EDUCATIONAL EMPLOYEES' SUPPLEMENTARY RETIREMENT SYSTEM OF FAIRFAX COUNTY (ERFC) 29TH ANNUAL ACTUARIAL VALUATION

DECEMBER 31, 2008

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## G G1-G14 Actuarial Assumptions and Miscellaneous

May 13, 2009

The Board of Trustees
Educational Employees' Supplementary
Retirement System of Fairfax County
Fairfax, Virginia
Dear Board Members:
Submitted in this report are the results of our 29th annual actuarial valuation of the Educational Employees' Supplementary Retirement System of Fairfax County (ERFC), based on data as of December 31, 2008.

Individual member statistical data, together with the necessary financial data on which the valuation was based, was furnished by your Executive Director and staff. Their efforts in furnishing this material are acknowledged with our appreciation.

The actuarial assumptions used in making the actuarial valuation are shown in Section G of this report. The assumptions were adopted by the Trustees following a study of experience covering the five-year period ended June 30, 2004.

This valuation was completed in accordance with actuarial procedures proscribed by the Actuarial Standards Board. The Actuaries involved have extensive experience in performing valuations of public employee retirement systems.

The Actuaries submitting this report are Members of the American Academy of Actuaries (MAAA) as indicated, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

## Your attention is directed particularly to:

COMMENTS on page 3;
Computed Employer Contribution Rate on page B-2;
Comparative Statement on page B-5;
Short Condition Test on page B-7;
Respectfully submitted,
Bum Binary
Brian B. Murphy, FSA, EA, MAAA


Judith A. Kermans, EA, MAAA
BBM/JAK:mrb

Funding Policy: The ERFC funding policy, as stated in the ERFC Plan Document is "to establish and receive contributions which will remain approximately level from generation to generation of citizens, and which when combined with other assets and investment return thereon, will be sufficient to pay benefits when due while providing a reasonable margin for adverse experience."

Contribution Rate Policy: Actuarial valuations as of odd numbered years (2005, 2007, etc.) are used to set the employer contribution rate for the two year period beginning 18 months after the valuation date. The December 31, 2007 valuation was used to determine the contribution rate for the period July 1, 2009 to June 30, 2011. Actuarial valuations of even numbered years, such as this valuation, provide an interim measure of the financial condition of ERFC and are also used for financial reporting in connection with Governmental Accounting Standards Board (GASB) Statements No. 25 and No. 27, including the determination of the "Annual Required Contribution" (ARC) in accordance with parameters specified by the GASB. For funding purposes, unfunded accrued liabilities are currently being amortized over a closed 30 year period ending on June 30, 2040. The amortization period was extended to 30 years from 24 years in the December 31, 2008 valuation.

Contribution Rate: The contribution rate for the two year period beginning July 1, 2009 was calculated in the December 31, 2007 valuation to be $3.20 \%$ of payroll. This rate was estimated to be the minimum amount that would avoid a Net Pension Obligation (NPO) for the two year funding period (July 1, 2009 to June 30, 2011) based on the following assumptions: 1) investment return of $0.0 \%$ in 2008,2 ) investment return of $7.5 \%$ in all future years (after 2008) and 3) benefit provisions remain unchanged and other plan experience is in line with expectations. It was understood that if plan experience was worse than that scenario, the $3.20 \%$ rate could result in a NPO in the second year.

Asset Valuation Method: The ERFC Board elected to change the the Market Value Corridor on assets to 25\% (from 15\%).

Plan Experience: Experience for ERFC and virtually every plan in the country during the year ending December 31, 2008 was unfavorable. ERFC's market value rate of return as measured by the actuary was $-28.2 \%$. As a result of Plan experience, the 30 year amortization period and the expansion of the Market Value Corridor, the ARC for Fiscal 2011 is $4.04 \%$ of payroll and the funded percent is now $76.9 \%$. Since the ARC is higher than the funding policy contribution for Fiscal year 2011, there will be a NPO for that year. If the market value of assets were the basis for the measurement (as opposed to the funding value with five-year smoothing of gains and losses and a $25 \%$ corridor), the funded percent would be $61.5 \%$ and the ARC for Fiscal 2011 would be $5.69 \%$ of payroll.

Outlook: The December 31, 2009 valuation will determine the contribution for Fiscal 2012 and Fiscal 2013. While no one can project accurately what ERFC's investment return will be in 2009, we have made a rough projection of what the contribution rate will be in Fiscal 2012 if ERFC earns 0\% return in 2009. The result is $4.76 \%$ of payroll. If ERFC has positive investment return in 2009, the contribution rate might be lower. If the return is negative in 2009, the rate could be higher.

Financial Status: Based upon the December 31, 2008 valuation, the Fairfax County ERFC is operating in accordance with its funding policy and with actuarial principles of level percent of payroll financing. It is very likely that a contribution rate increase will be recommended by the actuary in the December 31, 2009 valuation unless there is a substantial improvement in the financial markets. ERFC is fortunate that its long standing commitment to excellence in funding has resulted in financial strength that is likely to enable it to weather the current severe market downturn.

## SECTION A

FINANCIAL PRINCIPLES

## FinAncial Principles and Operational Techniques

Promises Made, and Eventually Paid. As each year is completed, the plan in effect hands an "IOU" to each member then acquiring a year of service credit --- The "IOU" says: "The Educational Employees’ Supplementary Retirement System of Fairfax County owes you one year's worth of retirement benefits, payments in cash commencing when you qualify for retirement."

The related key financial questions are:

## Which generation of taxpayers contributes the money to cover the IOU?

The present taxpayers, who receive the benefit of the member's present year of service?

Or the future taxpayers, who happen to be in Fairfax County at the time the IOU becomes a cash demand?

The law governing plan financing intends that this year's taxpayers contribute the money to cover the IOUs being handed out this year. By following this principle, the employer contribution rate will remain approximately level from generation to generation --- your children and grandchildren will contribute the same percents of active payroll you contribute now.
(There are systems which have a design for deferring contributions to future taxpayers, lured by a lower contribution rate now and putting aside the consequence that the contribution rate must then relentlessly grow much greater over decades of time --- consume now, and let your children face higher contributions after you retire.)

An inevitable by-product of the level-cost design is the accumulation of reserve assets for decades, and the income produced when the assets are invested. Invested assets are a by-product and not the objective. Investment return becomes, in effect, the third contributor for benefits to employees, and is interlocked with the contribution amounts required from employees and employers.

Translated to actuarial terminology, this level-cost objective means that the contribution rates must total at least the following:

Current Cost (the cost of members' service being rendered this year)
... plus ...
Interest on Unfunded Accrued Liabilities (unfunded accrued liabilities are the difference between (i) liabilities for service already rendered and (ii) the accrued assets of the plan).

Computing Contributions to Support Plan Benefits. From a given schedule of benefits and from the employee data and asset data furnished, the actuary determines the contribution rates to support the benefits, by means of an actuarial valuation and a funding method.

An actuarial valuation has a number of ingredients such as: the rate of investment return which plan assets are assumed to earn; the rates of withdrawal of active members who leave covered employment before qualifying for any monthly benefit; the rates of mortality; the rates of disability; the rates of pay increases; and the assumed age or ages at actual retirement.

In preparing an actuarial valuation, assumptions must be made as to what the above rates will be for the next year and for decades in the future. Only the subsequent actual experience of the plan can indicate the degree of accuracy of the assumptions.

Reconciling Differences Between Assumed Experience and Actual Experience. Once actual experience has occurred and been observed, it will not coincide exactly with assumed experience, regardless of the wisdom of the assumptions and regardless of the skill of the actuary and the millions of calculations made. The demographic future can be predicted with considerable but not $100 \%$ precision. However, inflation rates seem to defy reliable prediction.

The plan copes with these continually changing differences by having periodic actuarial valuations. Each actuarial valuation is a complete recalculation of assumed future experience, taking into account all past differences between assumed and actual experience. The result is continuing adjustments in financial position.


## YEARS OF TIME

CASH BENEFITS LINE. This relentlessly increasing line is the fundamental reality of retirement plan financing. It happens each time a new benefit is added for future retirements (and happens regardless of the design for contributing for benefits).

LEVEL CONTRIBUTION LINE. Determining the level contribution line requires detailed assumptions concerning a variety of experiences in future decades, including:

Economic Risk Areas
Rates of investment return
Rates of pay increase
Changes in active member group size
Non-Economic Risk Areas
Ages at actual retirement
Rates of mortality
Rates of withdrawal of active members (turnover)
Rates of disability

## The Actuarial Valuation Process

The financing diagram on the opposite page shows the relationship between the two fundamentally different philosophies of paying for retirement benefits: the method where contributions match cash benefit payments (or barely exceed cash benefit payments, as in the Federal Social Security program) and is thus an increasing contribution method; and the level contribution method which equalizes contributions between the generations.

The actuarial valuation is the mathematical process by which the level contribution rate is determined, and the flow of activity constituting the valuation may be summarized as follows:

Covered Person Data, furnished by plan administrator
Retired lives now receiving benefits
Former employees with vested benefits not yet payable
Active employees

+ Asset Data (cash and investments), furnished by plan administrator
+ Assumptions concerning future financial experiences in various risk areas, which assumptions are established by the Board of Trustees after consulting with the actuary
+ The funding method for employer contributions (the long-term, planned pattern for employer contributions)
+ Mathematically combining the assumptions, the funding method, and the data
$=$ Determination of:
Plan Financial Position
and/or New Employer Contribution Rate


## SECTION B <br> RESULTS OF THE VALUATION

# FinANCING \$2,785.5 Million Of BEnefit Promises DECEMBER 31, 2008 <br> (\$ IN MILLIONS) 



The pie chart above shows that the total amount of benefit promises made to members in ERFC and ERFC 2001 is $\$ 2,785.5$ million, based on plan assumptions as of December 31, 2008. In actuarial terms this is called the present value of future benefit payments. It represents the amount of money, shown in today's dollars, needed to pay benefits to current and future retirees based on plan assumptions. These assumptions are outlined in Section $G$ of this report. The $\$ 2,785.5$ million would be sufficient to pay promised benefits if plan members leave active employment as expected (retire, quit, etc.), and live exactly according to plan mortality assumptions. A major assumption in calculating the $\$ 2,785.5$ million number is that investments earn $7.50 \%$ per year. Investment return during 2008, as measured by the actuary, was (28.2)\% on a market value basis.

## COMPUTED EMPLOYER CONTRIBUTION RATES (as Percents of Active Member Payroll)

|  |  |  |
| :--- | :---: | :---: |
| Valuation Date | December 31, 2008 | December 31, 2007 |
| Contributions for Period Ending June 30 | $\mathbf{2 0 1 1}$ |  |
|  |  | $\mathbf{2 0 1 0}$ |
| Normal Cost (current cost): |  |  |
| Service Retirement | $3.45 \%$ | $3.39 \%$ |
| Reduced Service Retirement | $0.83 \%$ | $0.89 \%$ |
| Casualty Benefits | $0.16 \%$ | $0.16 \%$ |
| Separation Benefits | $1.25 \%$ | $1.24 \%$ |
| Totals | $5.69 \%$ | $5.68 \%$ |
| Member Contributions | $4.00 \%$ | $4.00 \%$ |
| Employer Normal Cost | $1.69 \%$ | $1.68 \%$ |
| Unfunded Actuarial Accrued Liability | $2.35 \%$ | $1.29 \%$ |
|  |  |  |
| Annual Required Contribution (GASB 25) | $\mathbf{4 . 0 4 \%}$ | $\mathbf{2 . 9 7 \%}$ |
| Contingency Contribution | $0.00 \%$ | $0.23 \%$ |
| Funding Policy Contribution | $3.20 \%$ | $3.20 \%$ |

Unfunded liability was amortized as a level percent of payroll over 30 years in the December 31, 2008 valuation (as adopted by the Board) and 25 years in the December 31, 2007 valuation. If this schedule is continued, unfunded liabilities will be fully amortized on June 30, 2040.

The funding policy contribution for the two year period beginning July 1, 2009 was determined by the December 31, 2007 valuation. The contribution rate was calculated to be $3.20 \%$ of payroll. This rate was estimated to be the minimum amount that would be sustainable for the period July 1, 2009 to June 30, 2011 based on the following assumptions: 1) investment return of $0.0 \%$ in 2008, 2) investment return of $7.5 \%$ in all future years (after 2008) and 3 ) benefit provisions remain unchanged and other plan experience is in line with expectations. It was understood that if plan experience was worse than this scenario, the $3.20 \%$ rate could result in a Net Pension Obligation (NPO) under GASB standards in the second year. Investment return for the 2008 year was (28.2)\%, resulting in an ARC of 4.04\% of payroll and a NPO for the 2011 fiscal year.

| Valuation Date | Active Member Payroll ( $\$ 1,000$ 's) | Adopted Total |  |
| :---: | :---: | :---: | :---: |
|  |  | Employer Rate | U.A.A.L. Amort. Years |
| 2/28/1975 | \$ 110,571 |  |  |
| 2/29/1980 | 169,924 |  |  |
| 6/30/1983 | 225,592 |  |  |
| 6/30/1985 | 251,691 |  |  |
| 6/30/1986@ | 277,545 |  |  |
| 6/30/1987 | 305,050 |  |  |
| 6/30/1988\$ | 340,946 | 5.49\% | 19 Yrs. |
| 6/30/1989 | 369,575 | 5.49\% | 19 |
| 6/30/1990 | 411,970 | 5.48\% | 20 |
| 6/30/1991 | 451,873 | 5.48\% | 20 |
| 6/30/1992 | 447,474 | 5.48\% | 20 |
| 6/30/1993\#@ | 450,530 | 5.48\% | 20 |
| 6/30/1994 | 480,995 | 5.48\% | 22 |
| 6/30/1995\$ | 521,044 | 5.98\% | 20 |
| 6/30/1996 | 531,060 | 5.98\% | 16 |
| 6/30/1997 | 553,709 | 5.98\% | 13 |
| 6/30/1998\# | 582,755 | 4.99\% | 11 |
| 6/30/1999* | 626,015 | 3.69\% | Fully Funded |
| 6/30/2000* | 678,937 | 3.69\% | Fully Funded |
| 6/30/2001\$\& | 759,906 | 4.00\% | Fully Funded |
| 6/30/2002 | 781,756 | 4.29\% | 30 |
| 6/30/2003\$ | 866,502 | 3.37\% | 29 |
| 12/31/2004\#\& | 977,817 | 3.37\% |  |
| 12/31/2005\&+ | 1,050,217 | 3.37\% | 27 |
| 12/31/2006 | 1,111,828 | 3.37\% |  |
| 12/31/2007+ | 1,161,432 | 3.20\% | 25 |
| 12/31/2008 | 1,211,140 | 3.20\% |  |

* Beginning with the 1999 valuation, the adopted rate was not the same as the computed rate.
@ After change in asset valuation method.
\$ After change in benefit structure.
\# After changes in assumptions.
\& Includes Contingency Contribution.
$+\quad$ Reflects funding policy which establishes the employer rate for a two-year period and may contain a contingency reserve.


## Actuarial Accrued Liabilities

| Accrued liabilities for | Amounts at December 31 |  |
| :---: | :---: | :---: |
|  | 2008 | 2007 |
| Present Active Members | \$ 980,238,156 | \$ 931,066,164 |
| Present Inactive Vested Members | 37,446,880 | 33,765,858 |
| Present Retirees and Beneficiaries | 1,237,612,696 | 1,221,969,395 |
| Total Actuarial Accrued Liabilities | \$2,255,297,732 | \$2,186,801,417 |
| Funding Value of Assets | 1,733,946,104 | 1,924,885,815 |
| Unfunded Actuarial Accrued Liability | \$ 521,351,628 | \$ 261,915,602 |
| Actuarial Funded Percent | 76.88\% | 88.02\% |
| Market Value Funded Percent | 61.51\% | 91.45\% |

## Assets and LiAbiLities <br> COMPARATIVE STATEMENT

| Valuation Date | Active Member Payroll | Computed Liabilities |  |  | Valuation Assets | Unfunded <br> Accrued <br> Liabilities | Funded \% |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Retired | Other Members | Total |  |  |  |
| (\$ in thousands) |  |  |  |  |  |  |  |
| 2/28/1975 | \$ 110,571 | \$ 4,567 | \$ 55,613 | \$ 60,180 | \$ 7,831 | \$ 52,349 | 13.0\% |
| 2/29/1980 | 169,924 | 38,288 | 138,708 | 176,996 | 74,173 | 102,823 | 41.9\% |
| 6/30/1985 | 251,691 | 96,588 | 240,351 | 336,939 | 221,656 | 115,283 | 65.8\% |
| 6/30/1986@ | 277,545 | 116,773 | 264,611 | 381,384 | 284,195 | 97,189 | 74.5\% |
| 6/30/1987 | 305,051 | 136,073 | 293,170 | 429,243 | 325,127 | 104,116 | 75.7\% |
| 6/30/1988\$\# | 340,946 | 163,959 | 343,523 | 507,482 | 359,069 | 148,413 | 70.8\% |
| 6/30/1989 | 369,575 | 203,394 | 357,569 | 560,963 | 405,317 | 155,646 | 72.3\% |
| 6/30/1990 | 411,970 | 240,122 | 404,751 | 644,873 | 461,450 | 183,423 | 71.6\% |
| 6/30/1991 | 451,873 | 285,618 | 432,109 | 717,727 | 510,825 | 206,902 | 71.2\% |
| 6/30/1992 | 447,474 | 318,072 | 445,498 | 763,570 | 563,644 | 199,926 | 73.8\% |
| 6/30/1993\#@ | 450,530 | 344,160 | 564,207 | 908,367 | 717,701 | 190,666 | 79.0\% |
| 6/30/1994 | 480,995 | 374,849 | 597,230 | 972,079 | 766,480 | 205,599 | 78.8\% |
| 6/30/1995\$ | 521,044 | 395,249 | 677,287 | 1,072,536 | 839,930 | 232,606 | 78.3\% |
| 6/30/1996 | 531,060 | 436,181 | 694,363 | 1,130,544 | 934,571 | 195,973 | 82.7\% |
| 6/30/1997 | 553,709 | 464,345 | 751,022 | 1,215,367 | 1,045,412 | 169,955 | 86.0\% |
| 6/30/1998\# | 582,755 | 490,261 | 788,111 | 1,278,372 | 1,194,556 | 83,816 | 93.4\% |
| 6/30/1999 | 626,015 | 539,917 | 805,742 | 1,345,659 | 1,365,417 | $(19,758)$ | 101.5\% |
| 6/30/2000 | 678,937 | 614,739 | 752,632 | 1,367,371 | 1,505,231 | $(137,860)$ | 110.1\% |
| 6/30/2001\$ | 759,906 | 667,605 | 884,953 | 1,552,558 | 1,599,219 | $(46,661)$ | 103.0\% |
| 6/30/2002 | 781,756 | 699,251 | 994,705 | 1,693,956 | 1,619,889 | 74,067 | 95.6\% |
| 6/30/2003\$ | 866,502 | 903,963 | 868,455 | 1,772,418 | 1,597,459 | 174,959 | 90.1\% |
| 12/31/2004\# | 977,817 | 1,083,988 | 851,594 | 1,935,582 | 1,643,020 | 292,562 | 84.9\% |
| 12/31/2005 | 1,050,217 | 1,130,378 | 892,584 | 2,022,962 | 1,718,399 | 304,563 | 84.9\% |
| 12/31/2006 | 1,111,828 | 1,176,979 | 928,573 | 2,105,552 | 1,818,930 | 286,622 | 86.4\% |
| 12/31/2007 | 1,161,432 | 1,221,969 | 964,832 | 2,186,801 | 1,924,886 | 261,915 | 88.0\% |
| 12/31/2008 | 1,211,140 | 1,237,613 | 1,017,685 | 2,255,298 | 1,595,230 | 660,068 | 70.7\% |
| 12/31/2008@ | 1,211,140 | 1,237,613 | 1,017,685 | 2,255,298 | 1,733,946 | 521,352 | 76.9\% |

