Anne Arundel County
Retirement and Pension System

Annual Comprehensive Financial Report

Pension Trust Funds of Anne Arundel County, Maryland

For the Year Ended December 31, 2021

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Retirement and Pension System

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For the Year Ended December 31, 2021

Prepared by:
The Anne Arundel County Office of Finance
44 Calvert Street
Annapolis MD 21401

Anne Arundel County Retirement and Pension System
Annual Comprehensive Financial Report
For the Year Ended December 31, 2021

Table of Contents

Introductory Section

Financial Section

Investment Section

Actuarial Section

Statistical Section

Introductory Section

Dear Board of Trustees and Members of the
Anne Arundel County Retirement and Pension System:

I am pleased to present to you the Anne Arundel County Retirement and Pension System (the "System") Annual Comprehensive Financial Report for the year ended December 31, 2021. This financial report is a historical perspective of benefits, services, and fiscal activities of the System. The purpose of this report is to provide you, the retirement System participants and other interested parties, with sufficient information to evaluate the performance of the System during the plan year.

Plan History

County employees participate in four single-employer defined benefit pension plans (the "Plans"). The County Plans were established under authority created by County Charter and legislation. In December 1996, the County passed legislation creating the Anne Arundel County Retirement and Pension System, a corporation that is an agency in the executive branch of County government, effective February 1, 1997. At that date, all net assets of pension trust funds were transferred to the System. In 2004, the Board of Trustees of the System (the "Board") adopted a formal statement of funding objectives, policy, and strategy. The Statement of Investment Policy and Objectives was designed to clearly communicate the directives of the Trustees of the System to all interested parties. This investment policy applies to the funds of the System on an aggregate basis. The Policy Statement sets forth how each fund manager shall be governed and details specific investment guidelines relating to each of the fund managers.

Major Initiatives

An Experience and Assumption Study was conducted by the actuary in 2018 to review the experience of the Plans during 2012 to 2016. The report recommended changes in assumptions due to their study of the demographic and economic experience of the Anne Arundel County Retirement Plans for the 2012 through 2016 plan years and their expectations for future experience. A gradual change in the discount rate (investment return) from 7.50% to 7.25% over the next five years was voted on. The Board decided to review and vote each April on the annual 5 basis point discount rate reduction. The rate was 7.45% for both 2019 and 2020. Based on discussions with the Pension System actuary and guidance from the system investment consultant, the discount rate was changed to 7.00% for 2021.

Each year, the Board reviews the investment asset allocation and prospective returns for the various classes to attempt to construct a portfolio that will produce the desired rate of return. The resulting rebalancing of the portfolio generally requires moving funds among managers and can result in the elimination of a current manager or the hiring of a new investment manager. During 2021, The Board of Trustees voted to add two investment managers Axiom and Hardman Johnston. Additionally, there were private equity commitments with PIMCO Private Income Fund and Private Advisors small company PE Fund IX. The Pension System Investment Policy was updated in 2020 to formally codify asset allocation changes approved by the Board during the September meeting. The investment policy has remained the same during 2021.

The Employee Pension Portal online system went live in the fall of 2018. The portal allows employees to view their annual pension statement, calculate retirement estimates and use other retirement tools electronically, including the Deferred Retirement Option Program (DROP) calculation for employees eligible for the DROP.

Funding Status

The fiduciary net position as a percentage of the total pension liability increased for the Employees' Retirement Plan, the Police Service Retirement Plan, the Fire Service Retirement Plan and the Detention Officers' and Deputy Sheriffs' Retirement Plan. The Employees Retirement Plan increased from 72.0% in 2020 to 74.6% in 2021. The Police Service Retirement Plan increased from 75.7% in 2020 to 77.5% in 2021. The Fire Service Retirement Plan increased from 83.6% in 2020 to 84.6% in 2021. The Detention Officers' and Deputy Sheriffs' Retirement Plan increased from 74.8% in 2020 to 77.2% in 2021.

Investment Performance

The average investment returns for the Employees' Retirement Plan, the Police Service Retirement Plan, the Fire Service Retirement Plan, and the Detention Officers' and Deputy Sheriffs' Retirement Plan on a market value basis for the year ended December 31, 2021 were 14.5%. On an actuarial basis, the average investment returns for the Employees' Retirement Plan, the Police Service Retirement Plan, the Fire Service Retirement Plan, and the Detention Officers' and Deputy Sheriffs' Retirement Plan were 8.7%, 8.8%, 8.9%, 8.7%, respectively. The actuarial value of assets is calculated by spreading the market-value investment gains or losses in excess of (or below) the assumed rate of return over a five-year period. The asset-smoothing method was changed with the 2011 valuation.

System Organization and Management

The Board of Trustees is responsible for reviewing the investment program, approving policies, objectives, and guidelines and reviewing the financial performance of the System in relation to expectations. The Board also appoints the investment committee to make specific recommendations as to asset allocation and investment strategies. The investment committee works with an investment consultant, currently New England Pension Consultants (NEPC). The investment consultant assists the Board and the investment committee in developing and modifying policy objectives and guidelines, including the development of a liability driven asset allocation strategy. The investment consultant makes recommendations on the appropriate mix of investment manager styles and strategies and acts as fiduciary to the fund. The Board has final approval for all manager selections and policy changes.

The Board also selects the custodial bank, currently State Street Bank & Trust, that has custody of and is the bank of record for the Plans' investments, the actuary for the Plans, Bolton Partners, Inc., and the independent auditors, CliftonLarsonAllen, LLP. The Secretary of the Board of Trustees is responsible for daily administrative decisions and the Anne Arundel County Office of Personnel and the Office of Finance carry out these administrative actions, including transmittal of contributions and funding the payment of benefits and other administrative expenses. Additional details regarding investment professionals who provide services to the System are included in the Investment Section later in this report.

Financial Management

The financial statements and supplemental information and schedules included in this report are the responsibility of System management and have been prepared in accordance with accounting principles generally accepted in the United States of America for governmental accounting and reporting as pronounced and adopted by the Governmental Accounting Standards Board. I advise you to read the Management Discussion and Analysis, Basic Financial Statements, and Notes to the Basic Financial Statements to gain a better understanding of the results of the System during 2021.

Independent Audit

The System is audited annually. CliftonLarsonAllen, LLP, an independent firm of Certified Public Accountants, conducted the audit for the year ended December 31, 2021. Refer to Independent Auditors' Report for the audit opinion.

Internal Accounting Control

Management is responsible for maintaining a system of adequate internal controls designed to provide reasonable assurance that transactions are executed in accordance with management's general or specific authorization, and are recorded as needed to maintain accountability for assets and to permit preparation of the combining financial statements. We believe the internal controls in effect during the year ended December 31, 2021 adequately safeguard the assets and provide reasonable assurance regarding the proper recording of financial transactions.

Acknowledgments

Staff in Anne Arundel County's Office of Finance prepared this Annual Comprehensive Financial Report of the Retirement and Pension System. The report is intended to provide complete and reliable information as a basis for making management decisions, determining compliance with legal provisions, and to provide a means of determining responsible stewardship for the assets contributed by the members and their employers. This report is being sent to the Board of Trustees and other interested parties.

Respectfully,

Karin McQuade

Karin McQuade
Controller

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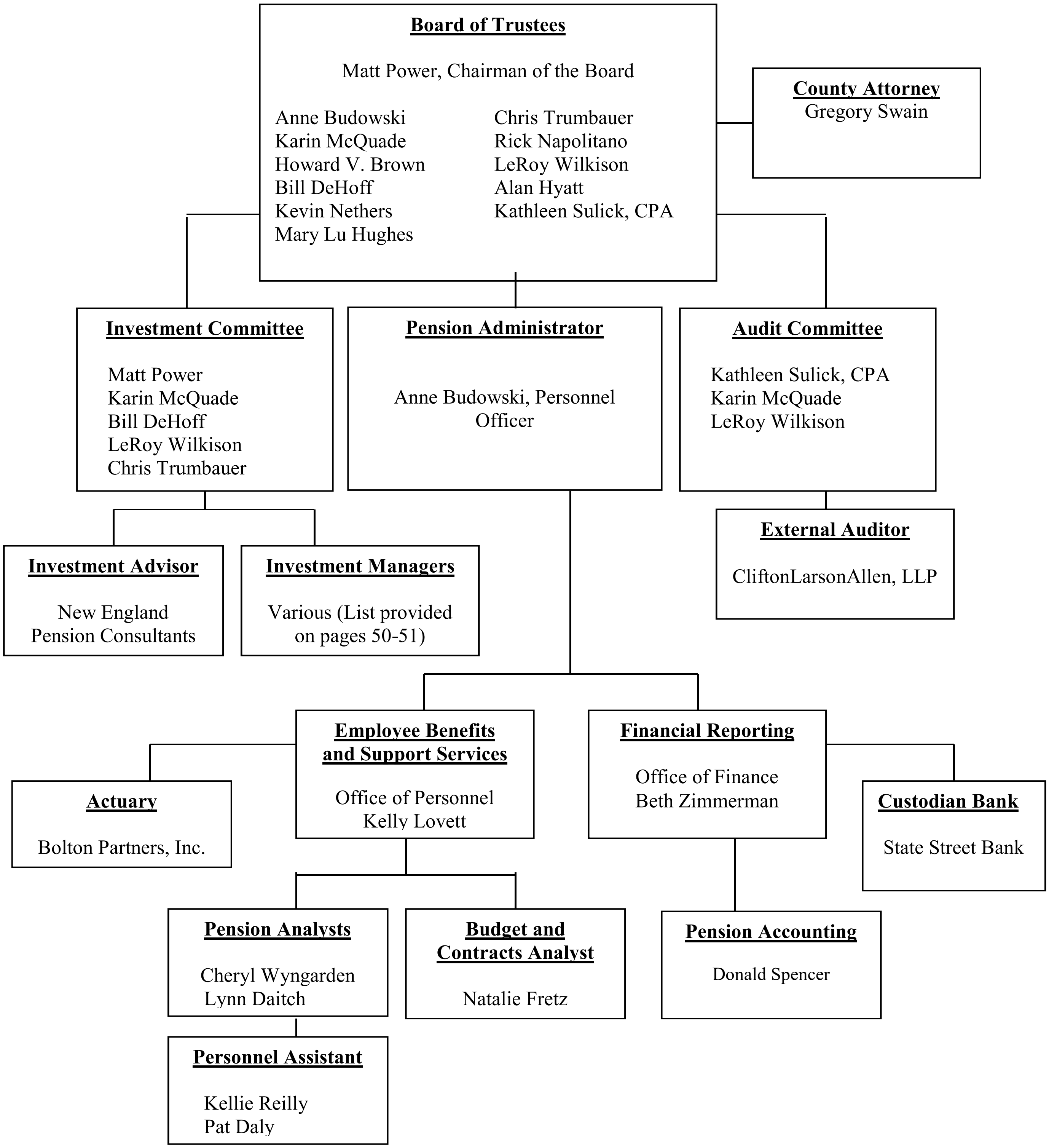
Anne Arundel County Retirement and Pension System

