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**EDUCATIONAL EMPLOYEES' SUPPLEMENTARY
RETIREMENT SYSTEM OF FAIRFAX COUNTY (ERFC)**

ANNUAL ACTUARIAL VALUATION
DECEMBER 31, 2015

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June 3, 2016

Board of Trustees
Educational Employees' Supplementary
Retirement System of Fairfax County
Fairfax, Virginia

Dear Board Members:

Submitted in this report are the results of the annual actuarial valuation of the Educational Employees' Supplementary Retirement System of Fairfax County (ERFC), based on data as of December 31, 2015. The valuation was based upon information furnished by your Executive Director and staff, concerning Retirement System benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. Their efforts in furnishing this material are acknowledged with our appreciation. We checked for internal and year-to-year consistency, but did not audit the information supplied. We are not responsible for the accuracy or completeness of the information supplied by others.

This report was prepared at the request of the Executive Director and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with permission of the Board. GRS is not responsible for unauthorized use of this report. GRS specifically disclaims any duty to parties other than the Retirement Board.

The purpose of this valuation was to measure the System's funding progress. This report should not be relied on for any purpose other than the purpose described herein. Information related to the Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68 will be provided in a separate report.

Valuation results and comments are presented in Section B and on pages 3-4. The computed contributions shown on page B-2 may be considered a minimum contribution rate that complies with the Board's funding policy. Users of this report should be aware that contributions made at that rate do not guarantee benefit security. Given the importance of benefit security to any retirement system, we suggest that contributions to the System in excess of those presented in this report be considered.

The computed contributions shown in this report are determined using the actuarial assumptions and methods disclosed in Section G of this report. The assumptions were adopted by the Board of Trustees following a study of experience covering the five-year period ending December 31, 2014. This report includes risk metrics on page F-1 but does not include a more robust assessment of risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment. We encourage a review and assessment of investment and other significant risks that may have a material effect on the plan's financial condition.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as: plan experience differing from that anticipated by the economic and demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements.

To the best of our knowledge, the information contained in this report is accurate and fairly represents the actuarial position of ERFC as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

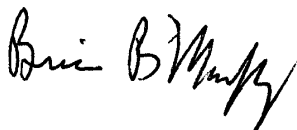
The signing actuaries are independent of the plan sponsor.

Brian B. Murphy and Judith A. Kermans are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

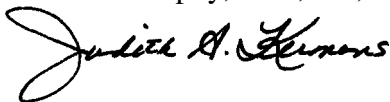
Your attention is directed particularly to:

Comments on page 3;
Computed Employer Contribution Rates on page B-2;
Comparative Statement on page B-5; and
Short Condition Test on page B-7.

Respectfully submitted,



Brian B. Murphy, FSA, EA, FCA, MAAA



Judith A. Kermans, EA, FCA, MAAA

BBM/JAK:clh:dj

COMMENTS

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, such as this valuation, are used to set the employer contribution rate for the two-year period beginning 18 months after the valuation date. The December 31, 2015 valuation is used to determine the contribution rate for the period July 1, 2017 to June 30, 2019. Actuarial valuations as of even numbered years (2014, 2016, etc.), provide an interim measure for the second year of the biennium and provide reporting information. For funding purposes, unfunded accrued liabilities are currently being amortized over a closed 30-year period ending on June 30, 2040. The remaining amortization period in the December 31, 2015 valuation is 23 years.

Contribution Rate: The contribution rate for the two-year period beginning July 1, 2017, which incorporates assumptions changes adopted by the Board pursuant to the recent experience study, was calculated in this December 31, 2015 valuation to be 6.34% of payroll. The Board approved a **funding policy contribution of 6.40% of payroll**, which includes the calculated rate of 6.34% of pay plus a contingency contribution of 0.06% of pay.

Plan Experience: ERFC’s market value rate of return as measured by the actuary was (1.4)%, which was unfavorable. The funded percent is now 76.0%, which is lower than last year’s funded percent of 77.7%. 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 71.6% and the calculated rate would be 6.97% of payroll.

Financial Status: Based upon the December 31, 2015 valuation, the Fairfax County ERFC is operating in accordance with its Funding Policy and with actuarial principles of level percent-of-payroll financing. ERFC is fortunate that its long standing commitment to excellence in funding has resulted in financial strength that provides a solid basis for the future.

OTHER OBSERVATIONS

General Implications of Funding Policy on Future Expected Plan Contributions and Funded Status:

Given the plan's Funding Policy, if all actuarial assumptions are met (including the assumption of the plan earning 7.25% on the actuarial value of assets), it is expected that:

- 1) The employer normal cost as a percentage of pay will increase to the level of the ERFC 2001 normal cost as time passes and the majority of the active population is comprised of ERFC 2001 members;
- 2) The unfunded actuarial accrued liabilities will be fully amortized after 23 years; and
- 3) The funded status of the plan will increase gradually towards a 100% funded ratio.

Limitations of Funded Status Measurements: Unless otherwise indicated, a funded status measurement presented in this report is based upon the actuarial accrued liability and the actuarial value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

- 1) The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations; in other words, of transferring obligation to an unrelated third party in an arm's length market value type transaction.
- 2) The measurement is dependent upon the actuarial cost method which, in combination with the plan's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based on actuarial assumptions. A funded status measurement in this report of 100% is not synonymous with no required future contributions. If the funded status were 100%, the plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).
- 3) The measurement would produce a different result if the market value of assets were used instead of the actuarial value of assets, unless the market value of assets is used in the measurement.

Limitation of Project Scope: Actuarial standards do not require the actuary to evaluate the ability of the plan sponsor or other contributing entity to make required contributions to the plan when due. Such an evaluation was not within the scope of this project and is not within the actuary's domain of expertise. Consequently, the actuary performed no such evaluation.

SECTION A

FINANCIAL PRINCIPLES

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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 financing plan 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 --- theoretically, 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.

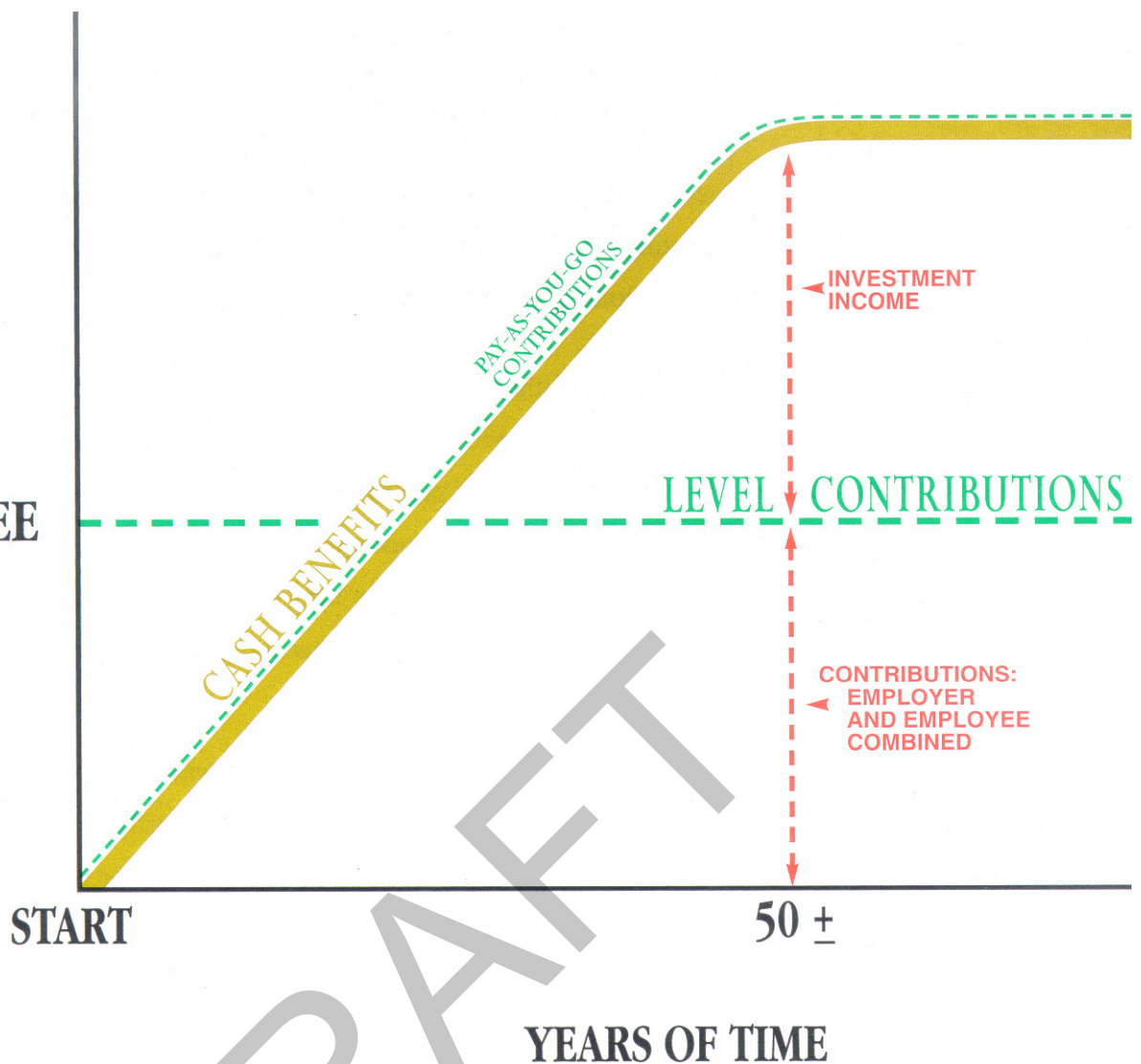
An actuarial valuation has a number of ingredients such as: the rate of investment return which plan assets are assumed to earn; the rates of withdrawal of active members who leave covered employment before qualifying for any monthly benefit; the rates of mortality; the rates of disability; the rates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

**% OF
ACTIVE
EMPLOYEE
PAYS**



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:

