Actuarial Valuation Report

Educational Employees' Supplementary Retirement System of Fairfax County

For the Fiscal Year Ending June 30, 2020

Based on a June 30, 2020 Measurement Date

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Introduction

This report documents the results of the actuarial valuation for the fiscal year ending June 30, 2020 for the Educational Employees' Supplementary Retirement System of Fairfax County ("ERFC"). The plan is a single-employer plan and does not issue a separate financial statement. As a result, all reporting requirements are included in the employer's financial statement. These results are based on a Measurement Date of June 30, 2020. The information provided in this report is intended strictly for documenting information relating to ERFC and plan disclosure and reporting requirements.

Determinations for purposes other than the financial accounting requirements may be significantly different from the results in this report. Thus, the use of this report for purposes other than those expressed here may not be appropriate.

This valuation has been conducted in accordance with generally accepted actuarial principles and practices, including the applicable Actuarial Standards of Practice as issued by the Actuarial Standards Board. In addition, the valuation results are based on our understanding of the financial accounting and reporting requirements under U.S. Generally Accepted Accounting Principles as set forth in Government Accounting Standards Board Statement 68 (GASB 68) including any guidance or interpretations provided by ERFC and/or its audit partners prior to the issuance of this report. The information in this report is not intended to supersede or supplant the advice and interpretations of ERFC's auditors. Additional disclosures have been included as per GASB 67 requirements.

Future actuarial measurements may differ significantly from the current measurements presented in this report due (but not limited to) to such factors as the following:

- Plan experience differing from that anticipated by the economic or demographic assumptions;
- Changes in actuarial methods or 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); and
- Changes in plan provisions or applicable law.

Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements.

Funded status measurements shown in this report are determined based on various measures of plan assets and liabilities. For entity and plan disclosure and reporting purposes, funded status is determined using plan assets measured at market value. Plan liabilities are measured based on the interest rates and other assumptions summarized in the Actuarial Assumptions and Methods section of this report.

These funded status measurements may not be appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations, and funded status measurements for ERFC and plan disclosure and reporting purposes may not be appropriate for assessing the need for or the amount of future contributions.

In conducting the valuation, we have relied on personnel, plan design, and asset information supplied by ERFC as of the valuation date. While we cannot verify the accuracy of all the information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy or completeness of the information and believe that it has produced appropriate results.

The actuarial assumptions and methods used in this valuation are described in the Actuarial Assumptions and Methods section of this report. ERFC selected the economic and demographic assumptions and prescribed them for use for purposes of compliance with GASB 68. Aon provided guidance with respect to these assumptions, and it is our belief that the assumptions represent reasonable expectations of anticipated plan experience.

The undersigned are familiar with the near-term and long-term aspects of pension valuations and collectively meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. The information provided in this report is dependent upon various factors as documented throughout this report, which may be subject to change. Each section of this report is considered to be an integral part of the actuarial opinions.

To our knowledge, no colleague of Aon providing services to ERFC has any material direct or indirect financial interest in ERFC. Thus, we believe there is no relationship existing that might affect our capacity to prepare and certify this actuarial report for ERFC.

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Accounting Requirements

Development of GASB 68 Net Pension Expense

Calculation Details

The following table illustrates the Net Pension Liability under GASB 68.

	Fiscal Year Ending 06/30/2019	Fiscal Year Ending 06/30/2020
(1) Pension Liability	$ 3,406,340,888	$ 3,543,956,246
(2) Plan Fiduciary Net Position	2,521,441,472	2,593,383,175
(3) Net Pension Liability	$ 884,899,416	$ 950,573,071
(4) Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	74.02%	73.18%
(5) Deferred Outflow of Resources for Contributions Made After Measurement Date	$ 0	$ 0

Expense

The following table illustrates the pension expense under GASB 68.

	Fiscal Year Ending 06/30/2019	Fiscal Year Ending 06/30/2020
(1) Service Cost	$ 90,633,074	$ 92,719,549
(2) Interest Cost	231,477,042	243,578,788
(3) Expected Investment Return	(175,812,278)	(181,480,264)
(4) Employee Contributions	(46,645,396)	(49,095,601)
(5) Administrative Expense	4,262,159	4,381,191
(6) Plan Changes	0	0
(7) Amortization of Unrecognized		
(a) Liability (Gain)/Loss	1,708,604	1,230,490
(b) Asset (Gain)/Loss	48,689,414	37,063,484
(c) Assumption Change (Gain)/Loss	10,447,431	10,447,431
(8) Total Expense	$ 164,760,050	$ 158,845,068

Shown below are details regarding the calculation of Service and Interest Cost components of the Expense.

		Fiscal Year Ending 06/30/2019	Fiscal Year Ending 06/30/2020
(1)	Development of Service Cost:		
	(a) Normal Cost at Beginning of Measurement Period	$ 90,633,074	$ 92,719,549
(2)	Development of Interest Cost:		
	(a) Total Pension Liability at Beginning of Measurement Period	$ 3,238,436,290	$ 3,406,340,888
	(b) Normal Cost at Beginning of Measurement Period	90,633,074	92,719,549
	(c) Actual Benefit Payments	(181,932,073)	(185,986,496)
	(d) Discount Rate, Beginning of Measurement Period	7.25%	7.25%
	(e) Interest Cost	$ 231,477,042	$ 243,578,788
(3)	Development of Expected Investment Return:		
	(a) Plan Fiduciary Net Position at Beginning of Measurement Period	$ 2,446,279,897	$ 2,521,441,472
	(b) Actual Contributions—Employer	96,982,911	104,741,255
	(c) Actual Contributions—Employee	46,645,396	49,095,601
	(d) Actual Benefit Payments	(181,932,073)	(185,986,496)
	(e) Administrative Expenses	(4,262,159)	(4,381,191)
	(f) Other	0	0
	(g) Expected Return on Assets, Beginning of Measurement Period	7.25%	7.25%
	(h) Expected Return	$ 175,812,278	$ 181,480,264

Reconciliation of Net Pension Liability

Shown below are details regarding the Total Pension Liability, Plan Fiduciary Net Position, and Net Pension Liability for the Measurement Period from June 30, 2019 to June 30, 2020:

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (c) = (a) – (b)
Balance Recognized at 06/30/2019 (Based on 06/30/2019 Measurement Date)	$ 3,406,340,888	$ 2,521,441,472	$ 884,899,416
Changes Recognized for the Fiscal Year:			
Service Cost	$ 92,719,549	N/A	$ 92,719,549
Interest on the Total Pension Liability	243,578,788	N/A	243,578,788
Changes of Benefit Terms	0	N/A	0
Differences Between Expected and Actual Experience	(12,696,483)	N/A	(12,696,483)
Changes of Assumptions	0	N/A	0
Benefit Payments	(185,986,496)	(185,986,496)	0
Contributions From the Employer	N/A	104,741,255	(104,741,255)
Contributions From the Employee	N/A	49,095,601	(49,095,601)
Net Investment Income	N/A	108,472,534	(108,472,534)
Administrative Expense	N/A	(4,381,191)	4,381,191
Net Changes	**$ 137,615,358**	**$ 71,941,703**	**$ 65,673,655**
Balance Recognized at 06/30/2020 (Based on 06/30/2020 Measurement Date)	$ 3,543,956,246	$ 2,593,383,175	$ 950,573,071

Liability (Gain)/Loss

The following table illustrates the liability gain/loss under GASB 68.

		Fiscal Year Ending 06/30/2019	Fiscal Year Ending 06/30/2020
(1)	Pension Liability at Beginning of Measurement Period	$ 3,238,436,290	$ 3,406,340,888
(2)	Service Cost	90,633,074	92,719,549
(3)	Interest on the Total Pension Liability	231,477,042	243,578,788
(4)	Changes of Benefit Terms	0	0
(5)	Changes of Assumptions	0	0
(6)	Benefit Payments	(181,932,073)	(185,986,496)
(7)	Expected Pension Liability at End of Measurement Period	$ 3,378,614,333	$ 3,556,652,729
(8)	Actual Pension Liability at End of Measurement Period	3,406,340,888	3,543,956,246
(9)	Pension Liability (Gain)/Loss	$ 27,726,555	$ (12,696,483)
(10)	Average Future Working Life Expectancy	6.7688	6.6962
(11)	Total Pension Liability (Gain)/Loss Amortization	$ 4,096,229	$ (1,896,073)
(12)	Pension Overall Liability (Gain)/Loss Amortization	4,096,229	(1,896,073)
(13)	Pension Assumption Change (Gain)/Loss Amortization	0	0

Liability (Gain)/Loss Impact on Expense

The following table details the allocation of the FY2020 liability gain/loss in the expense calculation under GASB 75.