Organizational Chart 12/31/2021



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Financial Section

CliftonLarsonAllen LLP
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INDEPENDENT AUDITORS' REPORT

Board of Trustees
Anne Arundel County Retirement and Pension System
Annapolis, Maryland

Report on the Audit of the Financial Statements

Opinion

We have audited the accompanying financial statements of the Anne Arundel County Retirement and Pension System (the System), a pension trust fund of Anne Arundel County, Maryland, as of and for the year ended December 31, 2021, and the and the related notes to the financial statements, which collectively comprise the System's basic financial statements as listed in the table of contents.

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of the System as of December 31, 2021, and the respective changes in its fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS) and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Our responsibilities under those standards are further described in the Auditors' Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the System and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Anne Arundel County Retirement and Pension System's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

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Board of Trustees
Anne Arundel County Retirement and Pension System

Auditors' Responsibilities for the Audit of the Financial Statements
Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS and *Government Auditing Standards* will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Systems internal control. Accordingly, no such opinion is expressed.

- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.

- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the System's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control related matters that we identified during the audit.

Report on Summarized Comparative Information
We have previously audited the System's 2020 financial statements, and we expressed an unmodified audit opinion on those audited financial statements in our report dated July 15, 2021. In our opinion, the summarized comparative information presented herein as of and for the year ended December 31, 2020 is consistent, in all material respects, with the audited financial statements from which it has been derived.

Required Supplementary Information
Accounting principles generally accepted in the United States of America require that the management's discussion and analysis, the schedule of changes in net pension liability and related ratios by plan, investment returns, and employer's contributions by plan, and notes to required supplementary information, as listed in the table of contents, be presented to supplement the financial statements. Such information is the responsibility of management and, although not a part of the financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with GAAS,

Board of Trustees
Anne Arundel County Retirement and Pension System

which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the financial statements, and other knowledge we obtained during our audit of the financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the System's basic financial statements. The supplementary schedules, including the schedules of administrative expenses, investment expenses, and payments to consultants, as listed in the table of contents, are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with GAAS. In our opinion, the supplementary schedules, including the schedules of administrative expenses, investment expenses, and payments to consultants, as listed in the table of contents are fairly stated, in all material respects, in relation to the basic financial statements as a whole.

Other Information

Management is responsible for the other information included in the annual report. The other information comprises the introductory, investment, actuarial and statistical sections, as listed in the table of contents, but does not include the basic financial statements and our auditors' report thereon. Our opinions on the basic financial statements do not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated August 10, 2022, on our consideration of the System's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the System's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the System's internal control over financial reporting and compliance.

CliftonLarsonAllen LLP

CliftonLarsonAllen LLP

Baltimore, Maryland
August 10, 2022

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Introduction

To introduce readers of the financial report of the Anne Arundel County Retirement and Pension System (System), the Office of Finance is pleased to provide this discussion and analysis of financial activities for the year ended December 31, 2021. Please read it in conjunction with the rest of the report, which consists of the basic financial statements, including the notes thereto, required supplementary information (RSI), and supplementary schedules. Combined amounts from the year ended December 31, 2020 have been provided herein to enhance comparability.

The System has the fiduciary responsibility to administer four single-employer defined benefit pension plans for certain Anne Arundel County (County) employees: the Employees' Retirement Plan, the Police Service Retirement Plan, the Fire Service Retirement Plan and the Detention Officers' and Deputy Sheriffs' Retirement Plan (the "Plans").

Financial Highlights

The System's total fiduciary net position increased $266.3 million in calendar year 2021, bringing net position to $2.4 billion. Contributions increased 13.2% to $115.2 million versus $101.7 million in 2020. Of this total, employer contributions of $99.7 million were approximately 15.8% higher than as of 2020 at $86.1 million. Participant contributions remained the same at $15.5 million. The 2021 time weighted total rate of return of 14.5% compares to 7.5% for 2020.

The System paid $145.4 million in benefits in 2021, compared with $138.0 million paid in 2020, an increase of 5.4%. The 2021 Cost of Living Adjustment (COLA) for beneficiaries ranged from 2.5% for retirees since 1997 and 3.0% to 4.0% for substantially all retired prior to 1997. The number of benefit recipients increased to 3,932, a 2.8% increase over the prior year.

Employees' Retirement Plan – In 2021, net position increased $81.4 million or 11.3% to $803.1 million driven by investment gains of $101.0 million in 2021 and gains of $50.4 million in 2020. The plans contributions of $41.7 million were 68.7% of benefit payments of $60.7 million. Various administrative expenses were $571.0 thousand in 2021.

Police Service Retirement Plan – In 2021, net position increased $80.7 million or 13.1% to $696.8 million. Investment gains of $86.8 million in 2021 compared to gains of $43.7 million in 2020. The plan's contributions of $33.8 million were 85.6% of benefit payments of $39.5 million. Administrative expenses were $521.9 thousand in 2021.

Fire Service Retirement Plan – In 2021, net position increased by $81.0 million or 13.2% to $693.0 million. Investment gains in 2021 was $86.7 million compared to gains of $43.9 million in 2020. Contributions of $28.8 million were 84.7% of the benefit payments of $34.0 million. Various administrative expenses were $522.4 thousand in 2021.

Detention Officers' and Deputy Sheriffs' Retirement Plan – In 2021, net position increased by $23.1 million or 13.8% to $191.2 million. Contributions were $10.8 million or 97.1% of benefit payments of $11.1 million. Investment gains were $23.6 million in 2021 compared to gains of $12.1 million in 2020. Administrative expenses were $135.7 thousand in 2021.

Overview of the Basic Financial Statements

In this financial report, the basic financial statements consist of the Combining Statement of Fiduciary Net Position and the Combining Statement of Changes in Fiduciary Net Position with accompanying Notes. The financial statements present information in separate columns for each of the four single-employer defined benefit pension plans as of and for the year ended December 31, 2021 with combined comparative information as of and for the year ended December 31, 2020. The Combined Statement of Fiduciary Net Position presents the financial position of the Plans. The financial position is comprised of assets, which primarily consist of investments less liabilities, including accounts payable, investment commitments payable, and the obligation for collateral related to the securities lending program. The obligation from the securities lending program is offset by collateral held. The difference between assets and liabilities is net position, which represents the amount of resources available to pay future benefits to retirees and their beneficiaries.

Investments net of cash consist of domestic and foreign debt obligations, domestic and foreign equities, real estate, insurance company contracts, absolute return funds, and private markets. The System has a securities lending program to enhance its investment return. The assets and liabilities arising from the program are closely matched, netting to no additional material Plan liability. In accordance with generally accepted accounting principles, the liability for future benefit payments is not reported in these financial statements. Refer to Note 4 for the Schedule of Net Pension Liability of the System by Plan which presents an estimate of the liabilities.

The Combining Statement of Changes in Fiduciary Net Position presents the additions to and deductions from the four Plans' net positions during the year. Each Plan receives contributions from participants and the County, as well as income or losses from investments and related activity. The primary deductions are the payment of benefits, which are the Plans' primary objectives. Deductions also include refunds to members who leave the Plans as well as administrative expenses. Administrative expenses are allocated monthly to each Plan based on its relative percentage of the total investments.

Notes to the Basic Financial Statements

The Notes to the Basic Financial Statements are an integral part of the statements. These notes provide background and more detail about the information in the financial statements. Among other matters, the notes describe the System's purpose and its membership; the significant accounting policies used to prepare the basic financial statements; the nature of the four Plans, including the membership and benefit provisions and contribution requirements; the System's investment authority and policies; how investments and related documentation are safeguarded; and selected details about various investment activity and balances.

Required Supplementary Information (RSI)

The RSI section provides actuarially determined information about the Plans. The section displays changes for each Plan's Net Pension Liability (NPL) and related ratios, contributions related to payrolls by Plan, and money-weighted investment returns for the System.

Summary and Analysis of Financial Information

The following Condensed Statements of Fiduciary Net Position and Changes in Fiduciary Net Position present financial information, with dollar amounts in millions, for the System comparing 2021 and 2020.

