 | \$7,471 | \$9,350 | \$10,769 | \$14,126 | \$7,058 |
| 85-89 | 10 | 98 | 172 | 126 | 127 | 108 | 152 | 225 | 156 | 1,174 |
|  | \$507 | \$1,125 | \$2,039 | \$3,529 | \$4,902 | \$7,084 | \$7,931 | \$9,810 | \$10,502 | \$6,260 |
| Over 89 | 1 | 42 | 79 | 58 | 62 | 61 | 86 | 182 | 196 | 767 |
|  | \$514 | \$1,008 | \$2,103 | \$3,013 | \$4,246 | \$5,412 | \$6,716 | \$7,725 | \$8,976 | \$6,154 |
| Total | 79 | 400 | 976 | 881 | 876 | 913 | 1,322 | 1,530 | 814 | 7,791 |
|  | \$567 | \$1,325 | \$2,443 | \$3,788 | \$5,946 | \$8,511 | \$11,845 | \$12,898 | \$13,189 | \$8,395 |

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## EXHIBIT IV

THE NUMBER AND AVERAGE ANNUAL ANNUITY AS OF JUNE 30, 2005

## RETIRED ON ACCOUNT OF DISABILITY

| Age | Years of Service |  |  |  |  |  |  |  |  | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40+ |  |
| Under 50 | 2 | 226 | 185 | 105 | 57 | 15 |  |  |  | 590 |
|  | \$10,868 | \$9,872 | \$11,938 | \$16,424 | \$20,111 | \$25,249 |  |  |  | \$13,069 |
| 50-54 | 1 | 166 | 198 | 146 | 165 | 200 | 42 |  |  | 918 |
|  | \$20,265 | \$8,401 | \$11,147 | \$15,720 | \$22,505 | \$36,091 | \$46,178 |  |  | \$20,466 |
| 55-59 | 4 | 218 | 296 | 250 | 260 | 377 | 203 | 3 |  | 1,611 |
|  | \$14,367 | \$8,009 | \$10,404 | \$13,541 | \$21,167 | \$31,798 | \$44,653 | \$49,560 |  | \$21,709 |
| 60-64 |  | 219 | 285 | 249 | 280 | 232 | 45 | 2 |  | 1,312 |
|  |  | \$5,925 | \$8,151 | \$11,512 | \$18,341 | \$27,200 | \$38,253 | \$46,868 |  | \$15,052 |
| 65-69 |  | 161 | 238 | 199 | 170 | 115 | 16 | 2 |  | 901 |
|  |  | \$5,157 | \$7,377 | \$9,730 | \$14,592 | \$23,933 | \$27,256 | \$42,997 |  | \$11,407 |
| 70-74 |  | 133 | 173 | 147 | 127 | 67 | 13 | 1 |  | 661 |
|  |  | \$4,050 | \$6,505 | \$8,640 | \$12,810 | \$19,445 | \$26,193 | \$43,179 |  | \$9,451 |
| 75-79 |  | 96 | 146 | 88 | 90 | 56 | 6 | 1 | 1 | 484 |
|  |  | \$3,407 | \$5,719 | \$8,613 | \$13,016 | \$17,880 | \$23,576 | \$24,751 | \$54,601 | \$8,912 |
| 80-84 | 1 | 72 | 63 | 47 | 54 | 34 | 14 | 1 |  | 286 |
|  | \$25,382 | \$3,615 | \$5,858 | \$7,157 | \$10,542 | \$15,570 | \$21,209 | \$29,135 |  | \$8,447 |
| 85-89 |  | 26 | 39 | 27 | 21 | 11 | 16 |  |  | 140 |
|  |  | \$3,107 | \$5,827 | \$8,135 | \$10,849 | \$15,996 | \$21,045 |  |  | \$9,059 |
| Over 89 |  | 4 | 18 | 23 | 8 | 6 | 2 |  |  | 61 |
|  |  | \$3,045 | \$5,999 | \$8,176 | \$9,306 | \$14,460 | \$16,133 |  |  | \$8,224 |
| Total | 8 | 1,321 | 1,641 | 1,281 | 1,232 | 1,113 | 357 | 10 | 1 | 6,964 |
|  | \$15,606 | \$6,600 | \$8,677 | \$11,694 | \$17,572 | \$28,521 | \$40,082 | \$42,547 | \$54,601 | \$15,256 |

## EXHIBIT V

THE NUMBER AND AVERAGE ANNUAL ANNUITY AS OF JUNE 30, 2005

THOSE IN RECEIPT OF A REFUND ANNUITY

| Age | Years of Service |  |  |  |  |  |  |  |  | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40+ |  |
| Under 50 |  |  |  |  |  |  |  |  |  |  |
| 50-54 |  |  |  |  |  |  |  |  |  |  |
| 55-59 |  |  |  |  |  |  |  |  |  |  |
| 60-64 |  |  |  |  |  |  |  |  |  |  |
| 65-69 |  |  |  |  |  |  |  |  |  |  |
| 70-74 |  |  |  |  |  |  |  |  |  |  |
| 75-79 |  |  |  |  |  |  |  |  |  |  |
| 80-84 |  |  |  |  |  |  |  |  |  |  |
| 85-89 |  |  |  |  |  |  |  |  |  |  |
| Over 89 | 1 |  |  |  |  |  |  |  |  | 1 |
|  | \$66 |  |  |  |  |  |  |  |  | \$66 |
| Total | 1 |  |  |  |  |  |  |  |  | 1 |
|  | \$66 |  |  |  |  |  |  |  |  | \$66 |

