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Fairfax County Employees' Retirement System

Actuarial Valuation as of June 30, 2022

Produced by Cheiron
November 2022

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November 14, 2022

Board of Trustees
Fairfax County Employees' Retirement System
12015 Lee Jackson Memorial Highway, Suite 350
Fairfax, Virginia 22033

Re: Fairfax County Employees' Retirement System
Actuarial Valuation as of June 30, 2022

Dear Members of the Board:

At your request, we have conducted our annual actuarial valuation of the Fairfax County Employees' Retirement System as of June 30, 2022. The results of the valuation are contained in this report. The purpose of this report is to present the annual actuarial valuation of the Fairfax County Employees' Retirement System. This report is for the use of the Fairfax County Employees' Retirement System Board of Trustees and its auditors in preparing financial reports in accordance with applicable law and accounting requirements.

Your attention is called to the Foreword in which we refer to the general approach employed in the preparation of this report. We also comment on the sources and reliability of both the data and the actuarial assumptions on which our findings are based. Those comments are the basis for our certification that this report is complete to the best of our knowledge and belief. The results of this report are only applicable to the employer contribution for Fiscal Year 2024 and rely on future Plan experience conforming to the underlying assumptions. To the extent that actual Plan experience deviates from the underlying assumptions, the results would vary accordingly.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: Plan experience differing from that anticipated by the assumptions, changes in assumptions, and changes in Plan provisions or applicable law.

In preparing our report, we relied on information (some oral and some written) supplied by the Retirement System. This information includes, but is not limited to, Plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standards of Practice No. 23.

This report was prepared exclusively for the Fairfax County Employees' Retirement System for the purpose described herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

Board of Trustees
Fairfax County Employees' Retirement System
November 14, 2022

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinions contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

Sincerely,
Cheiron

Fiona E. Liston

Fiona E. Liston, FSA, MAAA, EA
Principal Consulting Actuary

Coralie Taylor

Coralie A. Taylor, FSA, MAAA, EA
Consulting Actuary

FOREWORD

Cheiron has performed the actuarial valuation of the Fairfax County Employees' Retirement System as of June 30, 2022. The purpose of this report is to:

1) **Measure and disclose**, as of the valuation date, the financial condition of the System,
2) **Indicate trends** in the financial progress of the System,
3) **Determine the contribution rate** to be paid by the County for Fiscal Year 2024, and
4) **Provide specific information** and documentation required for the System's financial reporting.

An actuarial valuation establishes and analyzes system assets and liabilities on a consistent basis and traces the progress of both from one year to the next. It includes measurement of the system's investment performance, as well as an analysis of actuarial liability gains and losses.

Section I presents a summary containing our findings and disclosing important trends experienced by the System in recent years.

Section II presents risk factors to consider in the future outlook of the Plan.

Section III contains details on various asset measures, together with pertinent performance measurements.

Section IV shows similar information on the System's liabilities, measured for actuarial, accounting, and governmental reporting purposes.

Section V develops the County contribution rate, determined using actuarial techniques.

Section VI includes the required items to be included in the System's Annual Comprehensive Financial Report (ACFR).

The appendices to this report contain a summary of the System's membership at the valuation date, a summary of the major provisions of the System, and the actuarial methods and assumptions used in the valuations.

In preparing our report, we relied on information (some oral and some written) supplied by the System's staff. This information includes, but is not limited to, Plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standards of Practice No. 23.

The actuarial assumptions reflect our understanding of the likely future experience of the System, and the assumptions taken individually represent our best estimate for the future experience of the System. The results of this report are dependent upon future experience conforming to these assumptions. To the extent that future experience deviates from the actuarial assumptions, the true cost of the System could vary from our results.

SECTION I - BOARD SUMMARY

General Comments

The employer's annual contribution to this system is determined by using an amortization layer method. Under this funding approach, the employer's contribution rate consists of the normal cost rate plus expense rate plus layered amortization Unfunded Actuarial Liability (UAL) bases. The UAL rates are summarized in Section V. The normal cost rate and actuarial accrued liability will be measured using the entry age funding method. The UAL is amortized over a series of fixed 15-year periods as a level percentage of payroll. Future gains and losses and changes in actuarial assumptions will be amortized in layers over separate 15-year periods.

The employer contribution rate for Fiscal Year (FY) 2024, as calculated under this method, increased from 28.88% for FY 2023 to 30.07% of payroll.

This valuation contains information reported in the June 30, 2022 Annual Comprehensive Financial Report (ACFR) of the System. Additional information regarding GASB Statement No. 67 can be found in a separate report.

A change was made in this year's valuation to change the way in which the 15-year amortization is performed. For amortization bases that have been in the 2016 through 2021 valuations, the process measured the new base as of the valuation date, adjusted it to the eventual payment date, and spread the resulting amount over a 14-year period. As such, the 15-year period was measured from the valuation date rather than from the date of first payment. Effective with this valuation the 15-year amortization period is starting with the date of payment. This interpretation has been applied retroactively to the 2016-2021 layers as well as for the new layer develop herein.

Trends

The System underperformed the investment assumption during the fiscal year ending in 2022, causing an actuarial loss on the asset side of the System. The actual return on a market value basis was -3.62%. On an actuarial value basis, the assets returned 4.26% compared with an assumed rate of return of 6.75%. The actuarial loss recognized for funding purposes was $123.1 million.

The measurement of liabilities produced a loss this year in the amount of $236 million. This loss was due to experience compared to our assumptions about salary increases, retirement behavior, COLA, and death, etc. Specific components of the loss include:

- The average salary increase was 8.9% for active County participants and 14.1% for active Schools participants who were in both the June 30, 2021 and June 30, 2022 valuations. This was more than expected based on the actuarial assumption, creating a liability loss of $119 million.

- The valuation assumed a 2.10% cost-of-living adjustment in 2021 for benefits in pay status. The actual CPI-based COLA was 4.00% last year, creating a liability loss of $69 million.

SECTION I - BOARD SUMMARY

- An annual component of liability loss is the delayed recognition of new hires throughout the year. This does not contribute to an increase in the System's unfunded liability because both the member and employer contribute from the date of hire. However, when we look only at the liability side, they are a component of the annual liability loss. This accounts for a $7 million loss this year.

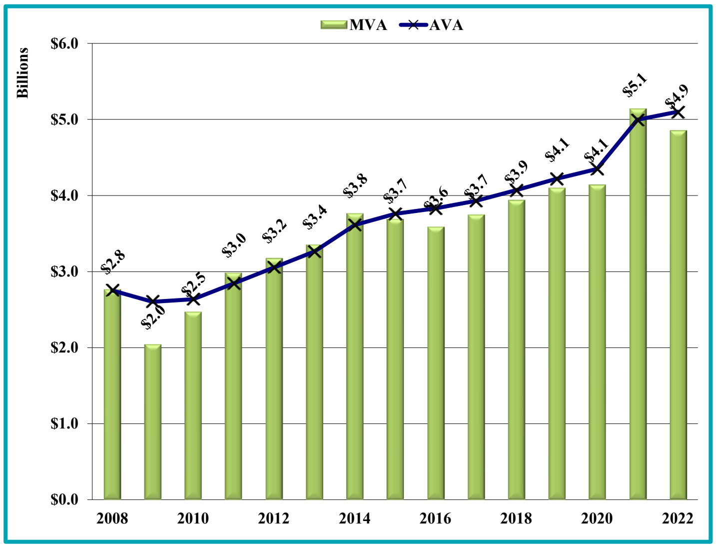
- Finally, there was a $41 million liability loss component that is made up of various other causes such as members terminating, retiring, dying, or becoming disabled in a way contrary to the assumption.

The combination of liability and investment experience, together with County plus member contributions over the last year, led to the System's funding ratio (actuarial value of assets over actuarial accrued liability) decreasing from 79.0% at June 30, 2021 to 75.8% at June 30, 2022.

It is important to take a step back from the latest results and view them in the context of the System's recent history. On the next three pages, we present a series of charts that display key factors in the valuations over the last 15 years. After the historical review, we present a few projection graphs, showing the possible condition of the System over the next 15 years under various market return scenarios.

SECTION I - BOARD SUMMARY

Growth in Assets

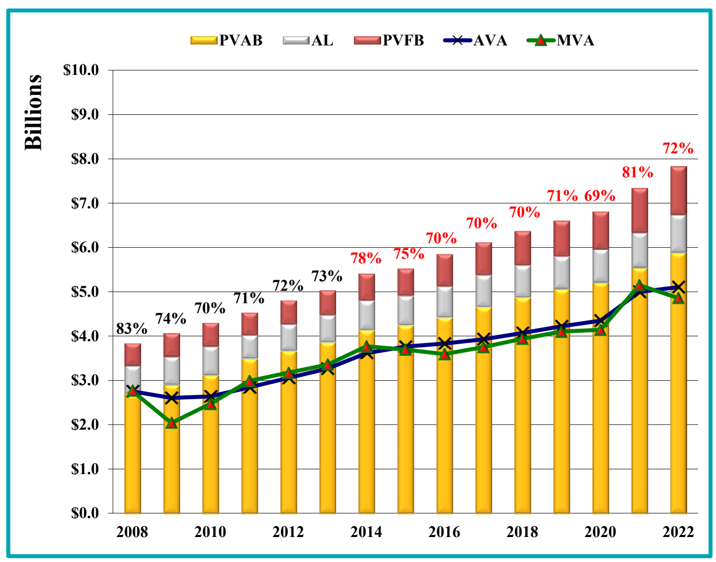


There was a decrease in the market value of assets (MVA) (amount in billions shown above bars) over last year due to a return of -3.62%. The actuarial value of assets (AVA) increased due to the continued recognition of past asset gains. The System recognized only a portion of the asset loss this year, and there remains $246 million in unrecognized losses that will be phased in over the next few years.

Over the period July 1, 2008 to June 30, 2022, the System's assets returned approximately 6.47% per year measured at actuarial value, compared to the valuation assumption of 6.75% per year.

Assets and Liabilities

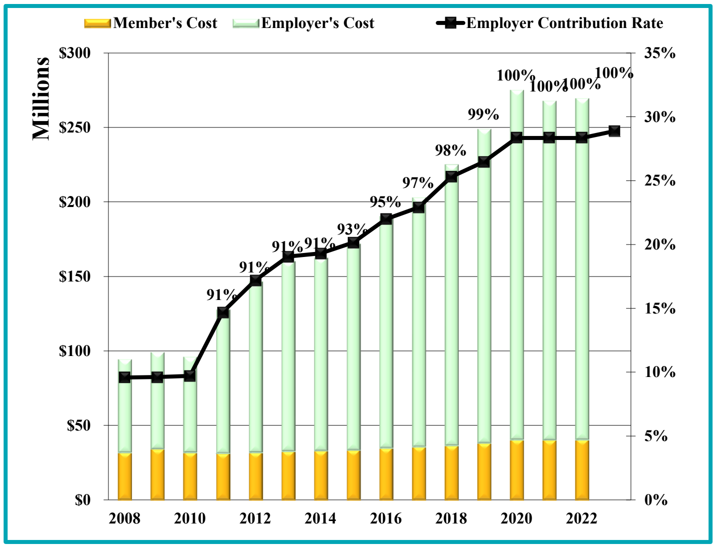
The three colored bars represent the three different measures of liability mentioned in this report. The amount represented by the top of the red bars, the present value of future benefits (PVFB), is the amount needed to provide all benefits for the current participants and their beneficiaries. For funding purposes, the target amount is represented by the top of the gray bar. Through the 2013 valuation, we compare the actuarial value of assets to this measure of liability in developing the funded percent (black numbers). Starting in 2014, the comparison uses the market value of assets (red numbers). These are the percentages shown in the graph labels.



SECTION I - BOARD SUMMARY

Contribution Rates

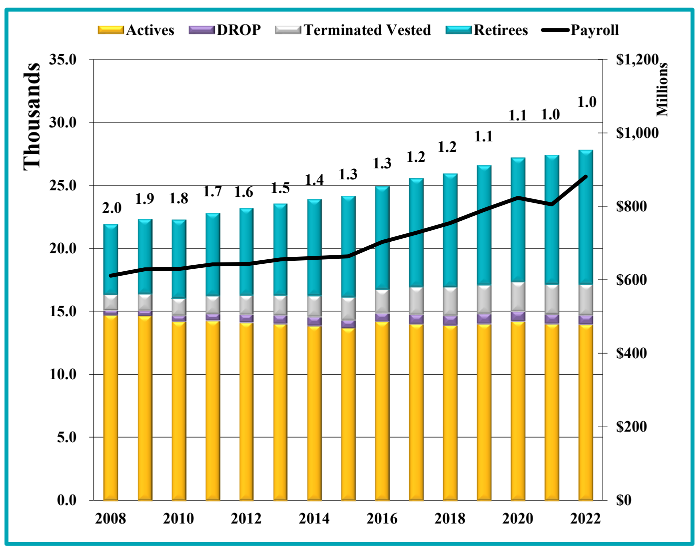
The stacked bars in this graph show the contributions made by both the County and the members (left-hand scale). The black line shows the County contribution rate as a percent of payroll (right-hand scale).



The member contribution rate is set by the County Ordinance. The County contribution rate is set by the actuarial process, as constrained by the corridor method. Note there is a lag in the rate shown. For example, the 2022 value is the rate prepared by the 2020 valuation and implemented for the period June 30, 2021 to June 30, 2022. Starting with FY 2011, the County contribution has been based on a corridor floor greater than 90% reaching 100% in 2019. The data labels show the change in this metric.

Participant Trends

As with many systems in this country, there has been a steady growth in the number of retired members as the System has matured. The active-to-inactive ratio has decreased from 2.0 actives to each inactive in 2008 to 1.0 actives for each inactive today. While this would be an alarming trend in a pay-as-you-go system, the pool of invested assets has been established in anticipation of this development.

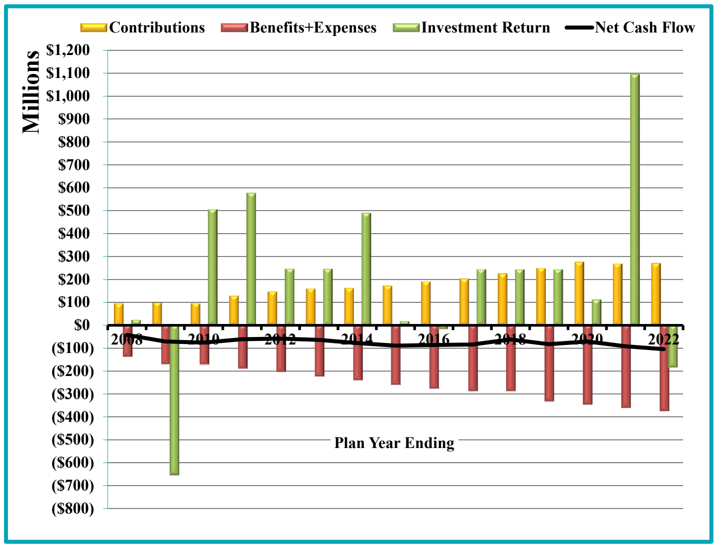


The chart also shows the number of DROP participants. Neither County nor member contributions are made on their behalf, which leads to a slightly lower growth in effective covered payroll for this system.