Condensed Combining Statement of Fiduciary Net Position
As of December 31, 2021 and 2020

(in millions)						Change in	
Assets		**2021**		**2020**		**Dollars**	**Percentage**
Cash and short-term investments	$	60.0	$	90.6	$	-30.6	-33.8%
Securities lending collateral		66.3		60.8		5.5	9.0
Receivables		15.9		17.0		-1.1	-6.5
Investments at fair value and deposits		2,316.6		2,024.0		292.6	14.5
Total assets	$	2,458.8	$	2,192.4	$	266.4	12.2%
Liabilities							
Investment settlements and accounts payable		8.5		13.9		(5.4)	-38.8
Securities lending obligations		66.3		60.8		5.5	9.0
Total liabilities		74.8		74.7		0.1	0.1
Net position restricted for pension benefits	$	2,384.0	$	2,117.7	$	266.3	12.6%

Condensed Combining Statement of Changes in Fiduciary Net Position
As of December 31, 2021 and 2020

(in millions)						Change in	
Additions		**2021**		**2020**		**Dollars**	**Percentage**
Employer contributions	$	99.7	$	86.1	$	13.6	15.8%
Participant contributions		15.5		15.6		(0.1)	(0.6)
Investment income gains/ (losses)		298.2		150.1		148.1	98.7
Total additions		413.4		251.8		161.6	64.2
Deductions							
Benefit payments and refunds		145.4		138.0		7.4	5.4
Administrative expenses		1.7		1.6		0.1	6.2
Total deducitons		147.1		139.6		7.5	5.4
Net increase/ (decrease)		266.3		112.2		154.1	137.3
Net position restricted for pension benefits							
Beginning of year		2,117.7		2,005.5		112.2	5.6
End of year	$	2,384.0	$	2,117.7	$	266.3	12.6%

Comparative investment time weighted returns are displayed by investment type in the following table. The table also shows each category's relative percent of the System's investment portfolio.

Investment Type	**Percent of Investments**		**Annual Investment Return**	
	2021	**2020**	**2021**	**2020**
Cash and temporary investments	2.1%	3.1%	0.4%	0.7%
Domestic equity	31.8%	30.9%	21.7%	16.7%
International equity pools	22.8%	25.0%	2.3%	4.5%
Domestic and international fixed income	23.0%	25.9%	0.1%	5.9%
Opportunistic	0.2%	0.2%	6.5%	-11.0%
Private markets	13.9%	9.0%	37.2%	8.7%
Real estate investment pools	6.2%	5.9%	22.4%	1.4%
Total percent of investments	100.0%	100.0%		
Total annual performance			14.5%	7.5%

Note
There were no asset allocation changes during Fiscal Year 2021.
Source- NEPC

The System's funding objective is to meet long-term benefit obligations through contributions and investment income. The funding ratio, which is the actuarial value of assets divided by the actuarial accrued liability, is an estimate of how well the System is meeting that objective. A higher funded ratio indicates that the Plan is better funded. As of December 31, 2021 and 2020 the funded ratios for the System were 76.0% and 74.2%, respectively. Additionally, System fiduciary net position as a percentage of the total pension liability as of December 31, 2021 was 78.4%.

The System paid $145.4 million in retirement benefits and refunds to 3,932 participants and beneficiaries during 2021, compared to $137.9 million in 2020 to 3,824 participants and beneficiaries. This reflects an average of $37.0 thousand per person in 2021, compared to an average of $36.0 thousand in 2020.

The System received $15.5 million in contributions from 3,932 active participants during 2021. In 2020, $15.6 million was received from 4,007 active participants. The employer contributions were $99.7 million in 2021, compared to $86.1 million in 2020. Employer contributions for the calendar year are based on the appropriate June fiscal year's actuarial recommended contribution, which is divided by 12 and provided to the respective Plans on a monthly basis. The County contributed 100.0% of the 2020 Actuarially Determined Contribution (ADC) for all Plans and has contributed the ADC recommended by the actuary for the past 13 years, with true-up adjustments from 2010 to 2011 and 2014 to 2015. Administrative costs for 2021 were approximately $1.7 million for 8,391 participants or an average cost of $209 per person compared to $1.6 million for 2020 administrative costs for 8,316 participants at $196 per person.

Overall Analysis of Financial Position

The System changed its long-term investment return assumption of 7.00% in 2021, due to the uncertainty of the COVID-19 epidemic. The Board of Trustees believes the System is structured to support stable funding for the future along with uncertainty in asset growth.

Requests for information

The System's Annual Comprehensive Financial Report is available at Anne Arundel County's web page http://www.aacounty.org/boards-and-commissions/retirement-and-pension-system-board-of-trustees/pension-trust-fund-reports/. If you have questions concerning this report or need additional financial information, please contact the Office of Personnel, 2660 Riva Road, Annapolis, Maryland, 21401.

Anne Arundel County Retirement and Pension System
Combining Statement of Fiduciary Net Position
December 31, 2021 (with December 31, 2020 Combined Comparative Totals)

	Employees' Retirement Plan	Police Service Retirement Plan	Fire Service Retirement Plan	Detention Officers' and Deputy Sheriffs' Retirement Plan	2021 Combined Total	2020 Combined Total
ASSETS						
Investments:						
Cash and temporary investments	$ 20,208,345	$ 17,546,235	$ 17,471,035	$ 4,812,804	$ 60,038,419	$ 90,553,984
U. S. Government obligations	13,689,689	11,875,904	11,819,864	3,256,057	40,641,514	25,213,832
Bank Loans	2,701,914	2,343,930	2,332,869	642,643	8,021,356	7,702,291
Corporate obligations	60,213,487	52,235,637	51,989,147	14,321,623	178,759,894	189,785,752
Fixed income mutual funds	64,540,402	55,989,267	55,725,066	15,350,769	191,605,504	189,717,396
International fixed income mutual funds	35,468,344	30,769,046	30,623,853	8,436,054	105,297,297	110,985,951
Global asset pools	-	-	-	-	-	-
Domestic equity	249,974,733	216,854,894	215,831,601	59,455,847	742,117,075	629,213,181
International equity pools	181,493,129	157,446,607	156,703,649	43,167,674	538,811,059	523,373,197
Private markets	115,691,662	100,363,356	99,889,762	27,516,964	343,461,744	203,631,751
Real estate investment pools	49,656,375	43,077,265	42,873,993	11,810,641	147,418,274	123,787,996
Absolute return fixed income	-	-	-	-	-	-
Aetna insurance pooled fixed income	6,809,428	5,907,229	5,879,354	1,619,605	20,215,616	20,468,646
Total investments	800,447,508	694,409,370	691,140,193	190,390,681	2,376,387,752	2,114,433,977
Collateral from securities lending transactions	22,323,487	19,365,787	19,274,404	5,309,584	66,273,262	60,816,777
Receivables						
Employer contributions	3,211,401	2,755,918	2,261,895	833,961	9,063,175	7,552,803
Participant contributions	601,409	480,691	492,513	239,646	1,814,259	1,745,396
Accrued interest and dividends	867,216	752,353	748,806	206,279	2,574,654	2,460,524
Investment sales proceeds	815,707	707,632	704,293	194,014	2,421,646	5,218,457
Total receivables	5,495,733	4,696,594	4,207,507	1,473,900	15,873,734	16,977,180
Deposits on hand	16,942	169,829	75,237	-	262,008	265,329
Total assets	828,283,670	718,641,580	714,697,341	197,174,165	2,458,796,756	2,192,493,263
LIABILITIES						
Accounts payable	935,326	811,952	808,123	222,465	2,777,866	1,771,287
Investment commitments payable	1,948,872	1,690,660	1,682,683	463,534	5,785,749	12,171,393
Obligation for collaterial received under securities lending transactions	22,323,487	19,365,787	19,274,404	5,309,584	66,273,262	60,816,777
Total liabilities	25,207,685	21,868,399	21,765,210	5,995,583	74,836,877	74,759,457
Net position held in trust for pension benefits	**$ 803,075,985**	**$ 696,773,181**	**$ 692,932,131**	**$ 191,178,582**	**$ 2,383,959,879**	**$ 2,117,733,806**

Accompanying notes to the basic financial statements are an integral part of this statement.

Anne Arundel County Retirement and Pension System

Combining Statement of Changes in Fiduciary Net Position

For the Year Ended December 31, 2021 (with December 31, 2020 Combined Comparative Totals)

	Employees' Retirement Plan	***Police Service Retirement Plan***	***Fire Service Retirement Plan***	***Detention Officers' and Dep. Sheriffs' Retirement Plan***	***2021 Combined Total***	***2020 Combined Comparative Total***
ADDITIONS						
Contributions						
Employer	$ 36,178,170	$ 29,598,702	$ 24,642,756	$ 9,276,240	$ 99,695,868	$ 86,138,022
Participants	5,527,603	4,255,390	4,203,216	1,494,147	15,480,356	15,568,370
Total contributions	41,705,773	33,854,092	28,845,972	10,770,387	115,176,224	101,706,392
Investment income						
Net appreciation in market value of investments	81,113,677	69,794,348	69,376,174	18,980,573	239,264,772	117,575,382
Interest income	12,651,382	10,872,901	11,169,325	2,899,425	37,593,033	21,525,318
Dividend income	10,499,925	9,064,457	9,022,269	2,482,420	31,069,071	21,638,446
Income from investment activities	104,264,984	89,731,706	89,567,768	24,362,418	307,926,876	160,739,146
Less investment expense	3,314,116	2,915,051	2,899,451	775,921	9,904,539	10,714,912
Net income from investing activities	100,950,868	86,816,655	86,668,317	23,586,497	298,022,337	150,024,234
Securities lending activities						
Securities lending income	104,805	90,320	89,926	24,729	309,780	380,188
Securities lending expenses						
Borrower rebates	14,575	12,561	12,506	3,439	43,081	210,297
Management fees	36,092	31,104	30,968	8,516	106,680	67,957
Total securities lending expenses	50,667	43,665	43,474	11,955	149,761	278,254
Net income from securities lending	54,138	46,655	46,452	12,774	160,019	101,934
Total investment income	101,005,006	86,863,310	86,714,769	23,599,271	298,182,356	150,126,168
Total additions	142,710,779	120,717,402	115,560,741	34,369,658	413,358,580	251,832,560
DEDUCTIONS						
Benefit payments	60,687,800	39,547,361	34,048,772	11,097,546	145,381,479	137,942,712
Administrative expenses	570,998	521,901	522,403	135,726	1,751,028	1,626,896
Total deductions	61,258,798	40,069,262	34,571,175	11,233,272	147,132,507	139,569,608
Increase in fiduciary net position	81,451,981	80,648,140	80,989,566	23,136,386	266,226,073	112,262,952
Net position, January 1	721,624,004	616,125,041	611,942,565	168,042,196	2,117,733,806	2,005,470,854
Net position, December 31	**$ 803,075,985**	**$ 696,773,181**	**$ 692,932,131**	**$ 191,178,582**	**$ 2,383,959,879**	**$ 2,117,733,806**

Accompanying notes to the basic financial statements are an integral part of this statement.

