



Actuarial Valuation Report

Educational Employees' Supplementary Retirement System of
Fairfax County

For the Fiscal Year Ending June 30, 2021

Based on a June 30, 2021 Measurement Date

Introduction

This report documents the results of the actuarial valuation for the fiscal year ending June 30, 2021 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, 2021. 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.

A valuation model was used to develop the liabilities for the June 30, 2021 valuation. The valuation model relies on ProVal software, which was developed by Winklevoss Technologies, LLC. Experts within Aon selected this software and determined it is appropriate for performing valuations. We coded and reviewed the software for the provisions, assumptions, methods, and data of the ERFC plan.

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 06/30/2020	Fiscal Year Ending 06/30/2021
(1) Pension Liability	\$3,543,956,246	\$ 3,710,207,503
(2) Plan Fiduciary Net Position	<u>2,593,383,175</u>	<u>3,272,151,084</u>
(3) Net Pension Liability	\$ 950,573,071	\$ 438,056,419
(4) Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	73.18%	88.19%
(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 06/30/2020	Fiscal Year Ending 06/30/2021
(1) Service Cost	\$ 92,719,549	\$ 91,770,647
(2) Interest Cost	243,578,788	253,330,122
(3) Expected Investment Return	(181,480,264)	(186,498,840)
(4) Employee Contributions	(49,095,601)	(48,934,340)
(5) Administrative Expense	4,381,191	4,423,439
(6) Plan Changes	0	0
(7) Amortization of Unrecognized		
(a) Liability (Gain)/Loss	1,230,490	9,185,495
(b) Asset (Gain)/Loss	37,063,484	(105,210,969)
(c) Assumption Change (Gain)/Loss	<u>10,447,431</u>	<u>7,537,332</u>
(8) Total Expense	\$ 158,845,068	\$ 25,602,886

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

	Fiscal Year Ending 06/30/2020	Fiscal Year Ending 06/30/2021
(1) Development of Service Cost:		
(a) Normal Cost at Beginning of Measurement Period	\$ 92,719,549	\$ 91,770,647
(2) Development of Interest Cost:		
(a) Total Pension Liability at Beginning of Measurement Period	\$ 3,406,340,888	\$ 3,543,956,246
(b) Normal Cost at Beginning of Measurement Period	92,719,549	91,770,647
(c) Actual Benefit Payments	(185,986,496)	(191,265,982)
(d) Discount Rate, Beginning of Measurement Period	7.25%	7.25%
(e) Interest Cost	\$ 243,578,788	\$ 253,330,122
(3) Development of Expected Investment Return:		
(a) Plan Fiduciary Net Position at Beginning of Measurement Period	\$ 2,521,441,472	\$ 2,593,383,175
(b) Actual Contributions—Employer	104,741,255	104,784,310
(c) Actual Contributions—Employee	49,095,601	48,934,340
(d) Actual Benefit Payments	(185,986,496)	(191,265,982)
(e) Administrative Expenses	(4,381,191)	(4,423,439)
(f) Other	0	0
(g) Expected Return on Assets, Beginning of Measurement Period	7.25%	7.25%
(h) Expected Return	\$ 181,480,264	\$ 186,498,840

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, 2020 to June 30, 2021:

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (c) = (a) – (b)
Balance Recognized at 06/30/2020 (Based on 06/30/2020 Measurement Date)	\$3,543,956,246	\$2,593,383,175	\$ 950,573,071
Changes Recognized for the Fiscal Year:			
Service Cost	\$ 91,770,647	N/A	\$ 91,770,647
Interest on the Total Pension Liability	253,330,122	N/A	253,330,122
Changes of Benefit Terms	0	N/A	0
Differences Between Expected and Actual Experience	29,758,913	N/A	29,758,913
Changes of Assumptions	(17,342,443)	N/A	(17,342,443)
Benefit Payments	(191,265,982)	(191,265,982)	0
Contributions From the Employer	N/A	104,784,310	(104,784,310)
Contributions From the Employee	N/A	48,934,340	(48,934,340)
Net Investment Income	N/A	720,738,680	(720,738,680)
Administrative Expense	N/A	(4,423,439)	4,423,439
Net Changes	\$ 166,251,257	\$ 678,767,909	\$ (512,516,652)
Balance Recognized at 06/30/2021 (Based on 06/30/2021 Measurement Date)	\$3,710,207,503	\$3,272,151,084	\$ 438,056,419

Liability (Gain)/Loss

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

	Fiscal Year Ending 06/30/2020	Fiscal Year Ending 06/30/2021
(1) Pension Liability at Beginning of Measurement Period	\$ 3,406,340,888	\$ 3,543,956,246
(2) Service Cost	92,719,549	91,770,647
(3) Interest on the Total Pension Liability	243,578,788	253,330,122
(4) Changes of Benefit Terms	0	0
(5) Changes of Assumptions	0	(17,342,443)
(6) Benefit Payments	<u>(185,986,496)</u>	<u>(191,265,982)</u>
(7) Expected Pension Liability at End of Measurement Period	\$ 3,556,652,729	\$ 3,680,448,590
(8) Actual Pension Liability at End of Measurement Period	<u>3,543,956,246</u>	<u>3,710,207,503</u>
(9) Pension Liability (Gain)/Loss	\$ (12,696,483)	\$ 29,758,913
(10) Average Future Working Life Expectancy	6.6962	5.9594
(11) Total Pension Liability (Gain)/Loss Amortization	\$ (1,896,073)	\$ 4,993,609
(12) Pension Overall Liability (Gain)/Loss Amortization	(1,896,073)	2,083,510
(13) Pension Assumption Change (Gain)/Loss Amortization	0	(2,910,099)

Liability (Gain)/Loss Impact on Expense

The following table details the allocation of the FY2021 liability gain/loss in the expense calculation under GASB 68

	Fiscal Year Ending 6/30/2020	Fiscal Year Ending 6/30/2021
(1) Total Liability (Gain)/Loss	\$ (12,696,483)	\$ 29,758,913
(2) Recognized in Current Year Expense	<u>(1,896,073)</u>	<u>4,993,609</u>
(3) Amount to be recognized in Future Years as Deferred Outflow (1. – 2.)	\$ (10,800,410)	\$ 24,765,304

Assumptions Change Impact on Expense

The following table details the allocation of the FY2021 liability assumption change in the expense calculation under GASB 68.