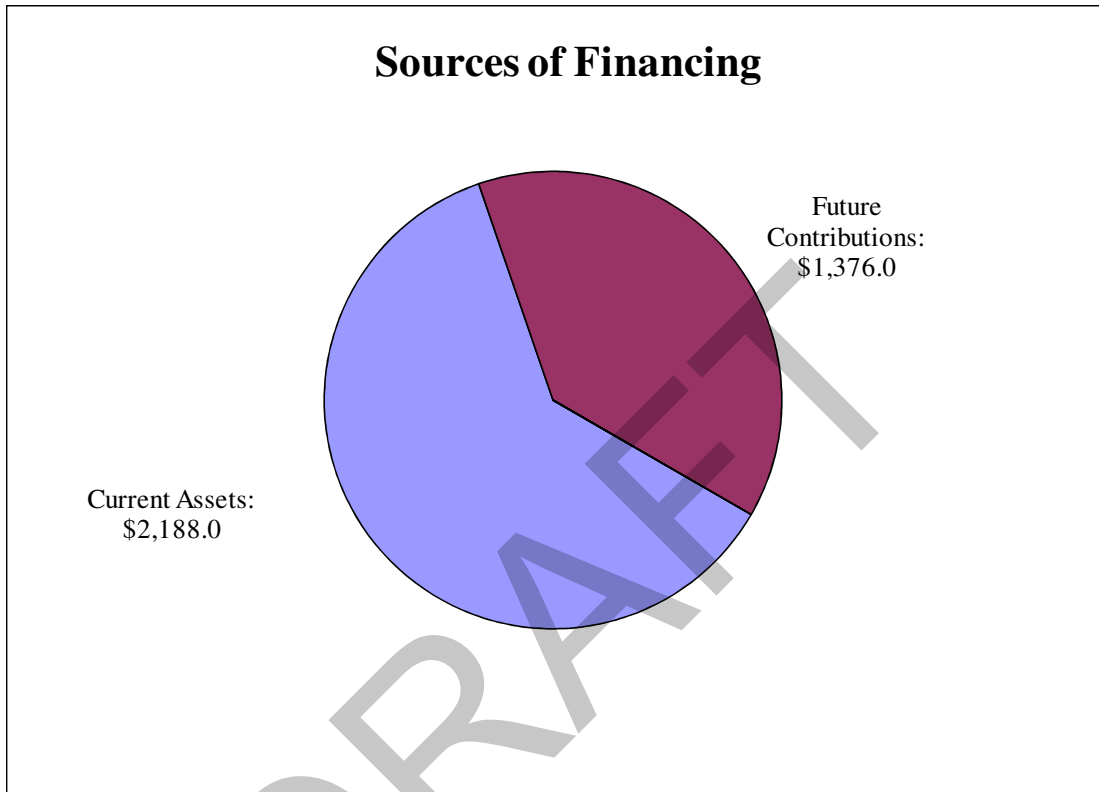
- Covered Person Data, furnished by plan administrator
 - Retired lives now receiving benefits
 - Former employees with vested benefits not yet payable
 - Active employees
- + Asset Data (cash and investments), furnished by plan administrator
- + Assumptions concerning future financial experiences in 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

RESULTS OF THE VALUATION

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FINANCING \$3,564.0 MILLION OF BENEFIT PROMISES
DECEMBER 31, 2015
(\$ IN MILLIONS)



The pie chart above shows that the total amount of benefit promises made to members in *ERFC* and *ERFC 2001* is \$3,564.0 million, based on plan assumptions as of December 31, 2015. 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 \$3,564.0 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. In calculating the \$3,564.0 million number, liabilities were discounted at 7.25% per year. Investment return during 2015, as measured by the actuary, was (1.4)% on a market value basis.

**COMPUTED EMPLOYER CONTRIBUTION RATES
(AS PERCENTS OF ACTIVE MEMBER PAYROLL)**

Valuation Date	December 31, 2015	December 31, 2014
Contributions for Period Ending June 30	2018 and 2019	n/a
Normal Cost (current cost):		
Service Retirement	4.12%	3.97%
Reduced Service Retirement	0.36%	0.46%
Casualty Benefits	0.08%	0.10%
Separation Benefits	1.24%	1.32%
Administrative Expenses	0.28%	n/a
Totals	6.08%	5.85%
Member Contributions	3.00%	3.00%
Employer Normal Cost	3.08%	2.85%
Unfunded Actuarial Accrued Liability	3.26%	2.74%
Actuarially Determined Employer Contribution	6.34%	5.59%
Contingency Contribution	0.06%	0.01%
Funding Policy Contribution	6.40%	5.60%

Unfunded liability was amortized as a level percent of payroll over 23 years in the December 31, 2015 valuation and 24 years in the December 31, 2014 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, 2017 is determined by the December 31, 2015 valuation. The Board adopted a contribution rate of 6.40% of payroll (6.34% plus 0.06% Contingency Contribution). **Even if plan experience is better than expected, the 6.40% rate might be less than the actuarial rate computed in the 2016 valuation.**

CONTRIBUTION RATE HISTORY

Fiscal Year	Valuation Date	Employee Rate	Adopted Employer Rate		ADEC
			Support	Educational	
1991	1989	2.00%	5.08%	5.53%	
1992	1990	2.00%	5.08%	5.53%	
1993	1991	2.00%	5.08%	5.53%	
1994	1992	2.00%	5.08%	5.53%	
1995	1993	2.00%	5.08%	5.53%	
1996	1994	2.00%	5.08%	5.53%	
1997	1995	2.00%	5.58%	6.03%	
1998	1996	2.00%	5.58%	6.03%	
1999	1997	2.00%	5.58%	6.03%	
			Combined July 1, 1999		
2000	1998	2.00%	4.99%		
2001	1999	2.00%	3.69%		
2002	2000	2.00%	3.69%		
2003	2001	2.00%	4.00%		
2004	2002	2.00% / 4.00%	4.29% / 2.53%		
2005	2003	4.00%	3.37%		
2006	2004	4.00%	3.37%		
2007	2004	4.00%	3.37%		
2008	2005	4.00%	3.37%		3.37%
2009	2005	4.00%	3.37%		3.14%
2010	2007	4.00%	3.20%		2.97%
2011	2007	4.00%	4.04%		4.04%
2012	2009	4.00%	4.34%		4.16%
2013	2009	3.00%	5.34%		5.38%
2014	2011	3.00%	5.60%		5.51%
2015	2011	3.00%	5.60%		5.58%
2016	2013	3.00%	5.60%		5.54%
2017	2013	3.00%	5.60%		5.59%
2018	2015	3.00%	6.40%		6.34%

- Notes:
1. In June of 2004, the member rate was increased to 4% and the employer rate was decreased to 2.53%.
 2. The valuation date was June until 2004 when it was changed to December.
 3. Rate for FY 2011 was increased to the ARC. The Funding Policy would have resulted in 3.20%.
 4. On July 1, 2012, the member rate was decreased to 3.0% in conjunction with a restructuring of the VRS employee contribution rate.
 5. ADEC is the Actuarially Determined Employer Contribution.

ACTUARIAL ACCRUED LIABILITIES

Accrued Liabilities for	Amounts at December 31	
	2015	2014
Present Active Members	\$1,196,690,867	\$1,141,314,481
Present Inactive Vested Members	93,522,474	81,813,031
Present Retirees and Beneficiaries	1,590,489,410	1,510,717,282
Total Actuarial Accrued Liabilities	\$2,880,702,751	\$2,733,844,794
Funding Value of Assets	2,188,037,003	2,123,910,320
Unfunded Actuarial Accrued Liability	\$ 692,665,748	\$ 609,934,474
Actuarial Funded Percent	75.95%	77.69%
Market Value Funded Percent	71.64%	78.52%

ASSETS AND LIABILITIES COMPARATIVE STATEMENT

Valuation Date	Active Member Payroll	Computed Liabilities			Valuation Assets	Unfunded Accrued Liabilities	Funded %
		Retired	Other Members	Total			
(\$ in thousands)							
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	1,733,946	521,352	76.9%
12/31/2009#	1,208,093	1,314,885	1,024,984	2,339,869	1,769,540	570,329	75.6%
12/31/2010@	1,191,290	1,355,093	1,028,968	2,384,061	1,822,603	561,458	76.5%
12/31/2011*	1,246,973	1,401,877	1,069,087	2,470,964	1,866,952	604,012	75.6%
12/31/2012	1,297,537	1,448,291	1,117,837	2,566,128	1,935,292	630,836	75.4%
12/31/2013	1,320,309	1,482,770	1,162,730	2,645,500	2,029,005	616,495	76.7%
12/31/2014	1,340,344	1,510,717	1,223,128	2,733,845	2,123,910	609,935	77.7%
12/31/2015#	1,373,096	1,590,489	1,290,214	2,880,703	2,188,037	692,666	76.0%

@ After change in asset valuation method.

* After change in benefits or contribution rates (member contribution rate decrease in Fiscal 2012).

After changes in actuarial assumptions.

**ASSETS AND LIABILITIES
EXPRESSED AS PERCENTS OF ACTIVE MEMBER PAYROLL
COMPARATIVE STATEMENT**

Valuation Date	Active Member Payroll (\$ thousands)	As Percents of Active Member Payroll		
		Computed Liabilities	Valuation Assets	Unfunded Liabilities
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%	143%	43%
12/31/2009#	1,208,093	194%	146%	48%
12/31/2010@	1,191,290	200%	153%	47%
12/31/2011*	1,246,973	198%	150%	48%
12/31/2012	1,297,537	198%	149%	49%
12/31/2013	1,320,309	200%	154%	46%
12/31/2014	1,340,344	204%	158%	46%
12/31/2015#	1,373,096	210%	159%	51%

@ After change in asset valuation method.

* After changes in benefits or contribution rates (member contribution rate decrease in Fiscal 2012).

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. The larger the ratio of liability and assets to payroll, the greater the inherent contribution rate volatility.

SHORT CONDITION TEST

If the contributions to ERFC are level in concept and soundly executed, the System will be able to 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; and
- 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 Date	Aggregate Actuarial Accrued Liabilities For			Valuation Assets	Portion of Accrued Liabilities Covered by Assets		
	(1)	(2)	(3)		(1)	(2)	(3)
	Member Contributions	Retirees and Beneficiaries	Members (Employer Financed Portion)				
(... \$1,000s ...)							
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	1,733,946	100%	100%	27%
12/31/2009#	342,663	1,314,885	682,321	1,769,540	100%	100%	16%
12/31/2010@	374,086	1,355,093	654,882	1,822,603	100%	100%	14%
12/31/2011*	402,847	1,401,877	666,240	1,866,952	100%	100%	9%
12/31/2012	426,609	1,448,291	691,228	1,935,292	100%	100%	9%
12/31/2013	439,310	1,482,770	723,420	2,029,005	100%	100%	15%
12/31/2014	457,591	1,510,717	765,537	2,123,910	100%	100%	20%
12/31/2015#	472,933	1,590,489	817,281	2,188,037	100%	100%	15%

@ After change in asset valuation method.

* After change in benefits or contribution rates (member contribution rate decrease in Fiscal 2012).

After changes in actuarial assumptions.

**CHANGE IN UNFUNDED ACCRUED LIABILITIES
DURING THE YEAR ENDING DECEMBER 31, 2015
(\$ IN MILLIONS)**

	As of December 31	
	2015	2014
1. UAAL* at start of year	\$ 609.9	\$ 616.5
2. Normal Cost (5.85% of 2015 payroll)	80.3	77.7
3. Member and employer contributions	116.1	114.4
4. Interest accrual	44.4	44.9
5. Expected UAAL before changes: (1. + 2. - 3. + 4.)	618.5	624.7
6. Change from non-recurring activities, assumption and/or benefit changes	45.8	-
7. Expected UAAL after changes: (5. + 6.)	664.3	624.7
8. Actual UAAL at end of year	692.7	609.9
9. Gain (loss): (7. - 8.)	\$ (28.4)	\$ 14.8
Gain (loss) as percent of actuarial accrued liabilities at start of year	(1.0)%	0.6%

* *Unfunded Actuarial Accrued Liability.*

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, 2015**

Type of Risk Area	Gain (Loss) in Period			Percent of Liabilities
	\$ in millions			
	<i>ERFC</i>	<i>ERFC 2001</i>	Totals	
Risks Related to Assumptions				
Economic Risk Areas:				
Pay Increases	\$11.2	\$6.5	\$ 17.7	0.6%
Investment Return			(40.2)	(1.5)%
Demographic Risk Areas:				
Full and Reduced Service Retirements	5.7	0.2	5.9	0.2%
Vested Deferred Retirements	(4.0)	6.1	2.1	0.1%
Ordinary Death Benefits	0.2	0.0	0.2	0.0%
Service-Connected Death Benefits	0.0	0.0	0.0	0.0%
Ordinary Disability Benefits	(0.1)	(0.3)	(0.4)	0.0%
Service-Connected Disability Benefits	(0.1)	(0.1)	(0.2)	0.0%
Terminated with Refund	(0.6)	(0.5)	(1.1)	0.0%
Post-Retirement Mortality	(8.9)	(0.1)	(9.0)	(0.3)%
Data Adjustments and Miscellaneous			(3.4)	(0.1)%
Total Gain (or Loss) During Period			(28.4)	(1.0)%
Beginning of Year Accrued Liabilities			\$ 2,733.8	