1 Summary of Significant Accounting Policies

The Anne Arundel County Retirement and Pension System (System) administers four defined benefit pension plans – the Employees' Retirement Plan, the Police Service Retirement Plan, the Fire Service Retirement Plan, and the Detention Officers' and Deputy Sheriffs' Retirement Plan (Plans). Although the assets of the Plans are commingled for investment purposes, each Plan's assets may be used only for the payment of benefits to the members of that Plan, in accordance with its terms. The System was established as an Agency in the Executive branch of Anne Arundel County, Maryland (County) and has the powers and privileges of a corporation to the extent permitted by law. The System is reported as Pension Trust Funds in the County's Annual Comprehensive Financial Report (ACFR). The Board of Trustees is comprised of representatives from the Executive branch of the County, participating employee groups, and two representatives from outside County government.

A *Basis of Presentation* – The accounts of the System are organized on the basis of separate pension trust funds for each Plan, each of which is considered a separate accounting entity. The operations of each fund are accounted for with a separate set of self-balancing accounts that comprise its assets, liabilities, net position, additions, and deductions.

B *Basis of Accounting* – The basic financial statements were prepared using the accrual basis of accounting. Plan member contributions are recognized in the period in which the contributions are due. The County's contribution to each Plan is recognized when due and the County has made a formal commitment to provide the contribution. Benefits and refunds are recognized when due and payable in accordance with the terms of each Plan.

The accounting and reporting policies conform to accounting principles generally accepted in the United States of America as applicable to government organizations. The preparation of financial statements in conformity with these principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenue and expenses during the reporting period. Actual results could differ from those estimates.

C *Investments* – Investments are reported at fair value. Short-term investments are reported at cost, which approximates fair value. Securities traded on a national or international exchange are valued at the last reported sales price at current exchange rates. Mortgages are valued on the basis of future principal and interest payments, and are discounted at prevailing interest rates for similar instruments reflected at fair value. The fair value of real estate investments is based on periodic independent appraisals. Investments that do not have an established market, such as private markets, are reported at estimated fair values. The fair value of private markets are based on management's valuation of estimates and assumptions from information and representations provided by the respective general partners, in the absence of readily ascertainable market values. There are no investments with parties or in entities related to the County. Fixed income securities are valued based on yields currently available on comparable securities of issuers with similar credit ratings.

D *Administrative Expenses* – The administrative expenses of the System are charged to the respective Plans on the basis of its percentage ownership in the System's net position. Expenses are paid either by the County or from a separate cash account held by the custodian. Because of the commingled nature of funds, payments may be from either investment earnings or contributions. The total administrative expenses incurred during the year ended December 31, 2021 were $1,751,028 of which approximately $794,538 was initially paid through the County's Accounts Payable department and subsequently reimbursed to the County by the System. The System is administered by employees within the County's Office of Personnel and the Office of Finance. Some administrative costs are allocated to the Pension System and paid by the Custodian. Certain administrative costs are paid by the County's General Fund and reimbursed by the System to the County.

E *Income Taxes* – The System qualifies under Section 401(a) of the Internal Revenue Code (IRC) and is exempt from income taxation as allowed by Section 501(a) of the IRC.

F *Comparative Financial Information* – The financial statements include prior-year combined comparative information for the System, which is required by generally accepted accounting principles. This prior-year information is not presented at the individual Plan level. These financial statements should be read in conjunction with the System's audited financial report from 2020, from which the combined prior-year amounts were derived.

G New GASB Pronouncements – For the year ended December 31, 2021, there were no new GASB pronouncements to be implemented.

2 General Description of the System

A Covered Membership – Membership in each plan consisted of the following as of December 31, 2021, based on the January 1, 2022 actuarial valuation:

	Employees' Retirement Plan	Police Service Retirement Plan	Fire Service Retirement Plan	Detention Officers' and Deputy Sheriffs' Plan	Total
Retirees and beneficiaries receiving payments	2,150	791	661	330	3,932
Terminated Plan members entitled to but not yet receiving payments	304	-	-	4	308
Deferred Retirement Option (DROP)	-	89	87	43	219
Active Plan members	2,137	680	799	316	3,932
Total	4,591	1,560	1,547	693	8,391

B Plan Description, Contribution Information and Vesting – The following description of the System provides only general information. Participants should refer to the most recent Summary Plan Description booklets for a more complete description of the respective Plan's provisions.

Employees' Retirement Plan

Plan Description – The Employees' Retirement Plan is a single-employer defined benefit pension plan that covers all full-time general employees of the County who are not included in any other pension plan, as well as employees of Anne Arundel Economic Development Corporation. The Plan provides retirement, disability, and death benefits to Plan members and their beneficiaries pursuant to two separate benefit structures, Tier I and Tier II. Cost-of-living adjustments (COLAs) are also provided pursuant to County legislation.

Contributions – Contribution rates for participants are established through County legislation. Employees who elect to be in Tier I are required to contribute 4.0% of their annual covered salary. Tier II employees are not required nor permitted to make contributions. The County provided monthly contributions to the Plan based on the actuarially determined contribution for 2021 of $36,178,170, as determined by the Plan's consulting actuary.

Cliff Vesting – Participants hired on or before June 30, 2015 will be fully vested after their fifth year of service. Termination prior to the fifth year will result in the return of all employee contributions, if applicable, plus 4.25% interest per annum with no additional benefits available. Participants hired on or after July 1, 2015 will be fully vested after their tenth year of service. Termination prior to the tenth year will result in the return of all employee contributions, if applicable, plus 4.25% interest per annum with no additional benefits available.

Police Service Retirement Plan

Plan Description – The Police Service Retirement Plan is a single-employer defined benefit pension plan that covers the following classes of workers: Police Officer, Police Sergeant, Police Lieutenant, Police Captain, Police Major, Deputy Police Chief, and (by election) the Chief of Police. The Plan provides retirement, disability, and death benefits to Plan members and their beneficiaries. COLAs are also provided pursuant to County legislation.

Contributions – Contribution rates for participants are established through County legislation. Plan participants are required to contribute 7.25% of their annual covered salary. The County provided monthly contributions to the Plan based on the actuarially determined contribution for 2021 of $29,598,702, as determined by the Plan's consulting actuary.

Normal Retirement – Participants hired on or after February 25, 2002 will be fully vested on the earlier of their attainment of age 50 and completion of their fifth year of service, or their completion of 20 years of service. Participants hired before February 25, 2002 will be fully vested on the earlier of their attainment of age 50 or completion of 20 years of service. Termination prior to attainment of Normal Retirement will result in the return of all employee contributions, if applicable, plus 3.0% interest per annum with no additional benefits available.

Fire Service Retirement Plan

Plan Description – The Fire Service Retirement Plan is a single-employer defined benefit pension plan that covers the following classes of workers: Fire Fighter II, Fire Fighter III, Fire Fighter Cardiac Rescue Technician, Fire Fighter/Emergency Medical Technician-Paramedic, Fire Lieutenant, Fire Captain, Fire Battalion Chief, Fire Division Chief, Fire Deputy Chief, and (by election) the Fire Administrator. The Plan provides retirement, disability, and death benefits to plan members and their beneficiaries. COLAs are also provided pursuant to County legislation.

Contributions – Contribution rates for participants are established through County legislation. Plan participants are required to contribute 7.25% of their annual covered salary. The County provided monthly contributions to the Plan based on the actuarially determined contribution for 2021 of $24,642,756, as determined by the Plan's consulting actuary.

Normal Retirement – Participants who retire on or after July 1, 2002 will be fully vested on the earlier of their attainment of age 50 and completion of their fifth year of service, or their completion of 20 years of service. Participants who retired prior to July 1, 2002 will be fully vested on the earlier of their attainment of age 50 and completion of 5 years of service. Termination prior to attainment of Normal Retirement will result in the return of all employee contributions, if applicable, plus 3.0% interest per annum with no additional benefits available.

Detention Officers' and Deputy Sheriffs' Retirement Plan

Plan Description – The Detention Officers' and Deputy Sheriffs' Retirement Plan is a single-employer defined benefit pension plan that covers the following classes of workers: Detention Officer I, Detention Officer II, Detention Officer III, Correctional Program Specialist I, Correctional Program Specialist II, Criminal Justice Program Supervisor, Security Administrator, Correctional Facility Administrator, Assistant Correctional Facility Administrator, Deputy Sheriff I, Deputy Sheriff II, Deputy Sheriff III, Deputy Sheriff IV, and (by election) the Superintendent of Detention Facilities. The plan provides retirement, disability, and death benefits to Plan members and their beneficiaries. COLAs are also provided pursuant to County legislation.