	Fiscal Year Ending 6/30/2020	Fiscal Year Ending 6/30/2021
(1) Total Liability Assumption Change (Gain)/Loss	\$ 0	\$ (17,342,443)
(2) Recognized in Current Year Expense	<u>0</u>	<u>(2,910,099)</u>
(3) Amount to be recognized in Future Years as Deferred Inflow (1. – 2.)	\$ 0	\$ (14,432,344)

Asset (Gain)/Loss

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

	Fiscal Year Ending 06/30/2020	Fiscal Year Ending 06/30/2021
(1) Pension Asset at Beginning of Measurement Period	\$ 2,521,441,472	\$ 2,593,383,175
(2) Contributions—Employer	104,741,255	104,784,310
(3) Contributions—Employee	49,095,601	48,934,340
(4) Expected Investment Income	181,480,264	186,498,840
(5) Benefit Payments	(185,986,496)	(191,265,982)
(6) Administrative Expense	(4,381,191)	(4,423,439)
(7) Other	<u>0</u>	<u>0</u>
(8) Expected Pension Asset at End of Measurement Period	\$ 2,666,390,905	\$ 2,737,911,244
(9) Actual Pension Asset at End of Measurement Period	<u>2,593,383,175</u>	<u>3,272,151,084</u>
(10) Pension Asset (Gain)/Loss	\$ 73,007,730	\$ (534,239,840)
(11) Amortization Factor	5	5
(12) Pension Asset (Gain)/Loss Amortization	\$ 14,601,546	\$ (106,847,968)

Asset (Gain)/Loss Impact on Expense

The following table details the allocation of the FY2021 asset gain/loss in the expense calculation under GASB 68.

	Fiscal Year Ending 6/30/2020	Fiscal Year Ending 6/30/2021
(1) Total Asset (Gain)/Loss	\$ 73,007,730	\$ (534,239,840)
(2) Recognized in Current Year Expense	<u>14,601,546</u>	<u>(106,847,968)</u>
(3) Amount to be recognized in Future Years as Deferred Inflows (1. – 2.)	\$ 58,406,184	\$ (427,391,872)

Deferred Outflows/Inflows

The following table illustrates the Deferred Inflows and Outflows as of June 30, 2021 under GASB 68.

	Deferred Outflows	Deferred Inflows
(1) Difference Between Actual and Expected Experience	\$ 49,814,422	\$ (9,904,962)
(2) Net Difference Between Expected and Actual Earnings on Pension Plan Investments	\$ 67,038,548	\$ (431,943,455)
(3) Assumption Changes	<u>9,916,684</u>	<u>(14,432,343)</u>
(4) Sub Total	\$ 126,769,654	\$ (456,280,760)
(5) Contributions Made in Fiscal Year Ending 2021 After Measurement Date	<u>0</u>	<u>0</u>
(6) Total	\$ 126,769,654	\$ (456,280,760)

Amortization of Deferred Inflows/Outflows

The table below lists the amortization bases included in the deferred inflows/outflows as of June 30, 2021.

Date Established	Type of Base	Period		Balance		Annual Payment
		Original	Remaining	Original	Remaining	
06/30/2015	Liability (Gain)/Loss	6.5997	0.5997	\$ (11,011,883)	\$ (1,000,625)	\$ (1,000,625)
06/30/2015	Assumptions	6.5997	0.5997	45,752,095	4,157,389	4,157,389
06/30/2016	Liability (Gain)/Loss	6.6385	1.6385	19,857,344	4,901,144	2,991,240
06/30/2016	Assumptions	6.6385	1.6385	23,334,195	5,759,295	3,514,980
06/30/2017	Liability (Gain)/Loss	6.5355	2.5355	12,140,768	4,710,108	1,857,665
06/30/2017	Asset (Gain)/Loss (Net)	5.0000	1.0000	(22,757,907)	(4,551,583)	(4,551,581)
06/30/2018	Liability (Gain)/Loss	6.7688	3.7688	27,726,555	15,437,868	4,096,229
06/30/2018	Asset (Gain)/Loss (Net)	5.0000	2.0000	58,084,778	23,233,910	11,616,956
06/30/2019	Liability (Gain)/Loss	6.6962	4.6962	(12,696,483)	(8,904,337)	(1,896,073)
06/30/2019	Asset (Gain)/Loss (Net)	5.0000	3.0000	73,007,730	43,804,638	14,601,546
06/30/2020	Liability (Gain)/Loss	5.9594	4.9594	29,758,913	24,765,304	4,993,609
06/30/2020	Asset (Gain)/Loss (Net)	5.0000	4.0000	(534,239,840)	(427,391,872)	(106,847,968)
06/30/2020	Assumptions	5.9594	4.9594	<u>(17,342,443)</u>	<u>(14,432,344)</u>	(2,910,099)
	Total Charges			(308,386,178)	\$ (329,511,106)	

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:

2022	\$ (69,376,731)
2023	\$ (70,333,915)
2024	\$ (75,351,021)
2025	\$ (91,894,393)
2026	\$ 560,723
Total Thereafter	\$ 118,147

Statement of Fiduciary Net Position

	Fiscal Year Ending June 30, 2020	Fiscal Year Ending June 30, 2021
Assets		
Cash Equivalents	\$ 320,782,707	\$ 230,583,131
Receivables		
Contributions	\$ 0	\$ 0
Investment Income	5,982,466	5,873,379
Accounts Receivable – Sale of Investments	8,069,804	36,302,369
Other receivables	0	2,589
Total Receivables	<u>\$ 14,052,270</u>	<u>\$ 42,178,337</u>
Investments		
Equities	\$ 405,308,672	\$ 567,415,582
Bonds and Mortgage Backed Securities	449,083,485	484,650,491
U.S. Government Obligations	127,212,756	134,299,276
Preferred Securities	126,688	2,847,981
Real Estate	175,740,685	156,132,124
Global Asset Allocation	209,334,379	0
Better Beta	138,261,722	0
Multi Asset Class Solutions (MACS)	0	306,184,789
Hedge Fund of Funds	94,317,040	187,556,946
Private Equity	134,084,397	210,360,927
Private Debt	0	28,307,673
Infrastructure	0	229,486
Commingled Fixed Income Funds	100,776,981	212,099,908
Commingled Equity Funds	641,004,139	909,819,785
Total Investments	<u>\$ 2,475,250,944</u>	<u>\$ 3,199,904,968</u>
Prepaid Expenses	\$ 8,433	\$ 0
Other	\$ 25,035	\$ 40,854
Total Assets	\$ 2,810,119,389	\$ 3,472,707,290
Liabilities		
Payables		
Accounts Payable & Securities Purchased	\$ 90,344,539	\$ 53,424,681
Securities lending Collateral	126,382,893	147,105,099
Other	8,782	26,426
Total Liabilities	<u>\$ 216,736,214</u>	<u>\$ 200,556,206</u>
Net Position Restricted for Pensions	\$ 2,593,383,175	\$ 3,272,151,084