EXPERIENCE GAINS & LOSSES BY RISK AREA
COMPARATIVE STATEMENT
(\$ IN MILLIONS)

Experience Period	Pay Increases	Investment Return	Retirement	Disability & Death-in-Service	Other Separations	Other ^{&}	Total Gain (Loss)	
							\$	Percent of Liabilities
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)%
2009	45.0	(34.6)	8.8	(0.8)	(10.0)	(11.6)	(3.2)	(0.1)%
2010#	53.1	(16.9)	5.2	0.2	(5.3)	(4.2)	32.1	1.4 %
2011	18.8	(30.6)	5.3	(0.2)	(4.2)	(4.8)	(15.7)	(0.7)%
2012	12.3	(10.8)	4.6	(0.3)	(3.4)	(10.2)	(7.8)	(0.3)%
2013	16.6	7.6	5.7	0.0	2.9	(5.1)	27.7	1.1 %
2014	8.5	(2.8)	5.8	(0.1)	0.6	2.8	14.8	0.6 %
2015#	17.7	(40.2)	5.9	(0.4)	1.0	(12.4)	(28.4)	(1.0)%

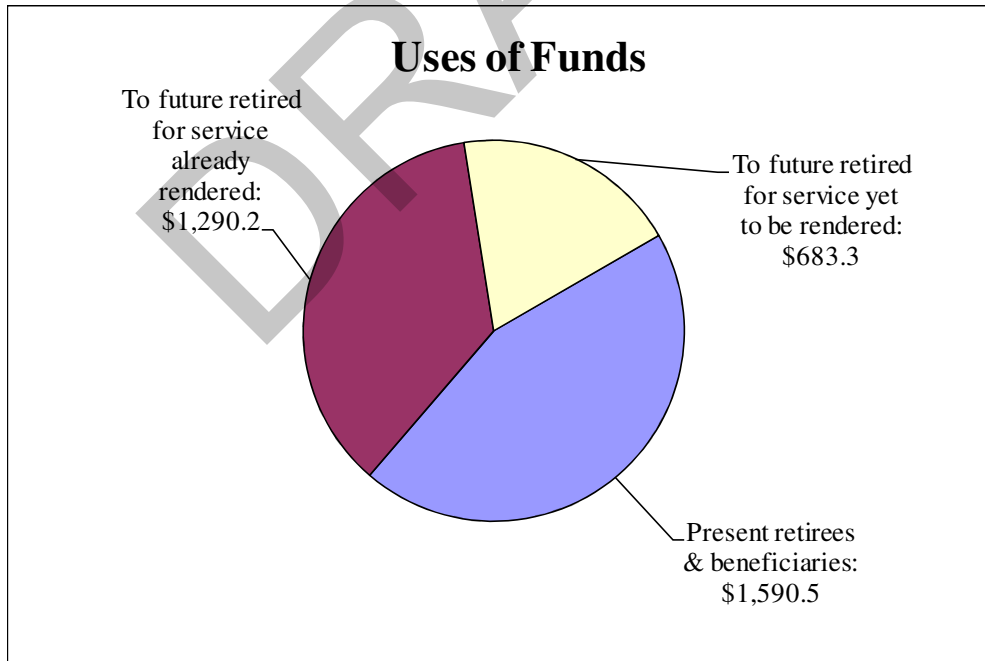
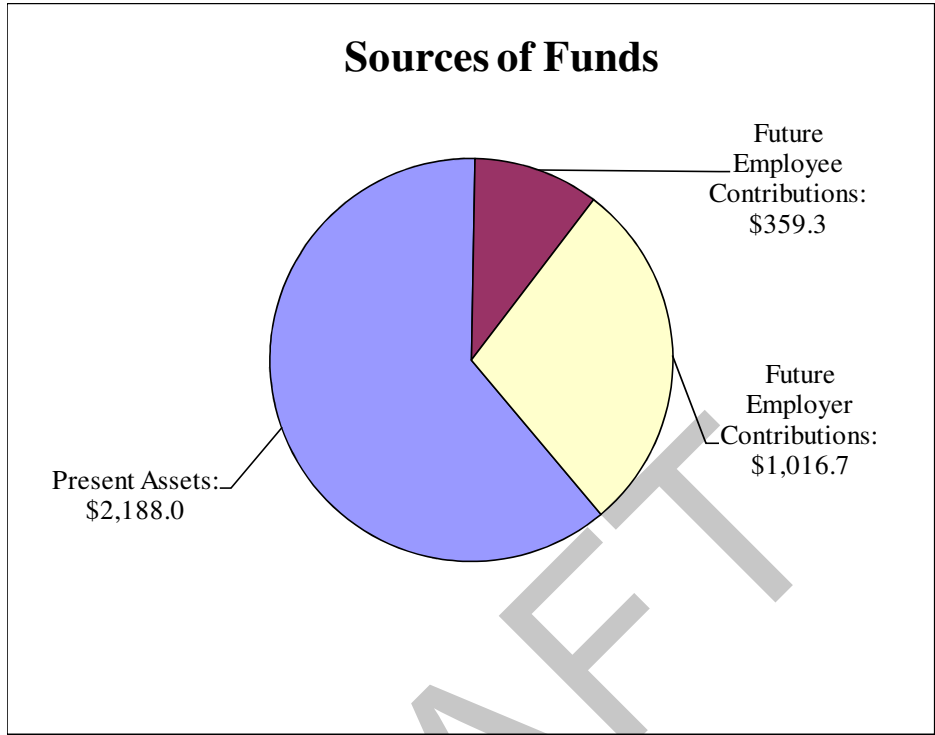
Experience Study.

* Updated Gain Formulas.

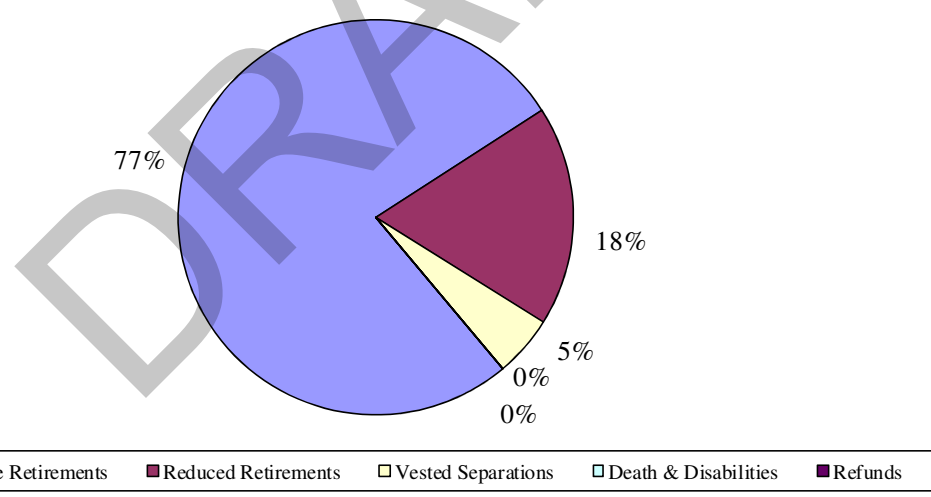
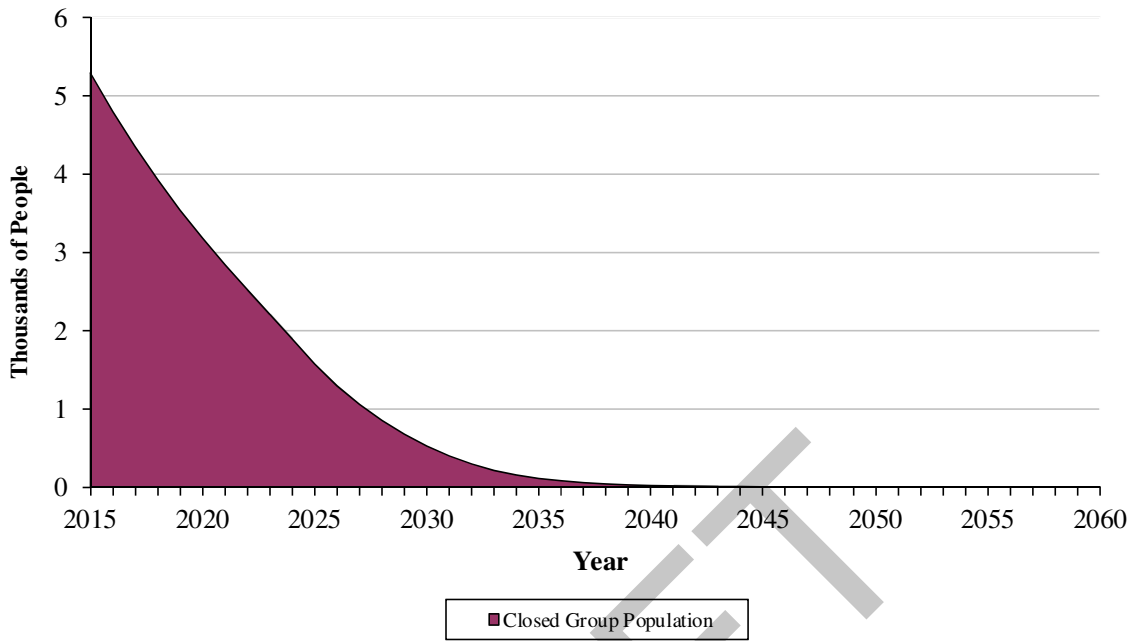
@ Gain (Loss) Analysis not performed.

& Includes post-retirement mortality.