Contributions – Contribution rates for participants are established through County legislation. Plan participants are required to contribute 6.75% of their annual covered salary. The County provided monthly contributions to the Plan based on the actuarially determined contribution for 2021 of $9,276,240, as determined by the Plan's consulting actuary.

Cliff Vesting – Participants will be fully vested on the attainment of age 50 and completion of their fifth year of service. Termination prior to attainment of Normal Retirement will result in the return of all employee contributions, if applicable, plus 4.25% interest per annum, with no additional benefits available.

C Legislative Changes for the Past Five Years

Bill No. 56-16 added interest in the 6th year of DROP for Police and DO/DS plans and added the exception to the benefit reduction for retired police officers who participated in the DROP program reemployed into a position in the Sheriff's or State's Attorney's Office requiring certification as a police officer.

Bill No. 86-16 modifies provisions of the County Code relating to the Employees' Retirement Plan ("the Plan") so that new employees will have the option to make an irrevocable election to participate in either Tier One or Tier Two of the Plan within the first 30 days of hire. The bill will eliminate current Code language allowing employees who elect Tier Two to transfer to Tier One within five years of hire.

Bill No. 78-17 eliminates the reduction in benefit for DROP retirees participating in the Police Service Retirement Plan and the Detention Officers' and Deputy Sheriffs' Retirement Plan, and DROP retirees from the Fire Service Plan who retired from non-represented positions, if they are reemployed in any capacity that meets the exceptions set forth in § 5-1-203(c)(1). The bill also adds an exception under § 5-1-203(c) for any retirees (including DROP participants) who are reemployed into a grant-funded contractual position under §802(a)(17) of the Charter.

There will be no reduction in retirement benefits for police officers, detention officers, deputy sheriffs, or fire deputy and division chiefs retiring in the DROP, so long as they retired as a classified employee and are reemployed in an exempt 1500-hour contractual position, a grant-funded contractual position, or in a position with the Sheriff or State's Attorney's offices that requires certification as a police officer. The bill also allows any retiree formerly employed in the classified service to work in a grant-funded contractual position without a reduction in benefits.

If the affected DROP retirees are reemployed in a position in the classified service, however, they will have a reduction in retirement benefits during the reemployment as required under § 5-1-203(b). This is the same for other County retirees who were previously employed in the classified service. DROP retirees in the Fire Service Retirement Plan who retire from a represented position will continue to have the retirement benefit reduction required by § 5-1-515 upon reemployment.

Bill No. 95-17 created the new 401(a) Employee Retirement Savings Plan. Effective July 1, 2018, any employee hired in any position eligible to participate in the Employees' Retirement System shall have the election to choose the Employee Retirement Savings Plan. Employee contribution for the Savings Plan is 4% and there is an 8% employer contribution. An employee vests in the new plan in 5 years.

Bill No. 66-18 modifies the interest earned on accounts for certain employees who participated in the Deferred Retirement Option Program (DROP). Participants of the Fire Service Retirement Plan, except for those in the classification of Battalion Chief, are eligible for interest in the 6th year of DROP after July 1, 2018. Participants in the DROP from the Police Service Retirement Plan and Detention Officers' and Deputy Sheriffs' Retirement Plan are already eligible for interest in the 6th year.

Bill No. 54-20 permits that employees in the classifications of Correctional Program Specialist and Criminal Justice Program Specialist as of the effective date of the legislation participate in the DROP program. All new employees hired as CPS or CJPS will be enrolled in the Employees' Retirement Plan.

Bill No. 55-20 requires Appointing Authority approval for year 6 of the DROP for Battalion Chiefs and permits Battalion Chiefs to earn interest in year 6 of the DROP. Police Sergeants and Police Lieutenants no longer require Appointing Authority approval to extend DROP participation for year 6.

Bill No. 70-20 states that each of the pension plans provide pension benefits for an employee who is or becomes totally and permanently disabled and meets certain criteria. To be eligible for a disability pension, the plan requires that the disability prevent the participant from performing the duties of the participant's regular duties. The purpose of the bill is to eliminate the participant's ability to perform any other assignment within their Department as a disqualifying factor for a service connected disability.

Bill No. 79-21 allows Battalion Chiefs to extend their DROP participation period to the sixth year without approval of the Fire Chief.

3 Deferred Retirement Option Program (DROP)

The Police Service, Fire Service and Detention Officers' and Deputy Sheriffs' Retirement Plans offer DROP plans. These programs permit a Plan member to be credited for benefit payments into an individual account within the Plan while continuing to provide services to the employer and to be paid a salary. All Plans allow accumulation of pension after 20 years of County service. DROP period must be between 3 and 5 years. Members may remain in DROP for a sixth year, but no interest shall be credited to the DROP account in the sixth year. The lump sum values held by the System pursuant to the DROP programs are $15,518,522 for the Police Service Plan, $15,358,162 for the Fire Service Plan and $4,678,548 for the Detention Officers' and Deputy Sheriffs' Retirement Plan.

4 Net Pension Liability of the System by Plan

The components of the net pension liability and assumptions for each Plan at December 31, 2021 based on the actuarial valuations are displayed below. The valuation date is the measurement date of December 31, 2021.

	Employees' Retirement Plan	Police Service Retirement Plan	Fire Service Retirement Plan	Detention Officers' and Deputy Sheriffs' Retirement Plan	Total
Total pension liability	$ 1,077,190,517	$ 898,694,627	$ 818,854,297	$ 247,529,692	$ 3,042,269,133
Plan fiduciary net position	(803,075,985)	(696,773,180)	(692,932,130)	(191,178,583)	(2,383,959,878)
Plan net pension liability	$ 274,114,532	$ 201,921,447	$ 125,922,167	$ 56,351,109	$ 658,309,255
Plan fiduciary net position as a percentage of the total pension liability	74.55%	77.53%	84.62%	77.23%	78.36%

Note to schedule	Source is actuarial data based on preliminary financials. The difference between this schedule and the final combining statement of changes in fiduciary net position on Page 14 are considered immaterial.				
Actuarial assumptions	The total pension liability was determined by an actuarial valuation as of December 31, 2021 using the following summarized actuarial assumptions, applied to all periods in the measurement. Full descriptions of the actuarial assumptions are available in the January 1, 2022 valuation reports. The most recent Experience and Assumption Study was conducted in 2018 for the period 2012 to 2016.				
Inflation	3.00%	3.00%	3.00%	3.00%	
Salary increases	Rates vary by participant age for each Plan.				
Investment rate of return	7.00%, net of pension plan investment expense, including inflation for each Plan.				
Mortality Scale	RP-2014 Blue Collar Mortality Table for males and females projected generationally using scale MP-2018.				
Set forward for post-disability mortality.	9 years	5 years	5 years	5 years	

The above is a summary of key actuarial assumptions. Full descriptions of the actuarial assumptions are available in the Actuarial Statement Section included in this Comprehensive Annual Financial Report.

Discount Rate – The discount rate used to measure the total pension liability was 7.00% as of December 31, 2021. The projection of cash flows used to determine the discount rate assumed plan contributions will be made in amounts consistent with statutory provisions and recognizing the System's current funding policy and cost-sharing mechanism between employers and members. For this purpose, all contributions that are intended to fund benefits for all plan members and their beneficiaries are included, except that projected contributions that are intended to fund the service costs for future plan members and their beneficiaries are not included.

Based on those assumptions, the System's fiduciary net position was projected to be available to make all projected future benefit payments for current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability as of December 31, 2021.

Sensitivity of the net pension liability to changes in the discount rate – The following schedule presents the net pension liability, calculated using the discount rate of 7.00%, as well as what the Plan's net pension liability would be if it were calculated using a discount rate that is 1.0 percentage point lower (6.00%) or 1.0 percentage point higher (8.00%) than the current rate.

	Employees' Retirement Plan	Police Service Retirement Plan	Fire Service Retirement Plan	Detention Officers' and Deputy Sheriffs' Retirement Plan
1% Decrease to 6.00%	$ 398,926,717	$ 325,179,553	$ 239,103,866	$ 86,557,993
Current Discount Rate 7.00%	$ 274,114,532	$ 201,921,447	$ 125,922,167	$ 56,351,109
1% Increase to 8.00%	$ 169,309,986	$ 102,372,585	$ 34,238,061	$ 31,410,707

Long Term Expected Returns – For investment purposes, the four Plans which comprise the System are managed on a commingled basis and the long-term expected rates of investment return are the same for each Plan. The long-term (30-year) expected rate of return on pension System 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 using an optimizer program that relies on the arithmetic return inputs, the standard deviation forecast (risk) for each asset class, and the correlations among them. The result is a 30-year nominal, geometric, net-of-fee return forecast for the pension assets. The 30-year real rate of return is calculated by netting the inflation assumption out of the nominal forecast. The nominal and real rates of return forecasts for each major asset class included in the pension System's target asset allocation of December 31, 2021 (see the discussion of the System's investment policy) are summarized in the following table:

30-Year Return Assumptions by Asset Class
As of December 31, 2021

	30-Year Geometric Forecast	
Asset Class	(Nominal Returns)	(Real Returns)
Cash	5.39%	0.07%
U.S. Treasuries	3.19%	0.51%
IG Corp Credit	4.99%	2.27%
Mortgage Backed Securities	3.50%	0.82%
Core Fixed Income	3.78%	1.10%
High-Yield Bonds	6.55%	3.79%
Emerging Market Debt (External)	6.44%	3.69%
Emerging Market Debt (Local Currency)	6.26%	3.50%
Large Cap Equity	7.72%	4.93%
Small/Mid Cap Equity	8.94%	6.12%
International Equities (Unhedged)	8.27%	5.46%
Emerging Int'l Equities	12.20%	9.30%
Private Equity	12.67%	9.75%
Private Debt	8.98%	6.16%
Real Estate	6.51%	3.75%

Note: NEPC's 30-year geometric CPI inflation assumption is 2.66%. NEPC's 10 year geometric CPI inflation assumption is 2.25%.