SECTION I - BOARD SUMMARY

Cash Flow

The graph shows the annual cash flows into and out of the System. The graph shows the magnitude of the investment returns on the market value (green bars) compared to the contributions (yellow bars). The net cash flow (line) is comparing the contributions to benefits and expenses (red bar). Negative cash flow is expected for a mature system such as this one. The implications of a system with negative cash flow are that the impact of market fluctuations can be more severe. This is because, as assets are being depleted to pay benefits in down markets, less principal is available to be reinvested during periods of favorable returns.



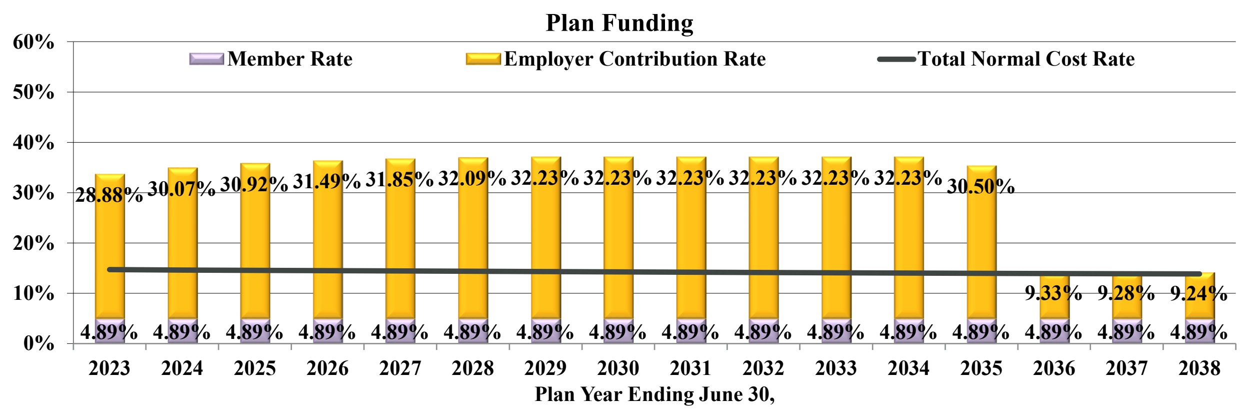
Future Outlook

Base-line Projections

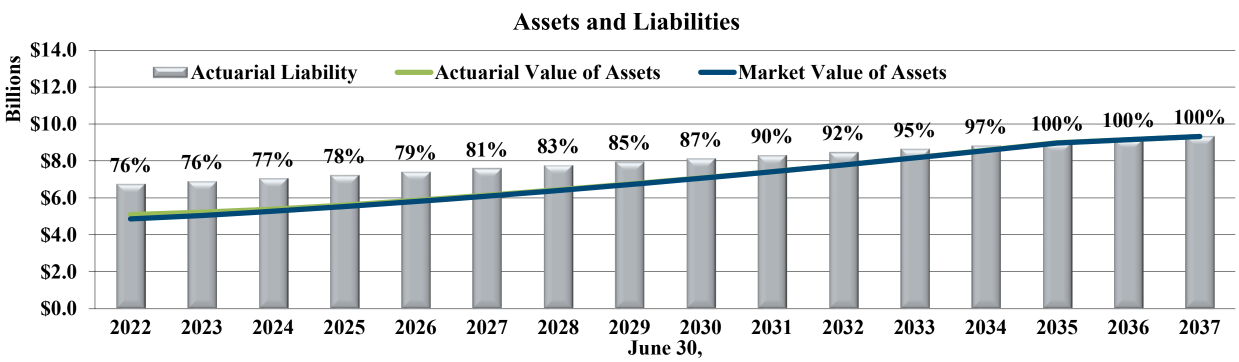
The two graphs below show the expected progress of the System over the next 15 years, assuming the System's assets earn 6.75% on their *market value.*

Contributions are calculated using a full actuarial calculation. The County does not intend to reduce the contribution rate until the System is 100% funded. Once the System is 100% funded, the contribution rate will drop as returns keep the funding above 100%.

The graph entitled "Plan Funding" illustrates future County and member contribution rates.



The "Assets and Liabilities" graph shows the projected funding status over the next 15 years. The funded ratio based on the actuarial value of assets gradually increases for the entire projection period ultimately reaching 100% funded as of 2035.



SECTION I - BOARD SUMMARY

The future funding status of this System will be influenced by the investment earnings. The prior projection assumed the System would earn 6.75% each and every year, which is extremely unlikely.

In the projections that follow, we show the risk to the System under volatile markets. The System has averaged a 6.12% return per year since 2007. In the following charts, we show results assuming returns over the next 15 years average 4.25%, 6.75%, and 9.25%. Different patterns of returns will produce different results from those shown here.

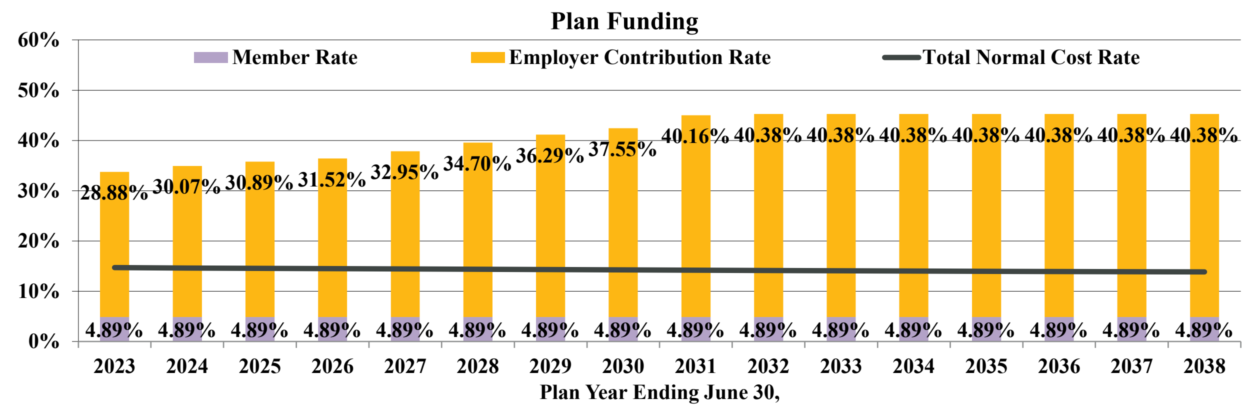
Table I-1

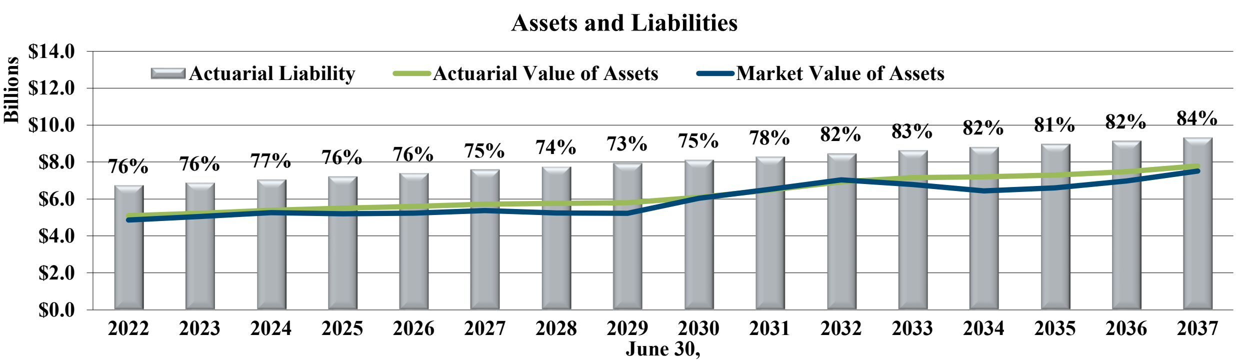
Fiscal Year Ending June 30,	Average 4.25%	Average 6.75%	Average 9.25%
2023	6.92%	1.59%	(6.60)%
2024	6.30	6.42	3.79
2025	0.92	16.97	17.40
2026	2.23	29.26	31.81
2027	4.41	18.67	(9.73)
2028	(0.94)	4.86	9.72
2029	0.73	10.28	15.06
2030	16.84	3.55	(13.19)
2031	8.75	14.85	14.44
2032	8.50	(1.19)	14.08
2033	(2.86)	1.30	30.03
2034	(4.50)	(9.12)	24.17
2035	3.45	3.90	3.20
2036	6.52	(1.34)	6.62
2037	8.42	7.08	9.47
Average	**4.25%**	**6.75%**	**9.25%**

SECTION I - BOARD SUMMARY

Alternative Projection – with average return of 4.25% in the period

Under this scenario, the County contribution rate increases from about 29% to about 40% of payroll. The System's funding drops to as low as 73% on an actuarial value basis, even with the ramping up of contributions.

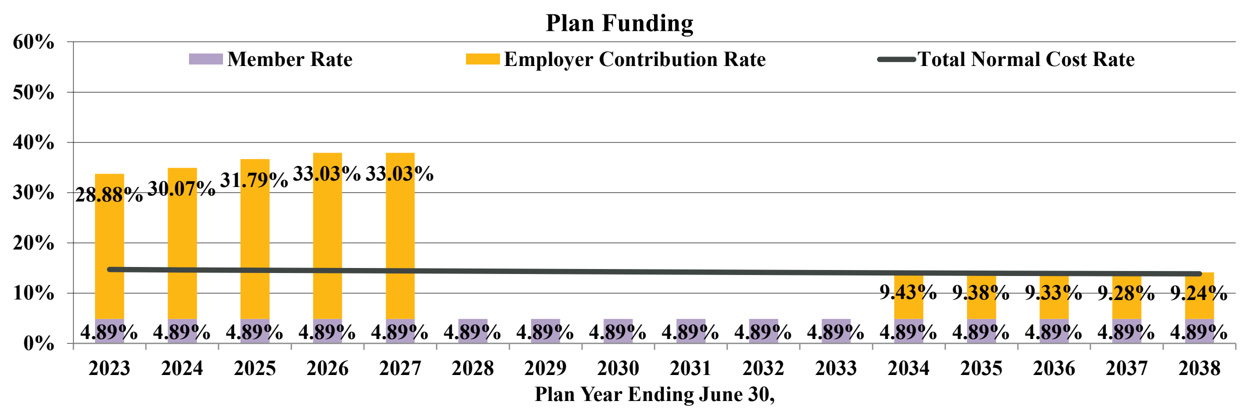


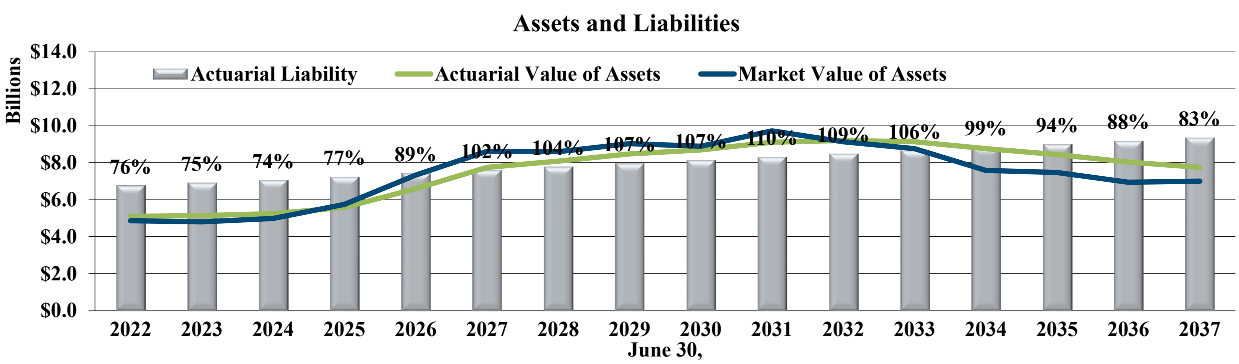


SECTION I - BOARD SUMMARY

Alternative Projection – with average return of 6.75% in the period

Under this scenario, in which the System is assumed to experience lower than expected returns for the first two years followed by higher-than-average returns in the next few years, the County contribution rate increases over the next few years as the asset losses are phased in and the funding ratio remains below 100%. After that time, the contribution drops dramatically as returns continue to push the funded percent well above 100% on an actuarial value basis. The funded percent again decreases with the lower-than-average return to 83%.

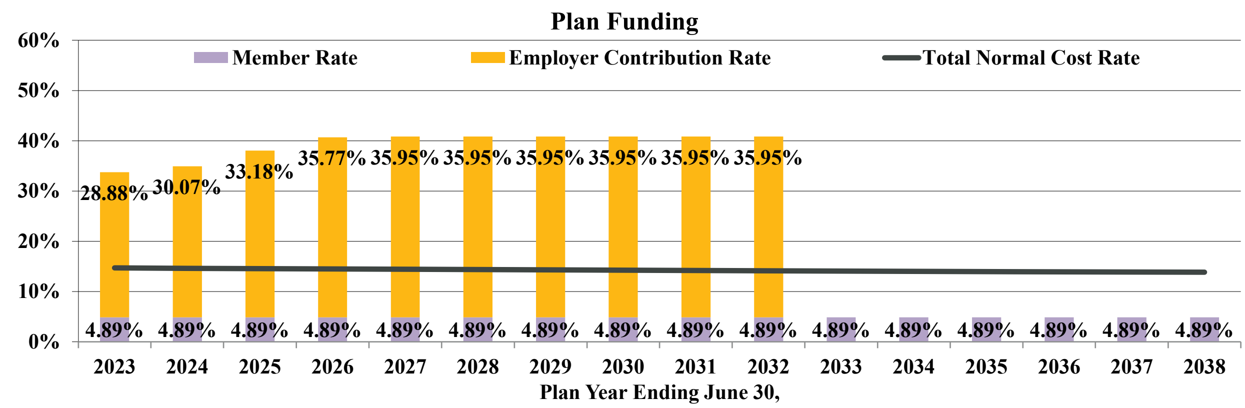


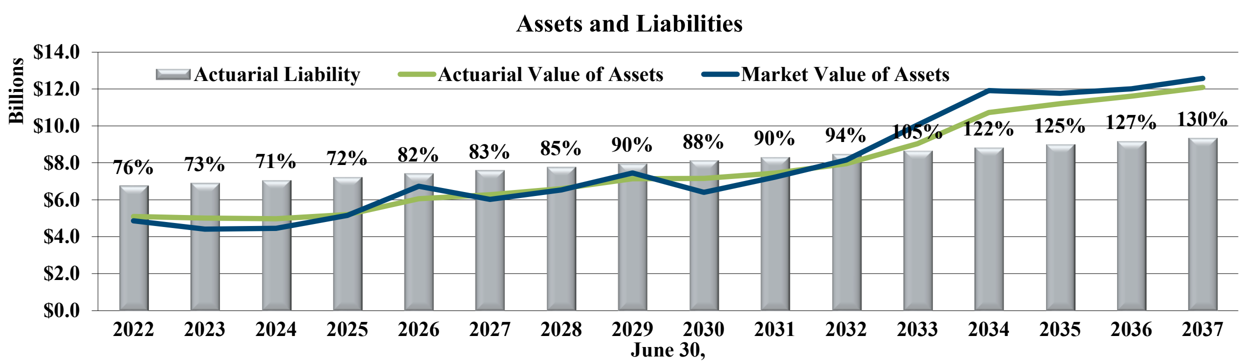


SECTION I - BOARD SUMMARY

<u>Alternative Projection – with average return of 9.25% in the period</u>

Under this scenario, in which the System is assumed to face lower returns in the first two years but significantly higher returns thereafter, the County contribution rate increases while phasing in the poor asset returns, holds at 36.0% and then drops off once the System reaches 100% funding on an actuarial value basis.