**FINANCING \$3,564.0 MILLION OF BENEFIT PROMISES
DECEMBER 31, 2015
(\$ IN MILLIONS)**

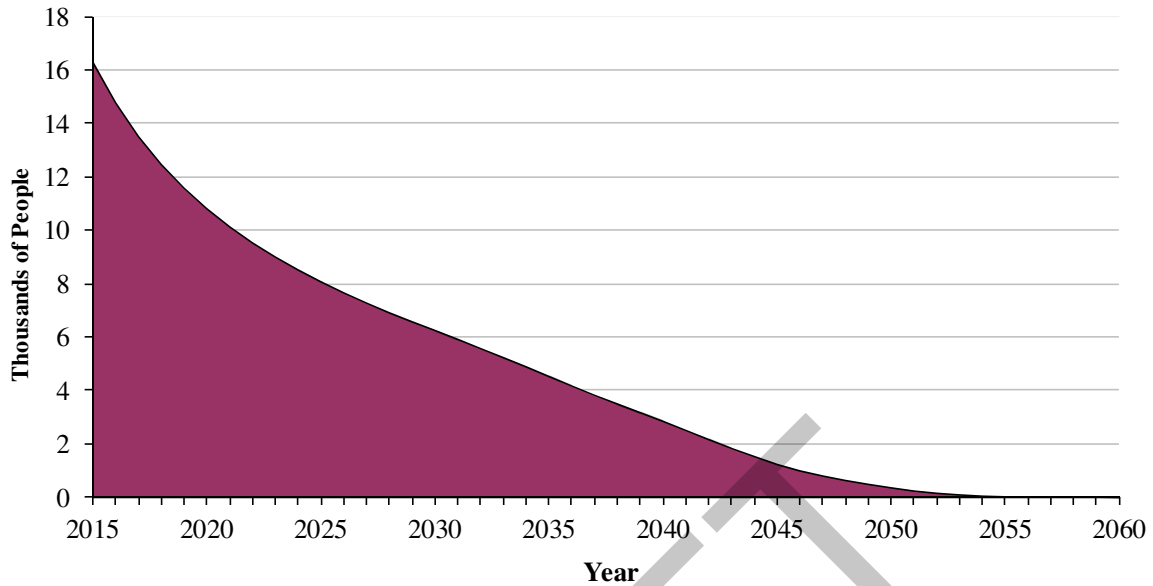


EXPECTED DEVELOPMENT OF PRESENT POPULATION – ERFC DECEMBER 31, 2015

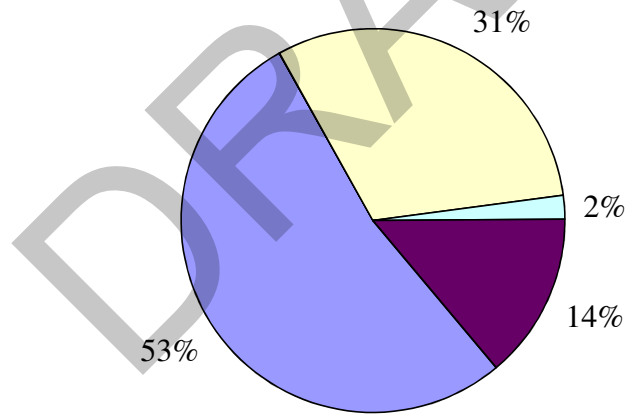


The charts show the expected future development of the present population in simplified terms. ERFC Legacy presently covers 5,292 active members. Approximately 100% of the present population is expected to receive monthly retirement benefits either by retiring directly from active service, or by separating from service without withdrawing contributions. Virtually none of the present population is expected to terminate covered employment prior to retirement and forfeit eligibility for an employer-provided benefit, or 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, 2015



■ Closed Group Population



■ Service Retirements
 ■ Vested Separations
 ■ Death & Disabilities
 ■ Refunds

The charts show the expected future development of the present population in simplified terms. ERFC 2001 presently covers 16,293 active members. Eventually, 14% of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. Approximately 84% 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. 2% of the present population is expected to become eligible for death-in-service or disability benefits. Within 10 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

SUMMARY OF BENEFITS

DRAFT

SUMMARY OF PROVISIONS AS OF DECEMBER 31, 2015
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 5-year 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 of service would have been completed.

SUMMARY OF PROVISIONS AS OF DECEMBER 31, 2015
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, 2015
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.** Effective July 1, 2012, members contribute 3% 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. Members who receive a refund of contributions and are later rehired become members of ERFC 2001.
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. The maximum benefit is 94% of the straight life amount.
 - 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. The maximum benefit is 97% of the straight life amount.
 - 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-16.

SUMMARY OF PROVISIONS AS OF DECEMBER 31, 2015
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;

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, 2015
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% (eight-tenths 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 effective retirement date.

SUMMARY OF PROVISIONS AS OF DECEMBER 31, 2015
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 31st, by 3% compounded annually, beginning with the March 31st 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).
9. **Members' Contributions.** Effective July 1, 2012, members contribute 3% 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:
- 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. The maximum benefit is 94% of the straight life amount.
 - 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. The maximum benefit is 97% of the straight life amount.
 - Option C. 10 years Certain and Life. Benefit is 96% of the straight life amount.

**SAMPLE BENEFIT COMPUTATION
FOR *ERFC* MEMBER RETIRING JUNE 30, 2015**

Data:

A.	<u>7/1/1960</u>	Date of Birth
B.	<u>7/1/2015</u>	Effective Date
C.	<u>7/1/1986</u>	Membership Date
D.	<u>29.00</u>	ERFC Credited Service
E.	<u>29.00</u>	VRS Creditable Service
F.	<u>55.00</u>	Age
G.	<u>Service</u>	Retirement Type
H.	<u>\$60,000.00</u>	3-Year Average Salary
I.	<u>\$60,000.00</u>	5-Year Average Salary

***ERFC* Monthly Benefit Calculation**

Lifetime Portion of Full Service Benefit

J. ERFC Formula Benefit: $1.85\% \times 29 \text{ yrs.} \times \$60,000 =$	\$ 32,190.00
K. minus VRS Adjustment of: $1.65\% \times 29 \text{ yrs.} \times (\$60,000 - \$1,200) \times 94\% =$ (94% is the VRS Early Service Retirement Reduction Factor for 1 year prior to the earlier of age 65 or 30 years of service)	<u>26,447.65</u>
L. Sub Total	5,742.35
M. plus additional 3% benefit adjustment	<u>172.27</u>
N. Total of Lifetime Portion	5,914.62

Additional Temporary Benefit until age SSRA (Social Security Retirement Age)

O. Temporary Benefit Formula: $1\% \times 29 \text{ yrs.} \times \$60,000 =$	17,400.00
P. plus additional 3% benefit adjustment	<u>522.00</u>
Q. Total of Additional Temporary Benefit	17,922.00
R. Monthly benefit effective 06/30/2015 at age 55 payable until SSRA, $(N + Q)/12 =$	\$ 1,986.39
S. Monthly benefit effective 07/01/2026 at SSRA payable for life, $N/12 =$	\$ 492.89

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
FOR ERFC 2001 MEMBER**

Data:

- A. 7/1/1969 Date of Birth
B. 7/1/2029 Effective Date
C. 7/1/2001 Membership Date
D. 28.00 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: $0.80\% \times 28 \text{ yrs.} \times \$60,000 / 12 = \$1,120.00$

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SECTION D

FINANCIAL INFORMATION

DRAFT

SUMMARY OF FINANCIAL INFORMATION
DECEMBER 31, 2015

Revenues and Expenditures

	December 31	
	2015	2014
REVENUES:		
a. Member Contributions	\$ 40,671,716	\$ 40,080,259
b. Employer Contributions	75,420,080	74,368,856
c. Donated Fixed Assets	0	0
d. Investment Return		
1. Interest and Dividends	31,878,683	41,849,589
2. Net Appreciation	(46,980,636)	65,092,239
3. Investment Expense	(13,723,903)	(13,587,309)
4. Net Securities Lending	547,703	306,813
5. Real Estate	2,496,181	8,575,991
6. Miscellaneous	1,117	20,272
7. Total Investment Return	(25,780,855)	102,257,595
e. Total Revenues	90,310,941	216,706,710
EXPENDITURES:		
a. Refunds of Member Contributions	4,901,051	5,791,693
b. Retirement Benefits Paid	164,173,212	161,143,201
c. Administrative Expense	3,904,262	3,952,206
d. Total Expenditures	172,978,525	170,887,100
RESERVE INCREASE:		
Total Revenues Minus Total Expenditures	\$ (82,667,584)	\$45,819,610

Market Value of Assets

	December 31	
	2015	2014
Invested Assets		
Bonds	\$ 129,624,994	\$ 130,186,834
Stocks		
a. Common	581,536,914	635,049,461
b. Preferred	0	752,521
Real Estate	179,662,223	164,948,821
Global Asset Allocation	301,280,959	323,376,419
Hedge Fund of Funds	167,766,015	171,057,019
Private Equity	53,908,783	40,390,737
Commingled Funds	631,000,941	634,292,661
Total Invested Assets	2,044,780,829	2,100,054,473
Short-term Investments and Cash	177,231,628	218,977,389
Receivables and Pre-Paid Expenses	3,657,601	3,867,827
Other Assets (furniture and equipment)	43,068	41,025
Total Assets	2,225,713,126	2,322,940,714
Liabilities	161,839,421	176,399,425
Net Assets	\$2,063,873,705	\$2,146,541,289

PORTFOLIO COMPOSITION AT MARKET VALUE

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

	Year Ended December 31			
	2015		2014	
	Value	% of Total	Value	% of Total
Bonds	\$ 129,624,994	6.3 %	\$ 130,186,834	6.1 %
Stocks				
a. Common	581,536,914	28.2 %	635,049,461	29.5 %
b. Preferred	0	0.0 %	752,521	0.0 %
Real Estate	179,662,223	8.7 %	164,948,821	7.7 %
Commingled Funds	631,000,941	30.6 %	634,292,661	29.5 %
Hedge Fund of Funds	167,766,015	8.1 %	171,057,019	8.0 %
Private Equity	53,908,783	2.6 %	40,390,737	1.9 %
Global Asset Allocation / Better Beta	301,280,959	14.6 %	323,376,419	15.1 %
Net Short-Term Investments and Cash	15,392,207	0.7 %	42,577,964	2.0 %
Receivables, Pre-Paid Expenses and Other	3,700,669	0.2 %	3,908,852	0.2 %
Total Assets	\$2,063,873,705	100.0 %	\$2,146,541,289	100.0 %

In performing an actuarial valuation, values must be determined for the assets held by the System on the valuation date. This value may be the 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-3. 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. Currently, the recognized assets must always be between 75% and 125% of the market value.

DEVELOPMENT OF FUNDING VALUE OF RETIREMENT SYSTEM ASSETS

Year Ended December 31:	2015	2016	2017	2018	2019
A. Funding Value Beginning of Year	\$2,123,910,320	\$2,188,037,003			
B. Market Value End of Year	2,063,873,705				
C. Market Value Beginning of Year	2,146,541,289				
D. Non-Investment Net Cash Flow	(52,982,467)				
E. Investment Return Assumed Rate:	7.5%				
1. Market Total: B-C-D	(29,685,117)				
2. Amount for Immediate Recognition	157,306,431				
3. Amount for Phased-in Recognition: (E1-E2)	(186,991,548)				
F. Phased-In Recognition of Investment Return:					
1. Current year: 0.20 x E3	(37,398,310)				
2. First Prior Year	(10,380,347)	(37,398,310)			
3. Second Prior Year	18,413,301	(10,380,347)	\$(37,398,310)		
4. Third Prior Year	19,744,377	18,413,301	(10,380,347)	\$(37,398,310)	
5. Fourth Prior year	(30,576,302)	19,744,377	18,413,301	(10,380,345)	\$(37,398,308)
6. Total Phased-In	(40,197,281)	(9,620,979)	(29,365,356)	(47,778,655)	(37,398,308)
G. Funding Value End of Year:					
G1. Preliminary Funding Value End of Year: A+D+E2+F6	2,188,037,003				
G2. Upper Corridor Limit: 125% x B	2,579,842,131				
G3. Lower Corridor Limit: 75% x B	1,547,905,279				
G4. Funding Value End of Year	2,188,037,003				
H. Actual/Projected Difference Between Market Value and Funding Value	(124,163,298)	(114,542,319)	(85,176,963)	(37,398,308)	0
I. Market Rate of Return	(1.4)%				
J. Ratio of Funding Value to Market Value	106.0%				

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.