		Fiscal Year Ending 6/30/2019	Fiscal Year Ending 6/30/2020
(1)	Total Liability (Gain)/Loss	$ 27,726,555	$ (12,696,483)
(2)	Recognized in Current Year Expense	4,096,229	(1,896,073)
(3)	Amount to be recognized in Future Years as Deferred Outflow (1. – 2.)	$ 23,630,326	$ (10,800,410)

Assumptions Change Impact on Expense

The following table details the allocation of the FY2020 liability assumption change in the expense calculation under GASB 75.

		Fiscal Year Ending 6/30/2019	Fiscal Year Ending 6/30/2020
(1)	Total Liability Assumption Change (Gain)/Loss	$ 0	$ 0
(2)	Recognized in Current Year Expense	0	0
(3)	Amount to be recognized in Future Years as Deferred Inflow (1. – 2.)	$ 0	$ 0

Asset (Gain)/Loss

The following table illustrates the asset gain/loss under GASB 68.

		Fiscal Year Ending 06/30/2019	Fiscal Year Ending 06/30/2020
(1)	Pension Asset at Beginning of Measurement Period	$ 2,446,279,897	$ 2,521,441,472
(2)	Contributions—Employer	96,982,911	104,741,255
(3)	Contributions—Employee	46,645,396	49,095,601
(4)	Expected Investment Income	175,812,278	181,480,264
(5)	Benefit Payments	(181,932,073)	(185,986,496)
(6)	Administrative Expense	(4,262,159)	(4,381,191)
(7)	Other	0	0
(8)	Expected Pension Asset at End of Measurement Period	$ 2,579,526,250	$ 2,666,390,905
(9)	Actual Pension Asset at End of Measurement Period	2,521,441,472	2,593,383,175
(10)	Pension Asset (Gain)/Loss	$ 58,084,778	$ 73,007,730
(11)	Amortization Factor	5	5
(12)	Pension Asset (Gain)/Loss Amortization	$ 11,616,956	$ 14,601,546

Asset (Gain)/Loss Impact on Expense

The following table details the allocation of the FY2020 asset gain/loss in the expense calculation under GASB 75.

		Fiscal Year Ending 6/30/2019	Fiscal Year Ending 6/30/2020
(1)	Total Asset (Gain)/Loss	$ 58,084,778	$ 73,007,730
(2)	Recognized in Current Year Expense	11,616,956	14,601,546
(3)	Amount to be recognized in Future Years as Deferred Inflows (1. – 2.)	$ 46,467,822	$ 58,406,184

Deferred Outflows/Inflows

The following table illustrates the Deferred Inflows and Outflows as of June 30, 2020 under GASB 68.

		Deferred Outflows	Deferred Inflows
(1)	Difference Between Actual and Expected Experience	$ 33,994,254	$ (14,658,210)
(2)	Net Difference Between Expected and Actual Earnings on Pension Plan Investments	$ 93,257,050	$ (29,133,086)
(3)	Assumption Changes	20,364,115	0
(4)	Sub Total	$ 147,615,419	$ (43,791,296)
(5)	Contributions Made in Fiscal Year Ending 2020 After Measurement Date	0	0
(6)	Total	$ 147,615,419	$ (43,791,296)

Amortization of Deferred Inflows/Outflows

The table below lists the amortization bases included in the deferred inflows/outflows as of June 30, 2020.

Date Established	Type of Base	Period Original	Period Remaining	Balance Original	Balance Remaining	Annual Payment
06/30/2014	Liability (Gain)/Loss	6.4496	0.4496	(17,051,192)	(1,188,632) $	(1,188,632) [1]
06/30/2015	Liability (Gain)/Loss	6.5997	1.5997	(11,011,883)	(2,669,168) $	(1,668,543)
06/30/2015	Assumptions	6.5997	1.5997	45,752,095	11,089,840 $	6,932,451
06/30/2016	Liability (Gain)/Loss	6.6385	2.6385	19,857,344	7,892,384 $	2,991,240
06/30/2016	Asset (Gain)/Loss (Net)	5.0000	1.0000	(100,149,602)	(20,029,922) $	(20,029,922)
06/30/2016	Assumptions	6.6385	2.6385	23,334,195	9,274,275 $	3,514,980
06/30/2017	Liability (Gain)/Loss	6.5355	3.5355	12,140,768	6,567,773 $	1,857,665
06/30/2017	Asset (Gain)/Loss (Net)	5.0000	2.0000	(22,757,907)	(9,103,164) $	(4,551,581)
06/30/2018	Liability (Gain)/Loss	6.7688	4.7688	27,726,555	19,534,097 $	4,096,229
06/30/2018	Asset (Gain)/Loss (Net)	5.0000	3.0000	58,084,778	34,850,866 $	11,616,956
06/30/2019	Liability (Gain)/Loss	6.6962	5.6962	(12,696,483)	(10,800,410) $	(1,896,073)
06/30/2019	Asset (Gain)/Loss (Net)	5.0000	4.0000	73,007,730	58,406,184 $	14,601,546
	Total Charges			**$ 96,236,398**	**$ 103,824,123**	

Amounts Recognized in the deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in the pension expense as follows:

Year End December 31:

2021	$ 16,276,316
2022	$ 35,387,724
2023	$ 34,430,540
2024	$ 17,796,480
2025	$ 1,253,108
Total Thereafter	$ (1,320,045)

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[1] In the final year of amortization, the amount recognized is set equal to the outstanding amount of the base at the beginning of that year.

Statement of Fiduciary Net Position

	Fiscal Year Ending June 30, 2019	Fiscal Year Ending June 30, 2020
Assets		
Cash Equivalents	$ 209,727,176	$ 320,782,707
Receivables		
Contributions	$ 0	$ 0
Investment Income	3,809,682	5,982,466
Accounts Receivable – Sale of Investments	8,109,883	8,069,804
Other receivables	0	0
Total Receivables	$ 11,919,565	$ 14,052,270
Investments		
Equities	$ 670,619,312	$ 405,308,672
Bonds and Mortgage Backed Securities	83,451,025	449,083,485
U.S. Government Obligations	20,877,635	127,212,756
Preferred Securities	5,189,750	126,688
Real Estate	218,025,785	175,740,685
Global Asset Allocation	247,355,510	209,334,379
Better Beta	130,756,594	138,261,722
Hedge Fund of Funds	117,526,120	94,317,040
Private Equity	115,300,063	134,084,397
Commingled Fixed Income Funds	575,050,619	100,776,981
Commingled Equity Funds	267,951,298	641,004,139
Total Investments	$ 2,452,103,711	$ 2,475,250,944
Prepaid Expenses	$ 4,772	$ 8,433
Other	$ 38,238	$ 25,035
Total Assets	$ 2,673,793,462	$ 2,810,119,389
Liabilities		
Payables		
Accounts Payable & Securities Purchased	$ 8,702,006	$ 90,344,539
Securities lending Collateral	143,637,529	126,382,893
Other	12,455	8,782
Total Liabilities	$ 152,351,990	$ 216,736,214
Net Position Restricted for Pensions	**$ 2,521,441,472**	**$ 2,593,383,175**

Statement of Change in Fiduciary Net Position

	Fiscal Year Ending June 30, 2019		Fiscal Year Ending June 30, 2020	
Additions				
Contributions:				
Employer	$	96,982,911	$	104,741,255
Employee		46,645,396		49,095,601
Total Contributions	$	143,628,307	$	153,836,856
Investment Income:				
Net Increase in Fair value of Investments	$	96,217,852	$	42,105,584
Interest and Dividends		30,432,169		23,332,691
Real Estate		4,227,412		58,903,601
Less Investment Expense		(13,768,175)		(16,307,839)
Net Investment Income	$	117,109,258	$	108,034,037
Other		618,242		438,497
Total Additions	$	261,355,807	$	262,309,390
Deductions				
Benefit Payments/Refunds	$	181,932,073	$	185,986,496
Administrative Expenses		4,262,159		4,381,191
Other		0		0
Total Deductions	$	186,194,232	$	190,367,687
Net Increase in Net Position	$	75,161,575	$	71,941,703
Net Position restricted for Postemployment benefits Other than Pensions				
Beginning of year	$	2,446,279,897	$	2,521,441,472
End of Year	**$**	**2,521,441,472**	**$**	**2,593,383,175**

Plan Fiduciary Net Position Projection

GASB Statement Number 67 includes specific instructions on how to determine the discount rate that should be used for the purposes of measuring the Total Pension Liability, by factoring in the ability of the plans assets to pay benefit obligations in future years. This is done by projecting employer contributions, employee contributions, benefit payments, expenses and investment return into the future. The Fiduciary Net Position (or fund assets) determined each year is then compared with the benefit obligations that are expected to be paid in those years. If the fund has sufficient assets to pay the projected benefit payments in a future year, the assumed expected return on plan assets is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a municipal bond rate is required, as described in the following paragraph.