SECTION I - BOARD SUMMARY

Table I-2
Summary of Prinicpal Plan Results

Valuation as of:	June 30, 2021	June 30, 2022	% Chg.
Participant Counts			
Actives (excluding DROP)	14,015	13,943	(0.5)%
DROPs	753	734	(2.5)%
Terminated Vesteds	2,394	2,475	3.4%
In Pay Status	10,247	10,641	3.8%
Total	27,409	27,793	1.4%
Annual Salaries of Active Members	$ 805,120,408	$ 880,931,034	9.4%
Annual Retirement Allowances for Retired Members and Beneficiaries (Base amount only – not supplements)	$ 285,147,607	$ 303,608,615	6.5%
Assets and Liabilities			
Actuarial Liability (AL)	$ 6,329,809,523	$ 6,736,635,842	6.4%
Assets for Valuation Purposes (AVA)	4,997,549,929	5,103,373,910	2.1%
Unfunded Actuarial Liability	$ 1,332,259,594	$ 1,633,261,932	22.6%
Actuarial Value Funding Ratio (AVA / AL)	79.0%	75.8%	
Market Value Funding Ratio (MVA / AL)	81.3%	72.1%	
Present Value of Accrued Benefits	$ 5,537,961,940	$ 5,881,833,442	6.2%
Market Value of Assets	5,146,232,426	4,857,119,591	(5.6)%
Unfunded Accrued Liability (not less than $0)	$ 391,729,514	$ 1,024,713,851	161.6%
Accrued Benefit Funding Ratio	92.9%	82.6%	
Contributions as a Percentage of Payroll	**Fiscal Year 2023**	**Fiscal Year 2024**	
Employer Normal Cost	9.98%	9.76%	
UAL Amortization	18.60%	20.01%	
Administrative Expense	0.30%	0.30%	
County Rate	28.88%	30.07%	

SECTION II - IDENTIFICATION AND ASSESSMENT OF RISK

Actuarial valuations are based on a set of assumptions about future economic and demographic experience. These assumptions represent a reasonable estimate of future experience, but actual future experience will undoubtedly be different and may be significantly different. This section of the report is intended to identify the primary risks to the System, provide some background information about those risks, and provide an assessment of those risks.

Identification of Risks

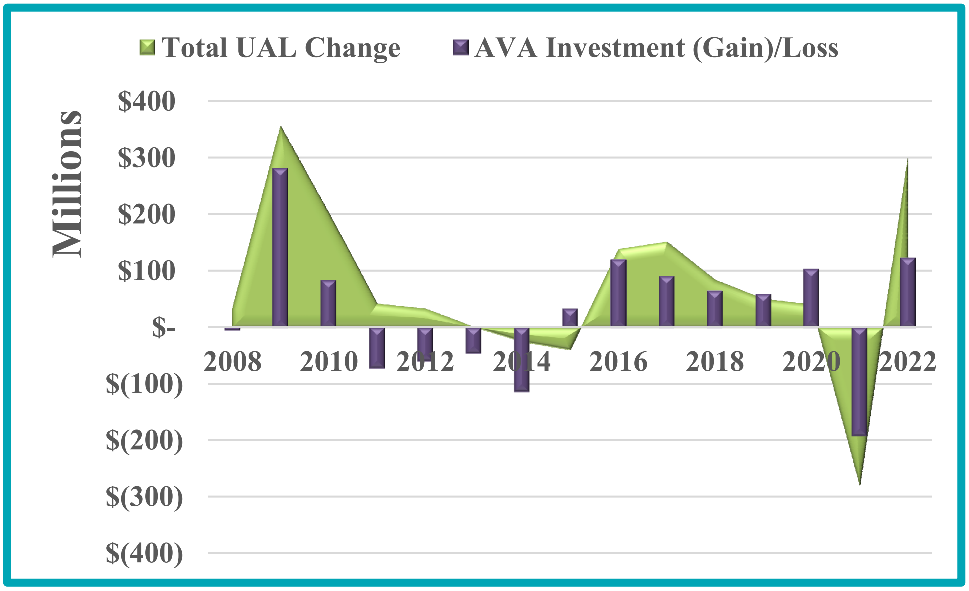
The fundamental risk to a pension plan is that the contributions needed to pay the benefits become unaffordable. While we believe it is unlikely that the System by itself would become unaffordable, the contributions needed to support the System may differ significantly from expectations. While there are a number of factors that could lead to contribution amounts deviating from expectations, we believe the primary sources are:

- Investment risk,
- Interest rate risk,
- Longevity and other demographic risks,
- Contribution risk, and
- Assumption change risk.

Other risks that we have not identified may also turn out to be important.

SECTION II - IDENTIFICATION AND ASSESSMENT OF RISK

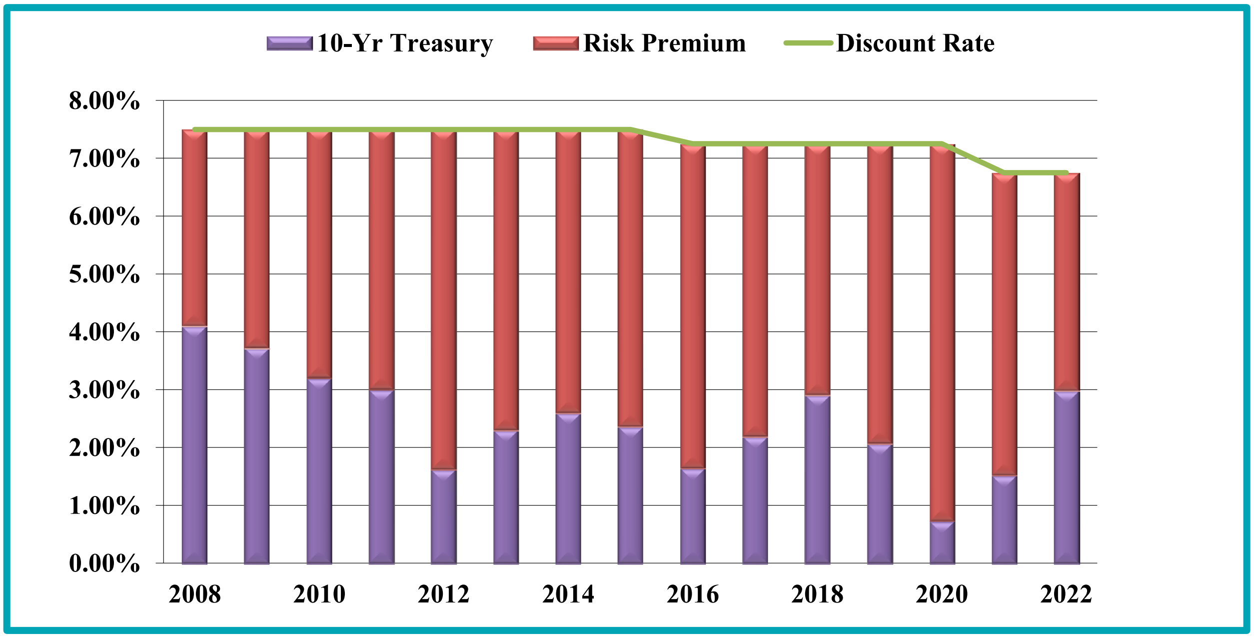
Investment Risk is the potential for investment returns to be different than expected. Lower investment returns than anticipated will increase the Unfunded Actuarial Liability necessitating higher contributions in the future unless there are other gains that offset these investment losses. The potential volatility of future investment returns is determined by the System's asset allocation, and the affordability of the investment risk is determined by the amount of assets invested relative to the size of the plan sponsor or other contribution base.



The graph above shows the impact of investment gains and losses on the smoothed Actuarial Value of Assets over the last 15 years compared to the System's total change in UAL.

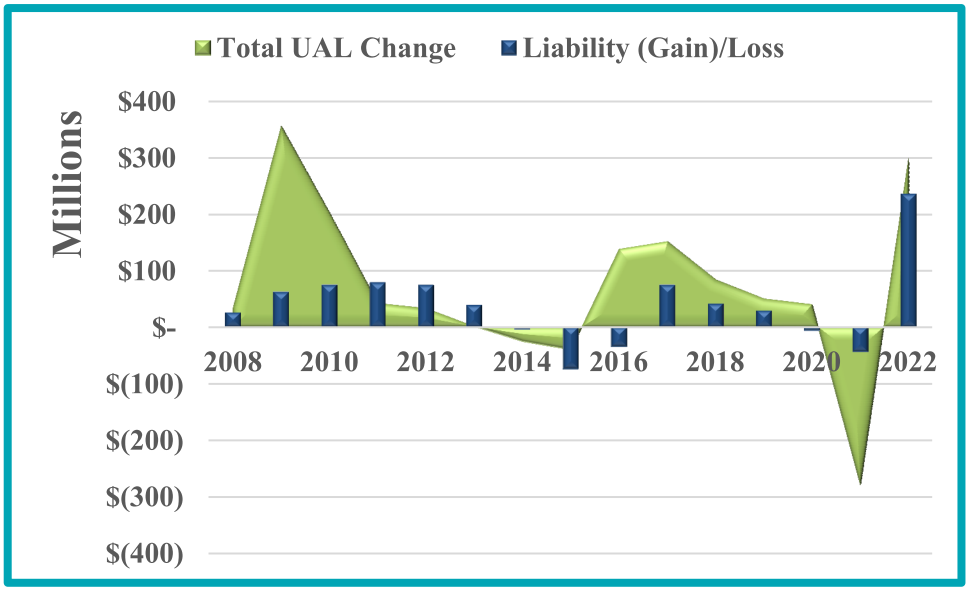
SECTION II - IDENTIFICATION AND ASSESSMENT OF RISK

Interest rate risk is the potential for interest rates to be different than expected. For public plans, short-term fluctuations in interest rates have little or no effect as the plan's liability is usually measured based on the expected return on assets. Longer-term trends in interest rates, however, can have a powerful effect. The chart below shows the yield on a 10-year Treasury security compared to the System's assumed rate of return. The difference is a simple measure of the amount of investment risk taken. As interest rates have declined on average over the period, plans faced a choice: maintain the same level of risk and reduce the expected rate of return, maintain the same expected rate of return and take on more investment risk, or some combination of the two strategies. This trend may be reversing as the interest rates have increased since a low in 2020.



SECTION II - IDENTIFICATION AND ASSESSMENT OF RISK

Longevity and other demographic risks are the potential for mortality or other demographic experience to be different than expected. Generally, longevity and other demographic risks emerge slowly over time and are often dwarfed by other changes, particularly those due to investment returns. The following graph shows the demographic gains and losses over the last 15 years compared to the total change in the UAL for each year.



Contribution risk is the potential for actual future contributions to deviate from expected future contributions. There are different sources of contribution risk ranging from the sponsor choosing to not make contributions in accordance with the funding policy to material changes in the contribution base (e.g., covered employees, covered payroll, sponsor revenue) that affect the amount of contributions the System can collect. Historically, the System has made contributions in accordance with its funding policy.

Assumption change risk is the potential for the environment to change such that future valuation assumptions are different than the current assumptions. Assumption change risk is an extension of the other risks identified, but rather than capturing the risk as it is experienced, it captures the cost of recognizing a change in environment when the current assumption is no longer reasonable.

Plan Maturity Measures

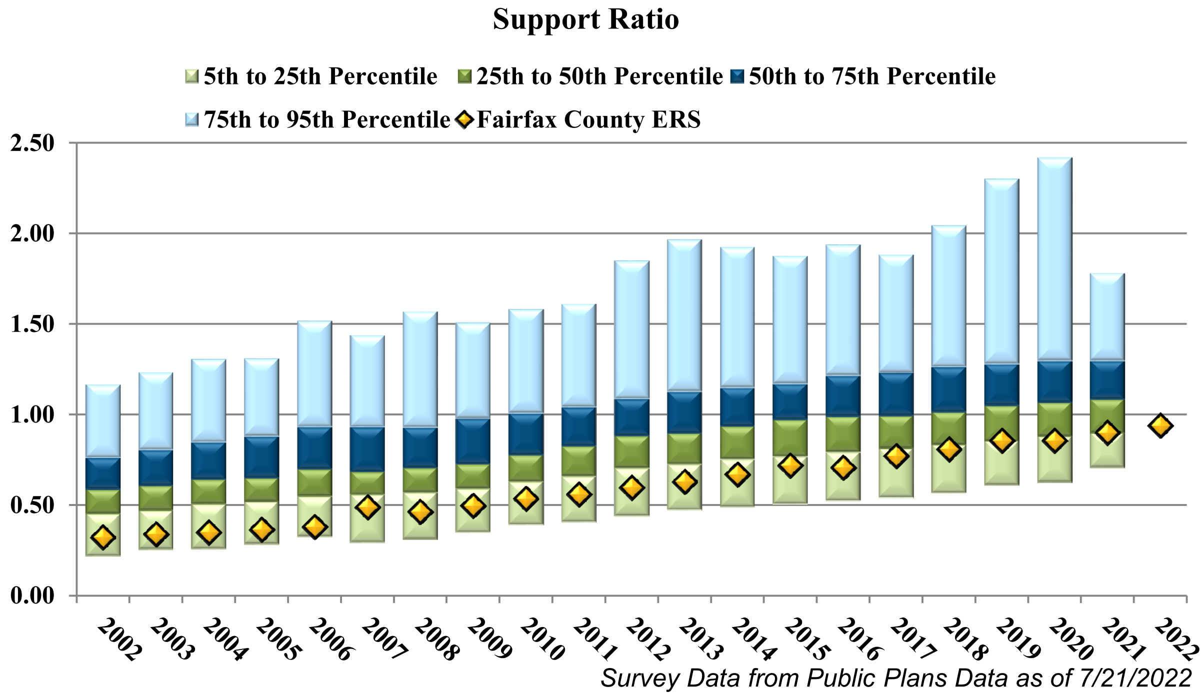
The future financial condition of a mature pension plan is more sensitive to each of the risks identified above than a less mature plan. Before assessing each of these risks, it is important to understand the maturity of this system compared to other plans and how the maturity has changed over time.