FUNDING VALUE HISTORY

Year Ended December 31:	2011 [#]	2012 [#]	2013 [#]	2014 [#]
A. Funding Value Beginning of Year	\$1,822,603,363	\$1,866,952,015	\$1,935,292,175	\$2,029,004,521
B. Market Value End of Year	1,744,597,088	1,922,507,631	2,100,721,679	2,146,541,289
C. Market Value Beginning of Year	1,822,537,079	1,744,597,088	1,922,507,631	2,100,721,679
D. Non-Investment Net Cash Flow	(59,521,663)	(58,633,969)	(56,866,863)	(52,485,779)
E. Investment Return Assumed Rate:	7.5%	7.5%	7.5%	7.5%
E1. Market Total: B-C-D	(18,418,328)	236,544,512	235,080,911	98,305,389
E2. Amount for Immediate Recognition	134,463,190	137,822,627	143,014,406	150,207,122
E3. Amount for Phased-in Recognition: (E1-E2)	(152,881,518)	98,721,885	92,066,505	(51,901,733)
F. Phased-in Recognition of Investment Return:				
F1. Current year: 0.20 x E3	(30,576,304)	19,744,377	18,413,301	(10,380,347)
F2. First Prior Year	(16,571)	(30,576,304)	19,744,377	18,413,301
F3. Second Prior Year	0	(16,571)	(30,576,304)	19,744,377
F4. Third Prior Year	0	0	(16,571)	(30,576,304)
F5. Fourth Prior year	0	0	0	(16,571)
F6. Total Recognized Investment Gain or Loss	(30,592,875)	(10,848,498)	7,564,803	(2,815,544)
G. Funding Value End of Year:				
G1. Preliminary Funding Value End of Year: A+D+E2+F6	1,866,952,015	1,935,292,175	2,029,004,521	2,123,910,320
G2. Upper Corridor Limit: 125% x B	2,180,746,360	2,403,134,539	2,625,902,099	2,683,176,611
G3. Lower Corridor Limit: 75% x B	1,308,447,816	1,441,880,723	1,575,541,259	1,609,905,967
G4. Funding Value End of Year	1,866,952,015	1,935,292,175	2,029,004,521	2,123,910,320
H. Actual/Projected Difference Between Market Value and Funding Value	(122,354,927)	(12,784,544)	71,717,158	22,630,969
I. Market Rate of Return	(1.0)%	13.8%	12.4%	4.7%
J. Ratio of Funding Value to Market Value	107.0%	100.7%	96.6%	98.9%

[#] Reflects collapsing of bases for future gains and losses implemented in 2010 valuation.

SECTION E

COVERED MEMBER DATA

DRAFT

ERFC MEMBERS
WOMEN ACTIVE MEMBERS IN VALUATION DECEMBER 31, 2015
BY ATTAINED AGE AND YEARS OF SERVICE

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	
35-39	1	10	39	96				146	\$ 11,046,069	\$75,658
40-44	7	43	101	351	32			534	42,952,902	80,436
45-49	4	38	89	337	204	35	2	709	59,847,297	84,411
50-54	7	33	73	291	170	169	26	769	63,773,896	82,931
55-59	3	18	51	365	198	118	46	799	63,296,749	79,220
60			9	80	44	32	4	169	12,902,643	76,347
61		5	8	92	49	25	9	188	14,716,619	78,280
62		1	7	84	35	25	7	159	12,358,045	77,724
63			8	78	41	25	6	158	11,776,594	74,535
64		2	9	68	31	22	12	144	11,208,037	77,834
65			4	51	31	9	6	101	7,818,914	77,415
66			3	52	16	11	7	89	6,883,159	77,339
67			2	24	12	7	6	51	3,801,758	74,544
68		1		18	7	4	3	33	2,527,522	76,592
69			3	12	9	8	1	33	2,342,025	70,970
70				4	8	4	2	18	1,618,714	89,929
71				8	2	3	1	14	912,879	65,206
72				4	4	2	1	11	793,877	72,171
73		1		3	3		2	9	792,308	88,034
74					2	1	4	7	512,447	73,207
75 & Over				5	4	2	3	14	877,353	62,668
Totals	22	152	406	2,023	902	502	148	4,155	\$332,759,807	\$80,087

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

Age: 53.7 years

Service: 19.1 years

Annual Pay: \$80,087

ERFC MEMBERS
MEN ACTIVE MEMBERS IN VALUATION DECEMBER 31, 2015
BY ATTAINED AGE AND YEARS OF SERVICE

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	
35-39			7	24				31	\$ 2,581,437	\$83,272
40-44		1	12	160	15			188	16,892,485	89,854
45-49	1		15	161	115	11		303	28,063,095	92,617
50-54		4	8	97	91	53	11	264	24,429,347	92,535
55-59			3	78	49	43	15	188	17,530,123	93,245
60				12	1	3	5	21	2,010,134	95,721
61			1	13	4	8	2	28	2,742,287	97,939
62				8	9	4	1	22	1,958,891	89,041
63				10	5	7	1	23	2,222,091	96,613
64				6	7	3	1	17	1,618,672	95,216
65				4	2	1	2	9	789,301	87,700
66				5	1	3		9	816,890	90,766
67				2	4	2	1	9	844,614	93,846
68			1	4	1	1		7	683,750	97,679
69				3	1			4	340,358	85,090
70				2	1	1		4	411,063	102,766
71						2		2	205,913	102,957
72					1		1	2	198,888	99,444
73				3	1			4	319,067	79,767
74					1			1	95,987	95,987
75 & Over						1		1	97,791	97,791
Totals	1	5	47	592	309	143	40	1,137	\$104,852,184	\$92,218

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

Age: 51.2 years
Service: 20.0 years
Annual Pay: \$92,218

ERFC 2001 MEMBERS
WOMEN ACTIVE MEMBERS IN VALUATION DECEMBER 31, 2015
BY ATTAINED AGE AND YEARS OF SERVICE

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	
15-19	1							1	\$ 18,824	\$18,824
20-24	424							424	18,731,366	44,178
25-29	2,228	218						2,446	124,450,792	50,879
30-34	1,119	988	156					2,263	127,391,640	56,293
35-39	654	512	615					1,781	109,056,527	61,233
40-44	634	323	368					1,325	79,317,010	59,862
45-49	683	435	334					1,452	83,843,543	57,743
50-54	562	473	397					1,432	78,048,246	54,503
55-59	284	406	476					1,166	66,553,562	57,079
60	33	55	86					174	9,917,899	56,999
61	22	55	80					157	9,679,563	61,653
62	28	40	81					149	9,054,101	60,766
63	18	25	51					94	5,570,781	59,264
64	10	25	54					89	5,570,173	62,586
65	11	14	40					65	3,861,802	59,412
66	9	15	32					56	3,606,402	64,400
67	4	12	22					38	2,019,280	53,139
68	4	8	12					24	1,216,441	50,685
69	3	2	10					15	918,133	61,209
70	3		3					6	318,947	53,158
71	1		8					9	440,926	48,992
72	1		4					5	389,647	77,929
73	1	1	2					4	241,582	60,396
Totals	6,738	3,608	2,832					13,178	\$740,311,766	\$56,178

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

Age: 40.6 years

Service: 5.8 years

Annual Pay: \$56,178

ERFC 2001 MEMBERS
MEN ACTIVE MEMBERS IN VALUATION DECEMBER 31, 2015
BY ATTAINED AGE AND YEARS OF SERVICE

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	56							56	\$ 2,108,410	\$37,650
25-29	417	39						456	21,836,144	47,886
30-34	312	232	36					580	31,893,993	54,990
35-39	152	164	229					545	35,963,845	65,989
40-44	125	100	174					399	27,975,324	70,114
45-49	103	72	146					321	22,822,775	71,099
50-54	105	75	85					265	18,728,884	70,675
55-59	65	75	93					233	16,886,539	72,474
60	14	5	12					31	1,994,540	64,340
61	13	7	15					35	2,436,503	69,614
62	7	9	18					34	2,411,327	70,921
63	10	8	17					35	2,338,655	66,819
64	6	7	11					24	1,526,970	63,624
65	6	5	12					23	1,392,286	60,534
66	4	9	6					19	1,094,950	57,629
67	1	6	7					14	927,529	66,252
68	5	2	4					11	638,302	58,027
69	4	2	5					11	703,331	63,939
70	2	2						4	251,717	62,929
71	1	3	1					5	287,265	57,453
72			4					4	293,561	73,390
73	1	1	1					3	189,013	63,004
74			3					3	229,840	76,613
75 & Over	1		3					4	240,259	60,065
Totals	1,410	823	882					3,115	\$195,171,962	\$62,656

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

Age: 41.1 years

Service: 6.4 years

Annual Pay: \$62,656

ALL ACTIVE MEMBERS IN VALUATION DECEMBER 31, 2015
BY ATTAINED AGE AND YEARS OF SERVICE

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	
15-19	1							1	\$ 18,824	\$18,824
20-24	480							480	20,839,776	43,416
25-29	2,645	257						2,902	146,286,936	50,409
30-34	1,431	1,220	192					2,843	159,285,633	56,027
35-39	807	686	890	120				2,503	158,647,878	63,383
40-44	766	467	655	511	47			2,446	167,137,721	68,331
45-49	791	545	584	498	319	46	2	2,785	194,576,710	69,866
50-54	674	585	563	388	261	222	37	2,730	184,980,373	67,758
55-59	352	499	623	443	247	161	61	2,386	164,266,973	68,846
60	47	60	107	92	45	35	9	395	26,825,216	67,912
61	35	67	104	105	53	33	11	408	29,574,972	72,488
62	35	50	106	92	44	29	8	364	25,782,364	70,831
63	28	33	76	88	46	32	7	310	21,908,121	70,671
64	16	34	74	74	38	25	13	274	19,923,852	72,715
65	17	19	56	55	33	10	8	198	13,862,303	70,012
66	13	24	41	57	17	14	7	173	12,401,401	71,684
67	5	18	31	26	16	9	7	112	7,593,181	67,796
68	9	11	17	22	8	5	3	75	5,066,015	67,547
69	7	4	18	15	10	8	1	63	4,303,847	68,315
70	5	2	3	6	9	5	2	32	2,600,441	81,264
71	2	3	9	8	2	5	1	30	1,846,983	61,566
72	1		8	4	5	2	2	22	1,675,973	76,181
73	2	3	3	6	4		2	20	1,541,970	77,099
74		1	4		3	1	4	13	909,156	69,935
75 & Over	2		3	5	4	3	3	20	1,239,100	61,955
Totals	8,171	4,588	4,167	2,615	1,211	645	188	21,585	\$1,373,095,719	\$63,613

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

	<u>ERFC</u>	<u>ERFC 2001</u>	<u>Total</u>
Age:	53.2 years	40.7 years	43.7 years
Service:	19.3 years	5.9 years	9.2 years
Annual Pay:	\$82,693	\$57,416	\$63,613

ACTIVE MEMBERS BY YEARS OF SERVICE
DECEMBER 31, 2015

Service Years	Number of Members			Annual Pays	
	Males	Females	Total	Total	Average
0	364	1,817	2,181	\$ 102,888,168	\$47,175
1	275	1,161	1,436	71,629,002	49,881
2	267	1,339	1,606	83,130,291	51,762
3	264	1,247	1,511	80,771,827	53,456
4	241	1,196	1,437	78,540,975	54,656
5	185	864	1,049	59,094,196	56,334
6	121	618	739	41,668,831	56,385
7	158	736	894	54,037,469	60,445
8	172	788	960	57,099,888	59,479
9	192	754	946	59,924,624	63,345
10	219	795	1,014	65,908,233	64,998
11	218	707	925	62,877,747	67,976
12	175	593	768	55,319,046	72,030
13	156	513	669	47,811,284	71,467
14	161	630	791	59,637,754	75,395
15	158	566	724	54,175,323	74,828
16	163	479	642	50,171,340	78,149
17	112	418	530	41,472,298	78,250
18	87	293	380	30,680,692	80,739
19	72	267	339	28,674,358	84,585
20	70	166	236	21,054,300	89,213
21	83	232	315	28,016,830	88,942
22	86	212	298	26,765,615	89,818
23	38	147	185	16,885,035	91,270
24	32	145	177	16,178,103	91,402
25	42	154	196	18,325,168	93,496
26	29	95	124	11,688,814	94,265
27	28	115	143	13,111,093	91,686
28	17	72	89	8,515,315	95,678
29	27	66	93	9,132,717	98,201
30 & Up	40	148	188	17,909,383	95,263
Totals	4,252	17,333	21,585	\$1,373,095,719	\$63,613