[^0]
# Assets and LiABILITIES Expressed As Percents of Active Member Payroll COMPARATIVE STATEMENT 

| Valuation <br> Date | Active <br> Member Payroll (\$ thousands) | As Percents of Active Member Payroll |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Computed Liabilities | Valuation Assets | Unfunded <br> Liabilities |
| 2/28/1975 | \$ 110,571 | 54\% | 7\% | 47\% |
| 2/29/1980 | 169,924 | 104\% | 44\% | 61\% |
| 6/30/1985 | 251,691 | 134\% | 88\% | 46\% |
| 6/30/1986@ | 277,545 | 137\% | 102\% | 35\% |
| 6/30/1987 | 305,051 | 141\% | 107\% | 34\% |
| 6/30/1988\$\# | 340,946 | 149\% | 105\% | 44\% |
| 6/30/1989 | 369,575 | 152\% | 110\% | 42\% |
| 6/30/1990 | 411,970 | 157\% | 112\% | 45\% |
| 6/30/1991 | 451,873 | 159\% | 113\% | 46\% |
| 6/30/1992 | 447,474 | 171\% | 126\% | 45\% |
| 6/30/1993\#@ | 450,530 | 202\% | 159\% | 42\% |
| 6/30/1994 | 480,995 | 202\% | 159\% | 42\% |
| 6/30/1995\$ | 521,044 | 206\% | 161\% | 45\% |
| 6/30/1996 | 531,060 | 213\% | 176\% | 37\% |
| 6/30/1997 | 553,709 | 219\% | 189\% | 30\% |
| 6/30/1998\# | 582,755 | 219\% | 205\% | 14\% |
| 6/30/1999 | 626,015 | 215\% | 218\% | (3)\% |
| 6/30/2000 | 678,937 | 201\% | 222\% | (21)\% |
| 6/30/2001\$ | 759,906 | 204\% | 210\% | (6)\% |
| 6/30/2002 | 781,756 | 217\% | 207\% | 10\% |
| 6/30/2003\$ | 866,502 | 205\% | 184\% | 21\% |
| 12/31/2004\# | 977,817 | 198\% | 168\% | 30\% |
| 12/31/2005 | 1,050,217 | 193\% | 164\% | 29\% |
| 12/31/2006 | 1,111,828 | 189\% | 164\% | 25\% |
| 12/31/2007 | 1,161,432 | 188\% | 166\% | 22\% |
| 12/31/2008 | 1,211,140 | 186\% | 132\% | 54\% |
| 12/31/2008@ | 1,211,140 | 186\% | 143\% | 43\% |

@ After change in asset valuation method.
\$ After changes in benefits.
\# After changes in actuarial assumptions.
In an inflationary economy the value of dollars is decreasing. Since observation of only the dollar amounts of key facts can be misleading, observation of relationships among key facts tells a more relevant story of the changes in financial strength. The smaller the ratio of unfunded liabilities to active member payroll, the stronger the system. Observation of this relative index over a period of years indicates changes in strength.

If the contributions to ERFC are level in concept and soundly executed, the System will pay all promised benefits when due -- the ultimate test of financial soundness. Testing for level contribution rates is the long-term test. A short condition test is one means of checking a system's progress under its funding program. In a short condition test, the plan's present assets (cash and investments) are compared with:

1) Active member contributions on deposit;
2) The liabilities for future benefits to present retired lives;
3) The liabilities for service already rendered by active members.

In a system that has been following the discipline of level percent of payroll financing, the liabilities for active member contributions on deposit (Liability 1) and the liabilities for future benefits to present retired lives (Liability 2 ) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by active members (Liability 3) will be partially covered by the remainder of present assets. The larger the funded portion of Liability 3, the stronger the condition of the system.

| Valuation <br> Date | Aggregate Actuarial Accrued Liabilities For |  |  | Valuation Assets | Portion of Accrued Liabilities Covered by Assets |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | (1) <br> Member Contributions | (2)RetireesandBeneficiaries | (3) <br> Members <br> (Employer Financed Portion) |  |  |  |  |
|  |  |  |  |  | (1) | (2) | (3) |
|  | (. . \$ $\mathbf{1 , 0 0 0 \mathrm { s } . . . ) ~}$ |  |  |  |  |  |  |
| 6/30/1985 | \$ 53,395 | \$ 96,588 | \$186,956 | \$ 221,656 | 100\% | 100\% | 38\% |
| 6/30/1986@ | 57,753 | 116,773 | 206,858 | 284,195 | 100\% | 100\% | 53\% |
| 6/30/1987 | 66,589 | 136,073 | 226,581 | 325,126 | 100\% | 100\% | 54\% |
| 6/30/1988\$\# | 68,662 | 163,959 | 274,861 | 359,069 | 100\% | 100\% | 46\% |
| 6/30/1989 | 75,917 | 203,394 | 281,651 | 405,317 | 100\% | 100\% | 45\% |
| 6/30/1990 | 83,920 | 240,122 | 320,831 | 461,450 | 100\% | 100\% | 43\% |
| 6/30/1991 | 89,976 | 285,618 | 342,133 | 510,825 | 100\% | 100\% | 40\% |
| 6/30/1992 | 97,502 | 318,072 | 347,996 | 563,644 | 100\% | 100\% | 43\% |
| 6/30/1993\#@ | 115,312 | 344,160 | 448,895 | 717,701 | 100\% | 100\% | 58\% |
| 6/30/1994 | 129,428 | 374,849 | 467,802 | 766,480 | 100\% | 100\% | 56\% |
| 6/30/1995\$ | 143,150 | 395,249 | 534,137 | 839,930 | 100\% | 100\% | 56\% |
| 6/30/1996 | 146,228 | 436,181 | 548,135 | 934,571 | 100\% | 100\% | 64\% |
| 6/30/1997 | 144,063 | 464,345 | 606,959 | 1,045,412 | 100\% | 100\% | 72\% |
| 6/30/1998\# | 149,220 | 490,261 | 638,891 | 1,194,556 | 100\% | 100\% | 87\% |
| 6/30/1999 | 154,582 | 539,917 | 651,160 | 1,365,417 | 100\% | 100\% | 103\% |
| 6/30/2000 | 157,148 | 614,739 | 595,484 | 1,505,231 | 100\% | 100\% | 123\% |
| 6/30/2001\$ | 178,564 | 667,605 | 706,389 | 1,599,219 | 100\% | 100\% | 107\% |
| 6/30/2002 | 170,849 | 699,251 | 823,856 | 1,619,889 | 100\% | 100\% | 91\% |
| 6/30/2003\$ | 176,648 | 903,963 | 691,807 | 1,597,459 | 100\% | 100\% | 75\% |
| 12/31/2004\# | 227,725 | 1,083,988 | 623,869 | 1,643,020 | 100\% | 100\% | 53\% |
| 12/31/2005 | 257,142 | 1,130,378 | 635,442 | 1,718,399 | 100\% | 100\% | 52\% |
| 12/31/2006 | 239,780 | 1,176,979 | 688,793 | 1,818,930 | 100\% | 100\% | 58\% |
| 12/31/2007 | 269,404 | 1,221,969 | 695,428 | 1,924,886 | 100\% | 100\% | 62\% |
| 12/31/2008 | 302,910 | 1,237,613 | 714,775 | 1,595,230 | 100\% | 100\% | 8\% |
| 12/31/2008@ | 302,910 | 1,237,613 | 714,775 | 1,733,946 | 100\% | 100\% | 27\% |

[^1]
## Change in Unfunded Accrued Liabilities DURING THE YEAR ENDING DECEMBER 31, 2008 (\$ IN MILLIONS)

|  | As of December 31 |  |
| :--- | :---: | :---: |
|  | $\mathbf{2 0 0 8}$ | $\mathbf{2 0 0 7}$ |
| 1. Beginning unfunded liabilities (UAAL): | $\$ 261.9$ | $\$ 286.6$ |
| 2. Unfunded liabilities at End: |  |  |
| $\quad$ a. Normal Cost (5.68\% of estimated 2008 payroll) | $\$ 67.4$ | $\$ 64.6$ |
| b. Member and employer contributions (including donated assets) | 86.0 | 82.7 |
| c. Interest accrual | 19.0 | 20.8 |
| d. Expected UAAL, based on Beginning valuation (1+2a-2b+2c) | 262.3 | 289.3 |
| e. Actual UAAL, from End valuation | 521.4 | 261.9 |
| 3. Total Gains/(Losses) during Period: |  |  |
| a. Total: 2d - 2e | $\$(259.1)$ | $\$ 27.4$ |
| b. From non-recurring activities and benefit changes | 0.0 | 0.0 |
| c. From differences between assumed and actual | (259.1) | 27.4 |
| Experiences in basic risk areas: 3a - 3b |  |  |

The above schedule estimates the total gain or loss on the Retirement System activities for the year. The next page shows the breakdown of the total gain or loss by Source. Risk areas related to Assumptions include Economic Risks and Demographic Risks. Economic Risks relate to Pay Increases and Investment Return. Demographic Risks relate to rates of retirement, death, disability, and other terminations. Risks not directly related to assumptions include granted additional service credit, data adjustments, timing of financial transactions, etc.

## Change in Unfunded Accrued Liabilities Gains and Losses by Risk Area DURING THE YEAR ENDING DECEMBER 31, 2008

| Type of Risk Area | Gain (Loss) in Period |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | \$ in millions |  |  | Percent of Liabilities |
|  | ERFC | $\begin{gathered} \text { ERFC } \\ 2001 \\ \hline \end{gathered}$ | Totals |  |
| Risks Related to Assumptions |  |  |  |  |
| Economic Risk Areas |  |  |  |  |
| Pay Increases | \$4.8 | \$(0.7) | \$ 4.1 | 0.2\% |
| Investment Return |  |  | (277.5) | (12.7)\% |
| Demographic Risk Areas |  |  |  |  |
| Full and Reduced Service Retirements | 5.1 | 0.1 | 5.2 | 0.2\% |
| Vested Deferred Retirements | (1.2) | 1.0 | (0.2) | 0.0\% |
| Ordinary Death Benefits | 0.3 | 0.0 | 0.3 | 0.0\% |
| Service-Connected Death Benefits | 0.0 | 0.0 | 0.0 | 0.0\% |
| Ordinary Disability Benefits | (0.5) | (0.1) | (0.6) | 0.0\% |
| Service-Connected Disability Benefits | (0.1) | 0.0 | (0.1) | 0.0\% |
| Terminated with Refund | (3.3) | (0.5) | (3.8) | (0.2)\% |
| Data Adjustments and Miscellaneous |  |  | 13.5 | 0.6\% |
| Total Gain (or Loss) During Period |  |  | (259.1) | (11.8)\% |
| Beginning of Year Accrued Liabilities |  |  | 2,187.0 | 100.0\% |

## Experience Gains \& Losses by Risk Area <br> COMPARATIVE STATEMENT <br> (\$ IN Millions)

| Experience Period | PayIncreases | Investment Retum | Retirement | Disability <br> \& Death-In <br> Service | Other Separations | Other | Total Gain (Loss) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | \$ | Percent of Liabilities |
| 1985-1986 | \$ (6.3) | \$25.1 | \$ (9.8) | \$ 1.9 | \$ (1.6) | \$ (3.4) | \$ 5.9 | 1.8 \% |
| 1986-1987 | (4.8) | 7.6 | (5.7) | 3.6 | (3.1) | (5.3) | (7.7) | (2.0)\% |
| 1987-1988 | (17.3) | (2.5) | (8.4) | 3.4 | 1.1 | 2.6 | (21.1) | (4.9)\% |
| 1988-1989 | (13.0) | 12.3 | (17.9) | (4.4) | 3.3 | 12.4 | (7.3) | (1.4)\% |
| 1989-1990 | (14.0) | 23.6 | (18.7) | (4.3) | 1.2 | (15.9) | (28.1) | (5.0)\% |
| 1990-1991 | (2.1) | 14.4 | (25.9) | (5.5) | 0.4 | (5.0) | (23.7) | (3.7)\% |
| 1991-1992 | 21.2 | 21.7 | (28.4) | (6.0) | (4.0) | 2.3 | 6.8 | 0.9 \% |
| 1992-1993 | 15.1 | 34.6 | (16.3) | (1.0) | (6.5) | (17.3) | 8.6 | 1.1 \% |
| 1993-1994\# | (4.1) | 4.7 | (1.6) | (3.7) | 3.5 | (15.2) | (16.4) | (1.8)\% |
| 1994-1995 | (9.7) | 25.2 | 5.1 | (1.4) | (4.4) | (5.5) | 9.3 | 0.9 \% |
| 1995-1996 | (7.7) | 45.4 | 4.1 | (1.8) | (5.6) | 4.3 | 38.7 | 3.6 \% |
| 1996-1997 | 9.9 | 53.5 | 2.9 | (1.7) | (4.5) | (8.7) | 51.4 | 4.5 \% |
| 1997-1998\# | (2.6) | 81.1 | 5.9 | (0.5) | 6.4 | (13.9) | 76.4 | 6.3 \% |
| 1998-1999* | (8.4) | 95.4 | 0.3 | (1.0) | 6.5 | (3.8) | 89.0 | 7.0 \% |
| 1999-2000 | (17.6) | 62.3 | 3.8 | (1.2) | 12.9 | 38.9 | 99.1 | 7.4 \% |
| 2000-2001 | (9.1) | 17.6 | (0.3) | (1.0) | 13.0 | (19.5) | 0.7 | 0.0 \% |
| 2001-2002 | 3.0 | (50.4) | 3.5 | (1.1) | 2.6 | (29.9) | (72.3) | (4.7)\% |
| 2002-2003 | 18.5 | (92.5) | 11.0 | (0.3) | 4.0 | (23.3) | (82.6) | (4.9)\% |
| 2003-2004\#@ |  |  |  |  |  |  |  |  |
| 2005 | (7.1) | 1.9 | 1.0 | 0.1 | 0.0 | (3.2) | (7.3) | (0.4)\% |
| 2006 | (4.7) | 23.6 | 2.0 | 0.0 | (0.8) | 2.6 | 22.7 | 1.1 \% |
| 2007 | 10.0 | 25.1 | 1.9 | (0.2) | (2.2) | (7.2) | 27.4 | 1.4 \% |
| 2008 | 4.1 | (277.5) | 5.2 | (0.4) | (4.0) | 13.5 | (259.1) | (11.8)\% |

\# Experience Study.

* Updated Gain Formulas.
@ Gain Loss Analysis not performed.


## Financing \$2,785.5 Million of Benefit Promises DECEMBER 31, 2008 <br> (\$ IN MiLLIONS)



Uses of Funds
To future retired for service already rendered: \$1,017.7


## Expected Development of Present Population - ERFC DECEMBER 31, 2008



$\square$ Service Retirements $\quad \square$ Reduced Retirements $\quad \square$ Vested Separations $\quad \square$ Death \& Disabilities $\quad \square$ Refunds

The charts show the expected future development of the present population in simplified terms. ERFC presently covers 8,791 active members. Eventually, $5 \%$ of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. Approximately $94 \%$ of the present population is expected to receive monthly retirement benefits either by retiring directly from active service, or by separating from service without withdrawing contributions. $1 \%$ of the present population is expected to become eligible for death-in-service or disability benefits. Within 7 years, over half of the current membership will have left the group.

## Expected Development of Present Population - ERFC 2001 DECEMBER 31, 2008




| $\square$ Service Retirements | $\square$ Vested Separations | $\square$ Death \& Disabilities | $\square$ Refunds |
| :--- | :--- | :--- | :--- |

The charts show the expected future development of the present population in simplified terms. ERFC 2001 presently covers 10,940 active members. Eventually, $30 \%$ of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. Approximately $65 \%$ of the present population is expected to receive monthly retirement benefits either by retiring directly from active service, or by separating from service without withdrawing contributions. $5 \%$ of the present population is expected to become eligible for death-inservice or disability benefits. Within 8 years, over half of the current membership will have left the group. The proportion of new hires in this plan will increase more rapidly than normal because the ERFC legacy plan is closed to new hires.

## SECTION C <br> SUMMARY OF BENEFITS

# Summary of Provisions as of December 31, 2008 Members Hired After July 1, 1988 but before July 1, 2001 ERFC 

1. Service Retirement Eligibility. A member may retire any time after reaching the service retirement date, which is either (i) age 65 with 5 years of service or (ii) age 55 with 25 years of service.
2. Reduced Service Retirement Eligibility. A member with 25 years of service but younger than age 55 may retire after age 45 . A member with less than 25 years of service and younger than age 65 may retire after age 55 .
3. Deferred Retirement Eligibility. An inactive member with 5 or more years of service will be entitled to a pension with payments beginning at age 55, provided she/he does not withdraw accumulated member contributions.
4. Death-In-Service Benefit Eligibility. An active member with 5 or more years of service who dies will have benefits payable to the surviving spouse or other eligible beneficiary. The 5year service requirement is waived if the death is service-connected.
5. Disability Retirement Eligibility. An active member with 5 or more years of service who becomes totally and permanently disabled may be retired and receive a disability pension. The 5 -year service requirement is waived if the disability is service-connected.
6. Final Average Compensation (FAC). A member's final average compensation is the average of the 3 highest consecutive years of salary during eligible employment.
7. Service Retirement Amount. For payment periods during the retired member's lifetime 103\% times (i) minus (ii) where:
(i) means 1.85 percent of the FAC multiplied by years of credited service, and
(ii) means 1.65 percent of the portion of VRS FAC in excess of $\$ 1,200$, multiplied by applicable years of creditable Virginia service; provided if the member is younger than age 65 and if creditable Virginia service is less than 30 years, the result of such multiplication shall be reduced for each month before the earlier of
(1) attainment of age 65 , and
(2) the date when 30 years service would have been completed.