Plan maturity can be measured in a variety of ways, but they all get at one basic dynamic – the larger the plan is compared to the contribution or revenue base that supports it, the more sensitive the plan will be to risk. The measures below have been selected as the most important in understanding the primary risks identified for this system.

SECTION II - IDENTIFICATION AND ASSESSMENT OF RISK

Inactives per Active (Support Ratio)

One simple measure of plan maturity is the ratio of the number of inactive members (those receiving benefits or entitled to a deferred benefit) to the number of active members. The revenue base supporting the System is usually proportional to the number of active members, so a relatively high number of inactives compared to actives indicates a larger system relative to its revenue base as well.



The graph above shows the distribution from the 5th to 95th percentile of support ratios for the plans in the Public Plans Database. The gold diamonds show how the Retirement System compares to the other plans.

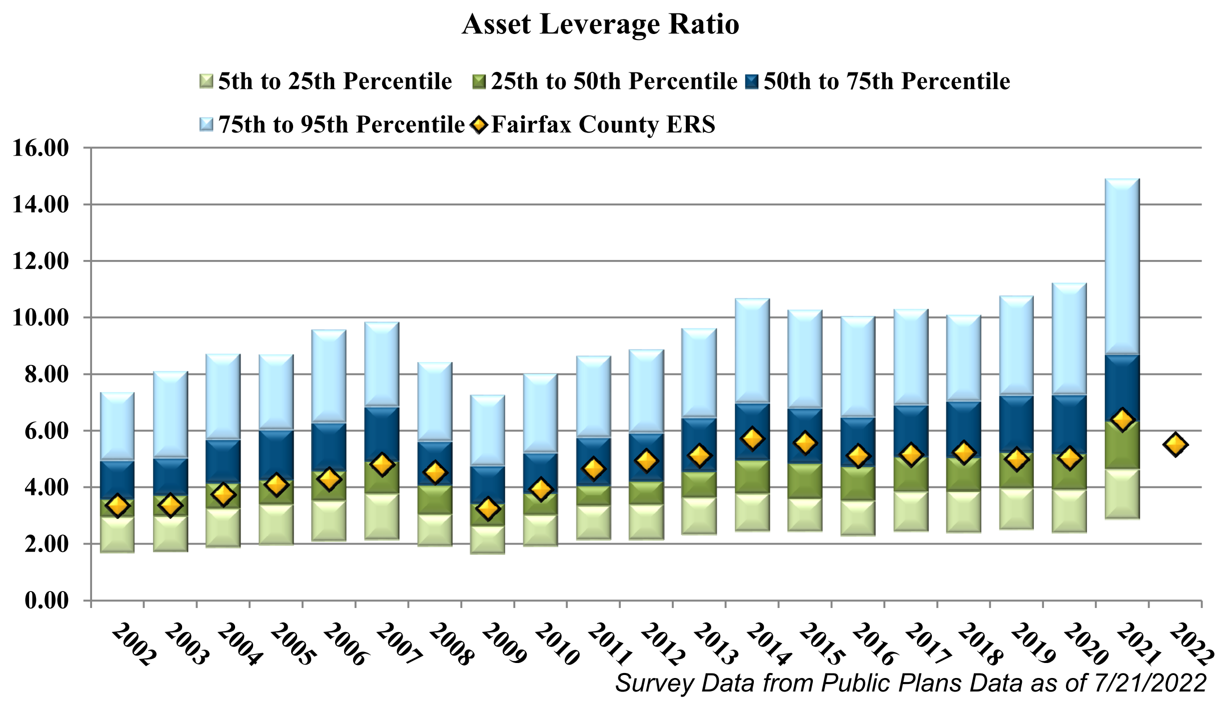
Whereas the support ratios for the plans as a whole have increased over the period as they mature, ERS's support ratio has increased more than other plans over the period and is among the 25th to 50th percentile of the Public Plans Database.

SECTION II - IDENTIFICATION AND ASSESSMENT OF RISK

Leverage Ratios

Leverage or volatility ratios measure the size of the Plan compared to its revenue base more directly. An asset leverage ratio of 5.0, for example, means that if the System experiences a 10% loss on assets compared to the expected return, the loss would be equivalent to 50% of payroll.

The same investment loss for a system with an asset leverage ratio of 10.0 would be equivalent to 100% of payroll. As the System becomes better funded, the asset leverage ratio will increase, and if it was 100% funded, the leverage ratio would equal the Actuarial Liability (AL) leverage ratio.

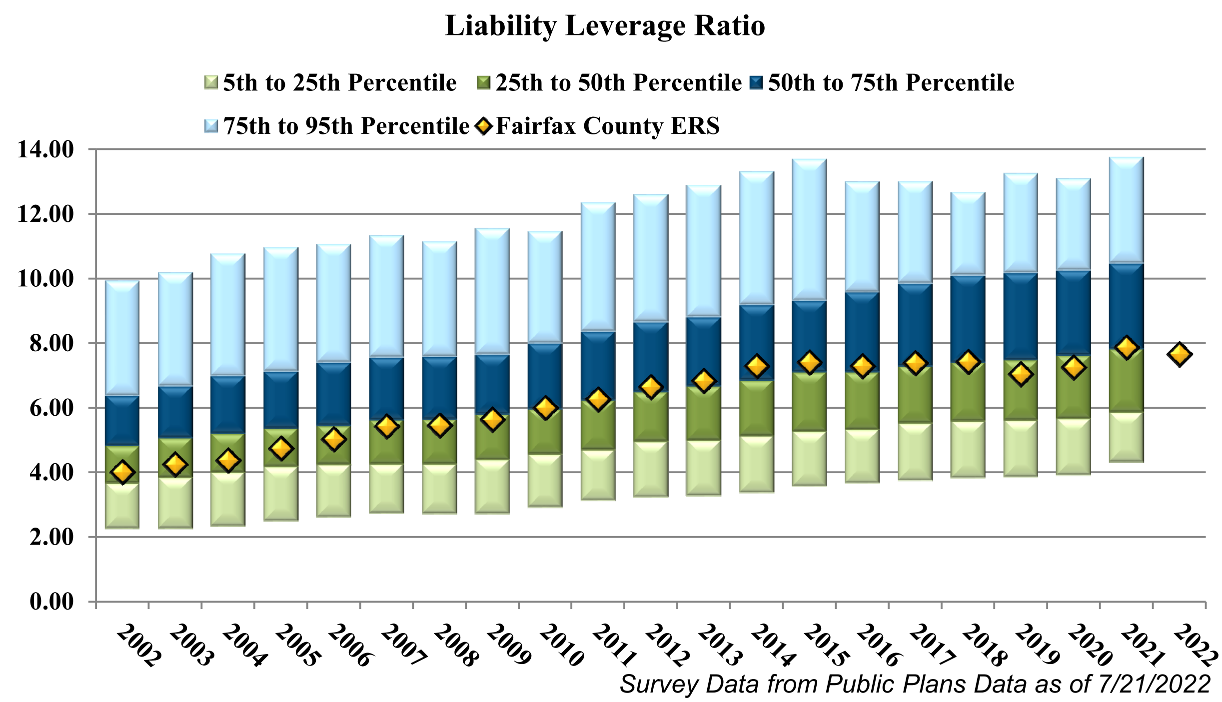


The chart above shows the distribution from the 5th to 95th percentile of asset leverage ratios for the plans in the Public Plans Database. The gold diamonds show how the System compares.

The System's asset leverage ratio has been in the 25th to 50th percentile compared to other plans before 2007 but moved into the 50th to 75th percentile in 2008 and came back to the 25th to 50th percentile in 2019. The asset leverage ratio will increase as the System approaches 100% funded. The large swings in the 2020-2022 range was due to large investment returns and losses during that period.

SECTION II - IDENTIFICATION AND ASSESSMENT OF RISK

The actuarial liability leverage ratio of 5.0 means that if the System experiences a 10% loss on liabilities compared to the expected liability, the liability loss would be equivalent to 50% of payroll.



The chart above shows the distribution from the 5th to 95th percentile of Actuarial Liability leverage ratios for the plans in the Public Plans Database. The gold diamonds show how the System compares.

The System's Actuarial Liability leverage ratio has historically been in the 25th to 50th percentile compared to other plans. But as the System matures and more of the liability is due to inactive members, this ratio continues to increase. The ratio has been under 8.0 over the period with the ratio currently around 7.6 in 2022.

SECTION III – ASSETS

Pension system assets play a key role in the financial operation of the System and in the decisions the Trustees may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact benefit levels, County contributions, and the ultimate security of participants' benefits.

In this section, we present detailed information on the System's assets including:

- **Disclosure** of the System's assets at June 30, 2021 and June 30, 2022,
- Statement of the **changes** in market values during the year,
- Development of the **actuarial value of assets**,
- An assessment of **investment performance**, and
- A projection of the System's expected **cash flows** for the next 10 years.

Disclosure

The market value of assets represents "snap-shot or cash-out" values, which provide the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate widely with corresponding swings in the marketplace. As a result, market values are usually not suitable for long-range planning.

The actuarial values are market values that have been smoothed; they are used for evaluating the System's ongoing liability to meet its obligations.

Current methods employed by this system set the actuarial value equal to the expected value plus 33⅓% of the difference between the expected value of assets and the actual market value, where the expected value is equal to the prior year's actuarial value, rolled forward with actual contributions, benefit payments, and administrative expenses plus interest imputed at the prior year investment return assumption of 6.75%.

SECTION III – ASSETS

Table III-1
Statement of Assets at Market Value

	June 30, 2021	June 30, 2022
Assets		
Equity in County's Pooled Cash,		
Contributions Receivable and Other Assets	$ 20,738,434	$ 14,928,213
Accrued Interest and Dividends Receivable	10,374,834	7,323,965
Receivable from Sale of Investments	152,889,828	204,546,506
Capital Assets	40,417	43,307
US Government Obligations	214,000,466	213,346,287
Asset-Backed Securities	117,362,797	96,445,096
Other Bonds and Notes	407,979,746	243,713,426
Common and Preferred Stock	1,130,853,306	795,328,369
Pooled and Mutual Funds	3,041,360,995	3,219,714,444
Short-Term Investments	205,607,282	268,286,503
Cash Collateral Received Under		
Securities Lending Agreements	130,882,230	176,934,112
Total Assets	$ 5,432,090,335	$ 5,240,610,228
Liabilities		
Payable for Collateral Received Under		
Securities Lending Agreements	$ 130,882,230	$ 176,934,112
Payable for Purchase of Investments	142,991,611	192,212,753
Accounts Payable and Accrued Expenses	11,984,068	14,343,772
Total Liabilities	$ 285,857,909	$ 383,490,637
Net Assets Available for Benefits	**$ 5,146,232,426**	**$ 4,857,119,591**

SECTION III – ASSETS

Table III-2
Changes in Market Values

Value of Assets – June 30, 2021		$ 5,146,232,426
Additions		
Contributions:		
Employer Contributions	$ 229,114,059	
Employee Contributions	40,269,006	
Total Contributions		$ 269,383,065
Investment Income:		
Net Appreciation (Depreciation) in Fair Value of Investments	$ (183,454,556)	
Interest	36,919,535	
Dividends	21,391,773	
Total Investment Income	$ (125,143,248)	
Investment Activity Expenses:		
Management Fees	$ (58,928,683)	
Custodian Fees	(107,446)	
Consulting Expense	(47,561)	
Allocated Administrative Expenses	(1,672,977)	
Total Investment Activity Expenses	$ (60,756,667)	
From Securities Lending Activities:		
Securities Lending Income	$ 2,359,793	
Securities Lending Expenses		
Borrowers Rebates	0	
Management Fees	(671,830)	
Net Income from Securities Lending Activities	$ 1,687,963	
Net Investment Income		$ (184,211,952)
Total Additions		$ 85,171,113
Deductions		
Annuity Benefits	$ (349,443,898)	
Disability Benefits	(7,494,682)	
Survivor Benefits	(9,173,691)	
Refunds and Other Expenses	(5,694,611)	
Administrative Expenses	(2,477,066)	
Total Deductions		$ (374,283,948)
Total		
Net Increase (Decrease)		$ (289,112,835)
Value of Assets – June 30, 2022		**$ 4,857,119,591**

SECTION III – ASSETS

Actuarial Value of Assets

The actuarial value of assets represents a "smoothed" value developed by the actuary to reduce or eliminate erratic results which could develop from short-term fluctuations in the market value of assets. For this system, the actuarial value has been calculated by adding 33⅓% of the difference between market value and expected value to the expected value. The following table illustrates the calculation of actuarial value of assets for the June 30, 2022 valuation.

Table III-3
Development of Actuarial Value of Assets
as of June 30, 2022

1.	Actuarial Value of Assets at June 30, 2021	**$ 4,997,549,929**
2.	Amount in (1) with Interest to June 30, 2022	5,334,884,549
3.	Employer and Member Contributions for the Plan Year Ended June 30, 2022	269,383,065
4.	Interest on Contributions Assuming Received Uniformly Throughout the Year to June 30, 2022	8,943,226
5.	Disbursements from Trust Except Investment Expenses, July 1, 2021 Through June 30, 2022	(374,283,948)
6.	Interest on Disbursements Assuming Payments Made Uniformly Throughout the Year to June 30, 2022	(12,425,822)
7.	Expected Value of Assets at June 30, 2022 = (2) + (3) + (4) + (5) + (6)	5,226,501,070
8.	Market Value of Assets at June 30, 2022	4,857,119,591
9.	Excess of (8) Over (7)	$ (369,381,479)
10.	Actuarial Value of Assets at June 30, 2022 = (7) + 33-1/3% of (9)	**$ 5,103,373,910**

Investment Performance

The market value of assets (MVA) returned -3.62% during 2022, which is lower than the assumed 6.75% return. A return of 4.26% on the actuarial value of assets (AVA) is primarily the result of the asset smoothing method being utilized for the calculation of the actuarial value of assets. Since only 33⅓% of the gain or loss from the performance of the System is recognized in a given year, in periods of very good performance, the AVA can lag significantly behind the MVA. In a period of negative returns, the AVA does not decline as rapidly as the MVA.