The Single Discount Rate (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects (1) the long-term expected rate of return on pension plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.25%; the municipal bond rate is 2.21%; and the resulting SDR is 7.25%. We have relied on the information provided by ERFC's investment advisors, SegalMarco Advisors, for purposes of determining the expected rate of return on pension plan investments. We believe the analysis reasonably supports the use of a 7.25% expected rate of return.

The tables in this section provide background for the development of the SDR.

The Projection of Contributions table shows the development of expected contributions in future years. Normal cost contributions for future hires are not included (nor are their liabilities).

The Projection of Plan Fiduciary Net Position table shows the development of expected asset levels in future years.

The Present Values of Projected Benefit Payments table shows the development of the SDR. It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total at the SDR.

Plan Fiduciary Net Position Projection

Projection of Contributions[1]

Fiscal Year	Payroll for Current Employees	Contributions from Current Employees	Service Cost and Expense Contributions	UAL Contributions	Total Contributions
2020					
2021	1,646,399,825	49,391,995	44,617,435	65,691,353	159,700,783
2022	1,548,609,675	46,458,290	41,967,322	65,661,050	154,086,662
2023	1,498,325,659	44,949,770	40,604,625	71,722,903	157,277,298
2024	1,452,122,149	43,563,664	39,352,510	77,452,422	160,368,596
2025	1,407,810,868	42,234,326	38,151,675	82,787,870	163,173,871
2026	1,363,448,310	40,903,449	36,949,449	87,635,371	165,488,269
2027	1,318,266,277	39,547,988	35,725,016	91,940,509	167,213,513
2028	1,274,500,830	38,235,025	34,538,972	95,858,017	168,632,014
2029	1,234,709,506	37,041,285	33,460,628	99,617,481	170,119,394
2030	1,198,599,834	35,957,995	32,482,056	103,258,903	171,698,954
2031	1,164,791,030	34,943,731	31,565,837	106,716,182	173,225,750
2032	1,132,820,462	33,984,614	30,699,435	109,982,149	174,666,198
2033	1,100,774,352	33,023,231	29,830,985	112,890,693	175,744,909
2034	1,066,864,771	32,005,943	28,912,035	115,247,436	176,165,414
2035	1,031,749,536	30,952,486	27,960,412	117,096,463	176,009,361
2036	995,980,331	29,879,410	26,991,067	118,483,623	175,354,100
2037	959,529,416	28,785,882	26,003,247	119,394,736	174,183,865
2038	922,764,279	27,682,928	25,006,912	119,866,353	172,556,193
2039	885,483,110	26,564,493	23,996,592	119,866,000	170,427,085
2040	847,892,248	25,436,767	22,977,880	119,414,273	167,828,920
2041	809,742,370	24,292,271	21,944,018	0	46,236,289
2042	769,023,426	23,070,703	20,840,535	0	43,911,238
2043	722,053,072	21,661,592	19,567,638	0	41,229,230
2044	669,011,492	20,070,345	18,130,211	0	38,200,556
2045	612,160,281	18,364,808	16,589,544	0	34,954,352
2046	553,621,276	16,608,638	15,003,137	0	31,611,775
2047	495,241,968	14,857,259	13,421,057	0	28,278,316
2048	436,962,571	13,108,877	11,841,686	0	24,950,563
2049	382,286,526	11,468,596	10,359,965	0	21,828,561
2050	334,085,006	10,022,550	9,053,704	0	19,076,254
2051	289,500,932	8,685,028	7,845,475	0	16,530,503
2052	243,105,432	7,293,163	6,588,157	0	13,881,320
2053	193,268,244	5,798,047	5,237,569	0	11,035,616
2054	144,158,552	4,324,757	3,906,697	0	8,231,454
2055	101,027,433	3,030,823	2,737,843	0	5,768,666
2056	66,165,326	1,984,960	1,793,080	0	3,778,040
2057	38,622,813	1,158,684	1,046,678	0	2,205,362
2058	18,555,161	556,655	502,845	0	1,059,500
2059	8,575,743	257,272	232,403	0	489,675
2060	5,303,989	159,120	143,738	0	302,858
2061	3,472,543	104,176	94,106	0	198,282
2062	2,293,507	68,805	62,154	0	130,959
2063	1,511,814	45,354	40,970	0	86,324
2064	992,135	29,764	26,887	0	56,651
2065	648,079	19,442	17,563	0	37,005
2066	420,450	12,614	11,394	0	24,008
2067	268,769	8,063	7,284	0	15,347

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[1] The projections in this report are strictly for the purposes of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

Fiscal Year	Payroll for Current Employees	Contributions from Current Employees	Service Cost and Expense Contributions	UAL Contributions	Total Contributions
2068	166,564	4,997	4,514	0	9,511
2069	99,801	2,994	2,705	0	5,699
2070	56,310	1,689	1,526	0	3,215
2071	27,678	830	750	0	1,580
2072	10,692	321	290	0	611
2073	2,844	85	77	0	162
2074	457	14	12	0	26
2075	106	3	3	0	6
2076	30	1	1	0	2
2077	5	0	0	0	0
2078	0	0	0	0	0

Plan Fiduciary Net Position Projection

Projection of Plan Fiduciary Net Position Ending June 30, 2120[1]

Fiscal Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.25%	Projected Ending Plan Net Position
2020						
2021	2,593,383,175	159,700,783	190,384,479	4,506,185	186,868,255	2,745,061,549
2022	2,745,061,549	154,086,662	195,896,619	4,769,737	197,455,719	2,895,937,574
2023	2,895,937,574	157,277,298	203,431,488	5,031,894	208,232,195	3,052,983,685
2024	3,052,983,685	160,368,596	213,229,545	5,304,773	219,371,413	3,214,189,376
2025	3,214,189,376	163,173,871	222,857,374	5,584,879	230,807,638	3,379,728,632
2026	3,379,728,632	165,488,269	232,915,444	5,872,515	242,524,661	3,548,953,603
2027	3,548,953,603	167,213,513	244,654,951	6,166,555	254,427,428	3,719,773,038
2028	3,719,773,038	168,632,014	256,590,861	6,463,366	266,427,580	3,891,778,405
2029	3,891,778,405	170,119,394	267,698,829	6,762,237	278,545,623	4,065,982,356
2030	4,065,982,356	171,698,954	277,454,219	7,064,929	290,874,443	4,244,036,605
2031	4,244,036,605	173,225,750	286,429,929	7,374,311	303,508,026	4,426,966,141
2032	4,426,966,141	174,666,198	295,075,683	7,692,164	316,503,388	4,615,367,880
2033	4,615,367,880	175,744,909	303,509,813	8,019,525	329,889,570	4,809,473,022
2034	4,809,473,022	176,165,414	312,302,467	8,356,796	343,652,267	5,008,631,440
2035	5,008,631,440	176,009,361	319,827,404	8,702,848	357,805,265	5,213,915,814
2036	5,213,915,814	175,354,100	325,826,510	9,059,544	372,438,262	5,426,822,121
2037	5,426,822,121	174,183,865	331,552,012	9,429,483	387,614,454	5,647,638,946
2038	5,647,638,946	172,556,193	337,070,759	9,813,168	403,354,451	5,876,665,663
2039	5,876,665,663	170,427,085	342,963,771	10,211,118	419,657,651	6,113,575,509
2040	6,113,575,509	167,828,920	350,133,205	10,622,765	436,469,425	6,357,117,885
2041	6,357,117,885	46,236,289	358,892,537	11,045,937	449,391,473	6,482,807,172
2042	6,482,807,172	43,911,238	369,900,570	11,264,331	458,019,825	6,603,573,334
2043	6,603,573,334	41,229,230	382,720,390	11,474,171	466,214,088	6,716,822,091
2044	6,716,822,091	38,200,556	397,278,648	11,670,949	473,789,322	6,819,862,372
2045	6,819,862,372	34,954,352	413,566,063	11,849,988	480,555,602	6,909,956,275
2046	6,909,956,275	31,611,775	430,800,036	12,006,533	486,346,865	6,985,108,345
2047	6,985,108,345	28,278,316	449,530,569	12,137,115	491,002,799	7,042,721,776
2048	7,042,721,776	24,950,563	468,581,956	12,237,222	494,377,047	7,081,230,208
2049	7,081,230,208	21,828,561	486,293,936	12,304,133	496,422,527	7,100,883,227
2050	7,100,883,227	19,076,254	502,445,910	12,338,282	497,171,119	7,102,346,408
2051	7,102,346,408	16,530,503	518,138,603	12,340,824	496,625,918	7,085,023,402
2052	7,085,023,402	13,881,320	534,185,903	12,310,724	494,703,502	7,047,111,597
2053	7,047,111,597	11,035,616	549,891,246	12,244,850	491,294,728	6,987,305,845
2054	6,987,305,845	8,231,454	563,845,813	12,140,933	486,363,859	6,905,914,412
2055	6,905,914,412	5,768,666	574,827,697	11,999,510	479,987,613	6,804,843,484
2056	6,804,843,484	3,778,040	583,235,865	11,823,892	472,294,602	6,685,856,368
2057	6,685,856,368	2,205,362	589,214,704	11,617,143	463,405,449	6,550,635,332
2058	6,550,635,332	1,059,500	591,227,691	11,382,187	453,497,060	6,402,582,015
2059	6,402,582,015	489,675	590,211,222	11,124,934	442,787,903	6,244,523,437
2060	6,244,523,437	302,858	588,057,905	10,850,297	431,408,358	6,077,326,451
2061	6,077,326,451	198,282	585,070,315	10,559,780	419,399,538	5,901,294,175
2062	5,901,294,175	130,959	581,342,196	10,253,912	406,778,431	5,716,607,457
2063	5,716,607,457	86,324	576,554,063	9,933,006	393,568,988	5,523,775,700
2064	5,523,775,700	56,651	570,377,884	9,597,947	379,819,512	5,323,676,032
2065	5,323,676,032	37,005	562,769,880	9,250,260	365,594,922	5,117,287,820
2066	5,117,287,820	24,008	553,934,470	8,891,646	350,958,758	4,905,444,470
2067	4,905,444,470	15,347	544,040,713	8,523,553	335,965,285	4,688,860,835