SUMMARY OF PROVISIONS AS OF DECEMBER 31, 2008
Members Hired After July 1, 1988 but before July 1, 2001 ERFC

## Service Retirement Amount (Continued)

The reduction shall be one-half of $1 \%$ for each of the first 60 months and four-tenths of one percent for each month beyond 60 months, if any.

For payment periods, if any, before the age the member becomes eligible for full Social Security benefits, an additional temporary benefit equal to 1.00 percent of the FAC multiplied by years of credited service.
8. Reduced Service Retirement Amount After 25 Years Service. Service Retirement amount reduced to reflect retirement age younger than age 55 .
9. Reduced Service Retirement Amount After 5-24 Years Service. For payment periods during the retired member's lifetime, the Service Retirement amount payable at age 65 reduced to reflect retirement age younger than age 65. For payment periods before the age the member becomes eligible for full Social Security benefits, an additional temporary benefit equal to the Service Retirement temporary benefit reduced to reflect retirement age younger than age 65.
10. Deferred Retirement Amount. Calculated in the same manner as reduced service retirement.
11. Death-In-Service Benefit Amount. If the member is eligible for a service or reduced service retirement then an eligible named beneficiary will receive such benefits reduced based upon an Option A (in the case of a spouse or an ex spouse subject to a DRO) or Option B (in case of another eligible beneficiary) election. If not, the eligible named beneficiary will receive an amount equal to $103 \%$ times a lifetime pension equal of $0.25 \%$ of the FAC multiplied by years of credited service, and also reduced in connection with an Option A or Option B election. Credited service shall be increased by the time period from the date of death to the date when the member would have reached service retirement with a minimum of 10 years of service used, provided the death was service-connected. If a named beneficiary is not eligible for either of these types of benefits, the named beneficiary will receive a refund of the member's accumulated contributions.

# Summary of Provisions as of December 31, 2008 Members Hired After July 1, 1988 but before July 1, 2001 ERFC 

12. Disability Retirement Amount. The amount is $103 \%$ times a lifetime pension equal to 0.25 percent of the FAC multiplied by years of credited service. Credited service shall be increased by the time period from disability retirement to the date when the member would have reached the service retirement date. The minimum pension payable is 2.5 percent of FAC.
13. Post-Retirement Increases. The amount of the monthly benefit is adjusted each March 31, by 3\% compounded annually, beginning with the March 31 which is more than three full months after the member's effective retirement date. Pensions of members that retire in the immediately preceding calendar year are increased by 1.489\% (one-half a year’s increase).
14. Member Contributions. Members contribute 4\% of their salaries. Interest credits are $5 \%$ annually. If a member leaves covered employment before becoming eligible to retire, accumulated contributions are returned upon request.
15. Lifetime Level Benefit (for Retirements after July 1, 2004). Members are eligible for a lifetime level benefit (LLB) that is calculated by determining the annuitized value of the greater of their accumulated contribution balance or the present value of the currently provided benefit.

## 16. Optional Forms of Payment.

Option A: 100\% Joint and Survivor benefit. Benefit is $85 \%$ of the straight life amount adjusted for the difference in age between the retiree and beneficiary.
Option B: $50 \%$ Joint and Survivor benefit. Benefit is $91 \%$ of the straight life amount adjusted for the difference in age between the retiree and beneficiary.
Option C: 10 years Certain and Life. Benefit is $96 \%$ of the straight life amount.
Option D: Single sum payment not exceeding member's accumulated contribution balance, plus a single life annuity actuarially reduced from the pension amount otherwise payable. Actuarial equivalent factors are described on page G-14.

# Summary of Provisions as of December 31, 2008 Alternate Benefits Available to Members With Some Service Before July 1, 1988 

Service Retirement: Alternate Amount After Full Social Security Age. A member with service before 7/1/88 may elect, at time of retirement, to receive an alternate benefit amount for payment periods after full Social Security age. The Alternative Guarantee amount is the amount that would have been received after the individual reached eligibility for full Social Security benefits under the Old Plan (pre - July 1, 1988) formulas. The amount is $103 \%$ of the total of:
(i) the amount payable under June 30, 1987 benefit provisions,
(ii) plus, if the retiring member is younger than full social security age and if creditable Virginia service is less than 30 years, 1.65 percent of VRS average final compensation in excess of $\$ 1,200$, multiplied by years of creditable Virginia service, and further multiplied by a certain percent based upon the number of months that retirement occurs before reaching the earlier of the above two conditions; such percent is one half of one percent for each of the first 60 such months and four-tenths of one percent for each of the next 60 such months, if any.

## Reduced Service Retirement: Alternate Amount with 25 Years or more Years of

Service. By election at time of retirement, such a member may elect to receive $103 \%$ of the following combination of benefits:

To age 55, 2.85 percent of the 3-year average annual salary multiplied by years of credited service, then actuarially reduced to reflect retirement age younger than age 55; and

From age 55 to 65, the amount to age 55 reduced by: 1.65 percent of the portion of VRS average final compensation in excess of $\$ 1,200$, multiplied by applicable years of creditable Virginia service; provided if creditable Virginia service is less than 30 years, the result of such multiplication shall be actuarially reduced for each month before the earlier of (1) attainment of age 65, and (2) the date when 30 years service would have been completed; and

From age 65 for life, the amount payable at age 65 according to June 30, 1987 provisions or the amount payable at age 65 according to July 1, 1988 provisions.

# Summary of Provisions as of December 31, 2008 <br> Members Hired July 1, 2001 OR LAter ERFC 2001 

1. Service Retirement Eligibility. A member may retire at age 60 with 5 or more years of credited service, or after 30 years of credited service regardless of age.
2. Deferred Retirement Eligibility. Any member with 5 or more years of credited service that terminates employment prior to the service retirement date, will be eligible to receive a deferred vested pension commencing at age 60, provided accumulated contributions are left on deposit with the Plan.
3. Death Benefit Eligibility. Any member with 5 or more years of credited service that dies before beginning to receive a pension will have benefits payable to the named beneficiary.
4. Final Average Compensation (FAC). A member's final average compensation is the average of the 3 highest years of salary during eligible employment.
5. Service Retirement Pension. The amount is a lifetime pension equal to $0.8 \%$ (eight-tenths of one percent) of FAC at retirement multiplied by years of credited service. If necessary, the pension will be increased to make the reserve value of the pension equal to the member's accumulated contributions as of the retirement effective date.
6. Deferred Retirement Pension. The amount is a lifetime pension equal to $0.8 \%$ (eighttenths of one percent) of FAC at termination multiplied by years of credited service. If necessary, the pension will be increased to make the reserve value of the pension equal to the member's accumulated contributions as of the termination date.

# Summary of Provisions as of December 31, 2008 Members Hired July 1, 2001 Or Later ERFC 2001 

7. Survivor Death Benefit. The amount is a lifetime pension equal to $0.8 \%$ (eight-tenths of one percent) of FAC multiplied by years of credited service at the date of death. If necessary, the pension will be increased to make the reserve value of the pension equal to the member's accumulated contributions as of the date of death. The pension will be adjusted in accordance with an Option A (in the case of a spouse or an ex spouse subject to a DRO) or Option B (in case of another eligible beneficiary) election payable immediately unless the member did not reach the service retirement eligibility prior to death, in which case the pension is reduced for each month that the member was younger than age 60 on the date of death in the following manner:
a. one-half of $1 \%$ for each of the first 60 months and four-tenths of one percent for each month beyond 60 months (the number of months used for reduction is not to exceed the difference between the member's credited service at death and 30 years)
8. Cost-of-Living Adjustments. The amount of the monthly benefit is adjusted each March 31, by 3\% compounded annually, beginning with the March 31 which is more that three full months after the member's effective retirement date. Pensions of members that retire in the immediately preceding calendar year are increased by 1.489\% (one-half a year’s increase).
9. Members' Contributions. Members contribute $4 \%$ of their salaries. Interest credits are $5 \%$ annually. If a member leaves covered employment before becoming eligible to retire, accumulated contributions are returned upon request.
10. Optional Methods of Payment. Before the effective retirement date, a retiring member may elect one of the following options:
a. Option A. 100\% Joint and Survivor benefit. Benefit is $85 \%$ of the straight life amount adjusted for the difference in age between the retiree and beneficiary.
b. Option B. $50 \%$ Joint and Survivor benefit. Benefit is $91 \%$ of the straight life amount adjusted for the difference in age between the retiree and beneficiary.
c. Option C. 10 years Certain and Life. Benefit is $96 \%$ of the straight life amount.

## SAMPLE BENEFIT COMPUTATION FOR ERFC MEMBER RETIRING JUNE 30, 2008

Data:
A. 7/1/1953 Date of Birth
B. $7 / 1 / 2008$ Effective Date
C. $7 / 1 / 1983$ Membership Date
D. 25.00 ERFC Credited Service
E. 25.00 VRS Creditable Service
F. 55.00 Age
G. Service Retirement Type
H. \$60,000.00 3-Year Average Salary
I. $\$ 60,000.00$ 5-Year Average Salary

## ERFC Monthly Benefit Calculation

## Lifetime Portion of Full Service Benefit

J. ERFC Formula Benefit: $1.85 \%$ x 25 yrs. x $\$ 60,000=$
K. minus VRS Adjustment of: $1.65 \%$ x 25 yrs. $\mathrm{x}(\$ 60,000-\$ 1,200) \times 70 \%=$
\$ 27,750.00
( $70 \%$ is the VRS Early Service Retirement Reduction Factor for 5 years prior to the earlier of age 65 or 30 years of service)
L. Sub Total
M. plus additional 3\% benefit adjustment 323.15
N. Total of Lifetime Portion

## Additional Temporary Benefit (until age 66)

O. Temporary Benefit Formula: $1 \%$ x 25 yrs. x $\$ 60,000=$

15,000.00
P. plus additional $3 \%$ benefit adjustment
Q. Total of Additional Temporary Benefit less 54\% Reduction
R. Monthly benefit effective $06 / 30 / 2008$ at age 55 payable until age $66,(\mathrm{~N}+\mathrm{Q}) / 12=$
\$2,212.05
S. Monthly benefit effective $07 / 01 / 2019$ at age 66 payable for life, $\mathrm{N} / 12=$

The above computation does not reflect the alternative "guarantee" benefit which this member might elect. Members are eligible for a lifetime level benefit (LLB) that is calculated by determining the annuitized value of the greater of their accumulated contribution balance or the present value of the currently provided benefit.

# SAMPLE BENEFIT COMPUTATION <br> FOR ERFC 2001 MEMBER 

## Data:

A. 07/01/1970 Date of Birth
B. 07/01/2030 Effective Date
C. 07/01/2001 Membership Date
D. 29.00 ERFC Credited Service
E. 60.00 Age
F. Service Retirement Type
G. \$60,000.00_3 -Year Average Salary

## ERFC 2001 Monthly Benefit Calculation

## Lifetime Monthly Benefit

ERFC 2001 Formula Benefit: $0.80 \%$ x 29 yrs. x $\$ 60,000 / 12=$
\$ 1,160.00

## SECTION D

FINANCIAL INFORMATION

# SUMMARY OF FINANCIAL INFORMATION DECEMBER 31, 2008 

## Revenues and Expenditures

|  | December 31 |  |
| :---: | :---: | :---: |
|  | 2008 | 2007 |
| REVENUES: |  |  |
| a. Member Contributions | \$ 46,896,886 | \$ 45,317,716 |
| b. Employer Contributions | 39,098,636 | 37,389,440 |
| c. Donated Fixed Assets | 0 | 27,632 |
| d. Investment Return |  |  |
| 1. Interest and Dividends | 46,885,130 | 46,784,907 |
| 2. Net Appreciation | $(598,458,553)$ | 97,835,476 |
| 3. Investment Expense | $(8,086,924)$ | $(7,090,078)$ |
| 4. Net Securities Lending | 933,988 | 799,592 |
| 5. Real Estate | 5,765,135 | 7,867,315 |
| 6. Miscellaneous | 58,995 | 78,053 |
| 7. Total Investment Return | (552,902,229) | 146,275,265 |
| e. Total Revenues | $(466,906,707)$ | 229,010,053 |
| EXPENDITURES: |  |  |
| a. Refunds of Member Contributions | 4,137,660 | 3,929,545 |
| b. Retirement Benefits Paid | 137,622,735 | 132,380,555 |
| c. Administrative Expense | 4,081,567 | 4,113,801 |
| d. Total Expenditures | 145,841,962 | 140,423,901 |
| RESERVE INCREASE: |  |  |
| Total Revenues Minus Total Expenditures | $(612,748,669)$ | \$88,586,152 |

Market Value of Assets

|  | December 31 |  |
| :--- | ---: | ---: |
|  |  |  |
| Invested Assets |  | $\mathbf{2 0 0 7}$ |
| Bonds | $\$ 114,774,351$ | $\$ 150,332,579$ |
| Stocks |  |  |
| a. Common | $449,807,601$ | $766,313,084$ |
| b. Preferred | $3,027,785$ | $3,901,431$ |
| Real Estate | $74,468,572$ | $89,543,851$ |
| Global Asset Allocation | $217,283,487$ | $297,380,654$ |
| Hedge Fund of Funds | $40,399,363$ | 0 |
| Commingled Funds | $466,131,968$ | $669,789,339$ |
| Total Invested Assets | $1,365,893,127$ | $1,977,260,938$ |
| Short-term Investments and Cash | $142,535,984$ | $276,509,143$ |
| Receivables and Pre-Paid Expenses | $9,531,397$ | $8,893,737$ |
| Other Assets (furniture and equipment) | 93,286 | 80,402 |
| Total Assets | $1,518,053,794$ | $2,262,744,220$ |
| Liabilities | $130,896,911$ | $262,838,668$ |
| Net Assets | $\$ 1,387,156,883$ | $\$ 1,999,905,552$ |

## Portfolio Composition at Market Value

The Market Value of the Portfolio was reported to the Actuary as follows:

|  | Year Ended December 31 |  |  |  |
| :--- | :--- | ---: | ---: | ---: |
|  | 2008 |  | 2007 |  |
|  | Value | \% of Total | Value | \% of Total |
| Bonds |  |  |  |  |
| Stocks | $\$ 114,774,351$ | $8.3 \%$ | $\$ 150,332,579$ | $7.5 \%$ |
| a. Common |  |  |  |  |
| b. Preferred | $449,807,601$ | $32.4 \%$ | $766,313,084$ | $38.3 \%$ |
| Real Estate | $3,027,785$ | $0.2 \%$ | $3,901,431$ | $0.2 \%$ |
| Commingled Funds | $74,468,572$ | $5.4 \%$ | $89,543,851$ | $4.5 \%$ |
| Hedge Fund of Funds | $466,131,968$ | $33.6 \%$ | $669,789,339$ | $33.5 \%$ |
| Global Asset Allocation / Better Beta | $40,399,363$ | $2.9 \%$ |  |  |
| Net Short-term Investments and Cash | $217,283,487$ | $15.7 \%$ | $297,380,654$ | $14.9 \%$ |
| Receivables, Pre-Paid Expenses and Other | $11,614,281$ | $0.8 \%$ | $13,645,683$ | $0.7 \%$ |
| Total Assets | $9,649,475$ | $0.7 \%$ | $8,998,931$ | $0.4 \%$ |
|  |  |  |  |  |

In performing an actuarial valuation, values must be determined for the assets held by the system on the valuation date. This value may be:

- Cost (or amortized costs);
- Current market value; or
- A value produced by a smoothing formula which recognizes the long-term validity of market value without overreacting to the marketplace's short-term moods.

The value used in the actuarial valuation may thus differ from the value used in the system's financial statements. This does not mean that one is "right" and the other is "wrong;" each is appropriate for the purpose for which it is used.

A smoothing formula has been in use for ERFC valuations since 1986, which in its present form is illustrated on page D-4. In the December 31, 2005 valuation, a new requirement was instituted to prevent unreasonably large differences between the market value and the funding value of assets. The recognized assets must always be between $85 \%$ and $115 \%$ of the market value (see Page D-3). Effective in the December 31, 2008 valuation this was adjusted to $75 \%$ and $125 \%$ (as adopted by the Board).

| Year Ended December 31: | 2008 | 2009 | 2010 | 2011 | 2012 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| A. Funding Value Beginning of Year | \$1,924,885,815 | 1,733,946,104 |  |  |  |
| B. Market Value End of Year | 1,387,156,883 |  |  |  |  |
| C. Market Value Beginning of Year | 1,999,905,552 |  |  |  |  |
| D. Non-Investment Net Cash Flow | $(55,764,873)$ |  |  |  |  |
| E. Investment Return Assumed Rate | 7.5\% |  |  |  |  |
| 1. Market Total: B-C-D | (556,983,796) |  |  |  |  |
| 2. Amount for Immediate Recognition | 142,275,253 |  |  |  |  |
| 3. Amount for Phased in Recognition: (E1-E2) | $(699,259,049)$ |  |  |  |  |
| F. Phased in Recognition of Investment Return <br> 1. Current year: $0.20 * \mathrm{E} 3$ | $(139,851,810)$ |  |  |  |  |
| 2. First Prior Year | 1,550,155 | \$(99,172,171) |  |  |  |
| 3. Second Prior Year | 21,678,875 | 1,550,155 | \$(99,172,171) |  |  |
| 4. Third Prior Year | 1,891,244 | 21,678,875 | 1,550,155 | \$(99,172,171) |  |
| 5. Fourth Prior year | 0 | 1,891,244 | 21,678,875 | 1,550,155 | \$ (99,172,167) |
| 6. Total Phased-In | (114,731,536) | $(74,051,897)$ | $(75,943,141)$ | (97,622,016) | (99,172,167) |
| G. Funding Value End of Year |  |  |  |  |  |
| G1. Preliminary Funding Value End of Year: A+D+E2+F6 | 1,896,664,659 |  |  |  |  |
| G2. Upper Corridor Limit: $125 \%$ x B | 1,733,946,104 |  |  |  |  |
| G3. Lower Corridor Limit: $75 \%$ x B | 1,040,367,662 |  |  |  |  |
| G4. Funding Value End of Year | 1,733,946,104 |  |  |  |  |
| H. Actual/Projected Difference Between Market Value and Funding Value | (346,789,221) | (272,737,324) | $(196,794,183)$ | (99,172,167) | 0 |
| I. Market Rate of Return | (28.2)\% |  |  |  |  |
| J. Ratio of Funding Value to Market Value | 125.0\% |  |  |  |  |

The Funding Value of Assets recognizes assumed investment return (line E2) fully each year. Differences between actual and assumed investment return (line E3) are phased in over a closed 5 -year period. During periods when investment performance exceeds the assumed rate, Funding Value of Assets will tend to be less than Market Value. During periods when investment performance is less than the assumed rate, Funding Value of Assets will tend to be greater than Market Value. The Funding Value of Assets is unbiased with respect to Market Value. If assumed rates are exactly realized for 4 consecutive years, Funding Value will become equal to Market Value.