## EXHIBIT VI

## ANNUITANT AND BENEFICIARY MEMBERSHIP DATA

 AS OF JUNE 30, 2005
## NUMBER AND AVERAGE ANNUAL BENEFIT EXCLUDES PARTIAL LUMP SUM PAYMENTS

| Age Last Birthday | Number | Annual Benefit (Thousands) |  | Average Annual Benefit |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{gathered} \text { Annuitants } \\ \text { (Normal, Early and Withdrawal) } \end{gathered}$ |  |  |  |  |  |
| Under 60 | 24,401 | \$ | 599,759 | \$ | 24,579 |
| 60-64 | 24,729 |  | 746,327 |  | 30,180 |
| 65-69 | 23,586 |  | 520,023 |  | 22,048 |
| 70-74 | 21,522 |  | 384,894 |  | 17,884 |
| 75-79 | 19,591 |  | 285,663 |  | 14,581 |
| Over 79 | 27,934 |  | 319,235 |  | 11,428 |
| Total | 141,763 | \$ | 2,855,901 | \$ | 20,146 |
| Survivors and Beneficiaries |  |  |  |  |  |
| Under 60 | 825 | \$ | 7,671 | \$ | 9,298 |
| 60-64 | 522 |  | 6,833 |  | 13,090 |
| 65-69 | 716 |  | 7,777 |  | 10,862 |
| 70-74 | 951 |  | 9,354 |  | 9,836 |
| 75-79 | 1,322 |  | 11,016 |  | 8,333 |
| Over 79 | 3,456 |  | 22,755 |  | 6,584 |
| Total | 7,792 | \$ | 65,406 | \$ | 8,394 |
| Disabled Annuitants |  |  |  |  |  |
| Under 60 | 3,119 | \$ | 61,471 | \$ | 19,709 |
| 60-64 | 1,312 |  | 19,748 |  | 15,052 |
| 65-69 | 901 |  | 10,277 |  | 11,406 |
| 70-74 | 661 |  | 6,247 |  | 9,451 |
| 75-79 | 484 |  | 4,314 |  | 8,913 |
| Over 79 | 487 |  | 4,186 |  | 8,595 |
| Total | 6,964 | \$ | 106,243 | \$ | 15,256 |
| Grand Total <br> Average Annual Benefit | 156,519 | \$ | 3,027,550 | \$ | 19,343 |

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## EXHIBIT VII

10 YEAR HISTORY OF MEMBERSHIP DATA
ACTIVE MEMBERS

| Valuation as of June 30 | Number of Active Members | Percentage <br> Change in <br> Membership | Total Annual Payroll (Thousands) | Percentage <br> Change in Payroll |
| :---: | :---: | :---: | :---: | :---: |
| 2005 | 255,465 | 3.05\% | \$ 10,527,668 | 4.95\% |
| 2004 | 247,901 | 0.49\% | 10,030,705 | 3.91\% |
| 2003 | 246,700 | 1.68\% | 9,652,881 | 2.92\% |
| 2002 | 242,616 | (0.29\%) | 9,378,944 | (0.38\%) |
| 2001 | 243,311 | 3.89\% | 9,414,884 | 5.32\% |
| 2000 | 234,210 | 4.79\% | 8,939,598 | 8.39\% |
| 1999 | 223,495 | 1.27\% | 8,247,602 | 1.93\% |
| 1998 | 220,703 | 2.62\% | 8,091,481 | 4.47\% |
| 1997 | 215,077 | 0.55\% | 7,745,001 | 1.69\% |
| 1996 | 213,906 | 1.48\% | 7,616,585 | 3.23\% |

## ANNUITANT AND SURVIVOR ANNUITANT MEMBERS

| Year <br> Ended <br> June 30 | Number <br> on roll | Additions | Deletions | Percentage <br> Change in <br> Membership | Annual <br> Annuities <br> (Millions) | Percentage <br> Change in <br> Annuities |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2005 | 156,519 | 10,050 | 5,083 | $3.28 \%$ | $\$$ | $3,027.6$ |
| 2004 | 151,552 | 10,526 | 4,667 | $4.02 \%$ | $2,798.2$ | $8.20 \%$ |
| 2003 | 145,693 | 9,079 | 4,800 | $3.03 \%$ | $2,545.1$ | $13.24 \%$ |
| 2002 | 141,414 | 13,003 | 4,305 | $6.55 \%$ | $2,248.3$ | $20.10 \%$ |
| 2001 | 132,716 | 3,140 | 4,482 | $-1.00 \%$ | $1,872.0$ | $0.00 \%$ |
| 2000 | 134,058 | 5,923 | 4,734 | $0.89 \%$ | $1,880.6$ | $2.73 \%$ |
| 1999 | 132,869 | 10,609 | 4,554 | $4.77 \%$ | $1,830.6$ | $10.77 \%$ |
| 1998 | 126,814 | 7,132 | 4,442 | $2.17 \%$ | $1,652.6$ | $14.21 \%$ |
| 1997 | 124,124 | 9,787 | 4,389 | $4.55 \%$ | $1,447.0$ | $11.74 \%$ |
| 1996 | 118,726 | 7,047 | 4,281 | $2.39 \%$ | $1,295.0$ | $6.05 \%$ |