[1] The projections in this report are strictly for the purposes of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

Fiscal Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.25%	Projected Ending Plan Net Position
2068	4,688,860,835	9,511	533,113,340	8,147,224	320,665,350	4,468,275,132
2069	4,468,275,132	5,699	521,089,431	7,763,941	305,114,639	4,244,542,098
2070	4,244,542,098	3,215	507,960,524	7,375,189	289,375,346	4,018,584,947
2071	4,018,584,947	1,580	493,787,561	6,982,573	273,512,158	3,791,328,550
2072	3,791,328,550	611	478,603,397	6,587,699	257,590,893	3,563,728,958
2073	3,563,728,958	162	462,402,280	6,192,229	241,681,006	3,336,815,617
2074	3,336,815,617	26	445,284,616	5,797,951	225,853,485	3,111,586,562
2075	3,111,586,562	6	427,308,541	5,406,599	210,178,548	2,889,049,976
2076	2,889,049,976	2	408,460,953	5,019,927	194,729,688	2,670,298,786
2077	2,670,298,786	0	388,906,615	4,639,831	179,580,207	2,456,332,546
2078	2,456,332,546	0	368,711,867	4,268,050	164,800,147	2,248,152,776
2079	2,248,152,776	0	347,968,421	3,906,323	150,458,790	2,046,736,822
2080	2,046,736,822	0	326,742,173	3,556,349	136,624,587	1,853,062,887
2081	1,853,062,887	0	305,190,896	3,219,826	123,362,777	1,668,014,943
2082	1,668,014,943	0	283,642,839	2,898,293	110,725,703	1,492,199,514
2083	1,492,199,514	0	262,137,064	2,592,801	98,755,910	1,326,225,559
2084	1,326,225,559	0	240,814,650	2,304,410	87,492,483	1,170,598,982
2085	1,170,598,982	0	219,848,918	2,033,998	76,965,898	1,025,681,964
2086	1,025,681,964	0	199,313,405	1,782,194	67,199,770	891,786,135
2087	891,786,135	0	179,406,945	1,549,541	58,209,592	769,039,241
2088	769,039,241	0	160,275,346	1,336,260	49,999,425	657,427,060
2089	657,427,060	0	142,012,661	1,142,326	42,564,888	556,836,962
2090	556,836,962	0	124,733,368	967,543	35,893,746	467,029,797
2091	467,029,797	0	108,535,723	811,497	29,965,176	387,647,753
2092	387,647,753	0	93,500,409	673,565	24,750,385	318,224,164
2093	318,224,164	0	79,689,518	552,937	20,213,356	258,195,064
2094	258,195,064	0	67,145,834	448,632	16,311,714	206,912,312
2095	206,912,312	0	55,891,075	359,525	12,997,735	163,659,447
2096	163,659,447	0	45,923,596	284,370	10,219,578	127,671,059
2097	127,671,059	0	37,217,608	221,837	7,922,718	98,154,332
2098	98,154,332	0	29,724,435	170,550	6,051,456	74,310,803
2099	74,310,803	0	23,374,808	129,120	4,550,423	55,357,298
2100	55,357,298	0	18,082,747	96,187	3,365,948	40,544,312
2101	40,544,312	0	13,748,950	70,449	2,447,274	29,172,187
2102	29,172,187	0	10,265,030	50,689	1,747,581	20,604,050
2103	20,604,050	0	7,518,959	35,801	1,224,725	14,274,015
2104	14,274,015	0	5,398,885	24,802	841,697	9,692,025
2105	9,692,025	0	3,797,177	16,841	566,833	6,444,840
2106	6,444,840	0	2,614,109	11,198	373,749	4,193,281
2107	4,193,281	0	1,760,388	7,286	241,056	2,666,663
2108	2,666,663	0	1,158,852	4,634	151,895	1,655,072
2109	1,655,072	0	745,089	2,876	93,353	1,000,460
2110	1,000,460	0	467,278	1,738	55,829	587,273
2111	587,273	0	285,401	1,020	32,376	333,229
2112	333,229	0	169,541	579	18,100	181,209
2113	181,209	0	97,625	315	9,649	92,918
2114	92,918	0	53,819	161	4,814	43,752
2115	43,752	0	27,659	76	2,184	18,201
2116	18,201	0	12,656	32	868	6,381
2117	6,381	0	4,733	11	294	1,931
2118	1,931	0	1,305	3	93	716
2119	716	0	276	1	42	481
2120	481	0	69	1	32	444