** Core Bonds assumption based on market weighted blend of components of Aggregate Index (Treasuries, IG Corp Credit, and MBS).*

5 Risks and Uncertainties

The System may invest in various types of investment securities. Investment securities are exposed to various risks, such as interest rate, market, and credit risk. Due to the level of risk associated with certain investment securities, it is possible that changes in the values of investment securities may occur in the near-term and that such changes could materially affect the amounts reported in the Statement of Fiduciary Net Position.

6 Investments

A *General Investment Policy* – The System operates under the "Prudent Person" rule used herein, meaning that in investing, the governing authorities of the systems, funds and plans, shall exercise the judgment and care under the circumstances then prevailing, that an institutional investor of ordinary prudence, discretion, and intelligence exercises in the management of investments entrusted to it, not in regard to speculation, but in regard to the permanent disposition of funds, considering probable safety of capital as well as probable income. Investments are made in full accordance with any and all applicable Maryland statutes, as well as any other applicable legislation or regulation, state, federal or otherwise. The roles and responsibilities of the Board of Trustees, the Investment Committee, the Investment Consultant, the Investment Managers and the Custodian are clearly defined. The Board has established a diversified portfolio to meet the System's return requirements. The table below summarizes the target asset allocation.

Asset Class	Market Target (%)	Minimum Exposure (%)	Maximum Exposure (%)
Domestic Equity	31	22	41
International Equity	17	7	27
Emerging Market Equity	7	0	12
Domestic Fixed Income	20	6	37
Emerging Market Debt	5	0	10
Private Markets	12	1	21
Real Estate	6	0	11
Cash	2	0	10

B *Investments Authorized* – The System is authorized to invest in U.S. Government securities, insurance company general accounts, commercial paper, money market mutual funds, corporate bonds, common and international stocks, limited partnerships, absolute return funds, private equity, mortgage participation notes and real estate. State statutes do not prohibit the System from participating in securities lending transactions. (See Note 7 to the basic financial statements for additional information concerning the System's security lending transactions.)

C *Custodial Credit Risk, Deposits* – Custodial credit risk for deposits is the risk that the System will not be able to recover its deposits, in the event of the failure of a depository financial institution or will not be able to recover collateral securities that are in the possession of an outside party. Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in the name of the System, and are held by either a counterparty or the counterparty's trust department or agent but not in the System's name. As of December 31, 2021, there were no investments that met this criteria.

D *Concentration Risk* – Concentration risk is the risk of loss to the System attributed to the magnitude of the System's investment in a single issuer. As of December 31, 2021, there was no exposure to a single issuer greater than 5.0% of the plan net position, excluding investment pools. The System's Investment Policy Statement sets maximum concentration limits by asset type and style.

E. *Rate of Return* – For the year ended December 31, 2021, the annual money-weighted rate of return on pension system investments, net of System expenses, was 14.5%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

F *Interest Rate Risk* – Interest rate risk is the risk that changes in interest rates will adversely affect the value of an investment. The fair value of fixed income (debt) securities is affected by increases and declines in interest rates. These investments may also have embedded call features allowing the issuer to redeem part or all of the issue prior to maturity at a pre-set price. In addition, debt issues may have interest rates that vary according to a pre-determined external index (Secured Overnight Financing Rate) or a pre-determined step-up in the interest rate at a pre-determined date(s). The Investment Policy Statement (IPS) sets limits on floating rates for mortgage backed securities and establishes limits on the average duration of some investment types.

The following table uses the *Segmented Time Distribution* method to display the System's debt holdings by maturity term and investment type. Some issues within the categories agencies/instrumentalities, corporate bonds, collateralized mortgage obligations, and other asset-backed securities have variable rate features. The total fair value of these securities was $9,141,388 as of December 31, 2021.

		Investment Maturities (in Years)			
Investment Type	Fair Value	**Less than 1 year**	**1 to 5**	**6 to 10**	**over 10**
Money market pools	$ 60,038,419	$ 60,038,419	$ -	$ -	$ -
Agency/Instrumentalities	19,585,415	-	3,748	667,772	18,913,895
Bank Loans	8,021,356	-	4,063,863	3,957,493	-
Bond Mutual Funds	296,902,802	296,902,802	-	-	-
Collateralized Mrtg Obligations	6,393,597	-	405,273	531,411	5,456,913
Corporate Bonds	126,432,858	1,423,135	33,954,570	71,365,874	19,689,279
Foreign and Yankee Bonds	23,600,233	1,504,111	9,177,050	7,407,718	5,511,354
Other Asset-Backed Securities	2,747,790	-	-	216,298	2,531,492
U.S. Government obligations	40,641,514	-	9,750,259	17,975,423	12,915,832
Totals	$ 584,363,984	$ 359,868,467	$ 57,354,763	$ 102,121,989	$ 65,018,765

The segmented time distribution table includes issues with call features and assumes that these issues will be held to maturity. The total fair market value of callable securities totals $123,347,125 with call dates ranging from January 27, 2021, for continuously callable issues, to August 5, 2069. The callable holdings include issues with floating interest rates which have a market value of $11,505,402.

G *Credit Risk* – Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations to the System. Debt securities are rated by Nationally Recognized Statistical Rating Organizations to provide purchasers with an opinion of the capability and willingness of a borrower to re-pay its debt. The following table displays the System's debt holdings and quality ratings from Standard & Poor's. The Investment Policy Statement provides guidelines to all fixed income managers related to allowable quality ratings.

		Standard & Poor's Credit Ratings			
	Total Fair Value	**AAA - A**	**BBB - B**	**CCC - C**	**NR**
Aetna insurance pool fixed income	$ 20,215,616	$ -	$ -	$ -	$ 20,215,616
Agency/instrumentalities	19,585,415	-	892,022	-	18,693,393
Bank loans	8,021,356	-	-	-	8,021,356
Collateralized mort. obligations	6,393,597	1,386,516	51,522	-	4,955,559
Corporate bonds	126,432,858	15,931,605	108,502,063	820,913	1,178,277
Mutual funds	296,902,802	-	-	-	296,902,802
Other asset-backed obligations	2,747,790	661,366	1,098,660	126,921	860,843
Money market pools	60,038,419	-	-	-	60,038,419
Yankee & foreign gov. issued	23,600,233	5,266,579	17,397,345	150,677	785,632
Total credit risk of debt securities	$ 563,938,086	$ 23,246,066	$ 127,941,612	$ 1,098,511	$ 411,651,897
U.S. Government obligations *	40,641,514				
Total debt securities	$ 604,579,600				

**U.S. government agency securities explicitly guaranteed by the U.S. government are categorized here.*

H *Foreign Currency Risk* – The investment policy recognizes the value of global diversification. A maximum of 66.0% in international/global exposure is allowed. The System retains six managers for global and international equity and fixed income exposure. These managers may also purchase or sell currency on a spot basis and may enter into forward exchange contracts on currency provided that the use of such contracts is designed to dampen portfolio volatility or to facilitate the settlement of securities transactions.

There is potential risk with exposure to foreign currency relating to potential unfavorable fluctuation of exchange rates compared with the U.S. Dollar. The System's direct exposure to foreign currency was zero as of December 31, 2021. The fair market value of international/global equities and fixed income assets that were managed in pooled funds totaled $644,108,357 as of December 31, 2021.

I *Fair Value Measurement* – The System categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset and give the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements). Level 1 inputs are quoted prices in active markets for identical assets, Level 2 inputs are significant other observable inputs, and Level 3 inputs are significant unobservable inputs. As of December 31, 2021 all short-term investments were in money market mutual funds which are not subject to the fair value measurement requirements.

Level 1	Unadjusted quoted prices in active markets for identical instruments.
Level 2	Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuation in which all significant inputs are observable.
Level 3	Valuations derived from valuation techniques in which significant inputs are unobservable.

Investments that are measured at fair value using the net asset value per share (or its equivalent) as a practical expedient are not classified in the fair value hierarchy.

The following table shows the fair value leveling of the System's investment portfolio at December 31, 2021.

Pension System Assets at Fair Value December 31, 2021

Assets at Fair Value December 31, 2021 Investment Type	Fair Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Fixed Income Investments				
U.S. Government obligations	$ 40,641,514	$ -	$ 40,641,514	$ -
Agency/Instrumentalities	19,585,415	-	19,585,415	-
Collateralized Mort. obligations	6,393,597	-	6,393,597	-
Other asset-backed obligations	2,747,790	-	2,747,790	-
Corporate bonds	126,432,858	-	126,432,858	-
Bank Loans	8,021,355	-	8,021,355	-
Yankee & Foreign Gov. Issued	23,600,233	-	23,600,233	-
Fixed income mutual funds	201,148,169	111,483,413	89,664,756	-
Total fixed income investments	428,570,931	111,483,413	317,087,518	-
Equity Investments				
Domestic equity	472,587,562	472,587,562	-	-
International equity pools	238,366,246	238,366,246	-	-
Total equity investments	710,953,808	710,953,808	-	-
Total investments by fair value level	$ 1,139,524,739	$ 822,437,221	$ 317,087,518	$ -

Pension System Net Asset Value Decmber 31, 2021

Investment Types at net asset value	Net Asset Value	Unfunded Commitments as of 12/31/21	Redemption Frequency (If Currently Eligible)	Redemption Notice Period
Commingled funds-debt	$ 95,754,632	$ -	Twice monthly	15 days
Commingled funds-equities	458,277,414	-	Daily, Monthly	Daily, 5 Business days
International equity pool	111,696,913	-	Daily	Daily
Real estate (REIT) fund	147,418,274	-	Quarterly	90 days
Opportunistic	2,309,978	2,414,753	Quarterly	95 days
Private markets buyouts	119,177,208	66,285,870	Not eligible	Not eligible
Private markets distressed	104,362,477	14,945,000	Not eligible	Not eligible
Private markets energy	15,150,778	7,494,335	Not eligible	Not eligible
Private markets fund of funds	3,483,716	1,718,570	Not eligible	Not eligible
Private markets growth equity	59,369,492	4,672,200	Not eligible	Not eligible
Private markets mezzanine	3,064,044	1,425,848	Not eligible	Not eligible
Private markets secondaries	36,544,052	16,868,673	Not eligible	Not eligible
Total at net asset value	1,156,608,978	$ 115,825,249		
Investments measured at amortized cost				
Money market pools	60,038,419			
Aetna insurance pooled fixed income	20,215,616			
Total Investments	$ 2,376,387,752			

Securities classified in Level 1 are valued using quoted prices in active markets for those securities. Securities classified in Level 2 and Level 3 are valued using methodologies such as various bid evaluations, market averages and other matrix pricing techniques as well as values derived from associated traded securities or last trade data. In instances where inputs used to measure fair value fall into different levels, the fair value is categorized based on the lowest level input that is significant to the valuation.