| Year Ended December 31: | 2004 | 2005 | 2006 | 2007 |
| :---: | :---: | :---: | :---: | :---: |
| A. Funding Value Beginning of Year | \$ 1,597,459,083 | \$ 1,643,019,915 | \$ 1,718,398,545 | \$ 1,818,930,165 |
| B. Market Value End of Year | 1,643,019,915 | 1,725,963,523 | 1,911,319,400 | 1,999,905,552 |
| C. Market Value Beginning of Year | 1,349,792,227 | 1,643,019,915 | 1,725,963,523 | 1,911,319,400 |
| D. Non-Investment Net Cash Flow | $(81,766,933)$ | $(47,941,309)$ | $(50,041,822)$ | $(53,575,312)$ |
| E. Investment Return Assumed Rate | 7.5\% | 7.5\% | 7.5\% | 7.5\% |
| E1. Market Total: B-C-D | 374,994,621 | 130,884,917 | 235,397,699 | 142,161,464 |
| E2. Amount for Immediate Recognition | 127,327,765* | 121,428,695 | 127,003,323 | 134,410,688 |
| E3. Amount for Phased in Recognition: (E1-E2) | 0* | 9,456,222 | 108,394,376 | 7,750,776 |
| F. Phased in Recognition of Investment Return F1. Current year: $0.20 * \mathrm{E} 3$ | 0 | 1,891,244 | 21,678,875 | 1,550,155 |
| F2. First Prior Year | 0 | 0 | 1,891,244 | 21,678,875 |
| F3. Second Prior Year | 0 | 0 | 0 | 1,891,244 |
| F4. Third Prior Year | 0 | 0 | 0 | 0 |
| F5. Fourth Prior year | 0 | 0 | 0 | 0 |
| F6. Total Recognized Investment Gain or Loss | 0 | 1,891,244 | 23,570,119 | 25,120,274 |
| G. Funding Value End of Year |  |  |  |  |
| G1. Preliminary Funding Value End of Year: A+D+E2+F6 | 1,643,019,915 | 1,718,398,545 | 1,818,930,165 | 1,924,885,815 |
| G2. Upper Corridor Limit: $115 \%$ x B |  | 1,984,858,051 | 2,198,017,310 | 2,299,891,385 |
| G3. Lower Corridor Limit: $85 \%$ x B |  | 1,467,068,995 | 1,624,621,490 | 1,699,919,719 |
| G4. Funding Value End of Year |  | 1,718,398,545 | 1,818,930,165 | 1,924,885,815 |
| H. Actual/Projected Difference Between Market Value and Funding Value | 0 * | 7,564,978 | 92,389,235 | 75,019,737 |
| I. Market Rate of Return | 28.6\%** | 8.1\% | 13.8\% | 7.5\% |
| J. Ratio of Funding Value to Market Value | 100.0\% | 99.6\% | 95.2\% | 96.2\% |

[^2]
## SECTION E

COVERED MEMBER DATA

| Age Group | Years of Service to Valuation Date |  |  |  |  |  |  | Totals |  | Average |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30 \& Up | No. | Salary |  |
| 20-24 |  |  |  |  |  |  |  |  |  |  |
| 25-29 | 1 | 4 |  |  |  |  |  | 5 | \$ 247,198 | \$49,440 |
| 30-34 | 8 | 326 | 75 |  |  |  |  | 409 | 25,294,469 | 61,845 |
| 35-39 | 18 | 285 | 337 | 52 |  |  |  | 692 | 47,553,913 | 68,720 |
| 40-44 | 12 | 208 | 234 | 181 | 44 | 2 |  | 681 | 47,955,640 | 70,419 |
| 45-49 | 12 | 268 | 247 | 181 | 162 | 23 | 1 | 894 | 62,306,331 | 69,694 |
| 50-54 | 8 | 329 | 392 | 253 | 254 | 169 | 28 | 1,433 | 103,265,426 | 72,062 |
| 55-59 | 8 | 328 | 458 | 310 | 281 | 150 | 55 | 1,590 | 115,610,132 | 72,711 |
| 60 | 1 | 43 | 90 | 80 | 48 | 21 | 2 | 285 | 19,873,573 | 69,732 |
| 61 | 1 | 40 | 66 | 73 | 65 | 24 | 3 | 272 | 19,339,471 | 71,101 |
| 62 | 2 | 30 | 68 | 75 | 59 | 20 | 1 | 255 | 17,982,170 | 70,518 |
| 63 | 1 | 16 | 32 | 56 | 38 | 9 |  | 152 | 11,375,341 | 74,838 |
| 64 |  | 19 | 29 | 32 | 25 | 12 | 1 | 118 | 8,625,597 | 73,098 |
| 65 | 1 | 11 | 17 | 18 | 22 | 6 | 2 | 77 | 5,528,150 | 71,794 |
| 66 |  | 9 | 17 | 17 | 21 | 9 | 1 | 74 | 5,214,428 | 70,465 |
| 67 |  | 2 | 3 | 13 | 7 | 4 | 2 | 31 | 2,192,237 | 70,717 |
| 68 |  | 2 | 4 | 6 | 8 | 2 | 1 | 23 | 1,555,257 | 67,620 |
| 69 |  | 1 | 6 | 2 | 4 | 3 |  | 16 | 924,197 | 57,762 |
| 70 |  | 1 | 2 | 4 | 3 | 1 |  | 11 | 624,758 | 56,796 |
| 71 |  |  | 2 | 2 | 3 | 1 | 2 | 10 | 667,088 | 66,709 |
| 72 |  |  |  | 2 | 4 |  | 2 | 8 | 490,837 | 61,355 |
| 73 |  |  | 1 |  |  |  |  | 1 | 33,062 | 33,062 |
| 74 |  | 1 | 1 |  | 1 |  | 1 | 4 | 156,542 | 39,136 |
| 75 \& Over |  |  | 1 |  | 3 | 1 | 1 | 6 | 328,067 | 54,678 |
| Totals | 73 | 1,923 | 2,082 | 1,357 | 1,052 | 457 | 103 | 7,047 | \$497,143,884 | \$70,547 |

While not used in the financial computations the following group averages are computed and shown because of their general interest.

Age: 51.0 years.
Service: 14.8 years.
Annual Pay: \$70,547

# ERFC MEMBERS <br> MEN Active Members in Valuation December 31, 2008 by Attained Age and Years of Service 

| Age <br> Group | Years of Service to Valuation Date |  |  |  |  |  |  | Totals |  | Average |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30 \& Up | No. | Salary |  |
| 15-19 |  |  |  |  |  |  |  |  |  |  |
| 20-24 |  |  |  |  |  |  |  |  |  |  |
| 25-29 | 1 | 2 |  |  |  |  |  | 3 | \$ 134,294 | \$44,765 |
| 30-34 | 3 | 85 | 17 |  |  |  |  | 105 | 6,870,165 | 65,430 |
| 35-39 | 2 | 106 | 141 | 21 |  |  |  | 270 | 19,418,949 | 71,922 |
| 40-44 | 1 | 82 | 134 | 87 | 7 |  |  | 311 | 23,760,465 | 76,400 |
| 45-49 | 1 | 61 | 76 | 73 | 72 | 6 |  | 289 | 23,347,972 | 80,789 |
| 50-54 |  | 53 | 61 | 41 | 73 | 83 | 8 | 319 | 28,163,457 | 88,287 |
| 55-59 |  | 53 | 54 | 41 | 46 | 36 | 26 | 256 | 21,728,934 | 84,879 |
| 60 |  | 9 | 11 | 8 | 5 | 2 | 1 | 36 | 2,970,021 | 82,501 |
| 61 |  | 8 | 8 | 6 | 6 | 1 |  | 29 | 2,407,840 | 83,029 |
| 62 |  | 11 | 11 | 2 | 4 | 1 |  | 29 | 2,358,318 | 81,321 |
| 63 |  | 7 | 11 | 5 |  | 1 |  | 24 | 1,969,246 | 82,052 |
| 64 |  | 5 | 5 | 5 |  | 2 |  | 17 | 1,359,195 | 79,953 |
| 65 |  | 5 | 5 | 2 |  | 1 |  | 13 | 988,897 | 76,069 |
| 66 |  | 10 | 3 | 2 | 2 |  |  | 17 | 1,312,618 | 77,213 |
| 67 |  | 2 | 1 |  | 2 |  |  | 5 | 476,200 | 95,240 |
| 68 |  | 4 |  | 2 |  |  |  | 6 | 415,738 | 69,290 |
| 69 |  | 1 | 2 |  | 2 |  |  | 5 | 407,144 | 81,429 |
| 70 |  |  | 1 | 1 |  |  |  | 2 | 186,799 | 93,400 |
| 71 |  | 1 |  |  |  |  |  | 1 | 38,058 | 38,058 |
| 73 |  |  |  | 1 |  |  |  | 1 | 85,284 | 85,284 |
| 74 |  |  |  | 1 |  |  |  | 1 | 37,130 | 37,130 |
| 75 \& Over |  |  | 2 | 1 | 2 |  |  | 5 | 208,966 | 41,793 |
| Totals | 8 | 505 | 543 | 299 | 221 | 133 | 35 | 1,744 | \$138,645,690 | \$79,499 |

While not used in the financial computations the following group averages are computed and shown because of their general interest.

Age: 47.9 years.
Service: 14.8 years.
Annual Pay: \$79,499

# ERFC 2001 MEMBERS <br> WOMEN Active Members in Valuation December 31, 2008 by Attained Age and Years of Service 

| Age <br> Group | Years of Service to Valuation Date |  |  |  |  |  |  | Totals |  | Average |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30 \& Up | No. | Salary |  |
| 15-19 | 1 |  |  |  |  |  |  | 1 | \$ 18,084 | \$18,084 |
| 20-24 | 462 | 1 |  |  |  |  |  | 463 | 20,162,999 | 43,549 |
| 25-29 | 2,007 | 247 |  |  |  |  |  | 2,254 | 112,783,542 | 50,037 |
| 30-34 | 983 | 507 |  |  |  |  |  | 1,490 | 82,053,753 | 55,070 |
| 35-39 | 646 | 287 |  |  |  |  |  | 933 | 51,427,699 | 55,121 |
| 40-44 | 623 | 195 |  |  |  |  |  | 818 | 41,612,997 | 50,872 |
| 45-49 | 728 | 292 |  |  |  |  |  | 1,020 | 47,943,568 | 47,003 |
| 50-54 | 564 | 329 |  |  |  |  |  | 893 | 45,647,011 | 51,116 |
| 55-59 | 367 | 274 |  |  |  |  |  | 641 | 34,981,200 | 54,573 |
| 60 | 49 | 47 |  |  |  |  |  | 96 | 5,213,980 | 54,312 |
| 61 | 36 | 33 |  |  |  |  |  | 69 | 3,666,581 | 53,139 |
| 62 | 34 | 23 |  |  |  |  |  | 57 | 3,662,882 | 64,261 |
| 63 | 16 | 20 |  |  |  |  |  | 36 | 2,093,039 | 58,140 |
| 64 | 15 | 10 |  |  |  |  |  | 25 | 1,315,205 | 52,608 |
| 65 | 8 | 4 |  |  |  |  |  | 12 | 764,275 | 63,690 |
| 66 | 5 | 9 |  |  |  |  |  | 14 | 754,145 | 53,868 |
| 67 | 7 | 2 |  |  |  |  |  | 9 | 461,902 | 51,322 |
| 68 | 1 | 2 |  |  |  |  |  | 3 | 162,998 | 54,333 |
| 69 | 1 | 2 |  |  |  |  |  | 3 | 231,387 | 77,129 |
| 70 | 1 |  |  |  |  |  |  | 1 | 27,093 | 27,093 |
| 71 | 1 |  |  |  |  |  |  | 1 | 27,972 | 27,972 |
| 72 | 1 |  |  |  |  |  |  | 1 | 71,375 | 71,375 |
| 73 |  | 1 |  |  |  |  |  | 1 | 80,495 | 80,495 |
| 75 \& Over |  |  |  |  |  |  |  |  |  |  |
| Totals | 6,556 | 2,285 |  |  |  |  |  | 8,841 | \$455,164,182 | \$51,483 |

While not used in the financial computations the following group averages are computed and shown because of their general interest.

Age: 38.4 years.
Service: 3.3 years.
Annual Pay: \$51,483

# ERFC 2001 MEMBERS <br> MEN Active Members in Valuation December 31, 2008 by Attained Age and Years of Service 

| Age <br> Group | Years of Service to Valuation Date |  |  |  |  |  |  | Totals |  | Average |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30 \& Up | No. | Salary |  |
| 20-24 | 60 |  |  |  |  |  |  | 60 | \$ 2,293,160 | 38,219 |
| 25-29 | 428 | 38 |  |  |  |  |  | 466 | 22,779,486 | 48,883 |
| 30-34 | 276 | 161 |  |  |  |  |  | 437 | 24,259,290 | 55,513 |
| 35-39 | 174 | 120 |  |  |  |  |  | 294 | 17,541,217 | 59,664 |
| 40-44 | 159 | 80 |  |  |  |  |  | 239 | 15,425,573 | 64,542 |
| 45-49 | 133 | 54 |  |  |  |  |  | 187 | 11,499,515 | 61,495 |
| 50-54 | 98 | 62 |  |  |  |  |  | 160 | 10,224,394 | 63,902 |
| 55-59 | 90 | 43 |  |  |  |  |  | 133 | 8,344,713 | 62,742 |
| 60 | 15 | 9 |  |  |  |  |  | 24 | 1,794,937 | 74,789 |
| 61 | 9 | 13 |  |  |  |  |  | 22 | 1,386,458 | 63,021 |
| 62 | 18 | 9 |  |  |  |  |  | 27 | 1,732,749 | 64,176 |
| 63 | 5 | 4 |  |  |  |  |  | 9 | 543,222 | 60,358 |
| 64 | 4 | 5 |  |  |  |  |  | 9 | 532,994 | 59,222 |
| 65 | 3 | 6 |  |  |  |  |  | 9 | 563,548 | 62,616 |
| 66 | 5 |  |  |  |  |  |  | 5 | 281,921 | 56,384 |
| 67 | 4 |  |  |  |  |  |  | 4 | 211,341 | 52,835 |
| 68 | 2 | 1 |  |  |  |  |  | 3 | 182,144 | 60,715 |
| 69 | 2 |  |  |  |  |  |  | 2 | 149,261 | 74,631 |
| 70 | 1 | 1 |  |  |  |  |  | 2 | 130,169 | 65,085 |
| 71 |  | 2 |  |  |  |  |  | 2 | 54,341 | 27,171 |
| 72 | 1 |  |  |  |  |  |  | 1 | 73,254 | 73,254 |
| 73 | 2 |  |  |  |  |  |  | 2 | 73,680 | 36,840 |
| 75 \& Over | 2 |  |  |  |  |  |  | 2 | 108,886 | 54,443 |
| Totals | 1,491 | 608 |  |  |  |  |  | 2,099 | \$120,186,253 | \$57,259 |

While not used in the financial computations the following group averages are computed and shown because of their general interest.

Age: 38.7 years.
Service: 3.6 years.
Annual Pay: \$57,259

ALL Active Members in Valuation December 31, 2008 by Attained Age and Years of Service

| Age <br> Group | Years of Service to Valuation Date |  |  |  |  |  |  | Totals |  | Average |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30 \& Up | No. | Salary |  |
| 15-19 | 1 |  |  |  |  |  |  | 1 | \$ 18,084 | \$ 18,084 |
| 20-24 | 522 | 1 |  |  |  |  |  | 523 | 22,456,159 | 42,937 |
| 25-29 | 2,437 | 291 |  |  |  |  |  | 2,728 | 135,944,520 | 49,833 |
| 30-34 | 1,270 | 1,079 | 92 |  |  |  |  | 2,441 | 138,477,677 | 56,730 |
| 35-39 | 840 | 798 | 478 | 73 |  |  |  | 2,189 | 135,941,778 | 62,102 |
| 40-44 | 795 | 565 | 368 | 268 | 51 | 2 |  | 2,049 | 128,754,675 | 62,838 |
| 45-49 | 874 | 675 | 323 | 254 | 234 | 29 | 1 | 2,390 | 145,097,386 | 60,710 |
| 50-54 | 670 | 773 | 453 | 294 | 327 | 252 | 36 | 2,805 | 187,300,288 | 66,774 |
| 55-59 | 465 | 698 | 512 | 351 | 327 | 186 | 81 | 2,620 | 180,664,979 | 68,956 |
| 60 | 65 | 108 | 101 | 88 | 53 | 23 | 3 | 441 | 29,852,511 | 67,693 |
| 61 | 46 | 94 | 74 | 79 | 71 | 25 | 3 | 392 | 26,800,350 | 68,368 |
| 62 | 54 | 73 | 79 | 77 | 63 | 21 | 1 | 368 | 25,736,119 | 69,935 |
| 63 | 22 | 47 | 43 | 61 | 38 | 10 |  | 221 | 15,980,848 | 72,312 |
| 64 | 19 | 39 | 34 | 37 | 25 | 14 | 1 | 169 | 11,832,991 | 70,018 |
| 65 | 12 | 26 | 22 | 20 | 22 | 7 | 2 | 111 | 7,844,870 | 70,675 |
| 66 | 10 | 28 | 20 | 19 | 23 | 9 | 1 | 110 | 7,563,112 | 68,756 |
| 67 | 11 | 6 | 4 | 13 | 9 | 4 | 2 | 49 | 3,341,680 | 68,198 |
| 68 | 3 | 9 | 4 | 8 | 8 | 2 | 1 | 35 | 2,316,137 | 66,175 |
| 69 | 3 | 4 | 8 | 2 | 6 | 3 |  | 26 | 1,711,989 | 65,846 |
| 70 | 2 | 2 | 3 | 5 | 3 | 1 |  | 16 | 968,819 | 60,551 |
| 71 | 1 | 3 | 2 | 2 | 3 | 1 | 2 | 14 | 787,459 | 56,247 |
| 72 | 2 |  |  | 2 | 4 |  | 2 | 10 | 635,466 | 63,547 |
| 73 | 2 | 1 | 1 | 1 |  |  |  | 5 | 272,521 | 54,504 |
| 74 |  | 1 | 1 | 1 | 1 |  | 1 | 5 | 193,672 | 38,734 |
| 75 \& Over | 2 |  | 3 | 1 | 5 | 1 | 1 | 13 | 645,919 | 49,686 |
| Totals | 8,128 | 5,321 | 2,625 | 1,656 | 1,273 | 590 | 138 | 19,731 | \$1,211,140,009 | \$61,383 |

While not used in the financial computations the following group averages are computed and shown because of their general interest.