Table III-4
Annual Rates of Return

Year Ending June 30,	Market Value	Actuarial Value	Total Return Standard & Poor's 500 Index	Barclays Global Aggregate Index[1]
1998	17.2%	7.7%	30.2%	10.5%
1999	8.5%	16.0%	22.8%	3.1%
2000	5.8%	12.2%	7.2%	4.6%
2001	(0.5)%	7.6%	(14.8)%	11.2%
2002	(4.2)%	3.7%	(18.0)%	8.6%
2003	5.2%	4.1%	0.3%	10.4%
2004	18.2%	8.5%	19.1%	0.3%
2005	13.2%	10.1%	6.3%	6.8%
2006	8.4%	9.7%	8.6%	(0.8)%
2007	14.7%	11.5%	20.6%	6.1%
2008	0.8%	7.7%	(13.1)%	7.1%
2009	(24.0)%	(2.9)%	(26.2)%	5.5%
2010	25.3%	4.3%	14.4%	9.5%
2011	23.7%	10.3%	30.8%	3.9%
2012	8.3%	9.6%	5.4%	7.5%
2013	7.8%	9.0%	20.6%	(0.1)%
2014	14.8%	10.9%	24.6%	4.4%
2015	0.4%	6.6%	7.4%	1.8%
2016	(0.5)%	4.3%	4.0%	6.0%
2017	6.8%	4.8%	17.9%	(0.3)%
2018	7.3%	5.6%	14.4%	(0.4)%
2019	6.0%	5.8%	10.4%	7.9%
2020	2.7%	4.8%	7.5%	8.7%
2021	26.8%	11.7%	40.8%	(0.3)%
2022	(3.6)%	4.3%	(10.6)%	(10.3)%

[1] Formerly the Lehman Global Aggregate Bond Index.

SECTION III – ASSETS

Expected benefit payments are projected for the closed group valued at June 30, 2022. Projecting any further than 10 years using a closed group would not yield reliable predictions due to the omission of new hires.

Expected employer contributions are projected based on the current County contribution rate of 28.88% for FY 2023, 30.07% for FY 2024, and then continuing to calculate a rate with 15-year amortization layers thereafter. This projection assumes no further liability gains or losses, continued reflection of untapped investment gains or losses, a 2.25% annual increase in the total covered payroll, and models the anticipated impact of new hires coming in with altered plan provisions.

Table III-5
Projection of System's Benefit Payments and County Contributions

Year Beginning July 1,	Expected Benefit Payments	Expected County Contributions
2022	$ 429,558,000	$ 254,413,000
2023	427,277,000	270,827,000
2024	424,209,000	284,783,000
2025	431,462,000	296,592,000
2026	446,525,000	306,719,000
2027	462,420,000	315,991,000
2028	478,936,000	324,475,000
2029	494,999,000	331,775,000
2030	510,433,000	339,240,000
2031	525,445,000	346,873,000

SECTION IV - LIABILITIES

In this section, we present detailed information on System liabilities including:

- **Disclosure** of System liabilities at June 30, 2021 and June 30, 2022,
- Statement of **changes** in these liabilities during the year, and
- A **projection** of future liabilities.

Disclosure

Several types of liabilities are calculated and presented in this report. Each type is distinguished by the people ultimately using the figures and the purpose for which they are using them.

- **Present Value of Benefits:** Used for analyzing the financial outlook of the System, this represents the amount of money needed today to fund all future benefits of the System, assuming participants continue to accrue benefits and all assumptions are met.

- **Actuarial Liability:** Used for funding calculations and GASB disclosures, this liability is calculated taking the present value of benefits above and subtracting the present value of future member contributions and future employer normal costs under an acceptable actuarial funding method. This method is referred to as the **Entry Age Normal** funding method.

- **Present Value of Accrued Liabilities:** Used for communicating the current level of liabilities, this liability represents the total amount of money needed today to fully fund the current accrued obligations of the System, assuming no future accruals of benefits and that all assumptions are met, including the 6.75% investment return. These liabilities are also used to assess whether the System can meet its current benefit commitments.

None of the liability figures disclosed in this report is meant to be a measure of the System's settlement liability.

The following table discloses each of these liabilities for the current and prior valuations. With respect to each disclosure, a subtraction of the appropriate value of the System's assets yields, for each respective type, a **net surplus,** or an **unfunded liability**.

SECTION IV - LIABILITIES

Table IV-1 Liabilities/Net (Surplus)/Unfunded		
	June 30, 2021	**June 30, 2022**
Present Value of Future Benefits		
Active Participant Benefits (excluding DROP)	$ 3,337,824,668	$ 3,587,787,537
DROP Participant Benefits	488,093,331	485,781,702
Retiree Benefits	3,363,276,463	3,590,053,493
Terminated Vested and Inactive Members	143,809,512	153,154,587
Present Value of Benefits (PVB)	**$ 7,333,003,974**	**$ 7,816,777,319**
Market Value of Assets (MVA)	$ 5,146,232,426	$ 4,857,119,591
Future Employee Contributions	326,656,265	358,925,626
Future County Contributions	1,860,115,283	2,600,732,102
Total Resources	**$ 7,333,003,974**	**$ 7,816,777,319**
Actuarial Liability		
Present Value of Benefits (PVB)	$ 7,333,003,974	$ 7,816,777,319
Present Value of Future Normal Costs (PVFNC)		
County Portion	676,538,186	721,215,851
Employee Portion	326,656,265	358,925,626
Actuarial Liability (AL = PVB - PVFNC)	**$ 6,329,809,523**	**$ 6,736,635,842**
Actuarial Value of Assets (AVA)	$ 4,997,549,929	$ 5,103,373,910
Net (Surplus)/Unfunded (AL – AVA)	**$ 1,332,259,594**	**$ 1,633,261,932**
Present Value of Accrued Benefits		
Present Value of Benefits (PVB)	$ 7,333,003,974	$ 7,816,777,319
Present Value of Future Benefit Accruals (PVFBA)	1,795,042,034	1,934,943,877
Present Value of Accrued Benefits (PVAB = PVB – PVFBA)	**$ 5,537,961,940**	**$ 5,881,833,442**
Market Value of Assets (MVA)	$ 5,146,232,426	$ 4,857,119,591
Net Unfunded, not less than $0 (PVAB – MVA)	**$ 391,729,514**	**$ 1,024,713,851**

SECTION IV - LIABILITIES

Changes in Liabilities

Each of the liabilities disclosed in the prior table are expected to change at each valuation. The components of that change, depending upon which liability is analyzed, can include:

- New hires since the last valuation
- Benefits accrued since the last valuation
- Plan amendments increasing benefits
- Passage of time which adds interest to the prior liability
- Benefits paid to retirees since the last valuation
- Participants retiring, terminating, or dying at rates different than expected
- A change in actuarial or investment assumptions
- A change in the actuarial funding method

Unfunded liabilities will change because of all of the above and due to changes in System assets resulting from the following:

- Employer contributions less than the full actuarial contribution
- Investment earnings different than expected
- A change in the method used to measure System assets

In each valuation, we report on those elements of change that are of particular significance, potentially affecting the long-term financial outlook of the System. Below we present key changes in liabilities since the last valuation.

Table IV-2

	Present Value of Benefits	Actuarial Liability	Present Value of Accrued Benefits
Liabilities June 30, 2021	$ 7,333,003,974	$ 6,329,809,523	$ 5,537,961,940
Liabilities June 30, 2022	7,816,777,319	6,736,635,842	5,881,833,442
Liability Increase (Decrease)	$ 483,773,345	$ 406,826,319	$ 343,871,502
Change Due to:			
Plan Amendment	$ 0	$ 0	$ 0
Actuarial (Gain)/Loss	*Not Calculated*	236,424,050	*Not Calculated*
Method and Assumption Changes	0	0	0
Benefits Accumulated and Other Sources	483,773,345	170,402,269	343,871,502

SECTION V - CONTRIBUTIONS

In the process of evaluating the financial condition of any pension system, the actuary analyzes the assets and liabilities to determine what level (if any) of contributions is needed to properly maintain the funding status of the system. Typically, the actuarial process will use a funding technique that will result in a pattern of contributions that is both stable and predictable.

For this system, the funding method employed is the **Entry Age Actuarial Cost Method**. Under this method, there are three components to the total contribution: the **normal cost rate**, the **unfunded actuarial liability rate** (UAL rate), and the **administrative expense rate**. The normal cost rate is determined in the following steps. First, an individual normal cost rate is determined by taking the value, as of entry age into the System, of each member's projected future benefits. This value is then divided by the value, also at entry age, of the member's expected future salary. Second, the normal cost rate is multiplied by current salary and added together to obtain the total System normal cost. This is divided by total salary to convert it to the total system normal cost rate. Finally, the total normal cost rate is reduced by the average member contribution rate to produce the County's normal cost rate.

Development of County Contribution Rate

The employer's total contribution rate is equal to the normal cost rate plus rate changes due to amendments passed or assumption changes adopted since July 1, 2001 plus a 15-year amortization of the UAL that existed on June 30, 2018 other than that which existed from prior amendment and assumption change bases. A change was made in this year's valuation to the timing of the 15-year amortization period for amortization bases that have been created since 2016. The 15-year period now begins at payment rather than from the valuation date in which the layer is first recognized. In the future, additional amortization bases will be created each year. Finally, the rate includes an expense rate. Please see Table V-2 for details.

This section contains a comparison of the County contribution rates for FY 2023 and 2024 in Table V-1. Tables V-2 and V-3 show the calculations of the FY 2023 and 2024 rates using a closed 15-year layered amortization approach.

SECTION V - CONTRIBUTIONS

The table below presents and compares the budgeted rate for the System for this valuation and the prior one.

The UAL rate is the level percent of member payroll which, when applied to each year's payroll, will be sufficient to amortize the various layers of unfunded actuarial liability over their respective 15-year periods.

Table V-1
Actuarially Determined Rate (for County Contribution)

Valuation Date	June 30, 2021	June 30, 2022
Fiscal Year	**2023**	**2024**
Normal Cost Rate	9.98%	9.76%
UAL Rate	18.60%	20.01%
Expense Rate	0.30%	0.30%
Total County Rate	28.88%	30.07%

SECTION V - CONTRIBUTIONS

Table V-2
Development of UAL Amortization Layer

	June 30, 2021 (for FY 2023)	June 30, 2022 (for FY 2024)
1. Present Value of Future Benefits		
a. Active Employees	$ 3,337,824,668	$ 3,587,787,537
b. DROP	488,093,331	485,781,702
c. Retired Members	3,363,276,463	3,590,053,493
d. Vested Terminated and Inactive Members	143,809,512	153,154,587
e. Total Present Value	$ 7,333,003,974	$ 7,816,777,319
2. Present Value of Future Normal Costs		
a. County Portion	$ 676,538,186	$ 721,215,851
b. Employee Portion	326,656,265	358,925,626
c. Total Present Value	$ 1,003,194,451	$ 1,080,141,477
3. Actuarial Liability (1) – (2)	$ 6,329,809,523	$ 6,736,635,842
4. Actuarial Value of Assets	$ 4,997,549,929	$ 5,103,373,910
5. Unfunded Actuarial Liability (UAL)	$ 1,332,259,594	$ 1,633,261,932
6. Oustanding Prior Bases (see Table V-4)	1,560,764,917	1,267,463,094
7. New Base at July 1, 2021//2022	(228,505,323)	365,798,838
8. Expected County Contribution FY 2022//2023 (County Rate x Expected Payroll)	232,518,774	254,412,883
9. Employer Normal Cost Payments	(80,351,017)	(85,978,869)
10. Expense Payments (using 0.30% assumption)	(2,415,361)	(2,642,793)
11. Net Contribution to apply to UAL	149,752,396	165,791,221
12. Amortization of prior bases (from Table V-4)	170,875,428	143,511,323
13. Excess UAL Payment (11 - 12)	$ (21,123,032)	$ 22,279,898
14. Remaining New Base One Year Later (7 - 13, with interest)	$ (222,105,139)	$ 367,470,693
15. 14-year/15-year Amortization Factor	10.3966	10.9262
16. New UAL Amortization Layer (14 / 15)	$ (21,363,248)	$ 33,632,067
17. Next Year Amortization of Bases (from Table V-4)	174,465,902	146,567,017
18. Total UAL Payments (16 + 17)	$ 153,102,654	$ 180,199,084
19. Estimated Payroll	$ 823,235,617	$ 900,751,982
20. UAL as a % of Payroll	18.60%	20.01%

SECTION V - CONTRIBUTIONS

Table V-3
Schedule of Amortization Bases

Type of Base	Date Established	June 30, 2022 Outstanding Amount	FY 2023 Amortization Payment	June 30, 2023 Outstanding Amount[1]	Amortization Years	FY 2024 Amortization Payment
1. Reduce Disability Offset to 30%	7/1/2008	$ 164,056	$ 169,497	$ -	0	$ -
2. Assumption Changes	7/1/2010	616,078	169,555	482,479	3	173,370
3. Reduce Disability Offset to 25%	7/1/2013	443,349	84,795	385,665	5	86,703
4. Assumption Changes	7/1/2014	58,278,429	9,752,080	52,136,384	6	9,971,502
5. Reduce Disability Offset to 15%	7/1/2014	1,013,537	169,601	906,719	6	173,417
6. Assumption Changes	7/1/2016	55,066,245	6,853,639	51,702,044	9	7,007,846
7. Unfunded Base	7/1/2018	1,190,688,405	128,495,252	1,138,298,717	11	131,386,395
8. New UAL Layer 2019	7/1/2019	95,154,857	9,666,574	91,590,316	12	9,884,072
9. New UAL Layer 2020	7/1/2020	88,143,277	8,478,087	85,333,398	13	8,668,844
10. New UAL Layer 2021	7/1/2021	(222,105,139)	(20,327,757)	(216,094,619)	14	(20,785,132)
Total		**$ 1,267,463,094**	**$ 143,511,323**	**$ 1,204,741,103**		**$ 146,567,017**

[1] Outstanding amount includes a full year of interest on prior year balance and half year on the amortization payment

SECTION VI - ACCOUNTING STATEMENT INFORMATION

ASC Topic 960 of the Financial Accounting Standards Board (FASB) describes certain disclosures regarding a plan's funded status.