Statement of Change in Fiduciary Net Position

	Fiscal Year Ending June 30, 2020	Fiscal Year Ending June 30, 2021
Additions		
Contributions:		
Employer	\$ 104,741,255	\$ 104,784,310
Employee	49,095,601	48,934,340
	<hr/>	<hr/>
Total Contributions	\$ 153,836,856	\$ 153,718,650
Investment Income:		
Net Increase in Fair value of Investments	\$ 42,105,584	\$ 698,406,122
Interest and Dividends	23,332,691	31,046,491
Real Estate	58,903,601	0
Less Investment Expense	(16,307,839)	(9,073,810)
	<hr/>	<hr/>
Net Investment Income	\$ 108,034,037	\$ 720,378,803
Other	438,497	359,877
	<hr/>	<hr/>
Total Additions	\$ 262,309,390	\$ 874,457,330
Deductions		
Benefit Payments/Refunds	\$ 185,986,496	\$ 191,265,982
Administrative Expenses	4,381,191	4,423,439
Other	0	0
	<hr/>	<hr/>
Total Deductions	\$ 190,367,687	\$ 195,689,421
Net Increase in Net Position	\$ 71,941,703	\$ 678,767,909
Net Position restricted for Postemployment benefits Other than Pensions		
Beginning of year	\$ 2,521,441,472	\$ 2,593,383,175
	<hr/>	<hr/>
End of Year	\$ 2,593,383,175	\$ 3,272,151,084

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 2.16%; 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 Contributions¹

Fiscal Year	Payroll for Current Employees	Contributions from Current Employees	Service Cost and Expense Contributions	UAL Contributions	Total Contributions
2022	1,682,735,605	50,482,068	40,890,475	67,141,151	158,513,694
2023	1,606,701,296	48,201,039	39,042,841	68,124,135	155,368,015
2024	1,540,215,943	46,206,478	37,427,247	63,164,639	146,798,364
2025	1,479,457,715	44,383,731	35,950,822	58,616,850	138,951,403
2026	1,422,820,079	42,684,602	34,574,528	54,395,473	131,654,603
2027	1,368,947,657	41,068,430	33,265,428	50,433,393	124,767,251
2028	1,318,435,720	39,553,072	32,037,988	46,740,185	118,331,245
2029	1,272,220,125	38,166,604	30,914,949	43,333,715	112,415,268
2030	1,230,073,377	36,902,201	29,890,783	40,188,638	106,981,622
2031	1,190,844,153	35,725,325	28,937,513	37,251,974	101,914,812
2032	1,153,716,531	34,611,496	28,035,312	34,487,169	97,133,977
2033	1,117,296,324	33,518,890	27,150,301	31,845,723	92,514,914
2034	1,080,339,565	32,410,187	26,252,251	29,290,960	87,953,398
2035	1,043,295,863	31,298,876	25,352,089	26,836,682	83,487,647
2036	1,006,194,875	30,185,846	24,450,535	24,483,973	79,120,354
2037	968,894,226	29,066,827	23,544,130	22,229,806	74,840,763
2038	931,388,290	27,941,649	22,632,735	20,074,891	70,649,275
2039	893,216,170	26,796,485	21,705,153	18,010,791	66,512,429
2040	854,442,161	25,633,265	20,762,945	16,041,490	62,437,700
2041	814,780,472	24,443,414	19,799,165	14,164,531	58,407,110
2042	772,499,403	23,174,982	18,771,735	0	41,946,717
2043	724,597,602	21,737,928	17,607,722	0	39,345,650
2044	671,452,342	20,143,570	16,316,292	0	36,459,862
2045	615,072,802	18,452,184	14,946,269	0	33,398,453
2046	557,378,328	16,721,350	13,544,293	0	30,265,643
2047	499,812,757	14,994,383	12,145,450	0	27,139,833
2048	442,470,158	13,274,105	10,752,025	0	24,026,130
2049	388,495,530	11,654,866	9,440,441	0	21,095,307
2050	340,367,611	10,211,028	8,270,933	0	18,481,961
2051	296,009,763	8,880,293	7,193,037	0	16,073,330
2052	250,102,216	7,503,066	6,077,484	0	13,580,550
2053	201,318,184	6,039,546	4,892,032	0	10,931,578
2054	153,483,306	4,604,499	3,729,644	0	8,334,143
2055	109,897,217	3,296,917	2,670,502	0	5,967,419
2056	73,036,412	2,191,092	1,774,785	0	3,965,877
2057	43,926,091	1,317,783	1,067,404	0	2,385,187
2058	23,029,696	690,891	559,622	0	1,250,513
2059	11,969,793	359,094	290,866	0	649,960
2060	7,516,801	225,504	182,658	0	408,162
2061	4,854,223	145,627	117,958	0	263,585
2062	3,159,242	94,777	76,770	0	171,547
2063	2,073,314	62,199	50,382	0	112,581
2064	1,360,756	40,823	33,066	0	73,889
2065	889,976	26,699	21,626	0	48,325
2066	577,884	17,337	14,043	0	31,380
2067	371,297	11,139	9,023	0	20,162
2068	233,415	7,002	5,672	0	12,674
2069	142,579	4,277	3,465	0	7,742

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.

Educational Employees' Supplementary Retirement System of Fairfax County
Proprietary & Confidential

Fiscal Year	Payroll for Current Employees	Contributions from Current Employees	Service Cost and Expense Contributions	UAL Contributions	Total Contributions
2070	83,672	2,510	2,033	0	4,543
2071	45,260	1,358	1,100	0	2,458
2072	21,541	646	523	0	1,169
2073	8,377	251	204	0	455
2074	2,294	69	56	0	125
2075	336	10	8	0	18
2076	76	2	2	0	4
2077	15	0	0	0	0
2078	0	0	0	0	0