Age: 43.8 years.
Service: 8.5 years.
Annual Pay: \$61,383

## Active Members by Years of Service

DECEMBER 31, 2008

| Service <br> Years | Number of Members |  |  | Annual Pays |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Males | Females | Total | Total | Average |
| 0 | 253 | 1,347 | 1,600 | \$ 74,464,368 | \$46,540 |
| 1 | 310 | 1,482 | 1,792 | 85,301,757 | 47,601 |
| 2 | 315 | 1,338 | 1,653 | 84,020,233 | 50,829 |
| 3 | 313 | 1,324 | 1,637 | 85,239,146 | 52,070 |
| 4 | 308 | 1,138 | 1,446 | 79,085,063 | 54,692 |
| 5 | 234 | 895 | 1,129 | 65,466,994 | 57,987 |
| 6 | 211 | 815 | 1,026 | 60,465,057 | 58,933 |
| 7 | 222 | 917 | 1,139 | 69,998,554 | 61,456 |
| 8 | 229 | 840 | 1,069 | 65,213,726 | 61,004 |
| 9 | 217 | 741 | 958 | 60,932,600 | 63,604 |
| 10 | 144 | 619 | 763 | 48,978,806 | 64,192 |
| 11 | 115 | 441 | 556 | 37,370,484 | 67,213 |
| 12 | 90 | 397 | 487 | 34,172,681 | 70,170 |
| 13 | 89 | 275 | 364 | 25,853,527 | 71,026 |
| 14 | 105 | 350 | 455 | 33,716,158 | 74,101 |
| 15 | 107 | 324 | 431 | 32,031,548 | 74,319 |
| 16 | 46 | 247 | 293 | 22,057,929 | 75,283 |
| 17 | 40 | 229 | 269 | 20,684,723 | 76,895 |
| 18 | 63 | 306 | 369 | 28,890,986 | 78,295 |
| 19 | 43 | 251 | 294 | 23,154,857 | 78,758 |
| 20 | 46 | 259 | 305 | 24,526,118 | 80,414 |
| 21 | 32 | 189 | 221 | 18,152,477 | 82,138 |
| 22 | 52 | 224 | 276 | 23,939,271 | 86,736 |
| 23 | 44 | 205 | 249 | 21,406,860 | 85,971 |
| 24 | 47 | 175 | 222 | 18,738,685 | 84,408 |
| 25 | 31 | 125 | 156 | 14,029,903 | 89,935 |
| 26 | 22 | 82 | 104 | 9,486,145 | 91,213 |
| 27 | 34 | 100 | 134 | 12,603,939 | 94,059 |
| 28 | 21 | 89 | 110 | 10,485,831 | 95,326 |
| 29 | 25 | 61 | 86 | 8,151,727 | 94,788 |
| 30 \& Up | 35 | 103 | 138 | 12,519,856 | 90,724 |
| Totals | 3,843 | 15,888 | 19,731 | \$1,211,140,009 | \$61,383 |

## Active Members

| Valuation Date | Number |  |  | Average <br> Pay | Annual Increase In Average Pay |  | Price Inflation (CPI-U) <br> Last Year |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Last | Last |  |
|  | ERFC | ERFC 2001 | Total |  | Year | 5 Years |  |
| 2/28/1974 | 7,429 |  | 7,429 |  | \$13,087 |  |  |  |
| 2/28/1975 | 8,075 |  | 8,075 | 13,693 |  |  |  |
| 2/28/1976 | 8,609 |  | 8,609 | 15,929 |  |  |  |
| 2/29/1980 | 8,990 |  | 8,990 | 18,901 |  |  |  |
| 6/30/1983 | 9,359 |  | 9,359 | 24,104 |  |  |  |
| 6/30/1985 | 9,596 |  | 9,596 | 26,229 |  |  |  |
| 6/30/1986 | 10,084 |  | 10,084 | 27,523 | 4.9 \% |  | 1.8 \% |
| 6/30/1987 | 10,560 |  | 10,560 | 28,887 | 5.0 \% |  | 3.7 \% |
| 6/30/1988 | 10,727 |  | 10,727 | 31,784 | 10.0 \% |  | 4.0 \% |
| 6/30/1989 | 11,019 |  | 11,019 | 33,540 | 5.5 \% |  | 5.2 \% |
| 6/30/1990 | 11,539 |  | 11,539 | 35,702 | 6.4 \% | 6.4 \% | 4.7 \% |
| 6/30/1991 | 12,313 |  | 12,313 | 36,699 | 2.8 \% | 5.9 \% | 4.7 \% |
| 6/30/1992 | 12,308 |  | 12,308 | 36,356 | (0.9)\% | 4.7 \% | 3.1 \% |
| 6/30/1993 | 12,330 |  | 12,330 | 36,539 | 0.5 \% | 2.8 \% | 3.0 \% |
| 6/30/1994 | 12,873 |  | 12,873 | 37,365 | 2.3 \% | 2.2 \% | 2.5 \% |
| 6/30/1995 | 13,287 |  | 13,287 | 39,215 | 5.0 \% | 1.9 \% | 3.0 \% |
| 6/30/1996 | 13,110 |  | 13,110 | 40,508 | 3.3 \% | 2.0 \% | 2.8 \% |
| 6/30/1997 | 13,473 |  | 13,473 | 41,098 | 1.5 \% | 2.5 \% | 2.3 \% |
| 6/30/1998 | 13,806 |  | 13,806 | 42,210 | 2.7 \% | 2.9 \% | 1.7 \% |
| 6/30/1999 | 14,449 |  | 14,449 | 43,326 | 2.6 \% | 3.0 \% | 2.0 \% |
| 6/30/2000 | 15,050 |  | 15,050 | 45,112 | 4.1 \% | 2.8 \% | 3.7 \% |
| 6/30/2001 | 15,955 |  | 15,955 | 47,628 | 5.6 \% | 3.3 \% | 3.2 \% |
| 6/30/2002 | 15,363 | 711 | 16,074 | 48,635 | 2.1 \% | 3.4 \% | 1.1 \% |
| 6/30/2003 | 13,934 | 3,804 | 17,738 | 48,850 | 0.4 \% | 3.0 \% | 2.1 \% |
| 12/31/2004 | 11,856 | 6,864 | 18,720 | 52,234 | 6.9 \% | 3.8 \% | 3.3 \% |
| 12/31/2005 | 10,895 | 8,186 | 19,081 | 55,040 | 5.4 \% | 4.1 \% | 3.4 \% |
| 12/31/2006 | 10,065 | 9,306 | 19,371 | 57,396 | 4.3 \% | 3.8 \% | 2.5 \% |
| 12/31/2007 | 9,350 | 10,249 | 19,599 | 59,260 | 3.2 \% | 4.0 \% | 4.1 \% |
| 12/31/2008 | 8,791 | 10,940 | 19,731 | 61,383 | 3.6 \% | 4.7 \% | 0.1 \% |

Retired Lives

| Valuation <br> Date | Number | Average <br> Annual <br> Benefit | Total <br> Benefits | Active <br> Member <br> Payroll | Total <br> Benefits as \% <br> of Payroll |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $2 / 28 / 1974$ | - | $\$-$ | $\$$ | - | $\$ 97,221,025$ |
| $2 / 28 / 1975$ | 195 | 3,463 | 675,344 | $110,571,258$ |  |
| $2 / 28 / 1976$ | 456 | 3,270 | $1,491,310$ | $137,131,905$ | $0.61 \%$ |
| $2 / 29 / 1980$ | 1,012 | 4,238 | $4,288,395$ | $169,924,320$ | $1.09 \%$ |
| $6 / 30 / 1983$ | 1,448 | 5,136 | $7,437,571$ | $225,592,433$ | $2.52 \%$ |
| $6 / 30 / 1985$ | 1,823 | 6,220 | $11,339,462$ | $251,691,261$ | $3.30 \%$ |
| $6 / 30 / 1986$ | 2,047 | 6,614 | $13,539,032$ | $277,545,288$ | $4.51 \%$ |
| $6 / 30 / 1987$ | 2,232 | 7,007 | $15,639,820$ | $305,050,734$ | $4.88 \%$ |
| $6 / 30 / 1988$ | 2,425 | 7,629 | $18,502,289$ | $340,945,603$ | $5.13 \%$ |
| $6 / 30 / 1989$ | 2,679 | 8,671 | $23,230,719$ | $369,574,756$ | $5.43 \%$ |
| $6 / 30 / 1990$ | 2,932 | 9,354 | $27,428,027$ | $411,970,032$ | $6.29 \%$ |
| $6 / 30 / 1991$ | 3,209 | 10,146 | $32,559,349$ | $451,872,668$ | $6.66 \%$ |
| $6 / 30 / 1992$ | 3,311 | 10,960 | $36,289,308$ | $447,473,936$ | $7.21 \%$ |
| $6 / 30 / 1993$ | 3,486 | 11,307 | $39,417,339$ | $450,530,273$ | $8.11 \%$ |
| $6 / 30 / 1994$ | 3,775 | 11,285 | $42,600,996$ | $480,995,439$ | $8.75 \%$ |
| $6 / 30 / 1995$ | 3,927 | 11,529 | $45,274,131$ | $521,044,021$ | $8.86 \%$ |
| $6 / 30 / 1996$ | 4,225 | 11,843 | $50,036,473$ | $531,060,397$ | $8.69 \%$ |
| $6 / 30 / 1997$ | 4,478 | 11,908 | $53,322,514$ | $553,709,472$ | $9.42 \%$ |
| $6 / 30 / 1998$ | 12,156 | $58,018,744$ | $582,754,912$ | $9.63 \%$ |  |
| $6 / 30 / 1999$ | 6,773 | 12,383 | $63,312,850$ | $626,015,364$ | $9.96 \%$ |
| $6 / 30 / 2000$ | 5,113 | 13,201 | $70,548,074$ | $678,937,233$ | $10.11 \%$ |
| $6 / 30 / 2001$ | 5,344 | 13,167 | $75,922,636$ | $759,905,510$ | $10.39 \%$ |
| $6 / 30 / 2002$ | 5,766 | 13,645 | $86,985,606$ | $781,756,005$ | $9.99 \%$ |
| $6 / 30 / 2003$ | 6,375 | 14,493 | $97,522,562$ | $866,501,799$ | $11.13 \%$ |
| $12 / 31 / 2004$ | 6,729 | 14,767 | $110,029,000$ | $977,817,281$ | $11.25 \%$ |
| $12 / 31 / 2005$ | 7,430 | 15,077 | $116,242,812$ | $1,050,216,544$ | $11.25 \%$ |
| $12 / 31 / 2006$ | 7,710 | 15,370 | $123,402,840$ | $1,111,827,576$ | $11.07 \%$ |
| $12 / 31 / 2007$ | 8,029 | 15,598 | $130,307,079$ | $1,161,431,668$ | $11.10 \%$ |
| $12 / 31 / 2008$ | 8,354 | 15,631 | $134,346,260$ | $1,211,140,009$ | $11.22 \%$ |
|  | 8,595 |  |  |  | $11.09 \%$ |

Total benefits as a \% of payroll are much higher than total contributions as a \% of payroll. This is an expected condition in a well funded plan such as ERFC.

## ORIGINAL BENEFIT FORMULAS (BEFORE JULY 1, 1988) RETIREES AND BENEFICIARIES DECEMBER 31, 2008 By Type of Benefit Being Paid

| Type of Pension Being Paid | No. | Annual Amounts |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Payable <br> for Life | Temporary Supplement | Current <br> Benefits |
| Age and Service - Normal: Straight Life Optional Forms | $\begin{array}{r} 676 \\ 28 \end{array}$ | $\begin{array}{r} \$ 9,223,582 \\ 444,616 \end{array}$ |  | $\begin{array}{r} \$ 9,223,582 \\ 444,616 \end{array}$ |
| Age and Service - Early: <br> Straight Life Optional Forms | $\begin{array}{r} 514 \\ 22 \\ \hline \end{array}$ | $\begin{array}{r} 4,079,517 \\ 230,391 \\ \hline \end{array}$ | $\begin{array}{r} \$ 237,519 \\ 12,844 \\ \hline \end{array}$ | $\begin{array}{r} 4,317,036 \\ 243,235 \\ \hline \end{array}$ |
| Age and Service Totals | 1,240 | 13,978,106 | 250,363 | 14,228,469 |
| Duty Disability: Straight Life | 10 | $274,383$ |  | 274,383 |
| Non-Duty Disability Straight Life | 62 | 526,048 |  | 526,048 |
| Age and Service Survivor Beneficiary, Duty Death, and Non-Duty Death | 51 | 422,214 | 12,549 | 434,763 |
| Other Totals | 123 | 1,222,645 | 12,549 | 1,235,194 |
| Total Benefits | 1,363 | \$15,200,751 | \$262,912 | \$15,463,663 |

## BENEFIT FORMULAS (EFFECTIVE JULY 1, 1988) RETIREES AND BENEFICIARIES DECEMBER 31, 2008 By Type of Benefit Being Paid

| Type of Pension Being Paid | No. | Annual Amounts |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Payable for Life | Temporary Supplement | Current <br> Benefits |
| Age and Service - Normal: <br> Straight Life Optional Forms | $\begin{array}{r} 3,359 \\ 375 \end{array}$ | $\begin{array}{r} \$ 43,993,172 \\ 4,740,592 \end{array}$ | $\begin{array}{r} \$ 32,314,264 \\ 3,702,057 \end{array}$ | $\begin{array}{r} \$ 76,307,436 \\ 8,442,649 \end{array}$ |
| Age and Service - Early: <br> Straight Life Optional Forms | $\begin{array}{r} 3,056 \\ 168 \\ \hline \end{array}$ | $\begin{array}{r} 13,770,094 \\ 938,821 \\ \hline \end{array}$ | $\begin{array}{r} 17,021,778 \\ 1,110,989 \\ \hline \end{array}$ | $\begin{array}{r} 30,791,872 \\ 2,049,810 \\ \hline \end{array}$ |
| Age and Service Totals | 6,958 | 63,442,679 | 54,149,088 | 117,591,767 |
| Duty Disability: <br> Straight Life Optional Forms | $\begin{array}{r} 14 \\ 1 \end{array}$ | $\begin{array}{r} 43,262 \\ 1,617 \end{array}$ |  | $\begin{array}{r} 43,262 \\ 1,617 \end{array}$ |
| Non-Duty Disability: <br> Straight Life Optional Forms | $\begin{array}{r} 131 \\ 17 \end{array}$ | $\begin{array}{r} 449,052 \\ 52,521 \end{array}$ | 15,543 | $\begin{array}{r} 464,595 \\ 52,521 \end{array}$ |
| Age and Service Survivor <br> Beneficiary, Duty Death, and Non-Duty Death | 72 | 371,067 | 250,153 | 621,220 |
| Other Totals | 235 | 917,519 | 265,696 | 1,183,215 |
| Total Benefits | 7,193* | \$64,360,198* | \$54,414,784 | \$118,774,982 |

* Includes benefits split in DROs.


## BENEFIT FORMULAS (EFFECTIVE JULY 1, 2001) RETIREES AND BENEFICIARIES DECEMBER 31, 2008 By Type of Benefit Being Paid

| Type of Pension Being Paid | No. | Annual <br> Amounts |
| :---: | :---: | :---: |
| Age and Service - Normal: <br> Straight Life Optional Forms | $\begin{array}{r} 30 \\ 8 \end{array}$ | $\begin{array}{r} \$ 82,260 \\ 22,284 \end{array}$ |
| Age and Service - Early: <br> Straight Life Optional Forms |  |  |
| Age and Service Totals | 38 | 104,544 |
| Duty Disability: <br> Straight Life Optional Forms |  |  |
| Non-Duty Disability: <br> Straight Life Optional Forms |  |  |
| Age and Service Survivor <br> Beneficiary, Duty Death, and Non-Duty Death | 1 | 3,071 |
| Other Totals | 1 | 3,071 |
| Total Benefits | 39 | \$107,615 |

# ORIGINAL BENEFIT FORMULAS (BEFORE JULY 1, 1988) <br> RETIREES AND BENEFICIARIES DECEMBER 31, 2008 <br> Current Annual Benefits - Tabulated by Attained Ages 

| Attained <br> Ages | No. | Annual <br> Amount |
| :---: | ---: | ---: |
|  |  |  |
| 55 | 4 | $\$ \mathbf{\$}, 215$ |
| 56 | 1 | 2,365 |
| 57 | 3 | 17,929 |
| 58 | 3 | 21,699 |
| 59 | 2 | 8,393 |
| 60 | 2 | 20,575 |
| 61 | 9 | 45,283 |
| 62 | 12 | 67,918 |
| 63 | 14 | 70,496 |
| 64 | 13 | 56,353 |
| 65 | 2 | 13,552 |
| 66 | 2 | 17,874 |
| 67 | 5 | 49,896 |
| 68 | 3 | 31,458 |
| 69 | 14 | 141,326 |
| 70 | 25 | 303,085 |
| 71 | 39 | 573,240 |
| 72 | 45 | 781,513 |
| 73 | 68 | $1,155,176$ |
| 74 | 62 | $1,075,401$ |
| 75 | 64 | $1,171,108$ |
| 76 | 58 | 917,700 |
| 77 | 70 | $1,048,810$ |
| 78 | 63 | 910,163 |
| 79 | 73 | 979,056 |
| $80-84$ | 360 | $3,758,612$ |
| $85-89$ | 235 | $1,644,939$ |
| $90 \&$ Up | 112 | 562,528 |
| Total | $\mathbf{1 , 3 6 3}$ | $\$ 15,463,663$ |
|  |  |  |

## BENEFIT FORMULAS (EFFECTIVE JULY 1, 1988) <br> RETIREES AND BENEFICIARIES DECEMBER 31, 2008 <br> Current Annual Benefits - Tabulated by Attained Ages

| Attained Ages | No. | Annual <br> Amount |
| :---: | :---: | :---: |
| Under 40 | 6 | \$ 31,374 |
| 40-44 | 2 | 3,496 |
| 45 | 6 | 17,630 |
| 46 | 2 | 8,637 |
| 48 | 2 | 40,844 |
| 49 | 6 | 70,692 |
| 50 | 4 | 34,614 |
| 51 | 9 | 109,099 |
| 52 | 11 | 134,004 |
| 53 | 25 | 521,628 |
| 54 | 41 | 918,455 |
| 55 | 106 | 2,432,335 |
| 56 | 188 | 4,071,436 |
| 57 | 227 | 4,902,032 |
| 58 | 280 | 6,040,121 |
| 59 | 335 | 7,891,953 |
| 60 | 415 | 9,281,689 |
| 61 | 516 | 11,382,077 |
| 62 | 530 | 11,211,957 |
| 63 | 439 | 8,772,407 |
| 64 | 480 | 10,280,888 |
| 65 | 494 | 10,157,146 |
| 66 | 397 | 4,065,532 |
| 67 | 320 | 3,153,159 |
| 68 | 325 | 3,212,725 |
| 69 | 273 | 2,628,223 |
| 70-74 | 1,105 | 11,652,012 |
| 75-79 | 511 | 4,670,954 |
| 80 \& Up | 138 | 1,077,863 |
| Totals* | 7,193 | \$118,774,982 |

* Includes benefits split in DROs.