Investments valued at the net asset value per share (or its equivalent) have been classified separately in the table above and include investments considered to be Alternative Investments as defined by the American Institute of Certified Public Accountants. The definition includes investments for which a readily determinable fair value does not exist (that is, investments not listed on national exchanges or over-the-counter markets, or for which quoted market prices are not available from sources such as financial publications, the exchanges, or NASDAQ). These types of investments can be held within any of the asset classes used by the System based on underlying portfolio holdings and analysis of risk and return relations. These investments can be structured in different ways, including limited partnerships, limited liability companies, common trusts, and mutual funds. Some are closed-ended with a specific life and capital commitments while others are open-ended with opportunity for ad hoc contributions or withdrawals and termination with proper notice.

Commingled/Mutual Funds: These types of funds are open-ended funds and may be utilized for a variety of asset classes, including equity, fixed income, and Real Estate Investment Trusts (REITS). They are funds made up of underlying securities that have readily available fair values (publicly traded stocks or bonds). The System owns units of these funds rather than the individual securities. Contributions or withdrawals from the funds can be made as needed, generally with daily or monthly liquidity, with a notice period of one to thirty days. Because they are liquid funds, there are no unfunded commitments for these types of investments.

Private Markets: Private Market investments are typically private interests in corporations across different areas of the capital structure and in different stages of the corporations' development via limited partnership vehicles. Private Market investments are illiquid and long term in nature (10-12 years), typically held until maturity. These portfolios generally have a "J-Curve Effect" whereby there are low to negative returns in the initial years due to the payment of investment management fees and initial funding of investments made by the General Partner during a period when investments are typically carried at cost and returns have not been realized. To diversify the program, investments are made across business cycles, vintage years, and different strategies. The Systems' Investment Policy Statement has a dedicated asset class for Private Markets. There is no option to request redemptions from the Private Market funds.

7 Securities Lending

The Board of Trustees authorizes the System to lend securities held by the custodian, State Street Bank and Trust Company, to broker-dealers and other entities with a simultaneous agreement to return the collateral for the same securities in the future. The System's Lending Agent is Deutsche Bank AG (DB). Deutsche Bank AG lends securities for collateral in the form of cash or other securities of 102 percent for domestic securities and 105 percent for international. Cash collateral received by the System with respect to these transactions is invested in a separate, un-pooled account basis at the direction of the Board of Trustees in fully collateralized Repurchase Agreements.

At year end, the System had no credit risk exposure to borrowers because the amount of collateral held by the System was greater than the value of securities on loan. The market value of collateral held as of December 31, 2021 was $69,131,061, of which $66,273,262 was cash and $2,857,798 were U.S. Treasury securities. The market value of securities on loan for the System as of December 31, 2021 was $67,593,597.

The System did not impose any restrictions during the year on the amount of the loans that the agent made on its behalf. Moreover, there were no losses during the year resulting from a default of the borrowers or custodian.

All security loans can be terminated on demand by either the System or the borrower. Cash collateral received was invested in Repurchase Agreements, which as of December 31, 2021 had a weighted average final maturity of 1.0 day. The interest rate risk is zero days as assets and liabilities can be rate changed on a daily basis.

8 Financial Instruments With Off-Balance Sheet Risk

Mortgage-Backed Securities – A mortgage-backed security depends on the underlying pool of mortgage loans to provide the cash flow to make principal and interest payments on the security. A decline in interest rates can result in prepayments, which reduce the fair value of the security. If homeowners pay on mortgages longer than anticipated, the cash flows are greater and the return on investment would be higher than anticipated. A collateralized mortgage obligation (CMO) is a mortgage-backed security that is comprised of classes or tranches of bonds. Each class is structured to achieve a specific level of cash flow based on the prepayment assumptions assigned to the underlying mortgage pool.

The System invests in mortgage-backed securities to enhance fixed income returns. Mortgage-backed securities are subject to credit risk, the risk that the borrowers will be unable to meet their obligations. These securities are also subject to prepayment risk, which is the risk that a payment will be made in excess of the regularly scheduled principal payment. Prepayment risk is comprised of two risks: call risk, (the risk that prepayments will occur when interest rates have declined), and extension risk, (the risk that prepayments will not be made when interest rates have increased.) As of December 31, 2021, the fair value of government mortgage-backed securities was $40,641,514, asset-backed securities was $2,741,791, and CMO's was $6,393,597. These are included in the corporate obligations total on the Statement of Fiduciary Net Position.

9 Exposure to Derivatives

Derivative instruments are securities that derive value from another asset and are in the form of a contract between two or more parties. Common derivatives are futures contracts, forwards contracts, options, and swaps. The System has no direct exposure to derivative securities. There are, however, mutual funds, commingled funds, and other investment vehicles in which the System has a percentage ownership that have exposure to futures, currency forward contracts, commodity forward contracts, and total return swap contracts. These funds enter into derivative contracts as part of their investment strategies to mitigate risk and volatility.

A derivative policy statement is included in the Investment Policy Statement (IPS). Prohibited instruments include options, commodities, uncovered options or futures, uncovered short positions, short selling, and use of financial leverage. The derivative exposure as of December 31, 2021 within the mutual funds, commingled funds, and other investment vehicles is comprised of allowable instruments based on the IPS.

10 Contingencies

Certain legal proceedings are pending against the System arising from its normal activities that, based on the facts presently available and the advice of legal counsel, management believes will not have a material adverse effect on the System's financial condition upon settlement.

11 Commitments

The System has committed to fund various private market investments totaling $416.0 million at December 31, 2021, of which approximately $115.8 million remains unfunded. Additional details regarding the unfunded balances are in Note 6. The expected funding dates for these commitments extend through 2027.

12 Subsequent Events

The system evaluated subsequent events through July 19, 2022, the date the financial statements were available to be issued. Events or transactions occurring after December 31, 2021, but prior to July 19, 2022 that provided additional evidence about conditions that existed at December 31, 2021, have been recognized in the financial statements for the year ended December 31, 2021. Events or transactions that provided evidence about conditions that did not exist at December 31, 2021, but arose before the financial statements were available to be issued have not been recognized in the financial statements for the year ended December 31, 2021.

Anne Arundel County Retirement and Pension System
Required Supplementary Information
Schedule of Changes in the Net Pension Liability and Related Ratios – Employees' Retirement Plan
For Years ended December 31

	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability (Dollar amounts in thousands)								
Service cost	$ 18,886	$ 16,774	$ 16,344	$ 16,687	$ 15,497	$ 15,144	$ 15,115	$ 14,159
Interest	67,772	70,362	65,128	63,246	60,502	59,292	58,329	53,353
Changes of benefit terms	-	-	-	-	-	-	-	-
Differences between expected and actual experience	1,093	(4,189)	12,546	3,826	9,562	(12,599)	(17,971)	16,408
Changes of assumptions	51,630	-	32,671	-	-	-	-	22,567
Benefit payments, including refunds of member contributions	(60,714)	(57,779)	(55,081)	(50,575)	(47,380)	(44,024)	(41,253)	(39,012)
Net change in total pension liability	78,666	25,168	71,608	33,184	38,181	17,813	14,221	67,475
Total pension liability - beginning	998,524	973,356	901,748	868,564	830,383	812,570	798,349	730,874
Total pension liability - ending (a)	$ 1,077,191	$ 998,524	$ 973,356	$ 901,748	$ 868,564	$ 830,383	$ 812,570	$ 798,349
Plan fiduciary net position								
Contributions - employer	36,178	32,567	29,637	27,033	25,654	25,810	25,630	24,451
Contributions - member	5,528	5,764	5,512	5,612	5,472	5,182	4,847	4,662
Net investment income	103,656	48,589	90,338	(31,166)	94,908	41,345	(8,374)	28,451
Benefit payments, including refunds of member contributions	(60,714)	(57,779)	(55,081)	(50,575)	(47,380)	(44,024)	(41,253)	(39,012)
Administrative expense	(561)	(535)	(609)	(543)	(526)	(497)	(504)	(519)
Net change in plan fiduciary net position	84,086	28,606	69,797	(49,640)	78,127	27,816	(19,654)	18,034
Plan fiduciary net position - beginning	718,990	690,383	620,587	670,226	592,099	564,283	583,936	565,902
Plan fiduciary net position - ending (b)	$ 803,076	$ 718,990	$ 690,383	$ 620,587	$ 670,226	$ 592,099	$ 564,283	$ 583,936
County's net pension liability - ending (a)-(b)	$ 274,115	$ 279,535	$ 282,973	$ 281,161	$ 198,337	$ 238,284	$ 248,287	$ 214,413
Plan fiduciary net position as a percentage of the total pension liability	74.6%	72.0%	70.9%	68.8%	77.2%	71.3%	69.4%	73.1%
Covered payroll	$ 142,222	$ 139,975	$ 138,428	$ 134,892	$ 138,239	$ 130,313	$ 127,827	$ 127,091
County's net pension liability as a percentage of covered payroll	192.7%	199.7%	204.4%	208.4%	143.5%	182.9%	194.2%	168.7%
Expected average remaining service years of all participants	5	5	5	5	5	5	5	5

Notes to Schedule:

1 Source is actuarial data based on preliminary financials. The differences between this schedule and the final combining statement of changes in fiduciary net position on page 14 are considered immaterial.