Plan Fiduciary Net Position Projection

Projection of Plan Fiduciary Net Position Ending June 30, 2021¹

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
2022	3,272,151,084	158,513,694	200,781,988	5,581,177	235,627,294	3,459,928,907
2023	3,459,928,907	155,368,015	208,729,998	5,901,462	248,832,674	3,649,498,136
2024	3,649,498,136	146,798,364	217,333,373	6,224,803	261,947,861	3,834,686,186
2025	3,834,686,186	138,951,403	226,341,852	6,540,671	274,757,449	4,015,512,515
2026	4,015,512,515	131,654,603	236,370,889	6,849,099	287,234,672	4,191,181,802
2027	4,191,181,802	124,767,251	247,759,595	7,148,731	299,304,740	4,360,345,467
2028	4,360,345,467	118,331,245	259,202,823	7,437,267	310,917,965	4,522,954,587
2029	4,522,954,587	112,415,268	269,843,190	7,714,623	322,103,829	4,679,915,871
2030	4,679,915,871	106,981,622	279,440,174	7,982,345	332,935,213	4,832,410,187
2031	4,832,410,187	101,914,812	288,330,485	8,242,449	343,481,480	4,981,233,545
2032	4,981,233,545	97,133,977	297,170,889	8,496,291	353,773,970	5,126,474,313
2033	5,126,474,313	92,514,914	305,557,184	8,744,022	363,828,977	5,268,516,998
2034	5,268,516,998	87,953,398	313,995,189	8,986,299	373,652,562	5,407,141,470
2035	5,407,141,470	83,487,647	321,241,479	9,222,745	383,274,450	5,543,439,343
2036	5,543,439,343	79,120,354	326,794,368	9,455,223	392,791,681	5,679,101,787
2037	5,679,101,787	74,840,763	331,853,435	9,686,617	402,283,649	5,814,686,147
2038	5,814,686,147	70,649,275	336,636,524	9,917,878	411,782,984	5,950,564,004
2039	5,950,564,004	66,512,429	341,699,522	10,149,639	421,295,591	6,086,522,863
2040	6,086,522,863	62,437,700	348,055,732	10,381,539	430,770,259	6,221,293,550
2041	6,221,293,550	58,407,110	356,019,880	10,611,412	440,103,188	6,353,172,557
2042	6,353,172,557	41,946,717	366,228,279	10,836,352	448,696,136	6,466,750,779
2043	6,466,750,779	39,345,650	378,208,574	11,030,078	456,402,681	6,573,260,458
2044	6,573,260,458	36,459,862	391,783,000	11,211,747	463,530,089	6,670,255,662
2045	6,670,255,662	33,398,453	407,251,037	11,377,188	469,894,468	6,754,920,358
2046	6,754,920,358	30,265,643	423,793,365	11,521,597	475,324,783	6,825,195,822
2047	6,825,195,822	27,139,833	441,833,500	11,641,464	479,659,661	6,878,520,352
2048	6,878,520,352	24,026,130	460,301,329	11,732,417	482,751,833	6,913,264,568
2049	6,913,264,568	21,095,307	477,685,624	11,791,679	484,543,281	6,929,425,853
2050	6,929,425,853	18,481,961	493,774,119	11,819,245	485,046,254	6,927,360,704
2051	6,927,360,704	16,073,330	509,424,682	11,815,722	484,251,937	6,906,445,567
2052	6,906,445,567	13,580,550	525,329,120	11,780,048	482,080,048	6,864,996,997
2053	6,864,996,997	10,931,578	540,875,579	11,709,351	478,427,820	6,801,771,465
2054	6,801,771,465	8,334,143	554,930,402	11,601,510	473,253,080	6,716,826,776
2055	6,716,826,776	5,967,419	566,496,486	11,456,623	466,602,022	6,611,443,108
2056	6,611,443,108	3,965,877	575,645,809	11,276,874	458,569,692	6,487,055,993
2057	6,487,055,993	2,385,187	582,290,427	11,064,712	449,265,229	6,345,351,270
2058	6,345,351,270	1,250,513	585,130,368	10,823,012	438,857,966	6,189,506,370
2059	6,189,506,370	649,960	585,023,857	10,557,193	427,550,702	6,022,125,981
2060	6,022,125,981	408,162	583,589,776	10,271,699	415,468,102	5,844,140,771
2061	5,844,140,771	263,585	581,079,961	9,968,117	402,659,135	5,656,015,413
2062	5,656,015,413	171,547	577,606,747	9,647,239	389,151,840	5,458,084,813
2063	5,458,084,813	112,581	572,909,574	9,309,637	374,979,051	5,250,957,234
2064	5,250,957,234	73,889	566,708,405	8,956,348	360,194,341	5,035,560,711
2065	5,035,560,711	48,325	558,847,869	8,588,954	344,870,210	4,813,042,424
2066	4,813,042,424	31,380	549,314,636	8,209,414	329,090,071	4,584,639,825
2067	4,584,639,825	20,162	538,321,116	7,819,837	312,935,894	4,351,454,927
2068	4,351,454,927	12,674	526,039,110	7,422,103	296,481,316	4,114,487,704
2069	4,114,487,704	7,742	512,422,941	7,017,917	279,800,359	3,874,854,947

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.

Educational Employees' Supplementary Retirement System of Fairfax County
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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
2070	3,874,854,947	4,543	497,483,589	6,609,185	262,973,502	3,633,740,218
2071	3,633,740,218	2,458	481,316,371	6,197,925	246,083,063	3,392,311,443
2072	3,392,311,443	1,169	463,941,897	5,786,130	229,212,902	3,151,797,487
2073	3,151,797,487	455	445,355,228	5,375,895	212,452,203	2,913,519,022
2074	2,913,519,022	125	425,628,635	4,969,473	195,894,055	2,678,815,094
2075	2,678,815,094	18	404,844,718	4,569,148	179,632,509	2,449,033,756
2076	2,449,033,756	4	383,123,920	4,177,219	163,760,923	2,225,493,544
2077	2,225,493,544	0	360,628,801	3,795,935	148,369,018	2,009,437,827
2078	2,009,437,827	0	337,485,568	3,427,418	133,542,368	1,802,067,209
2079	1,802,067,209	0	313,866,454	3,073,714	119,361,808	1,604,488,849
2080	1,604,488,849	0	289,898,137	2,736,712	105,903,029	1,417,757,029
2081	1,417,757,029	0	265,807,678	2,418,211	93,234,316	1,242,765,456
2082	1,242,765,456	0	241,966,215	2,119,735	81,407,189	1,080,086,695
2083	1,080,086,695	0	218,538,572	1,842,261	70,457,255	930,163,117
2084	930,163,117	0	195,672,390	1,586,542	60,411,299	793,315,484
2085	793,315,484	0	173,516,424	1,353,126	51,287,261	669,733,195
2086	669,733,195	0	152,314,599	1,142,337	43,090,171	559,366,431
2087	559,366,431	0	132,357,962	954,089	35,806,056	461,860,436
2088	461,860,436	0	113,742,826	787,777	29,405,787	376,735,620
2089	376,735,620	0	96,569,076	642,583	23,851,065	303,375,027
2090	303,375,027	0	80,939,205	517,455	19,093,549	241,011,915
2091	241,011,915	0	66,918,527	411,084	15,075,369	188,757,673
2092	188,757,673	0	54,532,596	321,956	11,731,245	145,634,366
2093	145,634,366	0	43,766,786	248,403	8,990,857	110,610,034
2094	110,610,034	0	34,567,542	188,663	6,781,359	82,635,188
2095	82,635,188	0	26,845,905	140,948	5,029,894	60,678,229
2096	60,678,229	0	20,483,763	103,496	3,665,941	43,756,911
2097	43,756,911	0	15,342,149	74,634	2,623,296	30,963,423
2098	30,963,423	0	11,269,951	52,813	1,841,579	21,482,239
2099	21,482,239	0	8,111,931	36,641	1,267,245	14,600,911
2100	14,600,911	0	5,716,007	24,904	854,099	9,714,099
2101	9,714,099	0	3,939,405	16,569	563,377	6,321,503
2102	6,321,503	0	2,653,116	10,782	363,432	4,021,037
2103	4,021,037	0	1,744,685	6,859	229,143	2,498,635
2104	2,498,635	0	1,119,468	4,262	141,129	1,516,034
2105	1,516,034	0	700,440	2,586	84,874	897,882
2106	897,882	0	427,149	1,531	49,829	519,030
2107	519,030	0	253,841	885	28,557	292,862
2108	292,862	0	147,012	500	15,979	161,328
2109	161,328	0	82,989	275	8,731	86,795
2110	86,795	0	45,670	148	4,661	45,638
2111	45,638	0	24,518	78	2,433	23,475
2112	23,475	0	12,864	40	1,242	11,813
2113	11,813	0	6,601	20	621	5,813
2114	5,813	0	3,309	10	303	2,797
2115	2,797	0	1,614	5	145	1,323
2116	1,323	0	756	2	69	634
2117	634	0	330	1	34	337
2118	337	0	127	1	20	229
2119	229	0	42	0	15	202
2120	202	0	13	0	14	203
2121	203	0	4	0	15	214