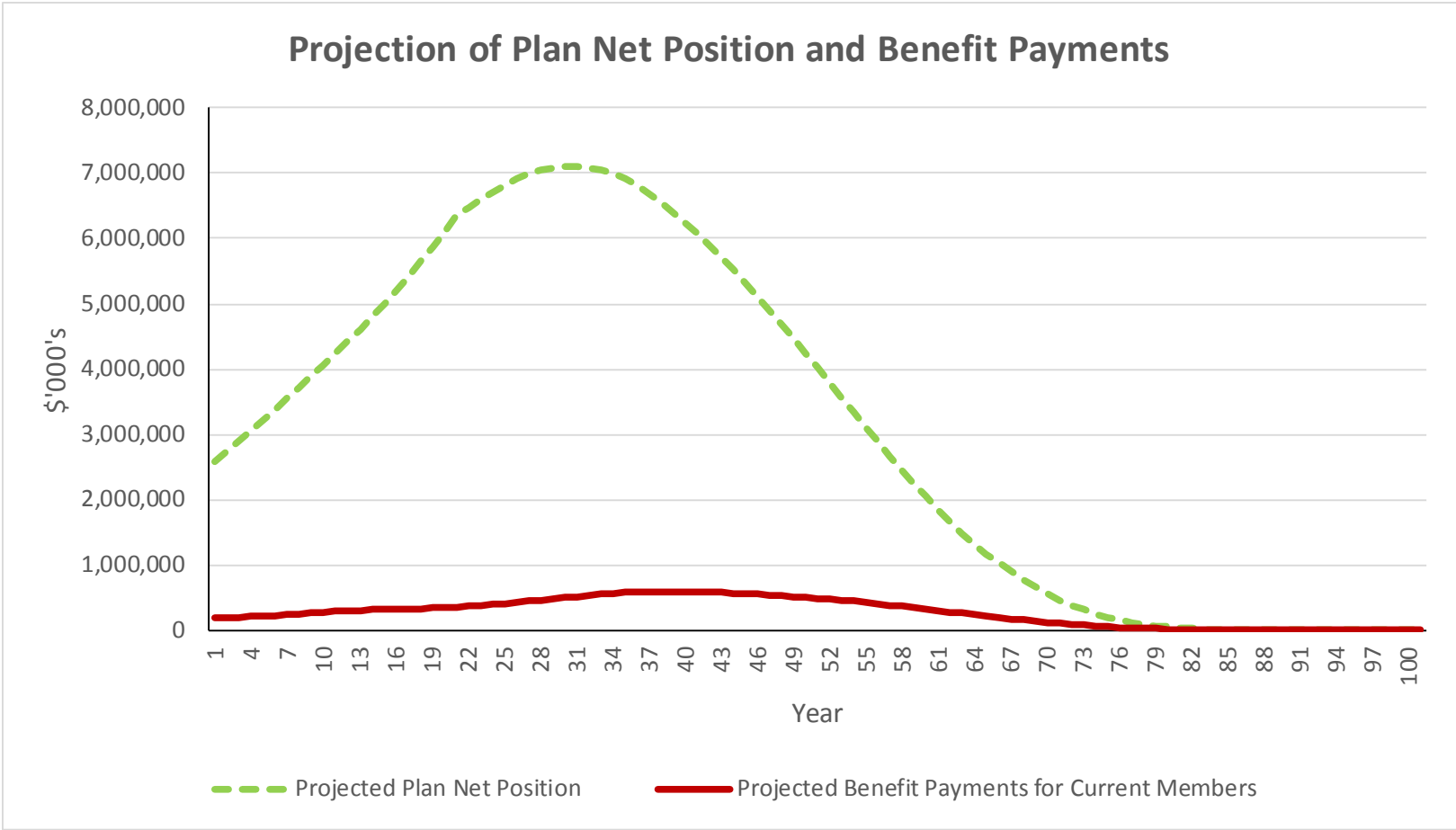# Plan Fiduciary Net Position Projection

Present Values of Projected Benefits Ending June 30, 2120[1]

Fiscal Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments Using Expected Return Rate	Present Value of Unfunded Benefit Payments Using Municipal Bond Rate	Present Value of Benefit Payments Using Single Discount Rate
2020							
2021	2,593,383,175	190,384,479	190,384,479	0	183,836,985	0	183,836,985
2022	2,745,061,549	195,896,619	195,896,619	0	176,372,548	0	176,372,548
2023	2,895,937,574	203,431,488	203,431,488	0	170,775,248	0	170,775,248
2024	3,052,983,685	213,229,545	213,229,545	0	166,900,189	0	166,900,189
2025	3,214,189,376	222,857,374	222,857,374	0	162,644,415	0	162,644,415
2026	3,379,728,632	232,915,444	232,915,444	0	158,494,112	0	158,494,112
2027	3,548,953,603	244,654,951	244,654,951	0	155,228,533	0	155,228,533
2028	3,719,773,038	256,590,861	256,590,861	0	151,796,384	0	151,796,384
2029	3,891,778,405	267,698,829	267,698,829	0	147,662,227	0	147,662,227
2030	4,065,982,356	277,454,219	277,454,219	0	142,697,701	0	142,697,701
2031	4,244,036,605	286,429,929	286,429,929	0	137,355,716	0	137,355,716
2032	4,426,966,141	295,075,683	295,075,683	0	131,936,349	0	131,936,349
2033	4,615,367,880	303,509,813	303,509,813	0	126,533,778	0	126,533,778
2034	4,809,473,022	312,302,467	312,302,467	0	121,398,090	0	121,398,090
2035	5,008,631,440	319,827,404	319,827,404	0	115,919,049	0	115,919,049
2036	5,213,915,814	325,826,510	325,826,510	0	110,110,378	0	110,110,378
2037	5,426,822,121	331,552,012	331,552,012	0	104,471,109	0	104,471,109
2038	5,647,638,946	337,070,759	337,070,759	0	99,030,350	0	99,030,350
2039	5,876,665,663	342,963,771	342,963,771	0	93,950,302	0	93,950,302
2040	6,113,575,509	350,133,205	350,133,205	0	89,430,556	0	89,430,556
2041	6,357,117,885	358,892,537	358,892,537	0	85,471,192	0	85,471,192
2042	6,482,807,172	369,900,570	369,900,570	0	82,137,794	0	82,137,794
2043	6,603,573,334	382,720,390	382,720,390	0	79,239,610	0	79,239,610
2044	6,716,822,091	397,278,648	397,278,648	0	76,693,517	0	76,693,517
2045	6,819,862,372	413,566,063	413,566,063	0	74,440,798	0	74,440,798
2046	6,909,956,275	430,800,036	430,800,036	0	72,301,042	0	72,301,042
2047	6,985,108,345	449,530,569	449,530,569	0	70,344,599	0	70,344,599
2048	7,042,721,776	468,581,956	468,581,956	0	68,369,088	0	68,369,088
2049	7,081,230,208	486,293,936	486,293,936	0	66,156,996	0	66,156,996
2050	7,100,883,227	502,445,910	502,445,910	0	63,733,672	0	63,733,672
2051	7,102,346,408	518,138,603	518,138,603	0	61,281,343	0	61,281,343
2052	7,085,023,402	534,185,903	534,185,903	0	58,908,430	0	58,908,430
2053	7,047,111,597	549,891,246	549,891,246	0	56,541,136	0	56,541,136
2054	6,987,305,845	563,845,813	563,845,813	0	54,056,856	0	54,056,856
2055	6,905,914,412	574,827,697	574,827,697	0	51,384,343	0	51,384,343
2056	6,804,843,484	583,235,865	583,235,865	0	48,611,614	0	48,611,614
2057	6,685,856,368	589,214,704	589,214,704	0	45,790,153	0	45,790,153
2058	6,550,635,332	591,227,691	591,227,691	0	42,840,643	0	42,840,643
2059	6,402,582,015	590,211,222	590,211,222	0	39,875,981	0	39,875,981
2060	6,244,523,437	588,057,905	588,057,905	0	37,044,753	0	37,044,753
2061	6,077,326,451	585,070,315	585,070,315	0	34,365,082	0	34,365,082
2062	5,901,294,175	581,342,196	581,342,196	0	31,837,859	0	31,837,859
2063	5,716,607,457	576,554,063	576,554,063	0	29,441,149	0	29,441,149
2064	5,523,775,700	570,377,884	570,377,884	0	27,156,894	0	27,156,894
2065	5,323,676,032	562,769,880	562,769,880	0	24,983,366	0	24,983,366
2066	5,117,287,820	553,934,470	553,934,470	0	22,928,793	0	22,928,793

[1] The projections in this report are strictly for the purposes of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