## EXHIBIT VIII

## DETAILED TABULATIONS OF THE DATA

TABLE 1
THE NUMBER AND ANNUAL SALARIES OF MEMBERS IN ACTIVE SERVICE DISTRIBUTED BY AGE AS OF JUNE 30, 2005

| Age | Males |  |  | Females |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number |  | Salaries | Number |  | Salaries |
| 17 | 13 | \$ | 75,131 | 8 | \$ | 35,106 |
| 18 | 28 |  | 171,301 | 11 |  | 116,470 |
| 19 | 49 |  | 447,217 | 44 |  | 347,751 |
| 20 | 91 |  | 945,319 | 92 |  | 814,117 |
| 21 | 124 |  | 1,815,948 | 117 |  | 1,315,389 |
| 22 | 191 |  | 3,359,713 | 517 |  | 11,145,136 |
| 23 | 559 |  | 14,279,443 | 1,619 |  | 44,297,576 |
| 24 | 924 |  | 27,533,285 | 2,619 |  | 79,121,408 |
| 25 | 1,195 |  | 37,666,804 | 3,088 |  | 98,963,549 |
| 26 | 1,324 |  | 45,400,192 | 3,249 |  | 110,689,289 |
| 27 | 1,336 |  | 48,630,125 | 3,286 |  | 115,955,436 |
| 28 | 1,395 |  | 53,500,139 | 3,393 |  | 124,462,695 |
| 29 | 1,486 |  | 59,594,691 | 3,270 |  | 120,677,888 |
| 30 | 1,465 |  | 59,906,667 | 3,303 |  | 124,531,230 |
| 31 | 1,482 |  | 64,120,986 | 3,180 |  | 121,147,787 |
| 32 | 1,607 |  | 71,057,635 | 3,301 |  | 126,845,846 |
| 33 | 1,720 |  | 77,080,138 | 3,614 |  | 138,173,927 |
| 34 | 1,826 |  | 83,933,539 | 3,989 |  | 154,422,423 |
| 35 | 1,695 |  | 80,415,840 | 3,931 |  | 154,909,680 |
| 36 | 1,619 |  | 77,869,318 | 3,670 |  | 141,346,883 |
| 37 | 1,533 |  | 74,195,013 | 3,560 |  | 132,286,031 |
| 38 | 1,461 |  | 71,911,215 | 3,738 |  | 135,370,825 |
| 39 | 1,545 |  | 74,698,307 | 3,797 |  | 130,073,298 |
| 40 | 1,457 |  | 68,371,106 | 4,086 |  | 138,323,479 |
| 41 | 1,574 |  | 74,715,836 | 4,443 |  | 141,970,176 |
| 42 | 1,521 |  | 70,663,632 | 4,569 |  | 148,292,458 |
| 43 | 1,479 |  | 70,125,271 | 4,896 |  | 159,218,242 |
| 44 | 1,653 |  | 76,980,597 | 5,279 |  | 172,676,955 |
| 45 | 1,631 |  | 76,117,918 | 5,233 |  | 168,849,951 |
| 46 | 1,764 |  | 81,754,321 | 5,603 |  | 187,400,462 |
| 47 | 1,848 |  | 86,807,661 | 6,069 |  | 217,187,743 |
| 48 | 1,982 |  | 99,391,437 | 6,409 |  | 235,160,739 |
| 49 | 1,992 |  | 99,686,180 | 6,449 |  | 250,934,953 |
| 50 | 2,185 |  | 113,138,825 | 6,791 |  | 278,985,991 |
| 51 | 2,221 |  | 119,319,763 | 7,091 |  | 315,293,691 |
| 52 | 2,562 |  | 144,794,563 | 7,470 |  | 355,236,757 |
| 53 | 2,816 |  | 163,502,743 | 7,813 |  | 384,735,733 |
| 54 | 2,916 |  | 177,490,581 | 7,517 |  | 382,726,831 |
| 55 | 2,613 |  | 159,196,103 | 6,411 |  | 318,499,825 |
| 56 | 2,488 |  | 148,383,236 | 5,685 |  | 277,199,611 |