Plan Fiduciary Net Position Projection

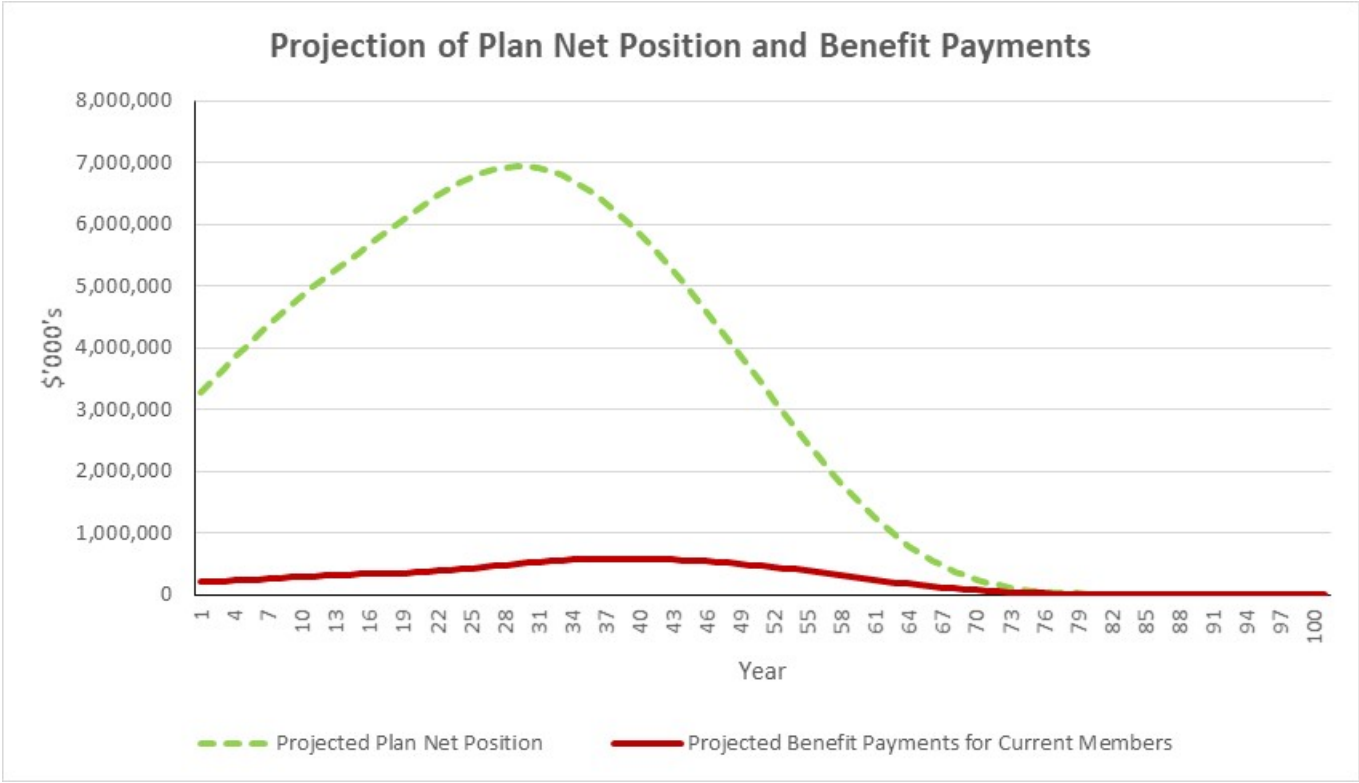
Present Values of Projected Benefits Ending June 30, 2021¹

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
2022	3,272,151,084	200,781,988	200,781,988	0	193,876,915	0	193,876,915
2023	3,459,928,907	208,729,998	208,729,998	0	187,926,886	0	187,926,886
2024	3,649,498,136	217,333,373	217,333,373	0	182,445,505	0	182,445,505
2025	3,834,686,186	226,341,852	226,341,852	0	177,163,525	0	177,163,525
2026	4,015,512,515	236,370,889	236,370,889	0	172,506,766	0	172,506,766
2027	4,191,181,802	247,759,595	247,759,595	0	168,595,247	0	168,595,247
2028	4,360,345,467	259,202,823	259,202,823	0	164,458,859	0	164,458,859
2029	4,522,954,587	269,843,190	269,843,190	0	159,636,319	0	159,636,319
2030	4,679,915,871	279,440,174	279,440,174	0	154,138,733	0	154,138,733
2031	4,832,410,187	288,330,485	288,330,485	0	148,291,482	0	148,291,482
2032	4,981,233,545	297,170,889	297,170,889	0	142,506,477	0	142,506,477
2033	5,126,474,313	305,557,184	305,557,184	0	136,622,912	0	136,622,912
2034	5,268,516,998	313,995,189	313,995,189	0	130,905,150	0	130,905,150
2035	5,407,141,470	321,241,479	321,241,479	0	124,872,859	0	124,872,859
2036	5,543,439,343	326,794,368	326,794,368	0	118,444,173	0	118,444,173
2037	5,679,101,787	331,853,435	331,853,435	0	112,147,127	0	112,147,127
2038	5,814,686,147	336,636,524	336,636,524	0	106,073,224	0	106,073,224
2039	5,950,564,004	341,699,522	341,699,522	0	100,390,266	0	100,390,266
2040	6,086,522,863	348,055,732	348,055,732	0	95,345,176	0	95,345,176
2041	6,221,293,550	356,019,880	356,019,880	0	90,934,123	0	90,934,123
2042	6,353,172,557	366,228,279	366,228,279	0	87,218,218	0	87,218,218
2043	6,466,750,779	378,208,574	378,208,574	0	83,982,617	0	83,982,617
2044	6,573,260,458	391,783,000	391,783,000	0	81,115,961	0	81,115,961
2045	6,670,255,662	407,251,037	407,251,037	0	78,618,658	0	78,618,658
2046	6,754,920,358	423,793,365	423,793,365	0	76,281,686	0	76,281,686
2047	6,825,195,822	441,833,500	441,833,500	0	74,152,785	0	74,152,785
2048	6,878,520,352	460,301,329	460,301,329	0	72,030,057	0	72,030,057
2049	6,913,264,568	477,685,624	477,685,624	0	69,697,371	0	69,697,371
2050	6,929,425,853	493,774,119	493,774,119	0	67,174,625	0	67,174,625
2051	6,927,360,704	509,424,682	509,424,682	0	64,618,907	0	64,618,907
2052	6,906,445,567	525,329,120	525,329,120	0	62,131,780	0	62,131,780
2053	6,864,996,997	540,875,579	540,875,579	0	59,646,147	0	59,646,147
2054	6,801,771,465	554,930,402	554,930,402	0	57,059,274	0	57,059,274
2055	6,716,826,776	566,496,486	566,496,486	0	54,310,980	0	54,310,980
2056	6,611,443,108	575,645,809	575,645,809	0	51,457,475	0	51,457,475
2057	6,487,055,993	582,290,427	582,290,427	0	48,532,814	0	48,532,814
2058	6,345,351,270	585,130,368	585,130,368	0	45,472,743	0	45,472,743
2059	6,189,506,370	585,023,857	585,023,857	0	42,391,111	0	42,391,111
2060	6,022,125,981	583,589,776	583,589,776	0	39,428,621	0	39,428,621
2061	5,844,140,771	581,079,961	581,079,961	0	36,605,177	0	36,605,177
2062	5,656,015,413	577,606,747	577,606,747	0	33,926,696	0	33,926,696
2063	5,458,084,813	572,909,574	572,909,574	0	31,376,037	0	31,376,037
2064	5,250,957,234	566,708,405	566,708,405	0	28,938,390	0	28,938,390
2065	5,035,560,711	558,847,869	558,847,869	0	26,607,925	0	26,607,925
2066	4,813,042,424	549,314,636	549,314,636	0	24,386,040	0	24,386,040
2067	4,584,639,825	538,321,116	538,321,116	0	22,282,516	0	22,282,516
2068	4,351,454,927	526,039,110	526,039,110	0	20,302,221	0	20,302,221