PERSONS IN VALUATIONS - COMPARATIVE STATEMENT

Active Members

Valuation Date	Number			Average Pay	Annual Increase In Average Pay		Price Inflation (CPI-U)
	ERFC	ERFC 2001	Total		Last Year	Last 5 Years	Last Year
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 %
12/31/2009	8,417	11,474	19,891	60,736	(1.1)%	3.1 %	2.7 %
12/31/2010	7,900	12,241	20,141	59,148	(2.6)%	1.4 %	1.5 %
12/31/2011	7,353	13,623	20,976	59,448	0.5 %	0.7 %	3.0 %
12/31/2012	6,801	14,718	21,519	60,297	1.4 %	0.3 %	1.7 %
12/31/2013	6,221	15,422	21,643	61,004	1.2 %	(0.1)%	1.5 %
12/31/2014	5,754	15,598	21,352	62,774	2.9 %	0.7 %	0.8 %
12/31/2015	5,292	16,293	21,585	63,613	1.3 %	1.5 %	0.7 %

PERSONS IN VALUATIONS - COMPARATIVE STATEMENT

Retired Lives

Valuation Date	Number	Average Annual Benefit	Total Benefits	Active Member Payroll	Total Benefits as % of Payroll
2/28/1974	-	-	-	\$ 97,221,025	
2/28/1975	195	\$ 3,463	\$ 675,344	110,571,258	0.61%
2/28/1976	456	3,270	1,491,310	137,131,905	1.09%
2/29/1980	1,012	4,238	4,288,395	169,924,320	2.52%
6/30/1983	1,448	5,136	7,437,571	225,592,433	3.30%
6/30/1985	1,823	6,220	11,339,462	251,691,261	4.51%
6/30/1986	2,047	6,614	13,539,032	277,545,288	4.88%
6/30/1987	2,232	7,007	15,639,820	305,050,734	5.13%
6/30/1988	2,425	7,629	18,502,289	340,945,603	5.43%
6/30/1989	2,679	8,671	23,230,719	369,574,756	6.29%
6/30/1990	2,932	9,354	27,428,027	411,970,032	6.66%
6/30/1991	3,209	10,146	32,559,349	451,872,668	7.21%
6/30/1992	3,311	10,960	36,289,308	447,473,936	8.11%
6/30/1993	3,486	11,307	39,417,339	450,530,273	8.75%
6/30/1994	3,775	11,285	42,600,996	480,995,439	8.86%
6/30/1995	3,927	11,529	45,274,131	521,044,021	8.69%
6/30/1996	4,225	11,843	50,036,473	531,060,397	9.42%
6/30/1997	4,478	11,908	53,322,514	553,709,472	9.63%
6/30/1998	4,773	12,156	58,018,744	582,754,912	9.96%
6/30/1999	5,113	12,383	63,312,850	626,015,364	10.11%
6/30/2000	5,344	13,201	70,548,074	678,937,233	10.39%
6/30/2001	5,766	13,167	75,922,636	759,905,510	9.99%
6/30/2002	6,375	13,645	86,985,606	781,756,005	11.13%
6/30/2003	6,729	14,493	97,522,562	866,501,799	11.25%
12/31/2004	7,430	14,767	110,029,000	977,817,281	11.25%
12/31/2005	7,710	15,077	116,242,812	1,050,216,544	11.07%
12/31/2006	8,029	15,370	123,402,840	1,111,827,576	11.10%
12/31/2007	8,354	15,598	130,307,079	1,161,431,668	11.22%
12/31/2008	8,595	15,631	134,346,260	1,211,140,009	11.09%
12/31/2009	8,772	15,697	137,692,304	1,208,092,606	11.40%
12/31/2010	9,081	15,677	142,366,660	1,191,290,190	11.95%
12/31/2011	9,467	15,707	148,697,364	1,246,973,240	11.92%
12/31/2012	9,788	15,594	152,634,070	1,297,536,507	11.76%
12/31/2013	10,156	15,193	154,304,935	1,320,308,508	11.69%
12/31/2014	10,524	14,893	156,735,926	1,340,343,666	11.69%
12/31/2015	10,937	14,649	160,215,262	1,373,095,719	11.67%

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

	Average				
	Age at Retirement	Monthly Benefit		Service Credit 2015 Retirees	Age 2015 Retirees
		All Retirees	2015 Retirees		
ERFC Legacy	58.8	\$1,277.47	\$1,464.94	23.0	62.4
ERFC 2001	63.6	370.37	407.57	10.0	64.8

**ORIGINAL BENEFIT FORMULAS (BEFORE JULY 1, 1988)
RETIREES AND BENEFICIARIES DECEMBER 31, 2015
BY TYPE OF BENEFIT BEING PAID**

Type of Pension Being Paid	Number	Annual Amounts		
		Payable for Life	Temporary Supplement	Current Benefits
Age and Service - Normal:				
Straight Life	389	\$ 7,108,620		\$ 7,108,620
Optional Forms	19	389,171		389,171
Age and Service - Early:				
Straight Life	290	3,562,376	\$28,874	3,591,250
Optional Forms	16	265,211		265,211
Age and Service Totals	714	11,325,378	28,874	11,354,252
Duty Disability:				
Straight Life	5	170,949		170,949
Non-Duty Disability:				
Straight Life	32	332,967		332,967
Age and Service Survivor:				
Beneficiary, Duty Death, and Non-Duty Death	44	468,436		468,436
Other Totals	81	972,352		972,352
Total Benefits	795	\$12,297,730	\$28,874	\$12,326,604

**BENEFIT FORMULAS (EFFECTIVE JULY 1, 1988)
RETIREES AND BENEFICIARIES DECEMBER 31, 2015
BY TYPE OF BENEFIT BEING PAID**

Type of Pension Being Paid	Number	Annual Amounts		
		Payable for Life	Temporary Supplement	Current Benefits
Age and Service - Normal:				
Straight Life	4,632	\$68,954,814	\$23,889,479	\$92,844,293
Optional Forms	722	10,040,964	4,279,678	14,320,642
Age and Service - Early:				
Straight Life	3,518	19,175,586	13,721,896	32,897,482
Optional Forms	302	1,732,426	1,459,293	3,191,719
Age and Service Totals	9,174	99,903,790	43,350,346	143,254,136
Duty Disability:				
Straight Life	13	50,487		50,487
Optional Forms	1	1,989		1,989
Non-Duty Disability:				
Straight Life	137	577,779	17,729	595,508
Optional Forms	14	53,992		53,992
Age and Service Survivor: Beneficiary, Duty Death, and Non-Duty Death	119	724,955	167,583	892,538
Other Totals	284	1,409,202	185,312	1,594,514
Total Benefits	9,458*	\$101,312,992	\$43,535,658	\$144,848,650

* Includes benefits split in DROs.

**BENEFIT FORMULAS (EFFECTIVE JULY 1, 2001)
 RETIREES AND BENEFICIARIES DECEMBER 31, 2015
 BY TYPE OF BENEFIT BEING PAID**

Type of Pension Being Paid	Number	Annual Amounts
Age and Service - Normal:		
Straight Life	573	\$2,548,435
Optional Forms	102	459,650
Age and Service - Early:		
Straight Life		
Optional Forms		
Age and Service Totals	675	3,008,085
Duty Disability:		
Straight Life		
Optional Forms		
Non-Duty Disability:		
Straight Life		
Optional Forms		
Age and Service Survivor: Beneficiary, Duty Death, and Non-Duty Death	9	31,923
Other Totals	9	31,923
Total Benefits	684	\$3,040,008

ORIGINAL BENEFIT FORMULAS (BEFORE JULY 1, 1988)
RETIREES AND BENEFICIARIES DECEMBER 31, 2015
CURRENT ANNUAL BENEFITS - TABULATED BY ATTAINED AGES

Attained Ages	Number	Annual Amount
60	1	\$ 2,044
62	4	21,083
63	2	5,894
64	3	22,050
65	1	16,914
67	2	22,551
69	1	32,667
70	3	50,573
71	2	22,178
72	2	16,667
73	2	21,983
74	5	61,367
75	3	38,690
76	14	173,813
77	21	312,741
78	35	611,250
79	42	905,002
80-84	246	4,954,070
85-89	217	3,313,735
90 & Up	189	1,721,332
Total	795	\$12,326,604

BENEFIT FORMULAS (EFFECTIVE JULY 1, 1988)
RETIREES AND BENEFICIARIES DECEMBER 31, 2015
CURRENT ANNUAL BENEFITS - TABULATED BY ATTAINED AGES

Attained Ages	Number	Annual Amount
Under 40	4	\$ 13,298
40-44	3	22,229
45	1	886
46	3	14,700
47	2	8,030
48	2	21,108
49	1	886
50	8	189,273
51	6	132,915
52	15	222,022
53	16	331,629
54	16	434,286
55	48	951,375
56	91	2,316,016
57	129	3,093,464
58	165	4,139,759
59	195	4,768,830
60	246	5,811,247
61	285	6,880,448
62	317	7,668,254
63	392	9,399,333
64	447	10,353,707
65	526	12,137,975
66	522	6,490,258
67	574	6,309,341
68	660	7,325,343
69	574	6,405,963
70-74	2,105	24,270,855
75-79	1,263	15,608,620
80 & Up	842	9,526,600
Totals*	9,458	\$144,848,650

* Includes benefits split in DROs.