RETIREES AND BENEFICIARIES DECEMBER 31, 2008 Current Annual Benefits - Tabulated by Attained Ages

| Attained <br> Ages | No. | Annual <br> Amount |
| :---: | :---: | ---: |
|  | 1 | $\$ 3,071$ |
| 57 | 5 | 14,232 |
| 60 | 2 | 4,940 |
| 61 | 7 | 21,561 |
| 62 | 3 | 7,789 |
| 63 | 7 | 17,989 |
| 64 | 3 | 9,093 |
| 65 | 3 | 7,174 |
| 66 | 4 | 11,155 |
| 67 | 1 | 2,558 |
| 68 | 3 | 8,053 |
| $70-74$ | $\mathbf{3 9}$ | $\mathbf{\$ 1 0 7 , 6 1 5}$ |
| Totals |  |  |

# ORIGINAL BENEFIT FORMULAS (BEFORE JULY 1, 1988) Inactive Vested Members December 31, 2008 AnNuAl Deferred Benefits - By Attained Ages 

| Attained <br> Ages | No. | Annual <br> Amount |
| :---: | :---: | ---: |
|  |  |  |
| 49 | 1 | $\$ 1,204$ |
| 53 | 1 | 1,915 |
| 55 | 2 | 2,615 |
| 56 | 7 | 8,350 |
| 57 | 3 | 4,794 |
| 58 | 3 | 2,953 |
| 59 | 2 | 3,858 |
| 60 | 2 | 7,238 |
| 61 | 4 | 9,604 |
| 62 | 3 | 2,885 |
| 63 | 2 | 1,995 |
| 64 | 3 | 2,881 |
| 67 | 1 | 2,429 |
| 71 | 2 | 2,936 |
| 73 | 1 | 1,392 |
|  |  |  |
| Totals* | $\mathbf{3 3}$ | $\$ 50,292$ |

* In addition, there are 5 members whose benefits are projected to be offset to zero. Liabilities for these members were set equal to their contributions.


## BENEFIT FORMULAS (EFFECTIVE JULY 1, 1988) Inactive Vested Members December 31, 2008 <br> Annual Deferred Benefits - by Attained Ages

| Attained Ages | No. | Annual Amount |
| :---: | :---: | :---: |
| 28 | 1 | \$ 1,091 |
| 29 | 1 | 1,429 |
| 30 | 27 | 47,028 |
| 31 | 45 | 78,708 |
| 32 | 48 | 90,856 |
| 33 | 68 | 130,145 |
| 34 | 87 | 158,271 |
| 35 | 92 | 194,245 |
| 36 | 112 | 238,945 |
| 37 | 101 | 230,620 |
| 38 | 124 | 270,734 |
| 39 | 121 | 291,206 |
| 40 | 104 | 248,580 |
| 41 | 107 | 240,478 |
| 42 | 86 | 177,772 |
| 43 | 92 | 204,053 |
| 44 | 80 | 167,643 |
| 45 | 85 | 214,728 |
| 46 | 69 | 169,901 |
| 47 | 61 | 203,449 |
| 48 | 63 | 149,917 |
| 49 | 54 | 188,607 |
| 50 | 47 | 140,257 |
| 51 | 53 | 173,160 |
| 52 | 68 | 229,073 |
| 53 | 71 | 223,304 |
| 54 | 72 | 223,277 |
| 55 | 48 | 134,944 |
| 56 | 37 | 133,735 |
| 57 | 34 | 96,083 |
| 58 | 29 | 93,425 |
| 59 | 22 | 65,616 |
| 60 | 26 | 107,775 |
| 61 | 20 | 73,470 |
| 62 | 20 | 72,884 |
| 63 | 18 | 50,675 |
| 64 | 6 | 15,720 |
| 65 \& Up | 11 | 40,687 |
| Totals | 2,210 | \$5,572,491 |

ERFC 2001
InActive Vested Members December 31, 2008
Annual Deferred Benefits - by Attained Ages

| Attained Ages | No. | Annual Amount |
| :---: | :---: | :---: |
| 25 | 1 | \$ 840 |
| 26 | 1 | 937 |
| 27 | 8 | 23,139 |
| 28 | 14 | 37,138 |
| 29 | 29 | 83,062 |
| 30 | 19 | 59,866 |
| 31 | 23 | 66,207 |
| 32 | 24 | 61,293 |
| 33 | 18 | 44,396 |
| 34 | 22 | 56,665 |
| 35 | 8 | 20,395 |
| 36 | 2 | 5,771 |
| 37 | 12 | 30,426 |
| 38 | 6 | 16,562 |
| 39 | 7 | 16,617 |
| 40 | 12 | 28,795 |
| 41 | 7 | 13,731 |
| 42 | 3 | 5,825 |
| 43 | 3 | 6,268 |
| 44 | 5 | 13,826 |
| 45 | 3 | 6,593 |
| 46 | 5 | 10,013 |
| 47 | 8 | 16,094 |
| 48 | 6 | 12,231 |
| 49 | 11 | 26,037 |
| 50 | 5 | 8,442 |
| 51 | 3 | 5,279 |
| 52 | 5 | 12,871 |
| 53 | 7 | 11,370 |
| 54 | 2 | 1,941 |
| 55 | 7 | 17,107 |
| 56 | 6 | 15,184 |
| 57 | 6 | 10,984 |
| 58 | 8 | 20,541 |
| 59 | 5 | 11,436 |
| 60 | 2 | 4,355 |
| 61 | 1 | 1,249 |
| 62 | 1 | 2,535 |
| 63 | 1 | 3,179 |
| 65 \& Over | 1 | 2,980 |
| Totals | 317 | \$792,180 |

## SECTION F

FINANCIAL REPORTING (GASB)

## Financial Reporting in Compliance with Governmental Accounting Standards Board (GASB) REQUIREMENTS

The provisions of GASB Statement No. 25 became effective for periods beginning after June 15, 1996. This Statement established financial reporting standards for defined benefit plans. (GASB Statement No. 27, which is effective for periods beginning after June 15, 1997 establishes standards for the financial reports of state and local governmental employers with regard to pension expense and related liabilities, as well as required supplementary information.)

Defined benefit plan reporting under Statement No. 25 will include two financial statements with notes and two required schedules with notes. In response, the following exhibits appear on the next several pages:

- Statement of Plan Net Assets Available for Benefits (page F-2) provides information about the market value of plan assets by investment category.
- Statement of Changes in Plan Assets Available for Benefits (page F-3) shows a reconciliation of beginning-of-year market value with the end-of-year market value.

The relevant notes to the financial statements are on page F-4.

- The Schedule of Funding Progress (page F-5) shows the most recent history of the actuarial value of assets, actuarial accrued liability, their relationship, and the relationship of the unfunded actuarial accrued liability to payroll.
- The Schedule of Employer Contributions (page F-6) provides a history of the Annual Required Contribution (ARC) and a year-by-year comparison of the ARC to the actual contributions.

A summary of actuarial methods and assumptions completes the Statement No. 25 information on page F-7.

A development of the Annual Pension Cost (APC) and the Net Pension Obligation under GASB Statement No. 27 is found on page F-8.

|  | December 31 |  |
| :---: | :---: | :---: |
|  | 2008 | 2007 |
| Assets |  |  |
| Cash and short-term investments |  |  |
| Cash | \$ 1,411,979 | \$ 1,428,886 |
| Cash with fiscal agent | 1,100,301 | $(1,342,394)$ |
| Cash collateral for securities on loan | 123,656,957 | 258,549,938 |
| Short-term investments | 16,341,955 | 17,847,921 |
| Prepaid assets | 24,792 | 24,792 |
| Total cash \& short-term investments | \$ 142,535,984 | \$ 276,509,143 |
| Receivables |  |  |
| Interest and dividends | 6,021,414 | 3,907,145 |
| Securities Sold | 3,509,492 | 4,986,101 |
| Miscellaneous accounts receivable | 491 | 491 |
| Total Receivables | \$ 9,531,397 | \$ 8,893,737 |
| Investments at fair value |  |  |
| US Government obligations | \$ 0 | \$ 32,105,051 |
| Mortgage-backed securities | 4,252,301 | 7,383,757 |
| Domestic corporate bonds | 76,877,627 | 66,891,395 |
| International and Convertible bonds | 33,644,423 | 43,952,376 |
| Common stock | 449,807,601 | 766,313,084 |
| Preferred stock | 3,027,785 | 3,901,431 |
| Global Asset Allocation / Better Beta | 217,283,487 | 297,380,654 |
| Real Estate | 74,468,572 | 89,543,851 |
| Hedge Fund of Funds | 40,399,363 | 0 |
| Commingled Funds | 466,131,968 | 669,789,339 |
| Total Investments | \$1,365,893,127 | \$1,977,260,938 |
| Other Assets (Furniture and equip. net of accum. deprec.) | 93,286 | 80,402 |
| Total Assets | \$1,518,053,794 | \$2,262,744,220 |
| Liabilities |  |  |
| Accounts payable | \$ 263,443 | \$ 28,382 |
| Securities purchased | 6,976,511 | 4,260,348 |
| Securities lending collateral | 123,656,957 | 258,549,938 |
| Total Liabilities | \$ 130,896,911 | \$ 262,838,668 |
| Net Assets held in trust for pension benefits <br> (a schedule of funding progress is presented on page F-5) | \$1,387,156,883 | \$1,999,905,552 |

## Statement of Changes in Reported Plan Assets



## Notes to the Financial Statements FOR THE YEAR ENDED DECEMBER 31, 2008

Membership information as of December 31, 2008, the date of the latest actuarial valuation, is as follows:

| Retirees and beneficiaries | 8,595 |
| :--- | ---: |
| Inactive members | 2,565 |
| Active members | 19,731 |
| Total | $\mathbf{3 0 , 8 9 1}$ |

## Plan Description

The ERFC is a single employer defined benefit pension plan that provides service, reduced service, disability, and death benefits to plan members and their beneficiaries. Annual post-retirement cost-ofliving increases of $3 \%$ are effective each March 31.

## Contributions

Plan members currently contribute $4 \%$ of pay. The employer's funding policy provides for periodic employer contributions based upon a fundamental financial objective of having rates of contribution which remain relatively level from generation to generation of employees. To determine the employer contribution rates and to assess the extent to which the fundamental financial objective is being achieved, ERFC has actuarial valuations prepared annually. In preparing those valuations, the entry age actuarial cost method is used to determine normal cost and actuarial accrued liabilities (see page G-2 for further details).

Unfunded actuarial accrued liabilities are amortized by level percent-of-payroll contributions over a period of future years not in excess of 30 .

On the basis of the December 31, 2008 actuarial valuation, the Annual Required Employer Contribution for Fiscal 2011 determined in accordance with GASB Statement No. 25 for accounting purposes was determined to be $4.04 \%$ of payroll as follows:

| 1) Normal Cost | $5.69 \%$ |
| :--- | :--- |
| 2) Accrued Liability | $2.35 \%$ |
| 3) Total | $8.04 \%$ |
| 4) Member Contribution | $4.00 \%$ |
| 5) Annual Required Contribution | $4.04 \%$ |

## REQUIRED SUPPLEMENTARY INFORMATION SChedule of Funding Progress (DOLLAR AMOUNTS IN THOUSANDS)

| Actuarial <br> Valuation <br> Date | Actuarial <br> Value <br> of Assets <br> (a) | Actuarial Accrued <br> Liability (AAL) <br> - Entry Age <br> (b) | Unfunded <br> AAL <br> (UAAL) <br> (b) - (a) | Funded <br> Ratio <br> (a)/(b) | Covered <br> Payroll <br> (c) | UAAL as a <br> Percent of <br> Covered Payroll <br> [(b) - (a)] / (c) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $6 / 30 / 90$ | $\$ 461,450$ | $\$ 644,873$ | $\$ 183,423$ | $71.56 \%$ | $\$ 411,970$ | $44.52 \%$ |
| $6 / 30 / 91$ | 510,825 | 717,727 | 206,902 | $71.17 \%$ | 451,873 | $45.79 \%$ |
| $6 / 30 / 92$ | 563,644 | 763,570 | 199,926 | $73.82 \%$ | 447,474 | $44.68 \%$ |
| $6 / 30 / 93$ | 717,701 | 908,367 | 190,666 | $79.01 \%$ | 450,530 | $42.32 \%$ |
| $6 / 30 / 94 \#$ | 766,480 | 972,079 | 205,599 | $78.85 \%$ | 480,995 | $42.74 \%$ |
| $6 / 30 / 95$ | 839,930 | $1,072,536$ | 232,606 | $78.31 \%$ | 521,044 | $44.64 \%$ |
| $6 / 30 / 96$ | 934,572 | $1,130,544$ | 195,972 | $82.67 \%$ | 531,060 | $36.90 \%$ |
| $6 / 30 / 97$ | $1,045,412$ | $1,215,367$ | 169,955 | $86.02 \%$ | 553,709 | $30.69 \%$ |
| $6 / 30 / 98$ | $1,194,556$ | $1,282,615$ | 88,059 | $93.13 \%$ | 582,755 | $15.11 \%$ |
| $6 / 30 / 98 \#$ | $1,194,556$ | $1,278,372$ | 83,816 | $93.44 \%$ | 582,755 | $14.38 \%$ |
| $6 / 30 / 99$ | $1,510,953$ | $1,345,659$ | $(165,294)$ | $112.28 \%$ | 626,015 | - |
| $6 / 30 / 00$ | $1,505,231$ | $1,367,371$ | $(137,860)$ | $110.08 \%$ | 678,937 | - |
| $6 / 30 / 01 \$$ | $1,599,219$ | $1,552,558$ | $(46,661)$ | $103.01 \%$ | 759,906 | - |
| $6 / 30 / 02$ | $1,619,889$ | $1,693,956$ | 74,067 | $95.63 \%$ | 781,756 | $9.47 \%$ |
| $6 / 30 / 03 \$$ | $1,597,459$ | $1,772,418$ | 174,959 | $90.13 \%$ | 866,502 | $20.19 \%$ |
| $12 / 31 / 04 \#$ | $1,643,020$ | $1,935,582$ | 292,562 | $84.89 \%$ | 977,817 | $29.92 \%$ |
| $12 / 31 / 05$ | $1,718,399$ | $2,022,962$ | 304,563 | $84.94 \%$ | $1,050,217$ | $29.00 \%$ |
| $12 / 31 / 06$ | $1,818,930$ | $2,105,552$ | 286,622 | $86.39 \%$ | $1,111,828$ | $25.78 \%$ |
| $12 / 31 / 07$ | $1,924,886$ | $2,186,801$ | 261,915 | $88.02 \%$ | $1,161,432$ | $22.55 \%$ |
| $12 / 31 / 08$ | $1,595,230$ | $2,255,298$ | 660,068 | $70.73 \%$ | $1,211,140$ | $54.50 \%$ |
| $12 / 31 / 08 *$ | $1,733,946$ | $2,255,298$ | 521,352 | $76.88 \%$ | $1,211,140$ | $43.05 \%$ |

[^3]| Valuation <br> Year <br> Ended | Annual <br> Required <br> Contribution | Percent <br> Contributed |
| :---: | :---: | :---: |
| $6 / 30 / 1991$ | $\$ 24,839,920$ | $100 \%$ |
| $6 / 30 / 1992$ | $24,909,099$ | $100 \%$ |
| $6 / 30 / 1993$ | $25,445,123$ | $100 \%$ |
| $6 / 30 / 1994$ | $26,935,383$ | $100 \%$ |
| $6 / 30 / 1995$ | $29,225,043$ | $100 \%$ |
| $6 / 30 / 1996$ | $30,087,963$ | $100 \%$ |
| $6 / 30 / 1997$ | $35,159,514$ | $100 \%$ |
| $6 / 30 / 1998$ | $36,932,114$ | $100 \%$ |
| $6 / 30 / 1999$ | $38,422,667$ | $100 \%$ |
| $6 / 30 / 2000$ | $35,655,898$ | $100 \%$ |
| $6 / 30 / 2001$ | $29,145,883$ | $100 \%$ |
| $6 / 30 / 2002$ | $30,849,067$ | $100 \%$ |
| $6 / 30 / 2003$ | $34,506,630$ | $100 \%$ |
| $12 / 31 / 2004$ | $34,417,581$ | $100 \%$ |
| $12 / 31 / 2005$ | $33,245,249$ | $100 \%$ |
| $12 / 31 / 2006$ | $35,532,122$ | $100 \%$ |
| $12 / 31 / 2007$ | $37,417,072$ | $100 \%$ |
| $12 / 31 / 2008$ | $39,098,636$ | $100 \%$ |

The figures on this page show the actual employer contribution required for compliance with Governmental Accounting Standards (GASB No. 27). A figure of $100 \%$ in the 'Percent Contributed’ column means that the employer contribution complied with Governmental Accounting Standards. The figures are prepared in draft form for review by the auditor.

## Summary of Actuarial Methods and Assumptions

The information presented in the required supplementary schedules was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation follows:

| Valuation date | December 31, 200 |
| :--- | ---: |
| Actuarial cost method | Individual entry age actuarial cost m |
|  |  |
| Amortization method | Level percent of pa |
|  |  |
| Remaining amortization period | 30 years |
|  |  |
| Asset valuation method | 5-year smoothed ma |
|  | $75 \% / 125 \%$ corrid |
| Actuarial assumptions |  |
| Investment rate of return* |  |
| Projected salary increase* | $7.50 \%$ |
| *Includes wage inflation at | $4.0-8.2 \%$ |
| Cost-of-living adjustments | $3.75 \%$ |

## Determination of Annual Pension Cost (APC) <br> and Net Pension Obligation (NPO) UNDER Governmental Accounting Standards Board Statement No. 27

| Fiscal <br> Year <br> Ended <br> June 30 | ARC <br> (Annual <br> Required <br> ER Conts) | Interest on <br> Prior Year's <br> NPO | ARC <br> Adjustment <br> (NPO Amort) | Net <br> Change <br> to ARC | APC <br> (Annual <br> Pension <br> Cost) | Actual ER <br> Contribution | Change <br> in NPO | New NPO <br> Balance |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1995 | $\$ 29,225,043$ | $\$ 0$ | $\$ 0$ | $\$ 0$ | $\$ 29,225,043$ | $\$ 29,225,043$ | $\$ 0$ | $\$ 0$ |
| 1996 | $30,087,963$ | 0 | 0 | 0 | $30,087,963$ | $30,087,963$ | 0 | 0 |
| 1997 | $35,159,514$ | 0 | 0 | 0 | $35,159,514$ | $35,159,514$ | 0 | 0 |
| 1998 | $36,932,114$ | 0 | 0 | 0 | $36,932,114$ | $36,932,114$ | 0 | 0 |
| 1999 | $38,422,667$ | 0 | 0 | 0 | $38,422,667$ | $38,422,667$ | 0 | 0 |
| 2000 | $35,655,898$ | 0 | 0 | 0 | $35,655,898$ | $35,655,898$ | 0 | 0 |
| 2001 | $29,145,883$ | 0 | 0 | 0 | $29,145,883$ | $29,145,883$ | 0 | 0 |
| 2002 | $30,849,067$ | 0 | 0 | 0 | $30,849,067$ | $30,849,067$ | 0 | 0 |
| 2003 | $34,506,630$ | 0 | 0 | 0 | $34,506,630$ | $34,506,630$ | 0 | 0 |
| 2004 | $34,417,581$ | 0 | 0 | 0 | $34,417,581$ | $34,417,581$ | 0 | 0 |
| 2005 | $33,245,249$ | 0 | 0 | 0 | $33,245,249$ | $33,245,249$ | 0 | 0 |
| 2006 | $35,532,122$ | 0 | 0 | 0 | $35,532,122$ | $35,532,122$ | 0 | 0 |
| 2007 | $37,417,072$ | 0 | 0 | 0 | $37,417,072$ | $37,417,072$ | 0 | 0 |
| 2008 | $39,098,636$ | 0 | 0 | 0 | $39,098,636$ | $39,098,636$ | 0 | 0 |

The figures above are prepared in draft form for review and approval by the auditor. Please let us know if there are any audit adjustments.