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Educational Employees' Supplementary Retirement System of Fairfax County
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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
2069	4,114,487,704	512,422,941	512,422,941	0	18,439,824	0	18,439,824
2070	3,874,854,947	497,483,589	497,483,589	0	16,692,050	0	16,692,050
2071	3,633,740,218	481,316,371	481,316,371	0	15,057,894	0	15,057,894
2072	3,392,311,443	463,941,897	463,941,897	0	13,533,181	0	13,533,181
2073	3,151,797,487	445,355,228	445,355,228	0	12,112,828	0	12,112,828
2074	2,913,519,022	425,628,635	425,628,635	0	10,793,755	0	10,793,755
2075	2,678,815,094	404,844,718	404,844,718	0	9,572,665	0	9,572,665
2076	2,449,033,756	383,123,920	383,123,920	0	8,446,686	0	8,446,686
2077	2,225,493,544	360,628,801	360,628,801	0	7,413,277	0	7,413,277
2078	2,009,437,827	337,485,568	337,485,568	0	6,468,561	0	6,468,561
2079	1,802,067,209	313,866,454	313,866,454	0	5,609,189	0	5,609,189
2080	1,604,488,849	289,898,137	289,898,137	0	4,830,625	0	4,830,625
2081	1,417,757,029	265,807,678	265,807,678	0	4,129,791	0	4,129,791
2082	1,242,765,456	241,966,215	241,966,215	0	3,505,242	0	3,505,242
2083	1,080,086,695	218,538,572	218,538,572	0	2,951,849	0	2,951,849
2084	930,163,117	195,672,390	195,672,390	0	2,464,326	0	2,464,326
2085	793,315,484	173,516,424	173,516,424	0	2,037,567	0	2,037,567
2086	669,733,195	152,314,599	152,314,599	0	1,667,691	0	1,667,691
2087	559,366,431	132,357,962	132,357,962	0	1,351,222	0	1,351,222
2088	461,860,436	113,742,826	113,742,826	0	1,082,688	0	1,082,688
2089	376,735,620	96,569,076	96,569,076	0	857,078	0	857,078
2090	303,375,027	80,939,205	80,939,205	0	669,798	0	669,798
2091	241,011,915	66,918,527	66,918,527	0	516,338	0	516,338
2092	188,757,673	54,532,596	54,532,596	0	392,325	0	392,325
2093	145,634,366	43,766,786	43,766,786	0	293,588	0	293,588
2094	110,610,034	34,567,542	34,567,542	0	216,204	0	216,204
2095	82,635,188	26,845,905	26,845,905	0	156,558	0	156,558
2096	60,678,229	20,483,763	20,483,763	0	111,381	0	111,381
2097	43,756,911	15,342,149	15,342,149	0	77,784	0	77,784
2098	30,963,423	11,269,951	11,269,951	0	53,276	0	53,276
2099	21,482,239	8,111,931	8,111,931	0	35,755	0	35,755
2100	14,600,911	5,716,007	5,716,007	0	23,491	0	23,491
2101	9,714,099	3,939,405	3,939,405	0	15,095	0	15,095
2102	6,321,503	2,653,116	2,653,116	0	9,479	0	9,479
2103	4,021,037	1,744,685	1,744,685	0	5,812	0	5,812
2104	2,498,635	1,119,468	1,119,468	0	3,477	0	3,477
2105	1,516,034	700,440	700,440	0	2,029	0	2,029
2106	897,882	427,149	427,149	0	1,153	0	1,153
2107	519,030	253,841	253,841	0	639	0	639
2108	292,862	147,012	147,012	0	345	0	345
2109	161,328	82,989	82,989	0	182	0	182
2110	86,795	45,670	45,670	0	93	0	93
2111	45,638	24,518	24,518	0	47	0	47
2112	23,475	12,864	12,864	0	23	0	23
2113	11,813	6,601	6,601	0	11	0	11
2114	5,813	3,309	3,309	0	5	0	5
2115	2,797	1,614	1,614	0	2	0	2
2116	1,323	756	756	0	1	0	1
2117	634	330	330	0	0	0	0
2118	337	127	127	0	0	0	0
2119	229	42	42	0	0	0	0
2120	202	13	13	0	0	0	0
2121	203	4	4	0	0	0	0



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						
	2015	2016	2017	2018	2019	2020	2021
Annual money-weighted rate of return, Net of investment expense ¹	1.49%	(0.63%)	12.14%	8.29%	4.88%	4.49%	27.82%

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, 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	<u>\$ 2,593,383,175</u>	<u>\$ 2,593,383,175</u>	<u>\$ 2,593,383,175</u>
(3) Net Pension Liability	\$ 1,384,904,276	\$ 950,573,071	\$ 508,236,963

The following table illustrates the impact of interest rate sensitivity on the Net Pension Liability for fiscal year ending June 30, 2021:

	1% Decrease (6.25%)	Current Rate (7.25%)	1% Increase (8.25%)
(1) Total Pension Liability	\$ 4,171,962,578	\$ 3,710,207,503	\$ 3,310,149,708
(2) Plan Fiduciary Net Position	<u>\$ 3,272,151,084</u>	<u>\$ 3,272,151,084</u>	<u>\$ 3,272,151,084</u>
(3) Net Pension Liability	\$ 899,811,494	\$ 438,056,419	\$ 37,998,624

Disclosure—Changes in the Net Pension Liability and Related Ratios

Changes in the Net Pension Liability and Related Ratios¹

	Fiscal Year Ending		
	2019	2020	2021
Total Pension Liability			
Service Cost	\$ 90,633,074	\$ 92,719,549	\$ 91,770,647
Interest Cost	\$ 231,477,042	\$ 243,578,788	\$ 253,330,122
Changes of Benefit Terms	\$ 0	\$ 0	\$ 0
Differences Between Expected and Actual Experiences	\$ 27,726,555	\$ (12,696,483)	\$ 29,758,913
Changes of Assumptions	\$ 0	\$ 0	\$ (17,342,443)
Benefit Payments	\$ (181,932,073)	\$ (185,986,496)	\$ (191,265,982)
Net Change in Total Pension Liability	\$ 167,904,598	\$ 137,615,358	\$ 166,251,257
Total Pension Liability (Beginning)	\$ 3,238,436,290	\$ 3,406,340,888	\$ 3,543,956,246
Total Pension Liability (Ending)	\$ 3,406,340,888	\$ 3,543,956,246	\$ 3,710,207,503
Plan Fiduciary Net Position			
Contributions—Employer	\$ 96,982,911	\$ 104,741,255	\$ 104,784,310
Contributions—Member	\$ 46,645,396	\$ 49,095,601	\$ 48,934,340
Net Investment Income	\$ 117,727,500	\$ 108,472,534	\$ 720,738,680
Benefit Payments	\$ (181,932,073)	\$ (185,986,496)	\$ (191,265,982)
Administrative Expense	\$ (4,262,159)	\$ (4,381,191)	\$ (4,423,439)
Other	\$ 0	\$ 0	\$ 0
Net Change in Plan Fiduciary Net Position	\$ 75,161,575	\$ 71,941,703	\$ 678,767,909
Plan Fiduciary Net Position (Beginning)	\$ 2,446,279,897	\$ 2,521,441,472	\$ 2,593,383,175
Plan Fiduciary Net Position (Ending)	\$ 2,521,441,472	\$ 2,593,383,175	\$ 3,272,151,084
Net Pension Liability (Ending)	\$ 884,899,416	\$ 950,573,071	\$ 438,056,419
Net Position as a Percentage of Pension Liability	74.02%	73.18%	88.19%
Covered-Employee Payroll	\$ 1,549,247,780	\$ 1,626,417,003	\$ 1,627,085,559
Net Pension Liability as a Percentage of Payroll	57.12%	58.45%	26.93%

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		
	2019	2020	2021
Actuarially Determined Contribution	\$ 96,982,911	\$ 104,741,255	\$ 104,784,310
Contributions Made in Relation to the Actuarially Determined Contribution	\$ 96,982,911	\$ 104,741,255	\$ 104,784,310
Contribution Deficiency (Excess)	\$ 0	\$ 0	\$ 0
Covered-Employee Payroll	\$ 1,549,247,780	\$ 1,626,417,003	\$ 1,627,085,559
Contributions as a Percentage of Payroll ¹	6.26%	6.44%	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 21-year closed amortization period for initial unfunded and subsequent actuarial gains/losses from July 1, 2019.
Asset Valuation Method	5-Year smoothed market; 25% corridor.
IRS Limit Increases	2.50%
Salary Increases	2.75% to 7.25% 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, 2020. 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, 2019	December 31, 2020
Active Participants	22,176	22,360
Inactives With Deferred Benefits	5,240	5,415
Inactives Receiving Payment	12,482	12,842
Total Participants	39,898	40,617

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, 2021 are summarized in the following table:

Asset Class¹	Segal and Maketa 20 Year Expected Real Arithmetic Rate of Return	Allocation
Domestic Equity (Large Cap)	6.90%	14.0%
Domestic Equity (Small Cap)	7.00%	10.0%
International Equity	7.60%	5.0%
International Equity (Small Cap)	8.00%	5.0%
Emerging International Equity	8.60%	5.0%
Global Equity	7.40%	5.0%
US Fixed Income	2.40%	21.0%
Emerging Market Debt	4.80%	2.0%
Multi-Asset Class Solutions (MACS)	5.30%	4.0%
Hedge Funds Opportunistic	6.20%	5.0%
Infrastructure	7.80%	4.0%
Real Estate – Core	5.50%	9.0%
Private Equity	9.10%	7.0%
Private Debt	6.90%	4.0%
Total		100.0%

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

¹ These rates of return reflect ERFC's best estimate based on advice from Segal Marco, who also use an inflation assumption of 2.1%.

Actuarial Assumptions and Methods

Discount Rate	7.25%
20-Year Municipal Bond Rate	2.21%, Beginning of Measurement Period 2.16%, End of Measurement Period
Municipal Bond Rate Basis	Bond Buyer GO 20-Bond Municipal Bond Index
Expected Return on Assets	7.25%
Salary Increases	See Table I.
General Inflation	2.75%
Retirement Age	
Active Participants	See Table II.
Terminated Vested Participants	
Members Hired After July 1, 1988 but Before July 1, 2001:	50% at age 55, 25% at age 60 and 25% at age 65.
Members Hired After July 1, 2001:	Age 60.
Mortality Rates	
Healthy and Disabled	The mortality table used to measure retired life mortality was 102% of the male rates and 99% of the female rates of the PUB-2010 Teachers table projected generationally with Scale MP-2020. 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 80% of males and 80% 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: 2.25% (long-term estimate of provision of 100% of CPI-U capped at 4%).
Asset Method	Fair market value.
Actuarial Cost Method	Entry Age Normal cost method.
Measurement Date	June 30, 2021
Measurement Period	June 30, 2020 to June 30, 2021
Valuation Date	December 31, 2020
Census Data	As of December 31, 2020.

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 2.21% to 2.16%
- A change in the mortality assumption from the 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 to the 102% male rates and 99% female rates of the PUB-2010 Teachers table projected generationally with Scale MP-2020.
- A change in the active retirement rates.
- A change in the salary increases.
- A change in the withdrawal Rates.
- A change in the optional payment form election to reflect joint and survivor elections.
- A change in the marriage assumption from 100% to 80%.
- A change in the terminated vested retirement age assumption from age 59 to 50% at age 55, 25% at age 60 and 25% at age 65 which applies to members hired After July 1, 1988 but before July 1, 2001.
- A change in the COLA Adjustment from 2.59% to 2.25% which applies to members hired on or after July 1, 2017.