TABLE 1
THE NUMBER AND ANNUAL SALARIES OF MEMBERS IN ACTIVE SERVICE DISTRIBUTED BY AGE AS OF JUNE 30, 2005

| Age | Males |  |  | Females |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number |  | Salaries | Number |  | Salaries |
| 57 | 2,110 | \$ | 120,799,201 | 4,962 | \$ | 226,158,545 |
| 58 | 1,976 |  | 105,565,441 | 4,891 |  | 216,356,989 |
| 59 | 1,212 |  | 60,384,898 | 2,843 |  | 118,407,402 |
| 60 | 1,026 |  | 45,876,423 | 2,696 |  | 108,617,640 |
| 61 | 947 |  | 39,045,309 | 2,252 |  | 83,964,646 |
| 62 | 821 |  | 32,599,125 | 1,817 |  | 63,757,695 |
| 63 | 591 |  | 21,152,630 | 1,306 |  | 42,152,892 |
| 64 | 447 |  | 14,973,256 | 960 |  | 27,720,043 |
| 65 | 399 |  | 11,983,500 | 705 |  | 20,780,111 |
| 66 | 289 |  | 8,159,603 | 545 |  | 13,598,992 |
| 67 | 269 |  | 8,265,536 | 450 |  | 10,982,292 |
| 68 | 222 |  | 5,557,098 | 389 |  | 9,122,711 |
| 69 | 199 |  | 4,786,044 | 321 |  | 6,800,434 |
| 70 | 164 |  | 3,313,072 | 246 |  | 4,690,079 |
| 71 | 128 |  | 2,573,663 | 224 |  | 4,517,023 |
| 72 | 125 |  | 2,648,395 | 176 |  | 3,089,951 |
| 73 | 98 |  | 1,970,270 | 137 |  | 2,140,247 |
| 74 | 89 |  | 1,559,928 | 122 |  | 2,413,118 |
| 75 | 64 |  | 1,144,381 | 110 |  | 1,720,988 |
| 76 | 59 |  | 1,139,033 | 78 |  | 1,151,047 |
| 77 | 40 |  | 810,111 | 76 |  | 1,302,026 |
| 78 | 41 |  | 797,137 | 45 |  | 636,855 |
| 79 | 28 |  | 506,678 | 42 |  | 616,670 |
| 80 | 21 |  | 317,396 | 25 |  | 375,369 |
| 81 | 10 |  | 176,629 | 20 |  | 289,825 |
| 82 | 11 |  | 179,862 | 11 |  | 162,259 |
| 83 | 7 |  | 235,448 | 9 |  | 272,695 |
| 84 | 7 |  | 125,287 | 9 |  | 122,429 |
| 85 | 2 |  | 63,908 | 6 |  | 72,172 |
| 86 | 1 |  | 1,642 | 7 |  | 76,591 |
| 87 | 1 |  | 76,882 | 1 |  | 19,641 |
| Total | 70,774 |  | 3,355,835,525 | 184,691 |  | 7,171,832,714 |

TABLE 2
THE NUMBER AND ANNUAL SALARIES OF MEMBERS IN ACTIVE SERVICE DISTRIBUTED BY YEARS OF CREDITED SERVICE AS OF JUNE 30, 2005

| Service | Males |  |  | Females |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number |  | Salaries | Number |  | Salaries |
| 0 | 4,704 | \$ | 80,631,408 | 12,439 | \$ | 183,953,332 |
| 1 | 4,129 |  | 111,127,998 | 13,042 |  | 282,485,039 |
| 2 | 4,380 |  | 143,342,685 | 12,862 |  | 332,093,267 |
| 3 | 3,994 |  | 140,131,852 | 11,679 |  | 317,589,101 |
| 4 | 3,676 |  | 133,442,457 | 11,199 |  | 319,938,108 |
| 5 | 3,389 |  | 131,309,159 | 10,606 |  | 320,654,726 |
| 6 | 3,717 |  | 157,512,071 | 10,275 |  | 340,091,572 |
| 7 | 3,001 |  | 130,695,901 | 8,187 |  | 276,925,767 |
| 8 | 3,004 |  | 137,338,633 | 7,329 |  | 263,263,144 |
| 9 | 2,333 |  | 108,691,033 | 6,143 |  | 228,039,904 |
| 10 | 2,098 |  | 103,379,552 | 5,486 |  | 213,825,306 |
| 11 | 1,934 |  | 93,417,084 | 5,015 |  | 204,754,386 |
| 12 | 2,212 |  | 115,354,229 | 5,182 |  | 221,646,854 |
| 13 | 1,568 |  | 79,570,026 | 4,392 |  | 192,546,246 |
| 14 | 1,358 |  | 68,421,644 | 4,044 |  | 179,987,402 |
| 15 | 1,430 |  | 75,617,766 | 4,174 |  | 195,437,671 |
| 16 | 1,500 |  | 79,216,542 | 4,093 |  | 197,384,165 |
| 17 | 1,406 |  | 76,965,474 | 3,994 |  | 197,580,328 |
| 18 | 1,374 |  | 76,185,193 | 3,566 |  | 183,777,853 |
| 19 | 1,142 |  | 65,067,188 | 3,374 |  | 175,056,414 |
| 20 | 1,057 |  | 59,627,862 | 3,000 |  | 161,795,406 |
| 21 | 996 |  | 56,431,575 | 2,524 |  | 140,029,318 |
| 22 | 809 |  | 46,439,134 | 2,154 |  | 122,670,771 |
| 23 | 801 |  | 46,580,861 | 2,222 |  | 127,114,783 |
| 24 | 849 |  | 49,752,710 | 2,291 |  | 132,974,818 |
| 25 | 960 |  | 60,646,347 | 2,594 |  | 155,608,740 |
| 26 | 1,093 |  | 70,496,210 | 2,850 |  | 174,336,557 |
| 27 | 1,087 |  | 73,221,504 | 2,631 |  | 167,054,279 |
| 28 | 1,135 |  | 76,824,885 | 2,611 |  | 167,813,720 |
| 29 | 1,227 |  | 83,408,809 | 2,548 |  | 168,685,500 |
| 30 | 1,358 |  | 94,699,307 | 2,595 |  | 171,305,785 |
| 31 | 1,528 |  | 109,452,874 | 2,496 |  | 169,966,248 |
| 32 | 1,524 |  | 113,141,373 | 2,238 |  | 153,321,226 |
| 33 | 1,364 |  | 102,858,873 | 1,865 |  | 127,738,284 |
| 34 | 1,053 |  | 79,951,444 | 1,279 |  | 88,741,131 |
| 35 | 603 |  | 46,816,587 | 720 |  | 50,616,399 |
| 36 | 361 |  | 29,100,072 | 339 |  | 22,693,913 |
| 37 | 253 |  | 19,568,086 | 231 |  | 14,955,420 |
| 38 | 139 |  | 10,572,974 | 143 |  | 9,694,595 |
| 39 | 78 |  | 6,510,030 | 102 |  | 6,818,729 |