Fiscal Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments Using Expected Return Rate	Present Value of Unfunded Benefit Payments Using Municipal Bond Rate	Present Value of Benefit Payments Using Single Discount Rate
2067	4,905,444,470	544,040,713	544,040,713	0	20,996,984	0	20,996,984
2068	4,688,860,835	533,113,340	533,113,340	0	19,184,380	0	19,184,380
2069	4,468,275,132	521,089,431	521,089,431	0	17,484,096	0	17,484,096
2070	4,244,542,098	507,960,524	507,960,524	0	15,891,452	0	15,891,452
2071	4,018,584,947	493,787,561	493,787,561	0	14,403,779	0	14,403,779
2072	3,791,328,550	478,603,397	478,603,397	0	13,017,116	0	13,017,116
2073	3,563,728,958	462,402,280	462,402,280	0	11,726,318	0	11,726,318
2074	3,336,815,617	445,284,616	445,284,616	0	10,528,878	0	10,528,878
2075	3,111,586,562	427,308,541	427,308,541	0	9,420,819	0	9,420,819
2076	2,889,049,976	408,460,953	408,460,953	0	8,396,540	0	8,396,540
2077	2,670,298,786	388,906,615	388,906,615	0	7,454,145	0	7,454,145
2078	2,456,332,546	368,711,867	368,711,867	0	6,589,346	0	6,589,346
2079	2,248,152,776	347,968,421	347,968,421	0	5,798,261	0	5,798,261
2080	2,046,736,822	326,742,173	326,742,173	0	5,076,516	0	5,076,516
2081	1,853,062,887	305,190,896	305,190,896	0	4,421,146	0	4,421,146
2082	1,668,014,943	283,642,839	283,642,839	0	3,831,226	0	3,831,226
2083	1,492,199,514	262,137,064	262,137,064	0	3,301,392	0	3,301,392
2084	1,326,225,559	240,814,650	240,814,650	0	2,827,837	0	2,827,837
2085	1,170,598,982	219,848,918	219,848,918	0	2,407,124	0	2,407,124
2086	1,025,681,964	199,313,405	199,313,405	0	2,034,761	0	2,034,761
2087	891,786,135	179,406,945	179,406,945	0	1,707,728	0	1,707,728
2088	769,039,241	160,275,346	160,275,346	0	1,422,489	0	1,422,489
2089	657,427,060	142,012,661	142,012,661	0	1,175,200	0	1,175,200
2090	556,836,962	124,733,368	124,733,368	0	962,432	0	962,432
2091	467,029,797	108,535,723	108,535,723	0	780,842	0	780,842
2092	387,647,753	93,500,409	93,500,409	0	627,201	0	627,201
2093	318,224,164	79,689,518	79,689,518	0	498,422	0	498,422
2094	258,195,064	67,145,834	67,145,834	0	391,577	0	391,577
2095	206,912,312	55,891,075	55,891,075	0	303,909	0	303,909
2096	163,659,447	45,923,596	45,923,596	0	232,830	0	232,830
2097	127,671,059	37,217,608	37,217,608	0	175,936	0	175,936
2098	98,154,332	29,724,435	29,724,435	0	131,016	0	131,016
2099	74,310,803	23,374,808	23,374,808	0	96,064	0	96,064
2100	55,357,298	18,082,747	18,082,747	0	69,291	0	69,291
2101	40,544,312	13,748,950	13,748,950	0	49,123	0	49,123
2102	29,172,187	10,265,030	10,265,030	0	34,196	0	34,196
2103	20,604,050	7,518,959	7,518,959	0	23,355	0	23,355
2104	14,274,015	5,398,885	5,398,885	0	15,636	0	15,636
2105	9,692,025	3,797,177	3,797,177	0	10,254	0	10,254
2106	6,444,840	2,614,109	2,614,109	0	6,582	0	6,582
2107	4,193,281	1,760,388	1,760,388	0	4,133	0	4,133
2108	2,666,663	1,158,852	1,158,852	0	2,537	0	2,537
2109	1,655,072	745,089	745,089	0	1,521	0	1,521
2110	1,000,460	467,278	467,278	0	889	0	889
2111	587,273	285,401	285,401	0	506	0	506
2112	333,229	169,541	169,541	0	280	0	280
2113	181,209	97,625	97,625	0	151	0	151
2114	92,918	53,819	53,819	0	77	0	77
2115	43,752	27,659	27,659	0	37	0	37
2116	18,201	12,656	12,656	0	16	0	16
2117	6,381	4,733	4,733	0	6	0	6
2118	1,931	1,305	1,305	0	1	0	1
2119	716	276	276	0	0	0	0
2120	481	69	69	0	0	0	0

Projection of Plan Net Position and Benefit Payments

The projections in this report are strictly for the purposes of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

Investment Return Schedule

	Fiscal Year Ending June 30						
	2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Annual money-weighted rate of return, Net of investment expense[1]	15.91%	1.49%	(0.63%)	12.14%	8.29%	4.88%	4.49%

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[1] Annual money weighted rate or return, net of investment expense as supplied by ERFC Staff.

Sensitivity

The following table illustrates the impact of interest rate sensitivity on the Net Pension Liability for fiscal year ending June 30, 2019:

	1% Decrease (6.25%)	Current Rate (7.25%)	1% Increase (8.25%)
(1) Total Pension Liability	$ 3,801,476,431	$ 3,406,340,888	$ 3,011,205,345
(2) Plan Fiduciary Net Position	$ 2,521,441,472	$ 2,521,441,472	$ 2,521,441,472
(3) Net Pension Liability	$ 1,280,034,959	$ 884,899,416	$ 489,763,873

The following table illustrates the impact of interest rate sensitivity on the Net Pension Liability for fiscal year ending June 30, 2020:

	1% Decrease (6.25%)	Current Rate (7.25%)	1% Increase (8.25%)
(1) Total Pension Liability	$ 3,978,287,451	$ 3,543,956,246	$ 3,101,620,138
(2) Plan Fiduciary Net Position	$ 2,593,383,175	$ 2,593,383,175	$ 2,593,383,175
(3) Net Pension Liability	$ 1,384,904,276	$ 950,573,071	$ 508,236,963

Disclosure—Changes in the Net Pension Liability and Related Ratios

Changes in the Net Pension Liability and Related Ratios[1]

	Fiscal Year Ending		
	2018	2019	2020
Total Pension Liability			
Service Cost	$ 88,599,697	$ 90,633,074	$ 92,719,549
Interest Cost	$ 221,106,804	$ 231,477,042	$ 243,578,788
Changes of Benefit Terms	$ 0	$ 0	$ 0
Differences Between Expected and Actual Experiences	$ 12,140,768	$ 27,726,555	$ (12,696,483)
Changes of Assumptions	$ 0	$ 0	$ 0
Benefit Payments	$ (177,720,296)	$ (181,932,073)	$ (185,986,496)
Net Change in Total Pension Liability	$ 144,126,973	$ 167,904,598	$ 137,615,358
Total Pension Liability (Beginning)	$ 3,094,309,317	$ 3,238,436,290	$ 3,406,340,888
Total Pension Liability (Ending)	$ 3,238,436,290	$ 3,406,340,888	$ 3,543,956,246
Plan Fiduciary Net Position			
Contributions—Employer	$ 91,704,877	$ 96,982,911	$ 104,741,255
Contributions—Member	$ 44,169,100	$ 46,645,396	$ 49,095,601
Net Investment Income	$ 188,145,489	$ 117,727,500	$ 108,472,534
Benefit Payments	$ (177,720,296)	$ (181,932,073)	$ (185,986,496)
Administrative Expense	$ (4,300,927)	$ (4,262,159)	$ (4,381,191)
Other	$ 0	$ 0	$ 0
Net Change in Plan Fiduciary Net Position	$ 141,998,243	$ 75,161,575	$ 71,941,703
Plan Fiduciary Net Position (Beginning)	$ 2,304,281,654	$ 2,446,279,897	$ 2,521,441,472
Plan Fiduciary Net Position (Ending)	$ 2,446,279,897	$ 2,521,441,472	$ 2,593,383,175
Net Pension Liability (Ending)	$ 792,156,393	$ 884,899,416	$ 950,573,071
Net Position as a Percentage of Pension Liability	75.54%	74.02%	73.18%
Covered-Employee Payroll	$ 1,469,629,439	$ 1,549,247,780	$ 1,626,417,003
Net Pension Liability as a Percentage of Payroll	53.90%	57.12%	58.45%

[1] GASB 68 was effective first the year beginning in 2014 and requires plan sponsors to report changes in Net Pension Liability for a rolling 10 year period

Disclosure—Contribution Schedule

Contributions

	Fiscal Year Ending		
	2018	**2019**	**2020**
Actuarially Determined Contribution	$ 93,543,467	$ 96,982,911	$ 104,741,255
Contributions Made in Relation to the Actuarially Determined Contribution	$ 91,704,877	$ 96,982,911	$ 104,741,255
Contribution Deficiency (Excess)	$ 1,838,590	$ 0	$ 0
Covered-Employee Payroll	$ 1,469,629,439	$1,549,247,780	$ 1,626,417,003
Contributions as a Percentage of Payroll[1]	6.24%	6.26%	6.44%

Notes to Schedule:

Valuation Date: Actuarial valuations performed as of odd numbered years typically determine the contribution rate for the two-year period beginning 18 months after the valuation date. The December 31, 2017 valuation was used to determine the funding policy contribution rates for Fiscal 2020 and 2021. Each actuarial valuation determines an ADEC for the period beginning 18 months after the valuation date.

Methods and assumptions used to determine contribution rates:

Actuarial Cost Method	Entry Age Normal with 23-year closed amortization period for initial unfunded and subsequent actuarial gains/losses from July 1, 2017.
Asset Valuation Method	5-Year smoothed market; 25% corridor.
IRS Limit Increases	2.50%
Salary Increases	3.75% to 9.05% including inflation
Investment Rate of Return	7.25%.
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition.
Mortality	The mortality table used to measure retired life mortality was 90% of the male rates and 79% of the female rates of the RP-2014 mortality Total Data Set Healthy Annuitant Mortality tables, adjusted for mortality improvement back to the base year of 2006. Mortality rates for a particular calendar year are determined by applying the fully generational MP-2016 Mortality Improvement scale to the above- described tables. Tables were extended below age 50 with a cubic spline to the published Juvenile rates. The corresponding Disabled and Employee tables were used for disability and pre-retirement mortality, respectively.

[1] Covered payroll in 2016 and later is reported in accordance with GASB 82. The ratio in the last row cannot always be compared to contributions required by the ERFC Board's funding policy.

Appendix

Participant Data

The actuarial valuation was based on personnel information from ERFC records as of December 31, 2019. Following are some of the pertinent characteristics from the personnel data as of that date. Prior year characteristics are also provided for comparison purposes. Both age and service have been determined using years and months as of the valuation date.