ERFC 2001
RETIREES AND BENEFICIARIES DECEMBER 31, 2015
CURRENT ANNUAL BENEFITS - TABULATED BY ATTAINED AGES

Attained Ages	Number	Annual Amount
Under 40	1	\$ 2,718
48	1	3,163
58	1	1,871
59	1	3,642
60	31	132,707
61	50	235,320
62	53	238,617
63	55	238,573
64	55	224,318
65	69	322,317
66	70	353,937
67	71	323,661
68	67	308,154
69	47	203,234
70-74	93	376,228
75-79	14	55,583
80 & Up	5	15,965
Totals	684	\$3,040,008

ORIGINAL BENEFIT FORMULAS (BEFORE JULY 1, 1988)
INACTIVE VESTED MEMBERS DECEMBER 31, 2015
ANNUAL DEFERRED BENEFITS – TABULATED BY ATTAINED AGES

Attained Ages	Number	Annual Amount
62	2	\$ 4,792
63	5	11,424
64	2	6,510
Totals*	9	\$22,726

** In addition, there are 14 members whose accumulated contributions exceed the present value of their estimated future benefits. Liabilities for these members were set equal to their accumulated contributions.*

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BENEFIT FORMULAS (EFFECTIVE JULY 1, 1988)
INACTIVE VESTED MEMBERS DECEMBER 31, 2015
ANNUAL DEFERRED BENEFITS – TABULATED BY ATTAINED AGES

Attained Ages	Number	Annual Amount
36	1	\$ 1,884
37	33	83,850
38	57	137,739
39	78	205,550
40	69	164,720
41	95	172,065
42	95	210,532
43	102	220,444
44	114	316,481
45	116	281,084
46	105	259,520
47	98	302,092
48	97	271,864
49	85	239,183
50	77	194,084
51	72	195,124
52	76	256,063
53	72	198,127
54	63	224,715
55	40	119,758
56	39	140,771
57	24	114,155
58	34	143,227
59	22	88,504
60	25	100,697
61	26	215,239
62	23	113,640
63	27	115,401
64	15	102,709
65 & Up	42	102,622
Totals	1,822	\$5,291,844

ERFC 2001**INACTIVE VESTED MEMBERS DECEMBER 31, 2015
ANNUAL DEFERRED BENEFITS – TABULATED BY ATTAINED AGES**

Attained Ages	Number	Annual Amount
27	12	\$ 32,968
28	26	80,193
29	47	155,592
30	66	223,770
31	105	399,788
32	128	500,891
33	144	584,598
34	176	737,049
35	177	748,380
36	179	726,227
37	144	578,098
38	120	463,677
39	85	320,290
40	77	294,712
41	57	198,269
42	55	213,321
43	40	158,775
44	54	182,720
45	33	110,808
46	37	133,947
47	28	95,201
48	33	127,111
49	26	106,842
50	26	79,102
51	31	106,574
52	27	91,420
53	33	114,859
54	39	116,128
55	40	144,484
56	32	130,555
57	39	122,320
58	37	137,055
59	54	221,914
60	13	44,007
61	8	36,939
62	10	28,270
63	1	2,205
64	5	10,792
65 & Over	10	33,980
Totals	2,254	\$8,593,831

SECTION F

**SUMMARY OF RISK MEASURES
BASED ON MARKET VALUE OF ASSETS**

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**SUMMARY OF RISK MEASURES
BASED ON MARKET VALUE OF ASSETS**

Actuarial Valuation Date	Funded Ratio	Annuitant Liabilities / AAL	AAL / Payroll	UAAL / Payroll	Market Value of Assets / Payroll	Portfolio Std Dev % of Payroll
12/31/14	78.52 %	0.55	2.04	0.44	1.60	17 %
12/31/15	71.64 %	0.55	2.10	0.59	1.50	16 %

Short term fluctuations in the Risk Measures will occur due to experience, plan changes, and assumption and method changes. Long term expectations are described below.

Funded Ratio: The funded ratio is expected to trend toward 100% by June 30, 2040 under the current 30-year amortization period.

Annuitant Liabilities / AAL: The ratio of annuitant (retiree) liabilities to total accrued liabilities gives an indication of the maturity of the system. As the ratio increases, cash flow needs increase, and liquidity needs of the portfolio change. A ratio on the order of 0.50 indicates a maturing system; a ratio approaching 1.00 indicates a closed system or another special situation.

AAL / Payroll: This ratio is expected to grow as the System matures.

UAAL / Payroll: The ratio of the unfunded actuarial accrued liability to payroll is expected to trend toward 0% by June 30, 2040.

Market Value of Assets / Payroll: As the funded ratio increases, this ratio is expected to converge to the ratio of AAL / Payroll.

Portfolio Standard Deviation % of Payroll: This measure illustrates the impact of a one standard deviation change in the investment return as a percent of payroll. Investment return experience other than expected ultimately affects the employer contribution rates. The higher the ratio of this risk metric, the greater the expected volatility in employer contribution rates. Absent changes in the investment policy, this metric is expected to increase as the assets grow to 100% of the AAL. As of December 31, 2015, this risk measure is calculated to be 16% (based on the ten-year annualized standard deviation times the Market Value of Assets divided by the active member payroll).

SECTION G

ACTUARIAL ASSUMPTIONS & MISCELLANEOUS

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**SUMMARY OF
ASSUMPTIONS USED FOR ERFC ACTUARIAL VALUATION
ASSUMPTIONS ADOPTED BY THE BOARD OF TRUSTEES
AFTER CONSULTING WITH ACTUARY**

The actuarial assumptions used in making the valuation are shown in this section of the report. The rationale for the assumptions for the December 31, 2015 actuarial valuation is based upon a study of experience during the period January 1, 2010 to December 31, 2014.

ECONOMIC ASSUMPTIONS

The investment return rate used in making the valuation was 7.25% per year, compounded annually (net of investment 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 3.25%, the 7.25% investment return rate translates to an assumed real rate of return over wages of 4.00%. The assumed real return over prices would be higher.

Pay increase assumptions for individual active members are shown by years of service on page G-10. Part of the pay increase assumption is for merit and/or seniority increase, and the other 3.25% recognizes price inflation and real wage growth.

Price Inflation: No explicit price inflation assumption is needed for this valuation. However, the above assumptions would be consistent with a price inflation assumption around 2.75%.

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

Total active member payroll is assumed to increase 3.25% 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 retired life mortality was the RP-2014 mortality healthy annuitant total data set table with the fully generational two-dimensional sex distinct MP-2014 projection scale. Tables were extended below age 50 with a cubic spline to published Juvenile rates. Related values are shown on page G-6. The projection scale accounts for future mortality improvement. The mortality table used to measure death-in-service is a percentage of the total data set employee table shown on page G-8.

The probabilities of retirement for members eligible to retire are shown on page G-7.

The probabilities of withdrawal from service, *death-in-service* and *disability* are shown for sample ages on pages G-8 and G-9.

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, assuming payroll grows at the rate indicated elsewhere in the report.

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, and remains at that level.

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 (MAAA).

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 §§3.05 and 16.03 of the *ERFC* Plan Document and §§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 actuarial standards of practice that apply to public sector plans and with applicable federal, state, and local laws and regulations.

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. For example, a rate will be set in accordance with this schedule based on the actuarial valuation as of December 31, 2013. It will become effective July 1, 2015, and will remain in effect through June 30, 2017.

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; and
- (2) amortize any unfunded liabilities over a reasonable period.

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 actuarial standards of practice that apply to public sector plans and by applicable federal, state, or local laws and regulations, and shall, if permitted, be based upon level percent of pay. If those standards, laws, and regulations and the other principles stated in Paragraphs 16.03A and 16.03D permit, the amortization period for unfunded liabilities shall be set with the objective that the Plan will be 100% funded by June 30, 2040. In conjunction with actuarial valuations dated December 31, 2019 and later, the Trustees may elect to create a new 20-year amortization schedule for unfunded liabilities arising during that valuation and subsequent valuations, and to continue the amortization of preexisting unfunded liabilities to their scheduled end date. In order to stabilize contributions, the Trustees may from time to time elect to combine separate amortization schedules into a single schedule over the average remaining amortization period being used. Unfunded liabilities associated with benefit changes or assumption changes shall be funded over a period not exceeding 10 years. However, unfunded liabilities arising in conjunction with early retirement incentive programs offered by the Employer after 2013 shall be separately funded over a period not exceeding five future years and shall not be subject to the combining of amortization schedules mentioned elsewhere in this Paragraph 16.03E.

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 four future years. Based upon consultation with the actuary, the Trustees may combine bases in order to reset the actuarial value to be equal to the market value when the difference between market value and actuarial value is 5% or less of market value.

16.03G The Valuation of Plan Liabilities. The actuarial liabilities of the Plan shall be determined using the entry age actuarial cost method, and an investment return assumption chosen by the Trustees in conjunction with the Plan actuary and investment consultant. The investment return assumptions shall be based upon the long term expected return on assets, although the Trustees may take other factors into account when determining this assumption. The Trustees shall also adopt other assumptions necessary for the valuation based upon the advice of the actuary and the judgment of the Trustees. The Trustees shall cause a study of actuarial experience under the Plan to be performed at least once in each five-year period and shall adjust all assumptions accordingly as deemed necessary for prudent operation of the Plan.

16.03H Overfunding. In the event that the Plan's assets exceed the Plan's liabilities, all amortization schedules other than those related to any post-2013 early retirement incentive programs offered by the Employer shall be considered completed, and the Employer contribution rate will be set based upon the normal cost and the completion of any remaining amortizations due to post-2013 early retirement incentive programs offered by the Employer, without regard to such overfunding. In such event, the Trustees shall review the Plan's asset allocation with a view toward de-risking the portfolio and potentially lowering the investment return assumption. Should such de-risking of the portfolio or future unfavorable experiences cause the unfunded liabilities to arise again, such liabilities shall be funded over a closed period of 20 future years, and shall otherwise be subject to the regulations set forth in Paragraph 16.03E.

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SINGLE LIFE RETIREMENT VALUES

MORTALITY

RPH-2014		
Future Life Expectancy (Years)		
Sample Ages in 2015	Males	Females
55	30.63	33.32
60	26.06	28.51
65	21.68	23.86
70	17.52	19.44
75	13.65	15.35
80	10.19	11.66
Ref:	1135	1136

Tables were extended below age 50 with a cubic spline to the published Juvenile rates. The tables are projected to be fully generational, based on the 2-dimensional, sex distinct mortality improvement scale MP-2014 (which was published and intended to be used with RP-2014). This table was first used as of December 31, 2015. For disabled members, the same tables are used. The rationale for the mortality assumption is based on the 2010-2014 Experience Study issued November 10, 2015.

PROBABILITIES OF RETIREMENT FOR MEMBERS ELIGIBLE TO RETIRE

Ages	Hired Before 7/1/2001		Hired On or After 7/1/2001		
	Type of Retirement		Age Based	Service	Service Based
	Service	Reduced Service			
45		2.0%			
46		2.0%			
47		2.0%			
48		2.0%			
49		2.0%			
50		2.0%			
51		3.0%			
52		6.0%			
53		7.0%			
54		8.0%			
55	35.0%	6.0%	17.5%	30	17.5%
56	35.0%	4.0%	17.5%	31	17.5%
57	25.0%	4.0%	12.5%	32	12.5%
58	25.0%	4.0%	12.5%	33	12.5%
59	25.0%	4.0%	12.5%	34	12.5%
60	25.0%	7.0%	10.0%	35	10.0%
61	30.0%	8.0%	10.0%	36	10.0%
62	30.0%	13.0%	10.0%	37	10.0%
63	30.0%	13.0%	10.0%	38	25.0%
64	30.0%	13.0%	20.0%	39	40.0%
65	30.0%		25.0%	40 & Up	100.0%
66	30.0%		30.0%		
67	25.0%		25.0%		
68	25.0%		15.0%		
69	20.0%		15.0%		
70	20.0%		15.0%		
71	20.0%		15.0%		
72	20.0%		15.0%		
73	30.0%		15.0%		
74	30.0%		15.0%		
75 & Over	100.0%		100.0%		
Ref:	2891	2893	2892		2894

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
FROM ACTIVE EMPLOYMENT BEFORE RETIREMENT**

Ages	% of Active Members Dying or Becoming Disabled within Next Year							
	Death*				Disability			
	Ordinary		Duty		Ordinary		Duty	
	Men	Women	Men	Women	Men	Women	Men	Women
	25	0.0261%	0.0093%	0.0024%	0.0008%	0.0146%	0.0082%	0.0036%
30	0.0245%	0.0119%	0.0022%	0.0011%	0.0158%	0.0122%	0.0040%	0.0031%
35	0.0284%	0.0157%	0.0026%	0.0014%	0.0234%	0.0214%	0.0059%	0.0054%
40	0.0339%	0.0214%	0.0031%	0.0019%	0.0339%	0.0308%	0.0085%	0.0077%
45	0.0523%	0.0354%	0.0048%	0.0032%	0.0520%	0.0456%	0.0130%	0.0114%
50	0.0906%	0.0598%	0.0082%	0.0054%	0.0842%	0.0726%	0.0210%	0.0181%
55	0.1511%	0.0915%	0.0137%	0.0083%	0.1469%	0.1228%	0.0367%	0.0307%
60	0.2557%	0.1328%	0.0232%	0.0121%	0.2447%	0.1770%	0.0612%	0.0443%
Ref:	0.55 x 1133	0.55 x 1134	0.05 x 1133	0.05 x 1134				
	sb 0	sb 0	sb 0	sb 0	0.08 x 16	0.08 x 17	0.02 x 16	0.02 x 17

* Applicable to calendar year 2015. Rates in future years are determined by the MP-2014 projection scale.