The FASB ASC Topic 960 disclosures provide a quasi "snap-shot" view of how the System's assets compare to its liabilities if contributions stopped and accrued benefit claims had to be satisfied. However, due to potential legal requirements and the possibility that alternative interest rates would have to be used to determine the liabilities, these values may not be a good indication of the amount of money it would take to buy the benefits for all members if the System were to terminate.

FASB ASC Topic 960 specifies that a comparison of the present value of accrued (accumulated) benefits with the market value of the assets as of the valuation date must be provided. The relevant amounts as of June 30, 2021 and June 30, 2022 are exhibited in Table VI-1, which also includes a reconciliation of liabilities determined as of the prior valuation, June 30, 2021 to the liabilities as of June 30, 2022.

Table VI-2 is a history of gains and losses in Actuarial Liability, and Table VI-3 is the Schedule of Funded Liabilities by Type, which shows the portion of Accrued Liability covered by Assets. See our report dated October 26, 2022 for the required disclosures under GASB Statement No. 67.

SECTION VI - ACCOUNTING STATEMENT INFORMATION

Table VI-1
Accounting Statement Information

	June 30, 2021	June 30, 2022
A. FASB ASC Topic 960 Basis		
1. Present Value of Benefits Accrued and Vested to Date		
a. Members Currently Receiving Payments	$ 3,363,276,463	$ 3,590,053,493
b. Vested Terminated and Inactive Members	143,809,512	153,154,587
c. DROP	488,093,331	485,781,702
d. Active Members	905,362,143	968,328,278
e. Total PVVB	$ 4,900,541,449	$ 5,197,318,060
2. Present Value of Non-Vested Accrued Benefits for Active Members	637,420,491	684,515,382
3. Total Present Value of Accrued Benefits	$ 5,537,961,940	$ 5,881,833,442
4. Assets at Market Value	5,146,232,426	4,857,119,591
5. Unfunded Present Value of Accrued Benefits, But Not Less Than Zero	$ 391,729,514	$ 1,024,713,851
6. Ratio of Assets to Value of Benefits (4) / (3)	92.9%	82.6%
B. Statement of Changes in Present Value of Accrued Benefits		
Actuarial Present Value of Accrued Benefits as of June 30, 2021		$ 5,537,961,940
Increase (Decrease) During Years Attributable to:		
Passage of Time		$ 361,263,949
Benefit Paid – FY 2022		(371,806,882)
Assumption Change		0
Plan Amendment		0
Benefits Accrued, Other Gains/Losses		354,414,435
Net Increase (Decrease)		$ 343,871,502
Actuarial Present Value of Accrued Benefits as of June 30, 2022		$ 5,881,833,442

SECTION VI - ACCOUNTING STATEMENT INFORMATION

Table VI-2
Analysis of Financial Experience
Gains and Losses in Accrued Liability During Years Ended June 30
Resulting from Differences Between Assumed Experience and Actual Experience

	Gain (or Loss) for Year ending June 30,					
Type of Activity	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Investment Income	$ (90,769,788)	$ (64,779,936)	$ (59,391,459)	$ (103,597,308)	$ 192,341,249	$ (123,127,160)
Combined Liability Experience	(74,947,986)	(41,362,698)	(29,354,840)	5,460,818	43,615,539	(236,424,050)
Gain (or Loss) During Year from Financial Experience	$ (165,717,774)	$ (106,142,634)	$ (88,746,299)	$ (98,136,490)	$ 235,956,788	$ (359,551,210)
Non-Recurring Items	(582,418)	(603,265)	0	0	2,280,293	0
Composite Gain (or Loss) During Year	**$ (166,300,192)**	**$ (106,745,899)**	**$ (88,746,299)**	**$ (98,136,490)**	**$ 238,237,081**	**$ (359,551,210)**

Table VI-3
Schedule of Funded Liabilities by Type
Aggregate Accrued Liabilities For

Valuation Date June 30,	(1) Active Member Contributions	(2) Retirees Vested Terms, Beneficiaries & DROP	(3) Active Members (Employer Financed Portion)	Reported Assets*	Portion of Accrued Liabilities by Reported Assets (1)	(2)	(3)
2017	$ 380,179,076	$ 3,216,480,052	$ 1,771,072,393	$ 3,930,924,191	100%	100%	19%
2018	397,692,499	3,444,004,357	1,749,526,935	4,070,486,587	100%	100%	13%
2019	404,341,900	3,624,784,344	1,762,554,326	4,220,420,263	100%	100%	11%
2020	419,154,588	3,719,369,617	1,822,541,878	4,349,257,826	100%	100%	12%
2021	409,477,095	3,995,179,306	1,925,153,122	4,997,549,929	100%	100%	31%
2022	437,379,797	4,228,989,782	2,070,266,263	5,103,373,910	100%	100%	21%

* Reported assets are the actuarial value of assets in this demonstration.

APPENDIX A - MEMBERSHIP INFORMATION

The data for this valuation was provided electronically by the Fairfax County Retirement System staff. Cheiron did not perform a formal audit on the data. However, we did perform checks of the data for reasonableness and consistency in accordance with Actuarial Standards of Practice No. 23 – Data Quality. The data was collected as of December 31, 2021.

Data reported in this Appendix is as of the December 31, 2021 data collection date. Covered payroll and benefits in pay status reported elsewhere in this report have been adjusted to approximate the June 30, 2022 values.

For inactive participants given with a Joint and Survivor form of benefit and no continuation percentage provided, a survivor percentage of 100% is assumed.

Summary of Membership Data as of December 31, 2021

		Active Members *		
		Count	Average Age	Average Salary
School	Plan A	1,277	55.39	$ 39,853
	Plan B	1,348	55.40	45,501
	Plan C	1,103	50.36	31,244
	Plan D	838	51.05	34,069
	Plan E	935	45.99	30,180
	Total	5,501	52.13	$ 36,986
County	Plan A	1,259	51.06	$ 74,218
	Plan B	2,505	51.15	81,562
	Plan C	741	42.11	62,376
	Plan D	2,110	43.72	74,313
	Plan E	1,827	39.47	63,241
	Total	8,442	45.96	$ 73,006
Total Systems	Plan A	2,536	53.24	$ 56,914
	Plan B	3,853	52.64	68,946
	Plan C	1,844	47.04	43,754
	Plan D	2,948	45.80	62,874
	Plan E	2,762	41.68	52,049
	Total	13,943	48.39	$ 58,795

* Excludes DROP participants.

APPENDIX A - MEMBERSHIP INFORMATION

Inactive Members	School	County	Total
Service Retirement			
Count	3,801	5,834	9,635
Annual Basic Benefit	$ 70,060,685	$ 204,220,760	$ 274,281,445
Annual Supplements	10,697,146	31,447,695	42,144,841
Service – Connected Disability			
Count	65	64	129
Annual Basic Benefit [1]	$ 1,513,878	$ 1,856,125	$ 3,370,003
Ordinary Disability			
Count	186	139	325
Annual Basic Benefit	$ 1,980,212	$ 2,238,846	$ 4,219,058
Beneficiaries			
Count	45	507	552
Annual Basic Benefit	$ 649,471	$ 8,954,897	$ 9,604,368
DROP			
Count	249	485	734
Annual Basic Benefit	$ 5,682,130	$ 18,910,422	$ 24,592,552
Annual Supplements	2,582,255	8,384,392	10,966,646
Vested Former Members			
Count	1,082	1,393	2,475
Annual Basic Benefit [2]	$ 5,928,452	$ 13,307,853	$ 19,236,305

[1] Benefits are net of offsets for Workers' Compensation and Social Security.
[2] Benefits are payable at age 65.

APPENDIX A - MEMBERSHIP INFORMATION

Membership Statistics

The number of retired members, beneficiaries, and disabled members can be analyzed as follows:

	December 31, 2020		December 31, 2021		% Change	
Inactive Members	Count	Average Monthly Benefit	Count	Average Monthly Benefit	Count	Average Monthly Benefit
Service Retirement						
Basic Benefit	9,259	$ 2,372	9,635	$ 2,397	4.1%	1.1%
Supplement	1,950	1,565	2,223	1,580	14.0%	0.9%
Service-Connected Disability	134	2,425	129	2,488	-3.7%	2.6%
Ordinary Disability	339	1,077	325	1,093	-4.1%	1.5%
Beneficiaries	515	1,435	552	1,465	7.2%	2.1%
Total/Average (Basic Benefit)	10,247	2,283	10,641	2,310	3.8%	1.2%

APPENDIX A - MEMBERSHIP INFORMATION

Data Reconciliation from June 30, 2021 to June 30, 2022

	Active	DROP	Terminated Vested	Retired	Service-Connected Disability	Ordinary Disability	Beneficiary	Total
Participant count as of July 1, 2021	**14,015**	**753**	**2,394**	**9,259**	**134**	**339**	**515**	**27,409**
New Hires / Re-hires	1,498		(52)	0				**1,446**
Terminated Vested	(267)		267					**0**
DROP	(284)	285	(1)					**0**
Retired	(255)	(302)	(66)	623				**0**
Deceased with beneficiary	(6)			(54)		0	60	**0**
Deceased without beneficiary	(14)	(2)	(6)	(195)	(7)	(20)	(23)	**(267)**
Benefits Expired				0	0		0	**0**
Ordinary Disability	(3)		(3)			6		**0**
Service-Connected Disability	(1)		(1)		2			**0**
Vested Return of Contributions	(2)		(60)				0	**(62)**
Terminated Not Vested	(738)							**(738)**
Corrections			3	2				**5**
Change	(72)	(19)	81	376	(5)	(14)	37	**384**
Participant count as of June 30, 2022	**13,943**	**734**	**2,475**	**9,635**	**129**	**325**	**552**	**27,793**

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - County Plan A

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	0	15	17	2	0	0	0	34
35 to 39	0	2	23	64	26	3	0	0	118
40 to 44	2	2	16	73	80	28	1	0	202
45 to 49	1	1	16	46	61	63	17	0	205
50 to 54	0	2	13	64	53	76	67	15	290
55 to 59	0	1	18	46	46	43	19	31	204
60 to 64	0	2	18	44	31	26	12	7	140
65 & up	0	5	14	15	9	5	7	11	66
Total	3	15	133	369	308	244	123	64	1,259

TOTAL SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	0	847,758	1,072,310	142,772	0	0	0	2,062,840
35 to 39	0	43,165	1,266,285	4,299,647	1,755,282	176,729	0	0	7,541,108
40 to 44	79,504	80,605	975,226	5,207,770	6,015,129	2,123,756	83,809	0	14,565,799
45 to 49	22,734	52,498	772,658	3,351,680	4,663,338	5,403,759	1,340,387	0	15,607,054
50 to 54	0	134,169	650,896	4,335,640	3,949,514	6,548,770	6,810,857	1,180,701	23,610,547
55 to 59	0	13,069	932,390	3,398,504	3,281,494	3,828,679	1,803,296	2,833,606	16,091,038
60 to 64	0	16,640	762,094	3,018,693	2,197,466	1,835,162	1,227,550	568,697	9,626,302
65 & up	0	117,727	453,995	877,066	795,570	415,887	633,667	1,042,196	4,336,108
Total	$ 102,238	$ 457,873	$ 6,661,302	$ 25,561,310	$ 22,800,565	$ 20,332,742	$ 11,899,566	$ 5,625,200	$ 93,440,796

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - County Plan B

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	0	0	1	0	0	0	0	0	1
30 to 34	0	0	26	40	3	0	0	0	69
35 to 39	0	5	40	172	54	2	0	0	273
40 to 44	0	3	33	152	127	41	0	0	356
45 to 49	0	4	35	143	132	75	13	0	402
50 to 54	0	2	45	133	148	118	34	11	491
55 to 59	0	1	36	153	128	107	22	8	455
60 to 64	0	4	33	135	107	30	9	9	327
65 & up	0	2	17	53	34	17	5	3	131
Total	0	21	266	981	733	390	83	31	2,505

TOTAL SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
25 to 29	0	0	65,786	0	0	0	0	0	65,786
30 to 34	0	0	1,650,125	2,767,296	182,139	0	0	0	4,599,560
35 to 39	0	231,898	2,976,372	12,535,033	3,708,396	135,705	0	0	19,587,404
40 to 44	0	92,944	2,556,295	12,067,012	9,900,278	3,180,096	0	0	27,796,625
45 to 49	0	210,486	2,453,393	11,619,640	11,487,098	6,665,917	1,197,493	0	33,634,027
50 to 54	0	87,272	3,048,727	10,784,745	12,907,716	11,471,358	3,332,956	1,048,462	42,681,236
55 to 59	0	24,622	2,189,791	11,892,889	11,142,672	10,183,170	2,086,169	901,509	38,420,822
60 to 64	0	204,998	1,832,274	10,616,024	9,251,205	2,668,584	879,299	1,068,102	26,520,486
65 & up	0	50,042	891,768	4,954,711	2,911,052	1,383,465	537,477	277,767	11,006,282
Total	$ 0	$ 902,262	$ 17,664,531	$ 77,237,350	$ 61,490,556	$ 35,688,295	$ 8,033,394	$ 3,295,840	$ 204,312,228

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - County Plan C

COUNTS BY AGE/SERVICE

	Service								
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	0	2	0	0	0	0	0	0	2
25 to 29	0	63	16	0	0	0	0	0	79
30 to 34	0	87	79	0	0	0	0	0	166
35 to 39	1	78	61	0	0	0	0	0	140
40 to 44	1	60	42	0	0	0	0	0	103
45 to 49	0	40	27	0	0	0	0	0	67
50 to 54	1	24	31	0	0	0	0	0	56
55 to 59	0	38	23	0	0	1	0	0	62
60 to 64	0	17	22	0	0	0	0	0	39
65 & up	1	16	10	0	0	0	0	0	27
Total	4	425	311	0	0	1	0	0	741

TOTAL SALARY BY AGE/SERVICE

	Service								
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	$ 0	$ 75,437	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 75,437
25 to 29	0	3,110,033	915,726	0	0	0	0	0	4,025,759
30 to 34	0	4,688,098	5,077,418	0	0	0	0	0	9,765,516
35 to 39	1,531	4,948,242	4,116,343	0	0	0	0	0	9,066,116
40 to 44	1,152	3,653,858	2,966,919	0	0	0	0	0	6,621,929
45 to 49	0	2,405,542	1,794,637	0	0	0	0	0	4,200,179
50 to 54	6,368	1,391,013	2,481,185	0	0	0	0	0	3,878,566
55 to 59	0	2,627,016	1,558,709	0	0	101,936	0	0	4,287,661
60 to 64	0	1,018,057	1,671,531	0	0	0	0	0	2,689,588
65 & up	10,251	723,722	876,225	0	0	0	0	0	1,610,198
Total	$ 19,302	$ 24,641,018	$ 21,458,693	$ 0	$ 0	$ 101,936	$ 0	$ 0	$ 46,220,949