TABLE 2
THE NUMBER AND ANNUAL SALARIES OF MEMBERS IN ACTIVE SERVICE DISTRIBUTED BY YEARS OF CREDITED SERVICE AS OF JUNE 30, 2005

|  |  |  | Males |  |
| :---: | ---: | ---: | ---: | ---: |
| Females |  |  |  |  |
| Service | Number | Salaries | Number | Salaries |
| 40 | 55 | $4,455,645$ | 53 | $3,209,674$ |
| 41 | 38 | $3,333,726$ | 28 | $1,826,315$ |
| 42 | 16 | $1,411,287$ | 29 | $1,811,467$ |
| 43 | 12 | 826,296 | 16 | 967,908 |
| 44 | 7 | 653,030 | 7 | 501,282 |
| 45 | 7 | 538,918 | 11 | 679,076 |
| 46 | 5 | 446,690 | 3 | 195,207 |
| 47 | 3 | 214,888 | 8 | 462,711 |
| 48 | 1 | 83,264 | 3 | 117,308 |
| 49 | 4 | 289,925 | 6 | 326,800 |
| 50 | 1 | 28,140 | 3 | 225,234 |
| 51 |  |  | 3 | 164,720 |
| 52 | 1 | 34,304 | 2 | 88,211 |
| 54 |  |  | 1 | 69,665 |
| 60 |  |  | 2 | 107,203 |
| 62 |  |  | 1 | 39,700 |
| Total | 70,774 | $3,355,835,525$ | 184,691 | $7,171,832,714$ |

TABLE 3
THE NUMBER AND ANNUAL ANNUITIES OF ANNUITANTS ON THE RETIRED LIST AS OF JUNE 30, 2005

## RETIRED ON ACCOUNT OF SUPERANNUATION, EARLY RETIREMENT AND THOSE IN RECEIPT OF WITHDRAWAL ANNUITIES

|  | Male |  | Female |  |
| ---: | ---: | ---: | ---: | ---: |
| Age | Number | Annuities | Number | Annuities |
| 25 | 3 | $\$$ | 830 | 1 |

TABLE 3
THE NUMBER AND ANNUAL ANNUITIES OF ANNUITANTS ON THE RETIRED LIST AS OF JUNE 30, 2005

## RETIRED ON ACCOUNT OF SUPERANNUATION, EARLY RETIREMENT AND THOSE IN RECEIPT OF WITHDRAWAL ANNUITIES

| Age | Male |  |  | Female |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number | Annuities |  | Number | Annuities |  |
| 64 | 2,019 | \$ | 63,749,219 | 3,091 | \$ | 71,903,558 |
| 65 | 1,832 |  | 56,518,506 | 2,940 |  | 63,024,985 |
| 66 | 1,764 |  | 48,033,521 | 2,962 |  | 58,243,655 |
| 67 | 1,804 |  | 47,851,738 | 3,007 |  | 57,050,601 |
| 68 | 1,779 |  | 45,723,605 | 2,902 |  | 50,088,551 |
| 69 | 1,754 |  | 45,232,980 | 2,842 |  | 48,254,753 |
| 70 | 1,647 |  | 38,842,274 | 2,781 |  | 42,479,767 |
| 71 | 1,626 |  | 38,502,811 | 2,585 |  | 39,503,507 |
| 72 | 1,608 |  | 36,517,138 | 2,531 |  | 36,400,805 |
| 73 | 1,644 |  | 36,922,191 | 2,737 |  | 39,047,130 |
| 74 | 1,545 |  | 35,772,781 | 2,818 |  | 40,905,301 |
| 75 | 1,545 |  | 31,965,476 | 2,668 |  | 36,226,693 |
| 76 | 1,347 |  | 26,286,608 | 2,572 |  | 32,149,994 |
| 77 | 1,311 |  | 24,694,889 | 2,689 |  | 32,856,916 |
| 78 | 1,321 |  | 23,003,239 | 2,529 |  | 30,030,462 |
| 79 | 1,184 |  | 20,688,571 | 2,425 |  | 27,760,482 |
| 80 | 1,116 |  | 19,197,767 | 2,165 |  | 22,889,635 |
| 81 | 980 |  | 15,496,868 | 2,142 |  | 21,966,276 |
| 82 | 876 |  | 12,909,376 | 1,898 |  | 18,228,607 |
| 83 | 741 |  | 10,181,347 | 1,811 |  | 17,022,433 |
| 84 | 612 |  | 8,447,930 | 1,734 |  | 16,724,897 |
| 85 | 567 |  | 7,535,533 | 1,652 |  | 15,744,790 |
| 86 | 386 |  | 4,939,596 | 1,332 |  | 12,594,071 |
| 87 | 387 |  | 4,609,733 | 1,332 |  | 13,102,820 |
| 88 | 337 |  | 4,006,312 | 1,164 |  | 11,618,126 |
| 89 | 282 |  | 3,453,859 | 1,027 |  | 10,451,956 |
| 90 | 207 |  | 2,352,255 | 899 |  | 9,347,231 |
| 91 | 184 |  | 2,505,580 | 772 |  | 8,888,505 |
| 92 | 140 |  | 1,812,035 | 646 |  | 7,557,782 |
| 93 | 97 |  | 1,138,643 | 559 |  | 7,303,532 |
| 94 | 63 |  | 969,069 | 423 |  | 5,507,457 |
| 95 | 43 |  | 719,817 | 343 |  | 4,723,458 |
| 96 | 48 |  | 681,905 | 309 |  | 4,451,582 |
| 97 | 22 |  | 356,533 | 212 |  | 3,140,625 |
| 98 | 18 |  | 239,323 | 149 |  | 2,314,648 |
| 99 | 10 |  | 125,910 | 90 |  | 1,391,988 |
| 100 | 8 |  | 169,786 | 59 |  | 935,122 |
| 101 | 5 |  | 98,793 | 28 |  | 473,831 |
| 102 |  |  |  | 24 |  | 335,250 |
| 103 | 2 |  | 60,412 | 19 |  | 317,770 |