**SAMPLE RATES OF SEPARATION
FROM ACTIVE EMPLOYMENT BEFORE RETIREMENT**

Service	% of Active Participants Withdrawing	
	Male	Female
0 - 1	13%	15%
1 - 2	12%	14%
2 - 3	11%	13%
3 - 4	9%	11%
4 - 5	7%	9%
5 - 6	6%	9%
6 - 7	5%	9%
7 - 8	4%	9%
8 - 9	4%	6%
9 - 10	4%	5%
10 - 11	4%	5%
11 - 12	3%	4%
12 - 13	3%	4%
13 - 14	3%	3%
14 - 15	2%	3%
15 - 16	2%	3%
16 - 17	1%	3%
17 - 18	1%	2%
18 - 19	1%	2%
19 - 20	1%	2%
20 - 21	1%	2%
21 - 22	1%	2%
22 - 23	1%	2%
23 - 24	1%	2%
24 - 25	1%	2%
Ref:	1671	1672

In addition, 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 withdrawal above by 10%. Forfeiture rates do not apply to individuals who are eligible for retirement at time of termination.

SAMPLE PAY INCREASE ASSUMPTIONS FOR AN INDIVIDUAL MEMBER

Pay Increase Assumption			
Service Index	Merit & Seniority	Base (Economy)	Increase Next Year
1	4.30%	3.25%	7.55%
2	3.00%	3.25%	6.25%
3	2.30%	3.25%	5.55%
4	2.10%	3.25%	5.35%
5	2.00%	3.25%	5.25%
6	1.90%	3.25%	5.15%
7	1.80%	3.25%	5.05%
8	1.70%	3.25%	4.95%
9	1.60%	3.25%	4.85%
10	1.40%	3.25%	4.65%
11	1.40%	3.25%	4.65%
12	1.40%	3.25%	4.65%
13	1.40%	3.25%	4.65%
14	1.40%	3.25%	4.65%
15	1.40%	3.25%	4.65%
16	1.30%	3.25%	4.55%
17	1.20%	3.25%	4.45%
18	1.00%	3.25%	4.25%
19	1.00%	3.25%	4.25%
20	0.90%	3.25%	4.15%
21	0.80%	3.25%	4.05%
22	0.70%	3.25%	3.95%
23	0.60%	3.25%	3.85%
24	0.50%	3.25%	3.75%
25	0.00%	3.25%	3.25%
Ref:	686	3.25%	

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 (which is the portion of total return remaining after price inflation) is in the area of 3% to 5% annually.

Historical Economic Data

Over the last 30 years, real return on average has exceeded the 3% to 5% range. However, for parts of this period, real return was actually negative. It is 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 Price Inflation)**

No. Years Ended December	Inflation (CPI)	Cash Equiv. (T-Bills)	Bonds (Long Term)		Stocks (S & P 500)	Real Return for Sample Fund		
			US Treasury	Corporate (Sol. Bro.)		A	B	C
1/2010	1.5	(1.4)	8.5	10.7	13.4	9.7	10.4	11.0
1/2011	3.0	(2.9)	24.5	14.6	(0.9)	11.2	7.1	3.8
1/2012	1.7	(1.6)	1.6	8.8	14.1	7.2	8.9	10.4
1/2013	1.5	(1.5)	(12.7)	(8.5)	30.4	2.7	10.8	17.1
1/2014	0.8	(0.8)	22.9	16.4	12.8	15.6	14.2	13.0
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
5/2010	2.2	0.0	3.3	3.6	0.1	3.1	2.6	2.0
5/2014	1.7	(1.6)	8.1	8.1	13.6	9.1	10.2	11.0
30/2014	2.7	1.0	6.8	6.5	8.4	7.1	7.5	7.7

Sample Funds (only three of many reasonable samples)

	A	B	C
Cash Equiv.: T-Bills	10 %	10 %	10 %
Bonds: US Treasury	30	20	10
Bonds: Corporate	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 affected more than the active life group. The investment return that would be necessary for the indexing of benefits with inflation after retirement probably cannot be realized during periods of high inflation.

Forward-Looking Economic Data

The assumed rate of price inflation should not give undue weight to recent experience. Some historical economic data may not be appropriate for use in developing assumptions for future periods due to changes in the underlying economic environment. Professional forecasters, economists, and investors are reliable sources to guide in the selection and evaluation of expected future price inflation rates.

Investment Return and Inflation: Past and Future – Concluded

The Survey of Professional Forecasters, maintained by the Federal Reserve Bank of Philadelphia, is the longest running quarterly survey of macroeconomic forecasts in the U.S. Over 50 forecasters from industry, government, banking, and academics are included in this Survey. With respect to price inflation, their median projections are published quarterly for the annual-average Headline CPI over the next 10 years. Headline CPI is the total CPI, as opposed to Core CPI, which excludes food and energy prices. The following table presents the Survey's quarterly projections through the first quarter of 2015.

Quarterly Median Projections of the 10-Year Annual-Average Headline CPI-U Inflation (Philadelphia Federal Reserve)

2012-2	2012-3	2012-4	2013-1	2013-2	2013-3	2013-4	2014-1	2014-2	2014-3	2014-4	2015-1
2.48%	2.35%	2.30%	2.30%	2.30%	2.21%	2.30%	2.30%	2.30%	2.30%	2.21%	2.30%

Source: Federal Reserve Bank of Philadelphia – Survey of Professional Forecasters Quarterly (Inflation.xls)

The Congressional Budget Office (CBO) regularly publishes its Budget and Economic Outlook. This report includes a forecast of annual CPI-U (All Urban Consumers). The following table presents the CBO's forecast for calendar years 2015 – 2025, as published in its report dated January, 2015.

Consumer Price Index Forecast (CBO)

2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Compound Average
1.50%	2.30%	2.30%	2.40%	2.40%	2.40%	2.40%	2.40%	2.40%	2.40%	2.40%	2.30%

Source: Congressional Budget Office – The Budget and Economic Outlook: 2015 – 2025 (p. 30)

The Trustees of the Social Security system prepare and publish an annual report. Social Security's economists develop a forecast of future CPI-W (for Urban Wage Earners and Clerical Workers). The following table presents their forecasts in the 2014 annual report.

Social Security Trustees' Ultimate CPI-W Assumption for 2020 and later

Low-cost	3.40%
Intermediate	2.70%
High-cost	2.00%

Source: 2014 Social Security Trustees' Report (p. 8)

Another source of information about future price inflation is the market for U.S. Treasury bonds. Comparing spreads between nominal and inflation-indexed treasury securities (TIPS) provides an estimate of the bond market's expectation of inflation over the next decade or more. However, this analysis ignores the inflation risk premium that buyers of U.S. Treasury bonds often demand, and it ignores the differences in liquidity between U.S. Treasury bonds and TIPS.

Treasury Constant Maturities (2014 Annual Yields)

Term	Nominal	Inflation-Indexed	Implied Inflation
10-year	2.54%	0.44%	2.11%
20-year	3.07%	0.86%	2.21%
30-year	3.34%	1.11%	2.23%

Source: Board of Governors of the Federal Reserve System, Selected Interest Rates (Daily) – H. 15

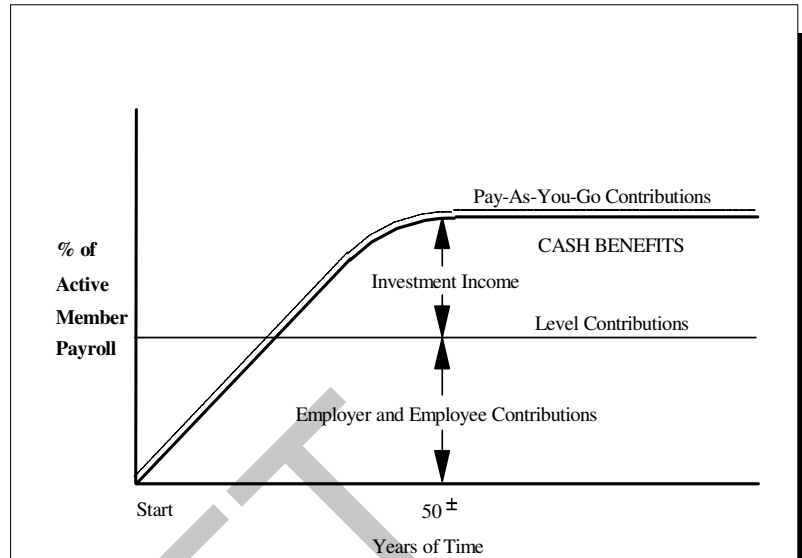
SELECTION OF ASSUMPTIONS USED IN ACTUARIAL VALUATIONS

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 ASA, and ultimately to Fellowship with the designation FSA.

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 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

Marriage Assumption:	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.
Pay Increase Timing:	Nine months after the valuation date (October 1 st).
Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Eligibility Testing:	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.
Miscellaneous Loads:	<p>For members hired prior to July 1, 2001 computed liabilities and normal costs are increased by 3.25% to reflect service credit for unused sick leave that may be granted at retirement.</p> <p>Computed liabilities and normal costs for Normal and Early retirement are reduced by 1% to reflect a “negative subsidy” in the Plan Document option factors.</p> <p>The otherwise computed normal cost was increased by 0.28% of pay to account for administrative expenses.</p>
Decrement Relativity:	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Decrement Operation:	Disability, mortality and turnover do not operate during retirement eligibility.
Incidence of Contributions:	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.
Normal Form of Benefit:	The assumed normal form of benefit is the straight life form.
Benefit Service:	Exact Fractional Service is used to determine the amount of benefit payable.
Actuarial Equivalent Factors:	The interest rate is 7.25% for the Option D form of payment. For Small Pension payouts the interest rate is the lesser of 7.25% or the rate for 20-year Treasury Notes raised to the next highest integer from the December 1 st preceding the Calendar year of retirement. Mortality is based upon a 20% unisex blend of the RP-2014 Total Data Set Healthy Annuitant Mortality Table.

June 3, 2016

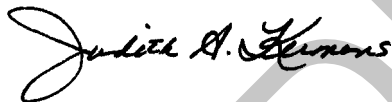
ERFC Board of Trustees
c/o Ms. Jeanne M. Carr, CFA,
Executive Director/CIO
8001 Forbes Place, Suite 300
Springfield, Virginia 22151

Re: The Report of the ERFC Annual Actuarial Valuation as of December 31, 2015

Dear Jeanne:

Enclosed are 10 copies of the report. Please call if you need additional copies.

Sincerely,



Judith A. Kermans, EA, FCA, MAAA

JAK:dj
Enclosures