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - County Plan D

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	0	4	0	0	0	0	0	0	4
25 to 29	0	118	38	0	0	0	0	0	156
30 to 34	0	209	200	0	0	0	0	0	409
35 to 39	0	170	187	0	0	0	0	0	357
40 to 44	2	135	174	2	1	0	0	0	314
45 to 49	0	126	115	1	0	0	0	0	242
50 to 54	0	99	132	1	0	0	0	0	232
55 to 59	0	72	112	1	0	0	0	0	185
60 to 64	0	68	88	0	1	0	0	0	157
65 & up	1	23	30	0	0	0	0	0	54
Total	3	1,024	1,076	5	2	0	0	0	2,110

TOTAL SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	$ 0	$ 201,126	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 201,126
25 to 29	0	6,723,386	2,343,016	0	0	0	0	0	9,066,402
30 to 34	0	13,725,944	13,297,571	0	0	0	0	0	27,023,515
35 to 39	0	12,132,536	14,176,115	0	0	0	0	0	26,308,651
40 to 44	69,429	10,332,278	14,165,566	121,611	89,956	0	0	0	24,778,840
45 to 49	0	9,471,224	9,706,673	89,173	0	0	0	0	19,267,070
50 to 54	0	7,419,598	10,503,984	115,824	0	0	0	0	18,039,406
55 to 59	0	5,284,680	9,525,589	91,728	0	0	0	0	14,901,997
60 to 64	0	4,784,975	7,938,810	0	161,944	0	0	0	12,885,729
65 & up	16,105	1,490,284	2,822,314	0	0	0	0	0	4,328,703
Total	$ 85,534	$ 71,566,031	$ 84,479,638	$ 418,336	$ 251,900	$ 0	$ 0	$ 0	$ 156,801,439

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - County Plan E

COUNTS BY AGE/SERVICE

Age	Service: Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	51	35	0	0	0	0	0	0	86
25 to 29	198	184	0	0	0	0	0	0	382
30 to 34	158	174	0	0	0	0	0	0	332
35 to 39	119	115	0	0	0	0	0	0	234
40 to 44	104	118	0	1	0	0	0	0	223
45 to 49	93	92	0	0	0	0	0	0	185
50 to 54	86	85	0	0	0	0	0	0	171
55 to 59	49	66	1	0	0	0	0	0	116
60 to 64	32	38	0	0	0	0	0	0	70
65 & up	16	12	0	0	0	0	0	0	28
Total	906	919	1	1	0	0	0	0	1,827

TOTAL SALARY BY AGE/SERVICE

Age	Service: Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	$ 2,405,694	$ 1,681,979	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 4,087,673
25 to 29	10,286,181	10,360,450	0	0	0	0	0	0	20,646,631
30 to 34	9,322,759	11,368,412	0	0	0	0	0	0	20,691,171
35 to 39	7,326,011	8,324,399	0	0	0	0	0	0	15,650,410
40 to 44	6,684,578	9,041,354	0	94,630	0	0	0	0	15,820,562
45 to 49	6,340,683	6,977,140	0	0	0	0	0	0	13,317,823
50 to 54	5,226,900	5,856,891	0	0	0	0	0	0	11,083,791
55 to 59	2,941,438	4,553,416	98,654	0	0	0	0	0	7,593,508
60 to 64	2,208,231	2,932,658	0	0	0	0	0	0	5,140,889
65 & up	857,528	650,958	0	0	0	0	0	0	1,508,486
Total	$ 53,600,003	$ 61,747,657	$ 98,654	$ 94,630	$ 0	$ 0	$ 0	$ 0	$ 115,540,944

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - School Plan A

COUNTS BY AGE/SERVICE

	Service								
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	2	2	3	3	0	0	0	10
35 to 39	0	5	13	15	6	0	0	0	39
40 to 44	3	16	29	33	15	5	0	0	101
45 to 49	1	21	61	43	48	11	3	0	188
50 to 54	0	27	83	72	45	28	4	0	259
55 to 59	3	25	90	85	59	26	3	3	294
60 to 64	1	25	78	76	45	11	1	6	243
65 & up	0	14	62	46	16	3	1	1	143
Total	8	135	418	373	237	84	12	10	1,277

TOTAL SALARY BY AGE/SERVICE

	Service								
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
25 to 29	0	0	0	0	0	0	0	0	0
30 to 34	0	63,777	99,397	209,796	189,964	0	0	0	562,934
35 to 39	0	135,166	525,016	807,859	303,480	0	0	0	1,771,521
40 to 44	21,723	412,969	954,269	1,633,616	1,003,619	337,606	0	0	4,363,802
45 to 49	8,312	458,432	1,801,135	2,060,417	2,618,371	719,820	204,598	0	7,871,085
50 to 54	0	590,481	2,672,838	3,313,175	2,427,281	1,679,114	307,207	0	10,990,096
55 to 59	52,626	466,642	2,336,613	3,877,594	3,003,739	1,466,863	150,569	217,219	11,571,865
60 to 64	1,100	481,734	2,255,619	3,217,129	2,156,970	675,338	74,308	461,021	9,323,219
65 & up	0	261,191	1,437,315	1,782,412	694,950	156,209	51,874	54,091	4,438,042
Total	$ 83,761	$ 2,870,392	$ 12,082,202	$ 16,901,998	$ 12,398,374	$ 5,034,950	$ 788,556	$ 732,331	$ 50,892,564

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - School Plan B

COUNTS BY AGE/SERVICE

	Service								
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	0	0	1	0	0	0	0	0	1
30 to 34	0	1	10	8	0	0	0	0	19
35 to 39	2	1	11	24	10	0	0	0	48
40 to 44	0	5	21	32	25	9	0	0	92
45 to 49	0	12	34	43	48	22	10	2	171
50 to 54	1	13	69	65	64	54	11	2	279
55 to 59	1	22	93	95	62	36	14	4	327
60 to 64	0	11	77	71	70	23	9	3	264
65 & up	0	14	43	48	26	6	6	4	147
Total	4	79	359	386	305	150	50	15	1,348

TOTAL SALARY BY AGE/SERVICE

	Service								
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
25 to 29	0	0	59,033	0	0	0	0	0	59,033
30 to 34	0	7,878	467,552	520,092	0	0	0	0	995,522
35 to 39	41,120	28,826	499,050	1,503,181	657,267	0	0	0	2,729,444
40 to 44	0	126,754	848,349	1,932,372	1,527,756	663,353	0	0	5,098,584
45 to 49	0	247,966	1,247,868	2,323,465	2,782,976	1,559,078	772,054	188,231	9,121,638
50 to 54	12,411	181,480	2,000,468	3,283,490	3,530,465	3,513,278	769,585	199,081	13,490,258
55 to 59	7,416	274,042	2,436,218	4,298,618	3,430,381	2,346,087	961,138	320,030	14,073,930
60 to 64	0	135,366	1,971,672	3,020,716	3,423,026	1,277,902	502,693	267,756	10,599,131
65 & up	0	137,594	1,116,698	1,844,747	1,108,646	317,464	327,709	315,237	5,168,095
Total	$ 60,947	$ 1,139,906	$ 10,646,908	$ 18,726,681	$ 16,460,517	$ 9,677,162	$ 3,333,179	$ 1,290,335	$ 61,335,635

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - School Plan C

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	0	6	0	0	0	0	0	0	6
25 to 29	1	21	6	0	0	0	0	0	28
30 to 34	1	50	20	0	0	0	0	0	71
35 to 39	3	68	21	0	0	0	0	0	92
40 to 44	2	103	40	0	0	0	0	0	145
45 to 49	5	138	34	0	0	0	1	0	178
50 to 54	6	130	53	0	0	0	0	0	189
55 to 59	3	111	58	0	0	0	0	0	172
60 to 64	2	96	38	0	0	0	0	0	136
65 & up	3	61	22	0	0	0	0	0	86
Total	26	784	292	0	0	0	1	0	1,103

TOTAL SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	$ 0	$ 209,886	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 209,886
25 to 29	13,008	588,317	211,726	0	0	0	0	0	813,051
30 to 34	9,532	1,540,647	934,229	0	0	0	0	0	2,484,408
35 to 39	53,678	1,865,498	950,071	0	0	0	0	0	2,869,247
40 to 44	21,055	3,077,518	1,866,950	0	0	0	0	0	4,965,523
45 to 49	54,944	3,529,098	1,432,396	0	0	0	102,468	0	5,118,906
50 to 54	39,067	3,315,018	2,205,098	0	0	0	0	0	5,559,183
55 to 59	38,826	3,036,685	2,424,951	0	0	0	0	0	5,500,462
60 to 64	16,638	2,715,655	1,614,967	0	0	0	0	0	4,347,260
65 & up	35,888	1,703,351	854,520	0	0	0	0	0	2,593,759
Total	$ 282,636	$ 21,581,673	$ 12,494,908	$ 0	$ 0	$ 0	$ 102,468	$ 0	$ 34,461,685

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - School Plan D

COUNTS BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	0	5	0	0	0	0	0	0	5
25 to 29	2	21	10	0	0	0	0	0	33
30 to 34	0	31	17	0	0	0	0	0	48
35 to 39	3	40	18	0	0	0	0	0	61
40 to 44	4	61	26	0	1	0	0	0	92
45 to 49	5	77	25	0	0	0	0	0	107
50 to 54	1	110	43	0	0	0	0	0	154
55 to 59	3	105	39	0	0	0	0	0	147
60 to 64	1	81	36	0	1	0	0	0	119
65 & up	1	52	19	0	0	0	0	0	72
Total	20	583	233	0	2	0	0	0	838

TOTAL SALARY BY AGE/SERVICE

Age	Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	
Under 25	$ 0	$ 164,750	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 164,750
25 to 29	20,008	743,886	508,769	0	0	0	0	0	1,272,663
30 to 34	0	1,076,095	923,433	0	0	0	0	0	1,999,528
35 to 39	10,322	1,369,143	881,708	0	0	0	0	0	2,261,173
40 to 44	63,816	1,908,577	1,176,531	0	11,541	0	0	0	3,160,465
45 to 49	70,642	2,178,119	1,223,484	0	0	0	0	0	3,472,245
50 to 54	7,733	3,036,904	2,020,547	0	0	0	0	0	5,065,184
55 to 59	31,498	3,022,170	1,725,102	0	0	0	0	0	4,778,770
60 to 64	7,510	2,468,997	1,653,992	0	36,625	0	0	0	4,167,124
65 & up	9,859	1,436,995	761,300	0	0	0	0	0	2,208,154
Total	$ 221,388	$ 17,405,636	$ 10,874,866	$ 0	$ 48,166	$ 0	$ 0	$ 0	$ 28,550,056

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - School Plan E

COUNTS BY AGE/SERVICE

	Service								
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	24	5	0	0	0	0	0	0	29
25 to 29	36	27	0	0	0	0	0	0	63
30 to 34	72	23	0	0	0	0	0	0	95
35 to 39	73	33	0	0	0	0	0	0	106
40 to 44	104	31	0	0	0	0	0	0	135
45 to 49	98	35	0	0	0	0	0	0	133
50 to 54	88	48	0	0	0	0	0	0	136
55 to 59	88	44	0	0	0	0	0	0	132
60 to 64	52	25	0	0	0	0	0	0	77
65 & up	24	5	0	0	0	0	0	0	29
Total	659	276	0	0	0	0	0	0	935

TOTAL SALARY BY AGE/SERVICE

	Service								
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	$ 580,218	$ 139,421	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 719,639
25 to 29	963,879	861,972	0	0	0	0	0	0	1,825,851
30 to 34	2,192,714	735,835	0	0	0	0	0	0	2,928,549
35 to 39	2,119,563	1,228,880	0	0	0	0	0	0	3,348,443
40 to 44	3,120,246	1,129,727	0	0	0	0	0	0	4,249,973
45 to 49	2,678,140	1,368,804	0	0	0	0	0	0	4,046,944
50 to 54	2,369,500	1,650,369	0	0	0	0	0	0	4,019,869
55 to 59	2,386,295	1,624,355	0	0	0	0	0	0	4,010,650
60 to 64	1,529,973	785,503	0	0	0	0	0	0	2,315,476
65 & up	644,881	107,928	0	0	0	0	0	0	752,809
Total	$ 18,585,409	$ 9,632,794	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 28,218,203

APPENDIX A - MEMBERSHIP INFORMATION

Distribution of Active Participants - - Total

COUNTS BY AGE/SERVICE

	Service								
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	75	57	0	0	0	0	0	0	132
25 to 29	237	434	72	0	0	0	0	0	743
30 to 34	231	577	369	68	8	0	0	0	1,253
35 to 39	201	517	374	275	96	5	0	0	1,468
40 to 44	222	534	381	293	249	83	1	0	1,763
45 to 49	203	546	347	276	289	171	44	2	1,878
50 to 54	183	540	469	335	310	276	116	28	2,257
55 to 59	147	485	470	380	295	213	58	46	2,094
60 to 64	88	367	390	326	255	90	31	25	1,572
65 & up	46	204	217	162	85	31	19	19	783
Total	1,633	4,261	3,089	2,115	1,587	869	269	120	13,943

TOTAL SALARY BY AGE/SERVICE

	Service								
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	$ 2,985,912	$ 2,472,599	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 5,458,511
25 to 29	11,283,076	22,388,044	4,104,056	0	0	0	0	0	37,775,176
30 to 34	11,525,005	33,206,686	23,297,483	4,569,494	514,875	0	0	0	73,113,543
35 to 39	9,552,225	30,307,753	25,390,960	19,145,720	6,424,425	312,434	0	0	91,133,517
40 to 44	10,061,503	29,856,584	25,510,105	21,057,011	18,548,279	6,304,811	83,809	0	111,422,102
45 to 49	9,175,455	26,899,309	20,432,244	19,444,375	21,551,783	14,348,574	3,617,000	188,231	115,656,971
50 to 54	7,661,979	23,663,195	25,583,743	21,832,874	22,814,976	23,212,520	11,220,605	2,428,244	138,418,136
55 to 59	5,458,099	20,926,697	23,228,017	23,559,333	20,858,286	17,926,735	5,001,172	4,272,364	121,230,703
60 to 64	3,763,452	15,544,583	19,700,959	19,872,562	17,227,236	6,456,986	2,683,850	2,365,576	87,615,204
65 & up	1,574,512	6,679,792	9,214,135	9,458,936	5,510,218	2,273,025	1,550,727	1,689,291	37,950,636
Total	$ 73,041,218	$ 211,945,242	$ 176,461,702	$ 138,940,305	$ 113,450,078	$ 70,835,085	$ 24,157,163	$ 10,943,706	$ 819,774,499

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

A. Long-Term Assumptions Used to Determine System Costs and Liabilities

1. Demographic Assumptions

a. Healthy Mortality

Annual Deaths Per 10,000 Members Mortality Projected to 2022		
Age	Male	Female
50	47	36
55	61	41
60	84	49
65	114	65
70	170	103
75	279	180
80	490	330
85	872	619
90	1,494	1,170
95	2,283	1,911
100	3,211	2,850

The PubG-2010 Healthy Annuitant Head-Count Weighted Mortality Table for males and females, respectively, projected using the MP-2020 model, with an ultimate rate of 0.85% for ages 20-80 grading down to an ultimate rate of 0% for ages 114-120 and convergence to the ultimate rate in the year 2027. The valuation uses fully generational projection of mortality improvements. Sample rates shown are those projected through the valuation date.