Actuarial Assumptions and Methods

Table I

Salary Increase Assumption

Pay Increase Assumption

Service Index	Merit & Seniority	Base (Economy)	Increase Next Year
0-1	4.50%	2.75%	7.25%
1-2	4.00%	2.75%	6.75%
2-3	4.00%	2.75%	6.75%
3-4	4.00%	2.75%	6.75%
4-5	4.00%	2.75%	6.75%
5-6	4.00%	2.75%	6.75%
6-7	4.00%	2.75%	6.75%
7-8	3.50%	2.75%	6.25%
8-9	3.50%	2.75%	6.25%
9-10	3.50%	2.75%	6.25%
10-11	3.00%	2.75%	5.75%
11-12	3.00%	2.75%	5.75%
12-13	2.50%	2.75%	5.25%
13-14	2.50%	2.75%	5.25%
14-15	2.00%	2.75%	4.75%
15-16	2.00%	2.75%	4.75%
16-17	1.50%	2.75%	4.25%
17-18	1.50%	2.75%	4.25%
18-19	1.50%	2.75%	4.25%
19-20	1.00%	2.75%	3.75%
20-21	1.00%	2.75%	3.75%
21-22	0.50%	2.75%	3.25%
22-23	0.50%	2.75%	3.25%
23-24	0.50%	2.75%	3.25%
24-25	0.50%	2.75%	3.25%
25+	0.00%	2.75%	2.75%

Table II

Retirement Rates

Ages	ERFC (Hired Before 7/1/2001)		ERFC 2001 Tier 1 (Hired 7/1/2001-6/30/2017)			ERFC 2001 Tier 2 (Hired On/After 7/1/2017)	
	Type of Retirement		Age Based	Service	Service Based	Age Based	
	Age Based	25+ years of service				Rule of 90 Met?	
						Yes	No
45		2.0%					
46		2.0%					
47		2.0%					
48		2.0%					
49		2.0%					
50		2.0%					
51		2.0%					
52		7.0%					
53		7.0%					
54		15.0%					
55	12.5%	40.0%		30	17.5%		
56	12.5%	25.0%		31	17.5%	35.0%	0.0%
57	12.5%	25.0%		32	12.5%	35.0%	0.0%
58	12.5%	15.0%		33	12.5%	35.0%	0.0%
59	12.5%	25.0%		34	12.5%	35.0%	0.0%
60	12.5%	25.0%	10.0%	35	10.0%	35.0%*	0.0%
61	17.5%	20.0%	10.0%	36	10.0%	35.0%	0.0%
62	20.0%	30.0%	10.0%	37	10.0%	35.0%	0.0%
63	20.0%	25.0%	15.0%	38	25.0%	35.0%	0.0%
64	25.0%	25.0%	15.0%	39	40.0%	35.0%	0.0%
65	40.0%	35.0%	25.0%	40 & Up	100.0%	35.0%	0.0%
66	40.0%	45.0%	30.0%			35.0%	0.0%
67	35.0%	35.0%	25.0%			35.0%	30.0%
68	30.0%	35.0%	20.0%			35.0%	15.0%
69	30.0%	35.0%	20.0%			35.0%	15.0%
70	40.0%	35.0%	45.0%			35.0%	15.0%
71	25.0%	35.0%	30.0%			35.0%	15.0%
72	35.0%	35.0%	30.0%			35.0%	15.0%
73	35.0%	35.0%	30.0%			35.0%	15.0%
74	35.0%	35.0%	30.0%			35.0%	15.0%
75 & Over	100.0%	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	17%	16%
1 - 2	12%	14%
2 - 3	12%	13%
3 - 4	11%	12%
4 - 5	11%	12%
5 - 6	9%	11%
6 - 7	7%	10%
7 - 8	7%	10%
8 - 9	7%	8%
9 - 10	6%	8%
10 - 11	5%	7%
11 - 12	4%	7%
12 - 13	4%	6%
13 - 14	3%	5%
14 - 15	3%	5%
15 - 16	3%	4%
16 - 17	2%	3%
17 - 18	2%	2%
18 - 19	2%	2%
19 - 20	2%	2%
20 - 21	2%	2%
21 - 22	2%	2%
22 - 23	2%	2%
23 - 24	2%	2%
24 - 25	2%	2%

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

Ages	Disability			
	Ordinary		Duty	
	Men	Women	Men	Women
20	0.0117%	0.0048%	0.0029%	0.0012%
21	0.0117%	0.0048%	0.0029%	0.0012%
22	0.0117%	0.0048%	0.0029%	0.0012%
23	0.0142%	0.0074%	0.0036%	0.0018%
24	0.0149%	0.0081%	0.0037%	0.0020%
25	0.0146%	0.0082%	0.0036%	0.0020%
26	0.0142%	0.0082%	0.0035%	0.0021%
27	0.0140%	0.0086%	0.0035%	0.0022%
28	0.0142%	0.0094%	0.0036%	0.0024%
29	0.0149%	0.0106%	0.0037%	0.0027%
30	0.0158%	0.0122%	0.0040%	0.0031%
31	0.0171%	0.0140%	0.0043%	0.0035%
32	0.0186%	0.0158%	0.0046%	0.0040%
33	0.0202%	0.0178%	0.0050%	0.0044%
34	0.0218%	0.0196%	0.0054%	0.0049%
35	0.0234%	0.0214%	0.0059%	0.0054%
36	0.0252%	0.0232%	0.0063%	0.0058%
37	0.0271%	0.0250%	0.0068%	0.0062%
38	0.0291%	0.0268%	0.0073%	0.0067%
39	0.0314%	0.0287%	0.0078%	0.0072%
40	0.0339%	0.0308%	0.0085%	0.0077%
41	0.0367%	0.0331%	0.0092%	0.0083%
42	0.0399%	0.0357%	0.0100%	0.0089%
43	0.0435%	0.0386%	0.0109%	0.0097%
44	0.0475%	0.0419%	0.0119%	0.0105%
45	0.0520%	0.0456%	0.0130%	0.0114%
46	0.0570%	0.0498%	0.0143%	0.0124%
47	0.0626%	0.0545%	0.0157%	0.0136%
48	0.0689%	0.0598%	0.0172%	0.0149%
49	0.0760%	0.0658%	0.0190%	0.0164%
50	0.0842%	0.0726%	0.0210%	0.0181%
55	0.1469%	0.1228%	0.0367%	0.0307%
60	0.2447%	0.1770%	0.0612%	0.0443%

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 2021 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, 2021.

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.

Early Retirement Benefit	<p>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.</p> <p>Accrued benefit to early retirement date payable at normal retirement date reduced according to the following schedule:</p> <p>After 25 years of service: Service Retirement amount reduced to reflect retirement age younger than age 55.</p> <p>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.</p>
Disability Benefit	<p>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.</p>
Vested Deferred Benefit Eligibility	<p>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.</p>
Amount	<p>Calculated in the same manner as early retirement benefits.</p>
Final Average Compensation (FAC)	<p>A member's final average compensation is the average of the 3 highest consecutive years of salary during eligible employment.</p>

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.