TABLE 3
THE NUMBER AND ANNUAL ANNUITIES OF ANNUITANTS ON THE RETIRED LIST

AS OF JUNE 30, 2005

## RETIRED ON ACCOUNT OF SUPERANNUATION, EARLY RETIREMENT AND

THOSE IN RECEIPT OF WITHDRAWAL ANNUITIES

|  Male  Female  <br> Age Number Annuities Number  Annuities |  |  |  |  |
| :---: | ---: | :---: | ---: | ---: |
| 104 |  |  | 5 | $\$$ |
| 105 |  |  | 3 | 62,743 |
| 106 |  |  | 3 | 42,291 |
| 107 |  |  | 27682 |  |
| 113 |  |  | 1 | 27,641 |
|  |  |  | 9,418 |  |
| Total | 51,259 | $\$ 1,310,094,387$ | 90,504 | $\$ 1,545,806,115$ |

TABLE 3

## THE NUMBER AND ANNUAL ANNUITIES OF ANNUITANTS ON THE RETIRED LIST AS OF JUNE 30, 2005

## RETIRED ON ACCOUNT OF SUPERANNUATION, EARLY RETIREMENT AND THOSE IN RECEIPT OF WITHDRAWAL ANNUITIES

| OPTION | MALE |  |  | FEMALE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Maximum | 27,525 | \$ | 749,824,736 | 64,293 | \$ | 1,094,536,191 |
| 1A | 4 |  | 74,958 | 46 |  | 721,005 |
| 1B | 2 |  | 25,952 | 21 |  | 270,020 |
| 1C | 6,171 |  | 118,872,170 | 13,888 |  | 197,051,652 |
| 2 | 9,003 |  | 188,947,396 | 6,331 |  | 116,699,450 |
| 3 | 7,759 |  | 221,283,972 | 5,632 |  | 127,173,751 |
| 4 | 795 |  | 31,065,203 | $\underline{293}$ |  | 9,354,046 |
|  | 51,259 | \$ | 1,310,094,387 | 90,504 | \$ | 1,545,806,115 |

## DEFINITIONS OF OPTIONS

Option 1A A life annuity to the member with a guaranteed payment to the beneficiary equal to the member's contributions and interest at retirement less any amounts paid to the member from the employee annuity portion of the retirement benefit prior to death. This option was discontinued in 1975.

Option 1B A life annuity to the member with a guaranteed payment to the beneficiary equal to the present value of the employer portion of the annuity less any amounts paid to the member from the reduced state portion of the retirement benefit prior to death. This option was discontinued in 1975.

Option 1C A life annuity to the member with a guaranteed payment to the beneficiary equal to the present value of the total maximum single life annuity less any amounts paid to the member prior to death.

Option 2 A joint and one hundred percent (100\%) survivor annuity payable during the lifetime of the member with the full amount of such annuity payable thereafter to the designated survivor annuitant, if living at the member's death.

Option 3 A joint and fifty percent (50\%) survivor annuity payable during the lifetime of the member with one-half of such annuity payable thereafter to the designated survivor annuitant, if living at the member's death.

Option 4 A life annuity to the member with a special death benefit for a designated beneficiary.