5% of pre-retirement deaths are assumed to be service connected.

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

b. Disabled Mortality

Annual Deaths Per 10,000 Members Mortality Projected to 2022		
Age	Male	Female
45	115	96
50	159	139
55	216	179
60	283	215
65	343	235
70	404	280
75	515	390
80	733	598

The PubG-2010 Disabled Head-Count Weighted Annuitant Mortality Table for males and females, respectively, projected using the MP-2020 model, with an ultimate rate of 0.85% for ages 20-80 grading down to an ultimate rate of 0% for ages 114-120 and convergence to the ultimate rate in the year 2027. The valuation uses fully generational projection of mortality improvements. Sample rates shown are projected through the valuation date.

c. Active Separation From Service Due to Death

Annual Deaths Per 10,000 Members Mortality Projected to 2022		
Age	Male	Female
20	4	2
25	4	2
30	6	3
35	9	4
40	11	5
45	12	6

The PubG-2010 Employee Head-Count Weighted Mortality Table for males and females, respectively, projected using the MP-2020 model, with an ultimate rate of 0.85% for ages 20-80 grading down to an ultimate rate of 0% for ages 114-120 and convergence to the ultimate rate in the year 2027. The valuation uses fully generational projection of mortality improvements. Sample rates shown are those projected through the valuation date.

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

d. Termination of Employment (Prior to Normal Retirement Eligibility)

Annual Termination Rates Per 1,000 Members - County	
Service	Termination
0	162
5	71
10	35
15	15
20	6
25	2
30	0

Annual Termination Rates Per 1,000 Members - Schools	
Service	Termination
0	281
5	68
10	36
15	18
20	9
25	7
30	0

It is assumed that members who terminate before the earlier of age 45 or with age plus service equal to 60 elect to receive a refund of contributions instead of vested benefits. Termination rates drop to zero three years prior to approaching Rule of 80 (or Rule of 85 for Plans C, D, and E) retirement.

e. Disability

Annual Disabilities Per 10,000 Members*		
Age	Male	Female
20	1	1
25	1	1
30	1	1
35	1	1
40	1	1
45	4	3
50	7	6
55	11	9
60	13	11

* 20% of disabilities are assumed to be service connected. Of these, 31% are assumed to receive Workers' Compensation benefits.

No disability is assumed to occur once members reach eligibility for retirement.

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

f. Retirement/DROP

Annual Retirements/DROPs Per 1,000 Eligible Members	
Age	Normal
50	300
51	250
52	250
53	250
54	250
55	250
56	250
57	250
58	250
59	250
60	250
61	275
62	300
63	350
64	275
65	300
66	275
67	250
68	200
69	200
70	250
71	250
72	250
73	250
74	250
75	1,000

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

g. Deferred Retirement Option Program (DROP)

Retirees are assumed to enter DROP instead of immediate retirement in accordance with the rates below. DROP participants are assumed to remain in DROP for three years and receive interest at 5% per annum on their DROP deferrals.

Annual DROP entrances per 100 Eligible Members (Male and Female)	
Age	**DROP**
50	70
55	68
60	63
65	30
70	30
75	30

g. Merit/Seniority Salary Increase (in addition to General Wage Increases)

Merit/Seniority Salary Increases - County	
Service	**Increase**
0	2.30%
5	2.45
10	1.85
15	1.55
20	1.45
25	1.20
30	0.90

Merit/Seniority Salary Increases - Schools	
Service	**Increase**
0	7.50%
5	3.25
10	2.50
15	2.00
20	1.50
25	0.50
30	0.00

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

i. Family Composition

For purposes of valuing the pre-retirement death benefit, an assumption is made that 80% of employees are married at death while active and that the female spouse is three years younger than the male spouse.

j. Sick Leave Credit

Unused sick leave balances as reported for each active member are used as of the valuation date. Future sick leave accruals are assumed to accrue at 100% of each participant's annual average but are capped at 124 hours per year for members hired on or after January 1, 2013.

2. Economic Assumptions

a.	Rate of Investment Return:	6.75%
b.	Rate of General Wage Increase:	2.25%*
c.	Rate of Increase in Cost of Living:	2.10%**
d.	Rate of Increase in Total Payroll (for Amortization):	2.25%
e.	Administrative Expenses as a Percentage of Payroll:	0.30%

* General Wage Increase assumption applies for projecting contributions and developing Social Security benefits.

** Benefit increases are limited to 4% per year.

3. Rationale for Assumptions

The actuarial assumptions were adopted by the Board of Trustees upon the recommendation of the actuary, based on an experience study performed in 2021. The results of this study were presented in a report dated October 2021 and are incorporated into this report by reference.

4. Changes Since Last Valuation

None

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Methods

1. Funding Method

The Entry Age Normal Cost method is used to determine costs. Under this method, the employer contribution has three components: the normal cost, the payment toward the unfunded actuarial liability, and the expense rate.

The normal cost is a level percent of pay cost, which, along with the member contributions, will pay for projected benefits at retirement for each plan participant.

The actuarial liability is that portion of the present value of projected benefits that will not be paid by future employer normal costs or member contributions. The difference between this liability and funds accumulated as of the same date is referred to as the unfunded actuarial liability.

The expense rate is added to cover the System's administrative expenses.

The employer's total contribution rate is equal to the normal cost rate plus rate changes due to amendments passed or assumption changes adopted since July 1, 2001 plus a 15-year level percent of pay amortization of the UAL that existed on June 30, 2018 other than prior unamortized amendment and assumption change bases. In the future, additional amortization bases will be created each year. Finally, the rate includes an expense rate.

2. Actuarial Value of Assets

For purposes of determining the County contribution to the System, we use an actuarial value of assets. The asset adjustment method dampens the volatility in asset values that could occur because of fluctuations in market conditions. Use of an asset smoothing method is consistent with the long-term nature of the actuarial valuation process.

In determining the actuarial value of assets, we calculate an expected actuarial value based on cash flow for the year and imputed returns at the actuarial assumption. This expected value is compared to the market value, and one-third of the difference is added to the preliminary actuarial value to arrive at the final actuarial value.

3. Valuation Timing

All participant data is collected as of the December 31 prior to the valuation date. Initial valuation runs are performed as of December 31, and the resulting liabilities are then adjusted for six months to the June 30 valuation date. The adjustment takes into account the actual July 1 cost-of-living increase and any other changes that are known to have occurred in that six-month period.

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

4. Statement of Disclosures Regarding Models Used

Cheiron utilizes and relies on the actuarial software program known as ProVal for the intended purpose of calculating liabilities and projected benefit payments. ProVal is a product of Winklevoss Technologies.

The projected expected results of future valuations in this report were developed using P-Scan, our proprietary tool for the intended purpose of developing projections.

As part of the review process for this actuarial valuation, we have performed a number of tests to verify that the results are reasonable and appropriate. We are not aware of any material inconsistencies, unreasonable output resulting from the aggregation of assumptions, material limitations, or known weaknesses that would affect this report.

5. Changes Since Last Valuation and Rationale for Changes

A change was made in this year's valuation to the timing of the 15-year amortization period for amortization bases that have been created since 2016. The 15-year period now begins at payment rather than from the valuation date in which the layer is first recognized.

This change was adopted by the Board as means of stabilizing the County contribution rate.

APPENDIX C - SUMMARY OF PLAN PROVISIONS

1. Membership

The plan covers full-time and certain part-time County and School Board employees who are not covered by the Fairfax County Police Officers Retirement System, the Uniformed Retirement System, or the VRS. In order to join, the eligible employee must agree to make the required contributions.

Members hired prior to January 1, 2013 could elect to join Plan A or Plan B. Members hired on or after January 1, 2013 and prior to July 1, 2019 may elect to join Plan C or Plan D. Members hired on or after July 1, 2019 will join Plan E.

2. Member Contributions

Plans A and C:	4% of compensation up to Social Security wage base and 5-1/3% of compensation in excess of wage base
Plans B, D, and E:	5-1/3% of compensation

Interest is credited at the rate of 5% per year.

Member contributions are made through an "employer pick-up" arrangement, which results in deferral of the taxes on these contributions.

3. Credited Service

All service as a member plus certain purchased prior service is credited. For members who have at least five years of service, credit is allowed at the rate of one month for 172 hours of accrued unused sick leave. For those hired on or after January 1, 2013, the amount of unused sick leave that may be used is capped at 2,080 hours.

4. Average Final Compensation

Base pay and roll call pay are credited, including the "pay" at the rate of final salary during the unused sick leave period. Average Final Compensation is the average over the high 36 consecutive months (or shorter period of total service).

5. Social Security Wage Base

The amount of wages subject to Social Security (FICA) taxes ($147,000 in 2022).

6. Social Security Breakpoint

The Social Security breakpoint is the 35-year average of Social Security wage bases ending with the year the employee attains Social Security Retirement Age.

APPENDIX C - SUMMARY OF PLAN PROVISIONS

7. Normal Retirement

Eligibility

For those hired before January 1, 2013:
(i) Age 65 with five years of service, or
(ii) Age 50 with age plus service greater than or equal to 80

For those hired on or after January 1, 2013:
(i) Age 65 with five years of service, or
(ii) Age 55 with age plus service greater than or equal to 85

Benefit

Plan A and C Benefits: The sum of 1.8% of average final compensation up to the Social Security breakpoint plus 2% of average final compensation in excess of the breakpoint, all multiplied by credited service, and increased by 3%.

Plan B and D Benefits: 2% of average final compensation multiplied by credited service, increased by 3%.

Plan E Benefits: 2% of average final compensation multiplied by credited service.

Plans A, B, C, and D: Pre-Social Security Retirement Age (SSRA) supplement of 1% of average final compensation up to the Social Security breakpoint times credited service and increased by 3%. This benefit is payable from normal retirement age until the participant reaches his/her SSRA (age 65, 66, or 67).

Plan E: Early Age Option of 0.5% of average final compensation up to the Social Security breakpoint times credited service. This benefit is payable from retirement age until the participant reaches his/her SSRA (age 65, 66, or 67). After SSRA, the base benefit would be reduced to account for the accelerated pre-SSRA benefit.

8. Early Retirement

Eligibility

(i) Age 50 with 25 years of service, or
(ii) 10 years of service with age plus service greater than or equal to 75

Benefit

Normal retirement benefit calculated using average final compensation and service at early retirement, actuarially reduced.

No pre-SSRA supplement benefit is payable.

APPENDIX C - SUMMARY OF PLAN PROVISIONS

9. DROP (Deferred Retirement Option Program)

Eligibility

All members are eligible for DROP participation upon attaining eligibility for normal service retirement. Members can only participate in DROP once, and their election is irrevocable.

Benefit

The benefit scheduled to begin at normal retirement will be credited to a separate DROP account within the Retirement System, accumulating with interest while the member continues to work for a period of 36 months. Upon completion of the three-year period, DROP participation ends, and participants must terminate employment. At that time, the participant will receive payment of the accumulated DROP benefits and begin receiving his or her monthly retirement benefit (in the same amount as determined at commencement of DROP participation, plus annual cost-of-living increases).

For those hired on or after January 1, 2013, the amount credited to the DROP account will exclude the Pre-Social Security Supplement described in item 7.

The DROP account will be credited with interest at an annual rate of 5%, compounded monthly.

Death or Disability during DROP

Non-Service-Connected: The effective date of the death or disability will be treated as the end of the DROP participation.

Service-Connected Disability: The member may elect either (1) to receive the service-connected disability benefits to which he or she would otherwise be entitled (forfeiture of DROP balance) or (2) the normal retirement benefit plus the DROP account balance.

Service-Connected Death: The beneficiary will receive payment of the accumulated DROP benefits and the regular service-connected benefit.

10. Service-Connected Disability

Eligibility

No age or service requirement

Benefit

66-2/3% of average final compensation less 100% of Virginia Workers' Compensation benefit

APPENDIX C - SUMMARY OF PLAN PROVISIONS

11. Ordinary Disability

Eligibility

Five years of credited service

Benefit

Plan A, B, C, and D: 2% of average final compensation times years of credited service, increased by 3%; maximum is 60% of average final compensation; minimum is $300 per year, increased by 3%.

Plan E: 2% of average final compensation times years of credited service; maximum is 60% of average final compensation; minimum is $300 per year.

12. Service - Connected Death

Eligibility

No age or service requirement

Benefit

Lump sum payment of $10,000 plus ordinary death benefit

13. Ordinary Death

Eligibility

Less than 15 years of service

Benefit

Return of employee contributions with interest, payable in lump sum
Eligibility

15 or more years of service

Benefit

Spouse Allowance: In lieu of the refund of contributions, the spouse of the deceased member may elect an allowance of 50% of the normal retirement benefit, based on average final compensation and service as of the date of the member's death. The allowance is payable for the life of the spouse but ceases upon the spouse's remarriage if such remarriage occurs prior to the spouse's attainment of age 60.

APPENDIX C - SUMMARY OF PLAN PROVISIONS

14. Vesting

Eligibility

Five years of service

Benefit

Normal retirement benefit based on average final compensation and service at date of termination. Benefit is payable in full at age 65 or actuarially reduced and payable at early retirement age.

A member may withdraw his contributions with interest at termination, in which case no vested benefit is payable.

15. Withdrawal

Eligibility

Not eligible for other benefits

Benefit

Contributions with interest

16. Form of Payment

The normal form of payment is a life annuity with a guarantee that at least the amount of member contributions with interest will be paid to the retiree or beneficiaries.

A member may elect an actuarially equivalent "pop-up" Joint and Survivor benefit with choice of 50%, 66 ⅔%, 75%, or 100% continuation to the spouse.

17. Cost-of-Living Adjustment

Each July 1, benefits are increased by the lesser of 4% or the increase in the cost-of-living index. The increase is prorated for those who have not been retired for a full year.

Cost-of-living adjustments do not apply to the pre-SSRA supplement or to deferred vested benefits prior to benefit commencement.

In addition to automatic adjustments, benefits may be further increased on an ad hoc basis, if actuarial experience has been favorable.

18. Changes Since Last Valuation

None