	December 31, 2018	December 31, 2019
Active Participants	22,048	22,176
Inactives With Deferred Benefits	4,996	5,240
Inactives Receiving Payment	12,101	12,482
Total Participants	**39,145**	**39,898**

Asset Allocation

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the pension plan's target asset allocation as of June 30, 2020 are summarized in the following table:

Asset Class[1]	Segal Marco Advisors 20 Year Expected Real Arithmetic Rate of Return	Allocation
Domestic Equity (Large Cap)	6.20%	16.5%
Domestic Equity (Small Cap)	6.90%	6.5%
International Equity	7.40%	9.0%
Emerging International Equity	8.50%	5.0%
Global Equity	7.30%	4.0%
US Fixed Income	3.00%	24.0%
Emerging Market Debt	5.60%	3.0%
Multi-Asset Class Solutions (MACS)	6.30%	11.0%
Hedge Funds	7.00%	3.0%
Real Estate	5.80%	9.0%
Private Equity	10.20%	5.0%
Private Credit	8.70%	4.0%
Total		100.0%

The discount rate used to measure the total pension liability is 7.25%.

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[1] These rates of return reflect ERFC's best estimate based on advice from Segal Marco, who also use an inflation assumption of 2.0%.

Actuarial Assumptions and Methods

Discount Rate	7.25%
20-Year Municipal Bond Rate	3.50%, Beginning of Measurement Period 2.21%, End of Measurement Period
Municipal Bond Rate Basis	Bond Buyer GO 20-Bond Municipal Bond Index
Expected Return on Assets	7.25%
Salary Increases	For 2020 0%, after see Table I.
General Inflation	2.75%

Retirement Age
    Active Participants
    Terminated Vested Participants
	
	See Table II.
	At plan commencement age provided in terminated vested member data

Mortality Rates Healthy and Disabled	The mortality table used to measure retired life mortality was 90% of the male rates and 79% of the female rates of the RP-2014 mortality Total Data Set Healthy Annuitant Mortality tables, adjusted for mortality improvement back to the base year of 2006. Mortality rates for a particular calendar year are determined by applying the fully generational MP-2016 Mortality Improvement scale to the above-described tables. Tables were extended below age 50 with a cubic spline to the published Juvenile rates. The corresponding Disabled and Employee tables were used for disability and pre-retirement mortality, respectively.
Withdrawal Rates	See Table III.
Disability Rates	See Table IV.
Decrement Timing	Middle of year decrements, with 100% retirement occurring at beginning of year.
Surviving Spouse Benefit	It is assumed that 100% of males and 100% of females have an eligible spouse for purposes of death-in-service benefits, and that males are 3 years older than their spouse.
Administrative Expenses	Actual administrative expenses during the measurement period are recognized in expense.

COLA Adjustment	Members hired prior to July 1, 2017: 3% (actual COLA).
	Members hired on/after July 1, 2017: 2.59% (long-term estimate of provision of 100% of CPI-U capped at 4%; see GRS letter dated November 22, 2016).
Asset Method	Fair market value.
Actuarial Cost Method	Entry Age Normal cost method.
Measurement Date	June 30, 2020
Measurement Period	June 30, 2019 to June 30, 2020
Valuation Date	December 31, 2019
Census Data	As of December 31, 2019.

Changes in Financial Accounting Methods/Assumptions Since the Prior Year

Method Changes

There have been no method changes in the financial accounting valuation since the prior year.

Assumption Changes

The financial accounting valuation reflects the following assumption changes:

- The municipal bond rate decreased from 3.50% to 2.21%
- The December 31, 2019 valuation reflects the one year pay (base, merit and seniority) freeze in 2020.

Reliance on Information from Prior Actuary

We have relied on the information provided by GRS in the Annual Actuarial Valuation Report as of December 31, 2017 for ERFC for purposes of the June 30, 2018 GASB results. Specifically, the pension liability, the normal cost, and covered payroll are based on information from the report. While we cannot verify the accuracy of all the information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy or completeness of the information and believe that it has produced appropriate results.

Actuarial Assumptions and Methods

Table I

Salary Increase Assumption

Pay Increase Assumption

Service Index	Merit & Seniority	Base (Economy)	Increase Next Year
1	5.80%	3.25%	9.05%
2	4.00%	3.25%	7.25%
3	3.30%	3.25%	6.55%
4	3.10%	3.25%	6.35%
5	2.50%	3.25%	5.75%
6	2.40%	3.25%	5.65%
7	2.30%	3.25%	5.55%
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	0.90%	3.25%	4.15%
16	0.80%	3.25%	4.05%
17	0.70%	3.25%	3.95%
18	0.50%	3.25%	3.75%
19	0.50%	3.25%	3.75%
20	0.40%	3.25%	3.65%
21	0.30%	3.25%	3.55%
22	0.20%	3.25%	3.45%
23	0.20%	3.25%	3.45%
24	0.20%	3.25%	3.45%
25	0.00%	3.25%	3.25%
Ref:	739	3.25%	

Table II

Retirement Rates

Ages	ERFC Legacy (Hired Before 07/01/2001)		ERFC 2001 Tier 1 (Hired 07/01/2001 – 06/30/2017)			ERFC 2001 Tier 2 (Hired On/After 07/01/2017)	
	Type of Retirement					**Age Based**	
						Rule of 90 Met?	
	Service	Reduced Service	Age Based	Service	Service Based	Yes	No
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%	35.0%	0.0%
57	25.0%	4.0%	12.5%	32	12.5%	35.0%	0.0%
58	25.0%	4.0%	12.5%	33	12.5%	35.0%	0.0%
59	25.0%	4.0%	12.5%	34	12.5%	35.0%	0.0%
60	25.0%	7.0%	10.0%	35	10.0%	35.0%	0.0%
61	30.0%	8.0%	10.0%	36	10.0%	35.0%	0.0%
62	30.0%	13.0%	10.0%	37	10.0%	35.0%	0.0%
63	30.0%	13.0%	10.0%	38	25.0%	35.0%	0.0%
64	30.0%	13.0%	20.0%	39	40.0%	35.0%	0.0%
65	30.0%		25.0%	40 & Up	100.0%	35.0%	0.0%
66	30.0%		30.0%			35.0%	0.0%
67	25.0%		25.0%			35.0%	30.0%
68	25.0%		15.0%			35.0%	15.0%
69	20.0%		15.0%			35.0%	15.0%
70	20.0%		15.0%			35.0%	15.0%
71	20.0%		15.0%			35.0%	15.0%
72	20.0%		15.0%			35.0%	15.0%
73	30.0%		15.0%			35.0%	15.0%
74	30.0%		15.0%			35.0%	15.0%
75 & Over	100.0%		100.0%			100.0%	100.0%

* The probability is 60% at age 60 for people who first meet the Rule of 90 at age 60.

The age column index does not apply to the service-based retirements. In ERFC 2001 Tier 1, an individual can retire at 30 years of service regardless of age. In ERFC 2001 Tier 2, an individual would be able to retire at FSSA with 5 years of service or when the sum of age and service is greater than or equal to 90. FSSA is assumed to be age 67 for members hired on/after July 1, 2017

Table III

Withdrawal Rates

Service	% of Active Participants Withdrawing	
	Males	**Females**
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.