TABLE 4
THE NUMBER AND ANNUAL ANNUITIES OF BENEFICIARIES AND SURVIVOR ANNUITANTS AS OF JUNE 30, 2005

| Age | Male |  | Female |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Number | Annuities | Number | Annuities |
| 4 | 1 | \$ 2,416 |  |  |
| 6 |  |  | 1 | 2,727 |
| 10 |  |  | 1 | 2,751 |
| 12 |  |  | 1 | 5,518 |
| 14 | 1 | 2,043 |  |  |
| 16 | 1 | 1,497 |  |  |
| 17 |  |  | 1 | 3,484 |
| 18 | 1 | 1,533 | 2 | 24,567 |
| 19 | 1 | 2,483 | 1 | 6,094 |
| 20 |  |  | 2 | 8,158 |
| 21 | 1 | 6,094 |  |  |
| 23 | 1 | 2,514 | 2 | 22,540 |
| 24 | 2 | 14,518 | 2 | 3,084 |
| 25 |  |  | 1 | 1,312 |
| 26 | 2 | 1,996 | 1 | 11,664 |
| 27 | 3 | 12,829 | 2 | 4,878 |
| 28 | 1 | 4,889 | 3 | 11,418 |
| 29 | 2 | 8,515 | 1 | 13,554 |
| 30 | 5 | 78,072 | 1 | 12,887 |
| 31 | 2 | 4,533 | 2 | 7,069 |
| 32 |  |  | 3 | 6,156 |
| 33 | 3 | 37,935 | 1 | 8,117 |
| 34 | 1 | 2,554 | 5 | 24,655 |
| 35 | 2 | 10,649 | 1 | 18,495 |
| 36 | 3 | 21,217 | 5 | 72,802 |
| 37 | 2 | 2,499 | 3 | 16,364 |
| 38 | 8 | 32,375 | 5 | 34,184 |
| 39 | 4 | 22,133 | 6 | 36,756 |
| 40 | 1 | 3,719 | 4 | 22,537 |
| 41 | 5 | 20,071 | 8 | 33,641 |
| 42 | 1 | 4,098 | 4 | 66,262 |
| 43 | 3 | 28,573 | 5 | 15,075 |
| 44 | 2 | 3,684 | 5 | 14,280 |
| 45 | 7 | 43,166 | 9 | 97,533 |
| 46 | 7 | 27,923 | 25 | 162,727 |
| 47 | 5 | 30,125 | 20 | 108,250 |
| 48 | 4 | 24,210 | 23 | 106,774 |
| 49 | 8 | 25,170 | 13 | 136,764 |
| 50 | 4 | 31,710 | 22 | 121,013 |
| 51 | 7 | 32,296 | 24 | 234,052 |

TABLE 4

## THE NUMBER AND ANNUAL ANNUITIES OF BENEFICIARIES AND SURVIVOR ANNUITANTS AS OF JUNE 30, 2005

| Age | Male |  |  | Female |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number | Annuities |  | Number | Annuities |  |
| 52 | 12 | \$ | 63,140 | 27 | \$ | 242,804 |
| 53 | 14 |  | 89,314 | 24 |  | 225,879 |
| 54 | 10 |  | 60,444 | 32 |  | 421,111 |
| 55 | 14 |  | 127,389 | 45 |  | 451,052 |
| 56 | 15 |  | 154,459 | 48 |  | 474,186 |
| 57 | 14 |  | 151,954 | 61 |  | 893,018 |
| 58 | 21 |  | 195,765 | 82 |  | 970,873 |
| 59 | 18 |  | 164,138 | 72 |  | 959,064 |
| 60 | 9 |  | 134,290 | 68 |  | 844,749 |
| 61 | 20 |  | 256,988 | 70 |  | 898,886 |
| 62 | 31 |  | 337,032 | 95 |  | 1,115,247 |
| 63 | 17 |  | 254,257 | 99 |  | 1,411,850 |
| 64 | 16 |  | 255,051 | 97 |  | 1,325,100 |
| 65 | 21 |  | 196,273 | 105 |  | 1,067,565 |
| 66 | 25 |  | 248,495 | 104 |  | 1,328,796 |
| 67 | 17 |  | 179,158 | 132 |  | 1,528,532 |
| 68 | 19 |  | 102,874 | 138 |  | 1,603,653 |
| 69 | 19 |  | 217,150 | 136 |  | 1,304,352 |
| 70 | 24 |  | 200,062 | 135 |  | 1,464,731 |
| 71 | 27 |  | 230,575 | 163 |  | 1,778,860 |
| 72 | 27 |  | 192,681 | 155 |  | 1,768,462 |
| 73 | 22 |  | 158,092 | 170 |  | 1,566,946 |
| 74 | 28 |  | 268,231 | 200 |  | 1,725,049 |
| 75 | 40 |  | 391,670 | 212 |  | 1,942,728 |
| 76 | 21 |  | 187,846 | 220 |  | 2,014,298 |
| 77 | 28 |  | 206,985 | 229 |  | 1,863,803 |
| 78 | 41 |  | 402,717 | 245 |  | 1,881,015 |
| 79 | 41 |  | 378,339 | 245 |  | 1,746,585 |
| 80 | 42 |  | 374,388 | 253 |  | 1,804,312 |
| 81 | 45 |  | 384,414 | 286 |  | 1,928,334 |
| 82 | 49 |  | 398,390 | 237 |  | 1,599,389 |
| 83 | 49 |  | 336,463 | 252 |  | 1,695,925 |
| 84 | 42 |  | 398,011 | 259 |  | 1,765,817 |
| 85 | 33 |  | 278,897 | 244 |  | 1,560,922 |
| 86 | 35 |  | 285,567 | 189 |  | 1,111,636 |
| 87 | 30 |  | 207,097 | 234 |  | 1,382,511 |
| 88 | 30 |  | 193,209 | 191 |  | 1,170,189 |
| 89 | 33 |  | 182,002 | 155 |  | 977,494 |
| 90 | 29 |  | 213,918 | 133 |  | 818,284 |
| 91 | 18 |  | 158,774 | 114 |  | 721,198 |