## SECTION G

ACTUARIAL ASSUMPTIONS \& MISCELLANEOUS

# SUMMARY OF <br> ASSUMPTIONS USED FOR ERFC ACTUARIAL VALUATION Assumptions Adopted by Board of Trustees After Consulting With Actuary 

The actuarial assumptions used in making the valuation are shown in this Appendix of the report. The assumptions were established for the December 31, 2004 actuarial valuation, based upon a study of experience during the period July 1, 1999 to June 30, 2004.

## ECONOMIC ASSUMPTIONS

The investment return rate used in making the valuation was $7.5 \%$ per year, compounded annually (net after administrative expenses). The real rate of return over wages or the "spread" is defined to be the portion of total investment return which is more than the wage inflation rate. Based upon an assumed wage inflation rate of $3.75 \%$, the $7.5 \%$ investment return rate translates to an assumed real rate of return over wages of $3.75 \%$.

Pay increase assumptions for individual active members are shown for sample ages on page G-7. Part of the assumption for each age is for merit and/or seniority increase, and the other $3.75 \%$ recognizes wage inflation. No specific price inflation assumption is needed for this valuation.

The number of active members is assumed to continue at the present number.

Total active member payroll is assumed to increase 3.75\% annually in the long term, which is the portion of the individual pay increase assumptions attributable to wage inflation. This assumed increase is recognized in the funding of unfunded actuarial accrued liabilities.

## NON-ECONOMIC ASSUMPTIONS

The mortality table used to measure active and retired life mortality was the 1994 Group Annuity Mortality Table set back 2 years for males and 1 year for females. Related values are shown on page G-5 along with the rates used for disabled mortality.

The probabilities of retirement for members eligible to retire are shown on page G-6.

The probabilities of withdrawal from service, death-in-service and disability are shown for sample ages on page G-7.

The individual entry age actuarial cost method of valuation was used for determining actuarial accrued liabilities and normal cost. The method determines separate normal costs for ERFC and for ERFC 2001 and blends the results together to produce the normal costs shown on page B-2. This means that in the long run, the normal cost will become the normal cost of ERFC 2001, which is slightly higher than the blended figure shown on page B-2.

Unfunded actuarial accrued liabilities are amortized to produce contribution amounts (principal and interest) which are level percent of payroll contributions.

Present assets (cash and investments) are valued on a market-related basis effective June 30, 1986. Page D-3 provides specifics. A one time adjustment toward market was made in connection with the 1990-93 experience study and an additional one-time adjustment set the funding value equal to the market value as of December 31, 2004. An $85 \%-115 \%$ market value corridor was added in the December 31, 2005 valuation. This was adjusted to 75\%-125\% in the December 31, 2008 valuation, as requested by the Board.

The data about persons now covered and about present assets was furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the Actuary.

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (M.A.A.A.).

# ERFC REGULATIONS - Funding Policy And Employer Contribution Rate 

(Applicable to ERFC and ERFC 2001)

Pursuant to their authority under § 15.03 of the ERFC Plan Document and § 10.03 of the ERFC 2001 Plan Document, the Trustees have adopted the following regulations governing determination of the employer contribution rate and implementation of the funding policy pursuant to $\S \S 3.05$ and 16.03 of the ERFC Plan Document and $\S \S 3.05$ and 11.03 of the ERFC 2001 Plan Document.
16.03A Purpose of Regulations. The funding policy of the Plan is stated in § 16.03 of the ERFC Plan Document and § 11.03 of the ERFC 2001 Plan Document. That policy is "to establish and receive contributions which will remain approximately level from generation to generation of citizens and which, when combined with other assets and investment return thereon, will be sufficient to pay benefits when due while providing a reasonable margin for adverse experience." Section 3.05 in each Plan Document provides that the employer "shall contribute a percentage of each Member's Salary, at a rate to be determined by the actuary in accordance with the funding policy set forth in this Plan Document." Within the broader context of the stated funding policy, the objectives of the Trustees are:
(1) To make consistent progress toward $100 \%$ funding of the Plan and to maintain $100 \%$ funding once it has been attained;
(2) To stabilize the employer contribution rate and avoid sharp increases or decreases due to specific events or short-term conditions; and
(3) To maintain the Plan's funding in accordance with principles of actuarial practice and standards issued by the Government Accounting Standards Board (GASB).
16.03B Frequency of Actuarial Valuations. The actuary shall prepare annual actuarial valuations based upon calendar-year data. Whenever possible, the valuation for a particular year should be presented to the Trustees within the first 120 days of the following calendar year.
16.03C Schedule for Setting the Employer Contribution Rate. The Trustees will determine the Employer contribution rate biennially, in consultation with the actuary, based upon the actuarial valuation for the most recently completed calendar year. The rate shall be set and communicated to the Employer at least 9 months in advance of the effective date so that it will be available for use in the Employer's budgetary process. Each rate shall remain in effect for two consecutive fiscal years. The first rate to be set in accordance with this schedule will be based on the actuarial valuation as of December 31, 2005. It will become effective July 1, 2007, and will remain in effect through June 30, 2009.
16.03D The Employer Contribution Rate. The Employer contribution rate will be set at a level that is expected to:
(1) pay all normal costs accruing under the Plan during the fiscal years for which the rate is effective;
(2) amortize any unfunded liabilities in compliance with GASB standards; and
(3) take into consideration the difference between actuarial and market value of Plan assets and the amortization period for unfunded liabilities.
16.03E The Amortization Period for Unfunded Liabilities. In the biennial determination of the Employer contribution rate, the amortization period for unfunded liabilities will be set within the parameters permitted by GASB standards. If those standards and the other principles stated in §§ 16.03A and 16.03D permit, the Employer contribution rate to be effective July 1, 2007, through June 30, 2009, will use 27 years as the amortization period for unfunded liabilities. In setting the Employer contribution rate for years beginning July 1, 2009, or later, the Trustees may change the amortization period within the parameters permitted by GASB standards, with the expectation that the amortization period will be reduced over time, consistent with $\S 16.03 \mathrm{~A}(1)$.
16.03F The Valuation of Plan Assets. The actuarial value of Plan assets shall be determined as a 5 year smoothed Market Value of Assets. The smoothing technique shall fully recognize the assumed return each year. It shall further spread the difference between the actual return and the assumed return in equal installments over the current year and four future years. In the event that the method would result in an actuarial value of assets that is less than $75 \%$ of market value or more than $125 \%$ of market value, the actuarial value of assets shall be reset to $75 \%$ of market value or $125 \%$ of market value, as the case may be, and the total difference between market and actuarial value shall be spread over 4 future years.

## Standard Mortality

| Sample <br> Attained <br> Ages | Present Value of \$1 <br> Monthly for Life <br> Increasing 3.0\% Annually |  | Future Life <br> Expectancy (years) |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Men | Women | Men | Women |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| 55 | $\$ 183.72$ | $\$ 195.47$ | 27.95 | 31.11 |  |  |  |  |  |
| 60 | 165.91 | 178.85 | 23.52 | 26.49 |  |  |  |  |  |
| 65 | 146.49 | 160.36 | 19.39 | 22.11 |  |  |  |  |  |
| 70 | 126.51 | 140.71 | 15.66 | 18.08 |  |  |  |  |  |
| 75 | 106.26 | 119.31 | 12.34 | 14.31 |  |  |  |  |  |
| 80 | 85.94 | 97.25 |  |  |  |  |  | 9.40 | 10.93 |
| Ref: | 261 | x 1.00 | 262 | x 1.00 |  |  |  |  |  |
|  | sb | 2 | sb |  |  |  |  |  |  |

## DISABLED MORTALITY

| Sample <br> Attained <br> Ages | Present Value of \$1 <br> Monthly for Life <br> Increasing 3.0\% Annually |  | Future Life <br> Expectancy (years) |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Men | Women | Men | Women |
|  |  |  |  |  |
| 55 | $\$ 128.18$ | $\$ 144.69$ | 17.14 | 20.34 |
| 60 | 118.67 | 135.13 | 15.18 | 18.04 |
| 65 | 110.09 | 124.28 | 13.46 | 15.71 |
| 70 | 99.71 | 111.15 | 11.60 | 13.27 |
| 75 | 86.55 | 94.60 | 9.55 | 10.66 |
| 80 | 70.31 | 76.56 | 7.37 | 8.17 |
| Ref: | 309 | x 0.70 | 310 | x 0.90 |
|  | sb | 0 | sb | 0 |

Probabilities of Retirement for Members Eligible to Retire

| Ages | Hired Before 7/1/2001 Type of Retirement |  | Hired on or After 7/1/2001 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Age |  | Service |
|  | Service | Reduced Service | Based | Service | Based |
| 45 |  | 5\% |  |  |  |
| 46 |  | 5\% |  |  |  |
| 47 |  | 5\% |  |  |  |
| 48 |  | 5\% |  |  |  |
| 49 |  | 5\% |  |  |  |
| 50 |  | 6\% |  |  |  |
| 51 |  | 7\% |  |  |  |
| 52 |  | 8\% |  |  |  |
| 53 |  | 9\% |  |  |  |
| 54 |  | 10\% |  |  |  |
| 55 | 50\% | 10\% |  | 30 | 35\% |
| 56 | 40\% | 5\% |  | 31 | 28\% |
| 57 | 30\% | 5\% |  | 32 | 21\% |
| 58 | 30\% | 5\% |  | 33 | 21\% |
| 59 | 30\% | 5\% |  | 34 | 21\% |
| 60 | 30\% | 10\% | 21\% | 35 | 21\% |
| 61 | 40\% | 10\% | 28\% | 36 | 28\% |
| 62 | 40\% | 20\% | 28\% | 37 | 28\% |
| 63 | 25\% | 20\% | 18\% | 38 | 35\% |
| 64 | 25\% | 20\% | 18\% | 39 | 50\% |
| 65 | 50\% |  | 50\% | 40 \& Up | 100\% |
| 66 | 40\% |  | 40\% |  |  |
| 67 | 30\% |  | 30\% |  |  |
| 68 | 40\% |  | 40\% |  |  |
| 69 | 20\% |  | 20\% |  |  |
| 70 | 20\% |  | 20\% |  |  |
| 71 | 20\% |  | 20\% |  |  |
| 72 | 30\% |  | 30\% |  |  |
| 73 | 40\% |  | 40\% |  |  |
| 74 | 50\% |  | 50\% |  |  |
| 75 | 100\% |  | 100\% |  |  |
| 76 | 100\% |  | 100\% |  |  |
| 77 | 100\% |  | 100\% |  |  |
| 78 | 100\% |  | 100\% |  |  |
| 79 | 100\% |  | 100\% |  |  |
| 80 | 100\% |  | 100\% |  |  |
| Ref: | 542 | 541 | 666 |  | 667 |

The age column index does not apply to the service based retirements. In ERFC 2001 an individual can retire at 30 years of service regardless of age.

# SAMPLE RATES OF SEPARATION <br> From Active Employment Before Retirement 

| Ages | $\begin{gathered} \text { Years } \\ \text { of } \\ \text { Service } \end{gathered}$ | \% of Active Members Separating Within Next Year |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Death |  |  |  | Disability |  |  |  | Other |  |
|  |  | Ordinary |  | Duty |  | Ordinary |  | Duty |  |  |  |
|  |  | Men | Women | Men | Women | Men | Women | Men | Women | Men | Women |
| 25 | 3 \& Up | 0.04\% | 0.02\% | 0.01\% | 0.00\% | 0.06\% | 0.03\% | 0.01\% | 0.01\% | 12.00\% | 15.80\% |
| 30 |  | 0.06\% | 0.02\% | 0.01\% | 0.00\% | 0.06\% | 0.05\% | 0.02\% | 0.01\% | 8.50\% | 12.00\% |
| 35 |  | 0.06\% | 0.03\% | 0.01\% | 0.00\% | 0.09\% | 0.09\% | 0.02\% | 0.02\% | 5.75\% | 8.20\% |
| 40 |  | 0.07\% | 0.05\% | 0.01\% | 0.01\% | 0.14\% | 0.12\% | 0.03\% | 0.03\% | 4.30\% | 5.00\% |
| 45 |  | 0.10\% | 0.07\% | 0.01\% | 0.01\% | 0.21\% | 0.18\% | 0.05\% | 0.05\% | 2.90\% | 3.70\% |
| 50 |  | 0.16\% | 0.10\% | 0.02\% | 0.01\% | 0.34\% | 0.29\% | 0.08\% | 0.07\% | 2.50\% | 3.20\% |
| 55 |  | 0.27\% | 0.16\% | 0.04\% | 0.02\% | 0.59\% | 0.49\% | 0.15\% | 0.12\% | 2.50\% | 3.00\% |
| 60 |  | 0.47\% | 0.29\% | 0.06\% | 0.04\% | 0.98\% | 0.71\% | 0.24\% | 0.18\% | 2.50\% | 3.00\% |
| Ref: |  | $0.75 \times 261$ | $0.75 \times 262$ | $0.1 \times 261$ | $0.1 \times 262$ |  |  |  |  | 214 | 214 |
|  |  | sb 2 | sb 1 | sb 2 | sb 1 | $0.32 \times 16$ | $0.32 \times 17$ | $0.08 \times 16$ | $0.08 \times 17$ | 319 | 318 |

Rates of separation for members with less than 3 years of service are assumed to be: $18 \%$ in the first year, $15 \%$ in the second year and $12 \%$ in the third year.

SAMPLE PAY Increase Assumptions for an Individual Member

| Sample <br> Ages | Pay Increase Assumption |  |  |
| :---: | :---: | :---: | :---: |
|  |  <br> Seniority | Base <br> (Economy) | Increase <br> Next Year |
|  |  |  |  |
| 20 | $4.45 \%$ | $3.75 \%$ | $8.20 \%$ |
| 25 | $3.25 \%$ | $3.75 \%$ | $7.00 \%$ |
| 30 | $2.75 \%$ | $3.75 \%$ | $6.50 \%$ |
| 35 | $2.35 \%$ | $3.75 \%$ | $6.10 \%$ |
| 40 | $2.05 \%$ | $3.75 \%$ | $5.80 \%$ |
|  |  |  |  |
| 45 | $1.55 \%$ | $3.75 \%$ | $5.30 \%$ |
| 50 | $1.15 \%$ | $3.75 \%$ | $4.90 \%$ |
| 55 | $0.75 \%$ | $3.75 \%$ | $4.50 \%$ |
| 60 | $0.35 \%$ | $3.75 \%$ | $4.10 \%$ |
| 65 | $0.25 \%$ | $3.75 \%$ | $4.00 \%$ |
| Ref: | 124 |  |  |

Rates of Forfeiture Following Vested Separation

| Age at Separation | Sample Entry Age |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 25 | 30 | 35 | 40 | 45 |
| 30 | 0.5000 |  |  |  |  |
| 31 | 0.4854 |  |  |  |  |
| 32 | 0.4708 |  |  |  |  |
| 33 | 0.4563 |  |  |  |  |
| 34 | 0.4417 |  |  |  |  |
| 35 | 0.4271 | 0.5000 |  |  |  |
| 36 | 0.4125 | 0.4816 |  |  |  |
| 37 | 0.3979 | 0.4632 |  |  |  |
| 38 | 0.3833 | 0.4447 |  |  |  |
| 39 | 0.3688 | 0.4263 |  |  |  |
| 40 | 0.3542 | 0.4079 | 0.5000 |  |  |
| 41 | 0.3396 | 0.3895 | 0.4750 |  |  |
| 42 | 0.3250 | 0.3711 | 0.4500 |  |  |
| 43 | 0.3104 | 0.3526 | 0.4250 |  |  |
| 44 | 0.2958 | 0.3342 | 0.4000 |  |  |
| 45 | 0.2813 | 0.3158 | 0.3750 | 0.5000 |  |
| 46 | 0.2667 | 0.2974 | 0.3500 | 0.4611 |  |
| 47 | 0.2521 | 0.2789 | 0.3250 | 0.4222 |  |
| 48 | 0.2375 | 0.2605 | 0.3000 | 0.3833 |  |
| 49 | 0.2229 | 0.2421 | 0.2750 | 0.3444 |  |
| 50 | 0.2083 | 0.2237 | 0.2500 | 0.3056 | 0.5000 |
| 51 | 0.1938 | 0.2053 | 0.2250 | 0.2667 | 0.4125 |
| 52 | 0.1792 | 0.1868 | 0.2000 | 0.2278 | 0.3250 |
| 53 | 0.1646 | 0.1684 | 0.1750 | 0.1889 | 0.2375 |
| 54 | 0.1500 | 0.1500 | 0.1500 | 0.1500 | 0.1500 |

Forfeiture occurs when a vested person separates from service and withdraws contributions thereby forfeiting future rights to an employer financed benefit. The total probability of forfeiture is obtained by multiplying the probability of "other separation" from page G-7 by the probability of forfeiture from this table. The table does not apply to individuals who are eligible for retirement at time of termination.

# Investment Return and Inflation: Past and Future 

## Inflation Distortions

Inflation's impact on investment return is not uniform from year to year. A common expectation for Real Investment Return (the portion of Total Return remaining after Inflation) is in the area of $3 \%$ to $4 \%$ annually.

Over the last 30 years, Real Return exceeded that range on average. However, for parts of the period it was actually negative. It is very difficult to maintain a long-term portfolio allocation during periods of negative real return.