Table IV

Sample Rates of Separation From Active Employment

	% of Active Members Dying or Becoming Disabled within Next Year							
	Death*				Disability			
	Ordinary		Duty		Ordinary		Duty	
Ages in 2017	Men	Women	Men	Women	Men	Women	Men	Women
20	0.0188%	0.0064%	0.0019%	0.0006%	0.0117%	0.0048%	0.0029%	0.0012%
21	0.0208%	0.0065%	0.0021%	0.0006%	0.0117%	0.0048%	0.0029%	0.0012%
22	0.0227%	0.0065%	0.0023%	0.0006%	0.0117%	0.0048%	0.0029%	0.0012%
23	0.0238%	0.0067%	0.0024%	0.0006%	0.0142%	0.0074%	0.0036%	0.0018%
24	0.0242%	0.0069%	0.0024%	0.0006%	0.0149%	0.0081%	0.0037%	0.0020%
25	0.0228%	0.0071%	0.0023%	0.0007%	0.0146%	0.0082%	0.0036%	0.0020%
26	0.0218%	0.0074%	0.0022%	0.0007%	0.0142%	0.0082%	0.0035%	0.0021%
27	0.0212%	0.0077%	0.0021%	0.0007%	0.0140%	0.0086%	0.0035%	0.0022%
28	0.0210%	0.0081%	0.0021%	0.0008%	0.0142%	0.0094%	0.0036%	0.0024%
29	0.0212%	0.0086%	0.0021%	0.0008%	0.0149%	0.0106%	0.0037%	0.0027%
30	0.0215%	0.0091%	0.0022%	0.0009%	0.0158%	0.0122%	0.0040%	0.0031%
31	0.0221%	0.0098%	0.0022%	0.0009%	0.0171%	0.0140%	0.0043%	0.0035%
32	0.0228%	0.0104%	0.0023%	0.0010%	0.0186%	0.0158%	0.0046%	0.0040%
33	0.0236%	0.0110%	0.0024%	0.0010%	0.0202%	0.0178%	0.0050%	0.0044%
34	0.0244%	0.0116%	0.0024%	0.0011%	0.0218%	0.0196%	0.0054%	0.0049%
35	0.0252%	0.0121%	0.0025%	0.0011%	0.0234%	0.0214%	0.0059%	0.0054%
36	0.0258%	0.0127%	0.0026%	0.0012%	0.0252%	0.0232%	0.0063%	0.0058%
37	0.0265%	0.0133%	0.0026%	0.0012%	0.0271%	0.0250%	0.0068%	0.0062%
38	0.0273%	0.0141%	0.0027%	0.0013%	0.0291%	0.0268%	0.0073%	0.0067%
39	0.0284%	0.0151%	0.0028%	0.0014%	0.0314%	0.0287%	0.0078%	0.0072%
40	0.0298%	0.0163%	0.0030%	0.0015%	0.0339%	0.0308%	0.0085%	0.0077%
41	0.0317%	0.0177%	0.0032%	0.0016%	0.0367%	0.0331%	0.0092%	0.0083%
42	0.0342%	0.0195%	0.0034%	0.0018%	0.0399%	0.0357%	0.0100%	0.0089%
43	0.0373%	0.0215%	0.0037%	0.0020%	0.0435%	0.0386%	0.0109%	0.0097%
44	0.0411%	0.0239%	0.0041%	0.0022%	0.0475%	0.0419%	0.0119%	0.0105%
45	0.0456%	0.0267%	0.0046%	0.0025%	0.0520%	0.0456%	0.0130%	0.0114%
46	0.0508%	0.0298%	0.0051%	0.0028%	0.0570%	0.0498%	0.0143%	0.0124%
47	0.0568%	0.0332%	0.0057%	0.0031%	0.0626%	0.0545%	0.0157%	0.0136%
48	0.0634%	0.0370%	0.0063%	0.0034%	0.0689%	0.0598%	0.0172%	0.0149%
49	0.0708%	0.0411%	0.0071%	0.0038%	0.0760%	0.0658%	0.0190%	0.0164%
50	0.0789%	0.0454%	0.0079%	0.0042%	0.0842%	0.0726%	0.0210%	0.0181%
55	0.1333%	0.0704%	0.0133%	0.0065%	0.1469%	0.1228%	0.0367%	0.0307%
60	0.2279%	0.1016%	0.0228%	0.0095%	0.2447%	0.1770%	0.0612%	0.0443%

Ref:	0.50 x 2133	0.43 x 2134	0.05 x 2133	0.04 x 2134				
	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 2017. Rates in future years are determined by the MP-2016 projection scale

Actuarial Assumptions and Methods

Discussion of Actuarial Assumptions and Methods

ERFC selected the economic and demographic assumptions and prescribed them for use for purposes of compliance with GASB 68. Aon provided guidance with respect to these assumptions, and it is our belief that the assumptions represent reasonable expectations of anticipated plan experience.

Calculation of Normal Costs and Liabilities

The method used to calculate the service cost and projected benefit obligation for determining pension expense is the entry age normal cost method. Under this cost method, the actuarial accrued liability is based on a prorated portion of the present value of all benefits earned to date over expected future working life time as defined by GASB. The proration is determined so that the cost with respect to service accrued from date of hire is recognized as a level percentage of pay each year. The Normal Cost is equal to the prorated cost for the year of the valuation.

Accounting Information Under GASB 68

Benefit obligations and expense/(income) are calculated under U.S. Generally Accepted Accounting Principles as set forth in Government Accounting Standards Board Statement 68.

The total pension liability represents the actuarial present value of benefits based on the entry age normal cost method as of the measurement date. The service cost represents the actuarial present value of benefits that are attributed to the 2020 fiscal year, reflecting the effect of assumed future pay increases.

The pension expense is the annual amount to be recognized in the income statement as the cost of pension benefits for this plan for the period ending June 30, 2020.

Plan Provisions

Eligibility to Participate	ERFC Members Hired After July 1, 1988 but Before July 1, 2001
Contributions	Effective July 1, 2012, members contribute 3% of their salaries. Interest credits are 5% annually through June 30, 2017, and 4% annually thereafter. 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 Tier 2.

Eligibility for Retirement

Normal Retirement	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
Early Retirement	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.
Disability Retirement	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.
Normal Retirement Benefit	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.

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 103% times 1.00 percent of the FAC multiplied by years of credited service.
Early Retirement Benefit	Accrued benefit to early retirement date payable at normal retirement date reduced according to the following schedule:
	After 25 years of service: Service Retirement amount reduced to reflect retirement age younger than age 55.
	After 5 years of service, but before 25 years of 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.
Disability Benefit	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.
Vested Deferred Benefit	
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.
Amount	Calculated in the same manner as early retirement benefits.
Final Average Compensation (FAC)	A member's final average compensation is the average of the 3 highest consecutive years of salary during eligible employment.

Forms of Payment

Normal Form   The assumed normal form of benefit is the straight life form.

Optional Forms   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.

Post-Retirement Increases   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).

Spouse's Preretirement Death Benefit
Statutory Death Benefits

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.

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.

Alternative 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 7/1/1988 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:

(i) 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;

(ii) 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

(iii) 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.

Plan Changes Since the Prior Year

The financial accounting valuation does not reflect any plan changes.

Eligibility to Participate	Members Hired On/After July 1, 2001 but Before July 1, 2017 (ERFC 2001 Tier 1)
Contributions	Effective July 1, 2012, members contribute 3% of their salaries. Interest credits are 5% annually through June 30, 2017, and 4% annually thereafter. 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 Tier 2.
Eligibility for Retirement Normal Retirement	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.
Normal Retirement Benefit	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.
Vested Deferred Benefit Eligibility	Any member with 5 or more years of credited service who 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.
Amount	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
Final Average Compensation (FAC)	A member's Final Average Compensation is the average of the 3 highest years of salary during eligible employment.
Forms of Payment Normal Form	The assumed normal form of benefit is the straight life form.
Optional Forms	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.
Post-Retirement Increases	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).
Spouse's Preretirement Death Benefit **Statutory Death Benefits** Eligibility	Any member with 5 or more years of credited service who dies before beginning to receive a pension will have benefits payable to the named beneficiary..
Amount	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).

Plan Changes Since the Prior Year

The financial accounting valuation does not reflect any plan changes.

Eligibility to Participate	Members Hired On/After July 1, 2017 (ERFC 2001 Tier 2)
Contributions	Members contribute 3% of their salaries. Interest credits are 4% annually. If a member leaves covered employment before becoming eligible to retire, accumulated contributions are returned upon request.

Eligibility for Retirement

Normal Retirement	A member may retire at Full Social Security Age (FSSA) with 5 or more years of credited service, or when the sum of age plus service is greater than or equal to 90 (i.e., "Rule of 90").
Normal Retirement Benefit	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.

Vested Deferred Benefit

Eligibility	Any member with 5 or more years of credited service who terminates employment prior to the service retirement date, will be eligible to receive a deferred vested pension commencing at FSSA, provided accumulated contributions are left on deposit with the Plan.
Amount	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.
Final Average Compensation (FAC)	A member's Final Average Compensation is the average of the 5 highest years of salary during eligible employment.

Forms of Payment

Normal Form	The assumed normal form of benefit is the straight life form.
Optional Forms	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

Post-Retirement Increases

The amount of the monthly benefit is adjusted each March 31st, by 100% of the Consumer Price Index (CPI-U) (with a cap of 4%) 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 one- half a year's increase.

Spouse's Preretirement Death Benefit
 Statutory Death Benefits
  Eligibility

Any member with 5 or more years of credited service who dies before beginning to receive a pension will have benefits payable to the named beneficiary.

  Amount

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 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 service retirement eligibility on the date of death in the following manner:

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 based on the lesser of FSSA or the age the member would have attained "Rule of 90").

Plan Changes Since the Prior Year

The financial accounting valuation does not reflect any plan changes.