TABLE 4
THE NUMBER AND ANNUAL ANNUITIES OF BENEFICIARIES AND SURVIVOR ANNUITANTS AS OF JUNE 30, 2005

|  | Male |  | Female |  |
| ---: | ---: | ---: | ---: | ---: |
| Age | Number | Annuities | Number | Annuities |
| 92 | 10 | $\$$ | 46,481 | 93 |
| 93 | 9 | $\$$ | 570,379 |  |
| 94 | 12 | 76,438 | 78 | 439,094 |
| 95 | 9 | 71,869 | 77 | 479,039 |
| 96 | 4 | 63,507 | 48 | 312,639 |
| 97 | 6 | 14,265 | 36 | 231,172 |
| 98 | 6 | 48,923 | 32 | 176,786 |
| 99 |  | 30,764 | 14 | 86,529 |
| 100 |  |  | 14 | 72,845 |
| 101 |  |  |  | 6 |
| 102 |  |  | 7 | 22,627 |
| 103 |  |  | 5 | 20,337 |
| 104 |  |  | 4,234 |  |
|  |  |  |  | 26,213 |
| Total | 1,204 | $\$$ | $10,133,788$ | 6,587 |

TABLE 5
THE NUMBER AND ANNUAL ANNUITIES OF ANNUITANTS ON THE RETIRED LIST AS OF JUNE 30, 2005

## RETIRED ON ACCOUNT OF DISABILITY

|  | Male |  | Female |  |
| :---: | ---: | ---: | ---: | ---: |
| Age | Number | Annuities | Number | Annuities |
| 29 | 1 | $\$$ | 17,160 | 1 |$]$ 6,267

TABLE 5
THE NUMBER AND ANNUAL ANNUITIES OF ANNUITANTS ON THE RETIRED LIST AS OF JUNE 30, 2005

## RETIRED ON ACCOUNT OF DISABILITY

|  | Male |  | Female |  |
| ---: | ---: | ---: | ---: | ---: |
| Age | Number | Annuities | Number | Annuities |
| 69 | 49 | $\$$ | 564,766 | 103 |
| 70 | 46 | 537,515 | 122 | $1,018,842$ |
| 71 | 42 | 465,034 | 86 | $1,079,019$ |
| 72 | 49 | 630,128 | 81 | 802,744 |
| 73 | 28 | 257,100 | 101 | 972,68 |
| 74 | 34 | 313,921 | 72 | 572,105 |
| 75 | 26 | 302,161 | 82 | 631,405 |
| 76 | 31 | 380,437 | 81 | 653,897 |
| 77 | 22 | 204,489 | 87 | 684,779 |
| 78 | 26 | 356,171 | 47 | 375,048 |
| 79 | 25 | 237,933 | 57 | 487,254 |
| 80 | 31 | 290,448 | 45 | 405,166 |
| 81 | 9 | 62,280 | 44 | 326,764 |
| 82 | 13 | 151,730 | 40 | 325,149 |
| 83 | 19 | 168,134 | 41 | 319,875 |
| 84 | 5 | 51,034 | 39 | 315,212 |
| 85 | 10 | 67,623 | 31 | 289,103 |
| 86 | 9 | 138,154 | 24 | 175,235 |
| 87 | 2 | 10,446 | 22 | 219,894 |
| 88 | 4 | 58,916 | 17 | 134,007 |
| 89 | 4 | 42,202 | 17 | 132,641 |
| 90 |  |  | 23 | 191,938 |
| 91 | 1 |  | 5,605 | 9 |

TABLE 6
THE NUMBER AND ANNUAL ANNUITIES
OF ANNUITANTS ON THE RETIRED LIST
AS OF JUNE 30, 2005

## RECEIVING A REFUND ANNUITY

|  | Male |  | Female |  |  |
| :---: | :---: | :---: | ---: | ---: | :---: |
| Age | Number | Annuities | Number | Annuities |  |
| 95 |  |  | 1 | $\$$ |  |
| Total |  |  | 1 | $\$$ |  |

## EXHIBIT IX

## Accrued Liability

## Accrued Service

Actuarial Assumptions

## Actuarial Cost Method

Actuarial Equivalent

## Actuarial Value of Assets

## Amortization

## Experience Gain (Loss)

## Normal Cost

## GLOSSARY

The difference between (a) the present value of future plan benefits, and (b) the present value of future normal cost. It is the portion of the present value of future plan benefits attributable to service accrued as of the valuation date. Sometimes referred to as "actuarial accrued liability."

The service credited under the plan which was rendered before the date of the actuarial valuation.

Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

A mathematical budgeting procedure for allocating the dollar amount of the "present value of future plan benefits" between the present value of future normal cost and the accrued liability. Sometimes referred to as the "actuarial funding method."

A series of payments is called an actuarial equivalent of another series of payments if the two series have the same actuarial present value.

The value of current plan assets recognized for valuation purposes. Based on a smoothed market value that recognizes investment gains and losses over a period of three years.

Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

The annual cost assumed, under the actuarial funding method, for current and subsequent plan years. Sometimes referred to as "current service cost."

## EXHIBIT IX

## GLOSSARY

(Continued)

## Present Value

The amount of funds presently required to provide a payment or series of payments in the future. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Unfunded Accrued Liability The difference between the actuarial accrued liability and valuation assets.


[^0]:    * Based on Estimated Employer Payroll for Fiscal Year Ending 2007 of \$ 11,821,951.