## Annual Investment Return (including Income) expressed as REAL RETURN (Remainder after Inflation)

| No. Years Ended December | Inflation (CPI) | Cash <br> Equiv. <br> (T Bills) | Bonds (Long Term) |  | Stocks (S \& P 500) | Real Return for Sample Fund |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | US | Corporate |  |  |  |  |
|  |  |  | Treasury | (Sol. Bro.) |  | A | B | C |
| 1/2004 | 3.3 | (2.0) | 5.0 | 5.2 | 7.4 | 5.0 | 5.5 | 5.8 |
| 1/2005 | 3.4 | (0.4) | 4.3 | 2.4 | 1.5 | 2.4 | 2.0 | 1.7 |
| 1/2006 | 2.5 | 2.2 | (1.3) | 0.7 | 13.0 | 3.9 | 6.6 | 8.7 |
| 1/2007 | 4.1 | 0.6 | 5.6 | (1.4) | 1.3 | 1.7 | 1.5 | 1.2 |
| 1/2008 | 0.1 | 1.5 | 25.8 | 8.7 | (37.1) | (0.6) | (11.5) | (20.1) |
| 5/1975 | 6.9 | (1.0) | (0.7) | (0.8) | (3.5) | (1.2) | (1.7) | (2.1) |
| 5/1980 | 9.2 | (1.3) | (6.9) | (6.2) | 4.3 | (2.6) | (0.4) | 1.3 |
| 5/1985 | 4.8 | 5.2 | 11.5 | 12.3 | 9.4 | 10.7 | 10.2 | 9.8 |
| 5/1990 | 4.1 | 2.6 | 6.4 | 6.1 | 8.6 | 6.7 | 7.2 | 7.6 |
| 5/1995 | 2.8 | 1.5 | 10.0 | 9.1 | 13.4 | 10.0 | 10.8 | 11.3 |
| 5/2000 | 2.5 | 2.6 | 4.9 | 3.2 | 15.4 | 7.7 | 10.0 | 11.7 |
| 5/2005 | 2.5 | (0.4) | 5.1 | 6.6 | (2.0) | 3.4 | 2.0 | 0.7 |
| 5/2008 | 2.7 | 0.3 | 7.5 | 3.0 | (4.8) | 2.4 | 0.6 | (1.2) |
| 30/2008 | 3.8 | 1.9 | 6.2 | 5.4 | 6.9 | 6.2 | 6.5 | 6.6 |

Sample Funds (only three of many reasonable samples)

|  | A | B | C |
| :--- | :--- | :--- | :--- |
| Cash: T-Bills | $10 \%$ | $10 \%$ | $10 \%$ |
| Bonds: US | 30 | 20 | 10 |
| Bonds: Corp | 30 | 20 | 15 |
| Stock | 30 | 50 | 65 |

For many pension plans, Benefit Increases after Retirement have fallen short of keeping up with inflation. The retired life group has been hurt more than the active life group. The investment return necessary for the indexing of benefits after retirement probably cannot be realized during a period of high inflation.

## Changes in Economic Assumptions within an Economic Environment of Inflation

There is powerful motivation to increase the assumed Investment Return used in actuarial calculations, with or without a related increase in Employee Pay Base, because such an assumption change decreases computed contributions. A contribution rate decrease (i) offers relief for employer budget problems and/or (ii) offers a "no cost" way to provide benefit increases.

The wisdom of Investment Return assumed for the future can be determined only by future events. Will the investment record of the next 30 years be the same as the last 30 Years? Will it be like the 5-year period ended in 1980? Better? Worse? What will happen when "Baby Boomers" begin to swell the retired population?


## Basic Series

Year-by-Year Total Returns (1926-2008)

For a type of investment,
Red means a REAL Return less than 3\%
[(Total Return - Inflation) < 3\%]

For Inflation,
RED means a purchasing power loss

| Year | Large Company Stocks | Small Company Stocks | Long-Term Corporate Bonds | Long-Term Government Bonds | Intermed.-Term Government Bonds | $\begin{aligned} & \text { U.S. } \\ & \text { Treasury } \\ & \text { Bills } \end{aligned}$ | Inflation * |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1926 | 11.62 | 0.28 | 7.37 | 7.77 | 5.38 | 3.27 | -1.49 |
| 1927 | 37.49 | 22.10 | 7.44 | 8.93 | 4.52 | 3.12 | -2.08 |
| 1928 | 43.61 | 39.69 | 2.84 | 0.10 | 0.92 | 3.56 | -0.97 |
| 1929 | -8.42 | -51.36 | 3.27 | 1.17 | 6.01 | 4.75 | 0.20 |
| 1930 | -24.90 | -38.15 | 7.98 | 4.66 | 6.72 | 2.41 | -6.03 |
| 1931 | -43.34 | -49.75 | -1.85 | -5.31 | -2.32 | 1.07 | -9.52 |
| 1932 | -8.19 | -5.39 | 10.32 | 16.84 | 8.81 | 0.96 | -10.30 |
| 1933 | 53.99 | 142.87 | 10.38 | -0.07 | 1.83 | 0.30 | 0.51 |
| 1934 | -1.44 | 24.22 | 13.84 | 10.03 | 9.00 | 0.16 | 2.03 |
| 1935 | 47.67 | 40.19 | 9.61 | 4.98 | 7.01 | 0.17 | 2.99 |
| 1936 | 33.92 | 64.80 | 6.74 | 7.52 | 3.06 | 0.18 | 1.21 |
| 1937 | -35.03 | -58.01 | 2.75 | 0.23 | 1.56 | 0.31 | 3.10 |
| 1938 | 31.12 | 32.80 | 6.13 | 5.53 | 6.23 | -0.02 | -2.78 |
| 1939 | -0.41 | 0.35 | 3.97 | 5.94 | 4.52 | 0.02 | -0.48 |
| 1940 | -9.78 | -5.16 | 3.39 | 6.09 | 2.96 | 0.00 | 0.96 |
| 1941 | -11.59 | -9.00 | 2.73 | 0.93 | 0.50 | 0.06 | 9.72 |
| 1942 | 20.34 | 44.51 | 2.60 | 3.22 | 1.94 | 0.27 | 9.29 |
| 1943 | 25.90 | 88.37 | 2.83 | 2.08 | 2.81 | 0.35 | 3.16 |
| 1944 | 19.75 | 53.72 | 4.73 | 2.81 | 1.80 | 0.33 | 2.11 |
| 1945 | 36.44 | 73.61 | 4.08 | 10.73 | 2.22 | 0.33 | 2.25 |
| 1946 | -8.07 | -11.63 | 1.72 | -0.10 | 1.00 | 0.35 | 18.16 |
| 1947 | 5.71 | 0.92 | -2.34 | -2.62 | 0.91 | 0.50 | 9.01 |
| 1948 | 5.50 | -2.11 | 4.14 | 3.40 | 1.85 | 0.81 | 2.71 |
| 1949 | 18.79 | 19.75 | 3.31 | 6.45 | 2.32 | 1.10 | -1.80 |
| 1950 | 31.71 | 38.75 | 2.12 | 0.06 | 0.70 | 1.20 | 5.79 |
| 1951 | 24.02 | 7.80 | -2.69 | -3.93 | 0.36 | 1.49 | 5.87 |
| 1952 | 18.37 | 3.03 | 3.52 | 1.16 | 1.63 | 1.66 | 0.88 |
| 1953 | -0.99 | -6.49 | 3.41 | 3.64 | 3.23 | 1.82 | 0.62 |
| 1954 | 52.62 | 60.58 | 5.39 | 7.19 | 2.68 | 0.86 | -0.50 |
| 1955 | 31.56 | 20.44 | 0.48 | -1.29 | -0.65 | 1.57 | 0.37 |
| 1956 | 6.56 | 4.28 | -6.81 | -5.59 | -0.42 | 2.46 | 2.86 |
| 1957 | -10.78 | -14.57 | 8.71 | 7.46 | 7.84 | 3.14 | 3.02 |
| 1958 | 43.36 | 64.89 | -2.22 | -6.09 | -1.29 | 1.54 | 1.76 |
| 1959 | 11.96 | 16.40 | -0.97 | -2.26 | -0.39 | 2.95 | 1.50 |
| 1960 | 0.47 | -3.29 | 9.07 | 13.76 | 11.76 | 2.66 | 1.48 |
| 1961 | 26.89 | 32.09 | 4.82 | 0.97 | 1.85 | 2.13 | 0.67 |
| 1962 | -8.73 | -11.90 | 7.95 | 6.89 | 5.56 | 2.73 | 1.22 |
| 1963 | 22.80 | 23.57 | 2.19 | 1.21 | 1.64 | 3.12 | 1.65 |
| 1964 | 16.48 | 23.52 | 4.77 | 3.51 | 4.04 | 3.54 | 1.19 |
| 1965 | 12.45 | 41.75 | -0.46 | 0.71 | 1.02 | 3.93 | 1.92 |
| 1966 | -10.06 | -7.01 | 0.20 | 3.65 | 4.69 | 4.76 | 3.35 |
| 1967 | 23.98 | 83.57 | -4.95 | -9.18 | 1.01 | 4.21 | 3.04 |
| 1968 | 11.06 | 35.97 | 2.57 | -0.26 | 4.54 | 5.21 | 4.72 |
| 1969 | -8.50 | -25.05 | -8.09 | -5.07 | -0.74 | 6.58 | 6.11 |
| 1970 | 4.01 | -17.43 | 18.37 | 12.11 | 16.86 | 6.52 | 5.49 |
| 1971 | 14.31 | 16.50 | 11.01 | 13.23 | 8.72 | 4.39 | 3.36 |
| 1972 | 18.98 | 4.43 | 7.26 | 5.69 | 5.16 | 3.84 | 3.41 |
| 1973 | -14.66 | -30.90 | 1.14 | -1.11 | 4.61 | 6.93 | 8.80 |
| 1974 | -26.47 | -19.95 | -3.06 | 4.35 | 5.69 | 8.00 | 12.20 |
| 1975 | 37.20 | 52.82 | 14.64 | 9.20 | 7.83 | 5.80 | 7.01 |
| 1976 | 23.84 | 57.38 | 18.65 | 16.75 | 12.87 | 5.08 | 4.81 |
| 1977 | -7.18 | 25.38 | 1.71 | -0.69 | 1.41 | 5.12 | 6.77 |
| 1978 | 6.56 | 23.46 | -0.07 | -1.18 | 3.49 | 7.18 | 9.03 |
| 1979 | 18.44 | 43.46 | -4.18 | -1.23 | 4.09 | 10.38 | 13.31 |
| 1980 | 32.42 | 39.88 | -2.62 | -3.95 | 3.91 | 11.24 | 12.40 |
| 1981 | -4.91 | 13.88 | -0.96 | 1.86 | 9.45 | 14.71 | 8.94 |
| 1982 | 21.41 | 28.01 | 43.79 | 40.36 | 29.10 | 10.54 | 3.87 |
| 1983 | 22.51 | 39.67 | 4.70 | 0.65 | 7.41 | 8.80 | 3.80 |
| 1984 | 6.27 | -6.67 | 16.39 | 15.48 | 14.02 | 9.85 | 3.95 |
| 1985 | 32.16 | 24.66 | 30.09 | 30.97 | 20.33 | 7.72 | 3.77 |
| 1986 | 18.47 | 6.85 | 19.85 | 24.53 | 15.14 | 6.16 | 1.13 |
| 1987 | 5.23 | -9.30 | -0.27 | -2.71 | 2.90 | 5.47 | 4.41 |
| 1988 | 16.81 | 22.87 | 10.70 | 9.67 | 6.10 | 6.35 | 4.42 |
| 1989 | 31.49 | 10.18 | 16.23 | 18.11 | 13.29 | 8.37 | 4.65 |
| 1990 | -3.17 | -21.56 | 6.78 | 6.18 | 9.73 | 7.81 | 6.11 |
| 1991 | 30.55 | 44.63 | 19.89 | 19.30 | 15.46 | 5.60 | 3.06 |
| 1992 | 7.67 | 23.35 | 9.39 | 8.05 | 7.19 | 3.51 | 2.90 |
| 1993 | 9.99 | 20.98 | 13.19 | 18.24 | 11.24 | 2.90 | 2.75 |
| 1994 | 1.31 | 3.11 | -5.76 | -7.77 | -5.14 | 3.90 | 2.67 |
| 1995 | 37.43 | 34.46 | 27.20 | 31.67 | 16.80 | 5.60 | 2.54 |
| 1996 | 23.07 | 17.62 | 1.40 | -0.93 | 2.10 | 5.21 | 3.32 |
| 1997 | 33.36 | 22.78 | 12.95 | 15.85 | 8.38 | 5.26 | 1.70 |
| 1998 | 28.58 | -7.31 | 10.76 | 13.06 | 10.21 | 4.86 | 1.61 |
| 1999 | 21.04 | 29.79 | -7.45 | -8.96 | -1.77 | 4.68 | 2.68 |
| 2000 | -9.11 | -3.59 | 12.87 | 21.48 | 12.59 | 5.89 | 3.39 |
| 2001 | -11.88 | 22.77 | 10.65 | 3.70 | 7.62 | 3.83 | 1.55 |
| 2002 | -22.10 | -13.28 | 16.33 | 17.84 | 12.93 | 1.65 | 2.38 |
| 2003 | 28.70 | 60.70 | 5.27 | 1.45 | 2.40 | 1.02 | 1.88 |
| 2004 | 10.87 | 18.39 | 8.72 | 8.51 | 2.25 | 1.20 | 3.26 |
| 2005 | 4.91 | 5.69 | 5.87 | 7.81 | 1.36 | 2.98 | 3.42 |
| 2006 | 15.80 | 16.17 | 3.24 | 1.19 | 3.14 | 4.80 | 2.54 |
| 2007 | 5.49 | -5.22 | 2.60 | 9.88 | 10.05 | 4.66 | 4.08 |
| 2008 | -37.00 | -36.72 | 8.78 | 25.87 | 13.11 | 1.60 | 0.09 |

GABRIEL, ROEDER, SMITH \& COMPANY from SBBI Yearbook

* Calculated using December to December CPI-U (1982-84=100, when available), not seasonally adjusted.


## Economic Assumptions

Investment return
Pay increases to individual employees: the portion for economic changes Active member group size and total payroll growth

## Demographic Assumptions

Actual ages at service retirement Pay increases to individual members: the portion for merit \& seniority Disability while actively employed Separations before retirement Mortality after retirement Mortality before retirement


## Relationship Between Plan Governing Body and the Actuary

The actuary should have the primary responsibility for choosing the demographic assumptions used in the actuarial valuation, making use of specialized training and experience.

The actuary and other professionals can provide guidance concerning the choice of suitable economic assumptions, but the basis of the economic assumptions is the assumed rate of inflation, a quantity which defies accurate prediction. Given an assumed rate of future inflation, it is very important that this rate be applied in a consistent manner in deriving the assumed rate of investment return, the economic portion of the assumption on pay increases to individual employees, and the assumed rate of growth of active member payroll. Consistent application of assumptions is an area in which the actuary has specialized training.

A sound procedure is that the actuary suggests reasonable alternatives for economic assumptions, followed by discussion involving the actuary, the Plan Governing Body, and other professionals, and the Plan Governing Body then makes a final choice from the various alternatives.

## DEFINITIONS OF TECHNICAL TERMS

Accrued Service. Service credited under the system which was rendered before the date of the actuarial valuation.

Actuarial Accrued Liability. The difference between the actuarial present value of system benefits and the actuarial present value of future normal costs. Also referred to as "past service liability."

Actuarial Assumptions. Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment return and pay 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 (pay increases and investment return) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

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

Actuarial Equivalent. One series of payments is said to be actuarially equivalent to another series of payments if the two series have the same actuarial present value.

Actuarial Gain (Loss). The difference between actual unfunded actuarial accrued liabilities and anticipated unfunded actuarial accrued liabilities -- during the period between two valuation dates. It is a measurement of the difference between actual and expected experience.

Actuarial Present Value. The single sum now which is equal to a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest, and by probabilities of payment.

Actuary. A person who is trained in the application of probability and compound interest to problems in business and finance that involve payment of money in the future, contingent upon the occurrence of future events. Most actuaries in the United States are Members of the American Academy of Actuaries. The Society of Actuaries is an international research, education and membership organization for actuaries in the life and health insurance, employee benefits, and pension fields. It administers a series of examinations leading initially to Associateship and the designation A.S.A. and ultimately to Fellowship with the designation F.S.A.

Amortization. Paying off an interest bearing liability with periodic payments as opposed to paying it off with a single sum payment.

Normal Cost. The portion of the actuarial present value of future benefits that is assigned to the current year by the actuarial cost method. Sometimes referred to as "current cost."

Unfunded Actuarial Accrued Liabilities. The difference between actuarial accrued liabilities and valuation assets. Sometimes referred to as "unfunded past service liability" or, strangely, "unfunded supplemental present value" or simply as "unfunded liability."

Valuation Assets. The value of plan assets recognized for valuation purposes. This may not be the same value that is used by the plan for financial reporting.

# Miscellaneous and Technical Assumptions DECEMBER 31, 2008 

Marriage Assumption:

## Pay Increase Timing: <br> Decrement Timing:

Eligibility Testing:

Miscellaneous Loads:

Decrement Relativity:

Decrement Operation:

Incidence of Contributions:

Normal Form of Benefit:

## Benefit Service:

## Actuarial Equivalent Factors:

$100 \%$ of males and $100 \%$ of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses.

Nine months after the valuation date (October 1).
Decrements of all types are assumed to occur mid-year.
Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.

For members hired prior to July 1, 2001 computed liabilities and normal costs are increased by $3 \%$ to reflect service credit for unused sick leave that may be granted at retirement.

Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.

Disability and turnover do not operate during retirement eligibility.

Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.

The assumed normal form of benefit is the straight life form.
Exact Fractional Service is used to determine the amount of benefit payable.

Effective January 1, 2006. The interest rate is 7.5\%, except for Small Pension payouts where the interest rate, if smaller, is the rate for 20-year Treasury Notes raised to the next highest integer from the December $1^{\text {st }}$ preceding the Calendar year of retirement. Mortality is based upon a $30 \%$ unisex blend of the 1994 Group Annuity Mortality Table set back 2 years for males and 1 year for females.

May 13, 2009

ERFC Board of Trustees
c/o Dr. Alan Belstock, Executive Director
8001 Forbes Place, Suite 300
Springfield, Virginia 22151

Re: The Report of the ERFC Annual Actuarial Valuation December 31, 2008
Dear Alan:
Enclosed are 10 copies of the report. Please call if you need additional copies.
Sincerely,


Judith A. Kermans

JAK:mrb
Enclosures


[^0]:    @ After change in asset valuation method.
    \$ After change in benefits.
    \# After changes in actuarial assumptions.

[^1]:    @ After change in asset valuation method.
    \$ After change in benefits.
    \# After changes in actuarial assumptions.

[^2]:    * Funding value reset to market value.
    ** Calculated over the 18 month period of 6/30/2003 to 12/31/2004.

[^3]:    \# Experience Study.
    \$ After change in benefit structure.

    * After changes in actuarial assumptions and/or methods.