2 This schedule is presented to illustrate the requirement to show information for 10 years. However, until 10-year trend is compiled, pension plans should present for those years for which data is available.

3 There are no benefit changes reflected in the current schedule.

4 For 2021, the discount rate / investment rate of return was lowered from 7.45% to 7.00%.

5 Full descriptions of the actuarial assumptions are available in the January 1, 2021 actuarial valuation report.

Anne Arundel County Retirement and Pension System
Required Supplementary Information
Schedule of Changes in the Net Pension Liability and Related Ratios-Police Retirement Plan
For Years Ended December 31

	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability (Dollar amounts in thousands)								
Service cost	$ 17,596	$ 14,504	$ 13,064	$ 12,826	$ 12,689	$ 12,057	$ 12,258	$ 10,951
Interest	55,381	55,148	52,474	50,963	48,563	47,032	45,473	41,480
Changes of benefit terms	-	-	-	-	-	-	-	-
Differences between expected and actual experience	5,789	20,346	(2,017)	(2,591)	6,202	(4,527)	(4,693)	12,801
Changes of assumptions	48,555	-	10,096	-	-	-	-	18,331
Benefit payments, including refunds of member contributions	(39,555)	(38,637)	(36,791)	(35,938)	(34,950)	(33,357)	(31,134)	(29,507)
Net change in total pension liability	87,765	51,361	36,826	25,261	32,504	21,205	21,903	54,055
Total pension liability - beginning	810,929	759,569	722,742	697,482	664,978	643,773	621,870	567,815
Total pension liability - ending (a)	$ 898,695	$ 810,929	$ 759,569	$ 722,742	$ 697,482	$ 664,978	$ 643,773	$ 621,870
Plan fiduciary net position								
Contributions - employer	29,599	24,900	23,094	21,934	20,931	20,411	19,560	18,870
Contributions - member	4,255	4,181	3,669	3,372	3,250	3,158	3,104	2,950
Net investment income	89,125	42,157	75,786	(25,860)	78,155	33,500	(7,869)	21,813
Benefit payments, including refunds of member contributions	(39,555)	(38,637)	(36,791)	(35,938)	(34,950)	(33,357)	(31,134)	(29,507)
Administrative expense	(509)	(476)	(530)	(464)	(445)	(417)	(423)	(418)
Net change in plan fiduciary net position	82,914	32,125	65,228	(36,956)	66,941	23,295	(16,762)	13,707
Plan fiduciary net position - beginning	613,859	581,734	516,505	553,461	486,520	463,225	479,988	466,281
Plan fiduciary net position - ending (b)	$ 696,773	$ 613,859	$ 581,734	$ 516,505	$ 553,461	$ 486,520	$ 463,225	$ 479,988
County's net pension liability - ending (a)-(b)	$ 201,921	$ 197,071	$ 177,835	$ 206,237	$ 144,020	$ 178,458	$ 180,547	$ 141,882
Plan fiduciary net position as a percentage of the total pension liability	77.5%	75.7%	76.6%	71.5%	79.4%	73.2%	72.0%	77.2%
Covered payroll	$ 57,129	$ 58,777	$ 53,035	$ 48,322	$ 45,989	$ 44,894	$ 43,879	$ 42,960
County's net pension liability as a percentage of covered payroll	353.4%	335.3%	335.3%	426.8%	313.2%	397.5%	411.5%	330.3%
Expected average remaining service years of all participants	4	4	4	4	4	4	4	4

Notes to Schedule:

1 Source is actuarial data based on preliminary financials. The differences between this schedule and the final combining statement of changes in fiduciary net position on page 14 are considered immaterial.

2 This schedule is presented to illustrate the requirement to show information for 10 years. However, until 10-year trend is compiled, pension plans should present information for those years for which data is available.

3 There are no benefit changes reflected in the current schedule.

4 For 2021, the discount rate / investment rate of return was lowered from 7.45% to 7.00%.

5 Full descriptions of the actuarial assumptions are available in the January 1, 2021 actuarial valuation report.

6 Covered payroll does not include pay for members in DROP.

Anne Arundel County Retirement and Pension System
Required Supplementary Information
Schedule of Changes in the Net Pension Liability and Related Ratios-Fire Retirement Plan
For Years Ended December 31

	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability (Dollar amounts in thousands)								
Service cost	$ 17,012	$ 14,146	$ 12,612	$ 11,785	$ 11,556	$ 11,102	$ 10,339	$ 9,184
Interest	49,832	50,304	47,454	45,537	43,670	42,294	41,924	38,949
Changes of benefit terms	-	-	-	-	-	-	-	-
Differences between expected and actual experience	14,680	(913)	(573)	3,521	2,210	(1,552)	(14,630)	3,679
Changes of assumptions	42,475	6,468	10,153	-	-	-	-	18,028
Benefit payments, including refunds of member contributions	(34,049)	(32,663)	(30,098)	(31,973)	(33,129)	(33,868)	(31,520)	(28,823)
Net change in total pension liability	89,950	37,342	39,548	28,869	24,309	17,976	6,112	41,016
Total pension liability - beginning	728,904	691,562	652,014	623,144	598,836	580,860	574,748	533,731
Total pension liability - ending (a)	$ 818,854	$ 728,904	$ 691,562	$ 652,014	$ 623,144	$ 598,836	$ 580,860	$ 574,748
Plan fiduciary net position								
Contributions - employer	24,643	20,506	17,637	15,704	14,664	14,591	15,122	15,899
Contributions - member	4,203	4,093	3,652	3,524	3,441	3,257	3,050	2,778
Net investment income	88,952	42,359	75,388	(25,208)	77,992	33,899	(7,744)	22,688
Benefit payments, including refunds of member contributions	(34,049)	(32,663)	(30,098)	(31,973)	(33,129)	(33,868)	(31,520)	(28,823)
Administrative expense	(513)	(486)	(522)	(430)	(448)	(428)	(436)	(423)
Net change in plan fiduciary net position	83,236	33,809	66,058	(38,382)	62,520	17,451	(21,528)	12,119
Plan fiduciary net position - beginning	609,696	575,887	509,828	548,211	485,690	468,239	489,767	477,648
Plan fiduciary net position - ending (b)	$ 692,932	$ 609,696	$ 575,887	$ 509,828	$ 548,211	$ 485,690	$ 468,239	$ 489,767
County's net pension liability - ending (a)-(b)	$ 125,922	$ 119,208	$ 115,675	$ 142,185	$ 74,933	$ 113,146	$ 112,621	$ 84,981
Plan fiduciary net position as a percentage of the total pension liability	84.6%	83.6%	83.3%	78.2%	88.0%	81.1%	80.6%	85.2%
Covered payroll	$ 58,237	$ 55,428	$ 51,011	$ 48,728	$ 46,954	$ 46,228	$ 43,838	$ 40,476
County's net pension liability as a percentage of covered payroll	216.2%	215.1%	226.8%	291.8%	159.6%	244.8%	256.9%	210.0%
Expected average remaining service years of all participants	5	5	6	6	6	6	5	5

Notes to Schedule:

1 Source is actuarial data based on preliminary financials. The differences between this schedule and the final combining statement of changes in fiduciary net position on page 14 are considered immaterial.

2 This schedule is presented to illustrate the requirement to show information for 10 years. However, until 10-year trend is compiled, pension plans should present information for those years for which data is available.

3 There are no benefit changes reflected in the current schedule.

4 For FY 2020, the salary scale and retirement rates were updated to reflect the new County pay scale. For 2021, the discount rate / investment rate of return was lowered from 7.45% to 7.00%

5 Full descriptions of the actuarial assumptions are available in the January 1, 2021 actuarial valuation report.

6 Covered Payroll does not include pay for members in DROP.

Anne Arundel County Retirement and Pension System
Required Supplementary Information
Schedule of Changes in the Net Pension Liability and Related Ratios-Detention Officers' and Deputy Sheriffs' Retirement Plan
For Years Ended December 31

	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability (Dollar amounts in thousands)								
Service cost	$ 4,982	$ 4,704	$ 4,147	$ 4,533	$ 4,658	$ 4,461	$ 4,634	$ 4,602
Interest	15,283	15,556	14,632	13,836	12,912	12,281	11,401	10,301
Changes of benefit terms	-	-	-	-	-	-	4,635	-
Differences between expected and actual experience	2,520	(750)	1,010	1,938	2,244	(1,678)	(2,558)	2,322
Changes of assumptions	11,961	-	1,348	-	-	-	-	3,494
Benefit payments, including refunds of member contributions	(11,098)	(8,863)	(8,610)	(8,162)	(6,821)	(6,485)	(6,279)	(5,819)
Net change in total pension liability	23,649	10,647	12,528	12,145	12,993	8,579	11,833	14,900
Total pension liability - beginning	223,881	213,234	200,706	188,562	175,569	166,990	155,156	140,256
Total pension liability - ending (a)	$ 247,530	$ 223,881	$ 213,234	$ 200,706	$ 188,562	$ 175,569	$ 166,990	$ 155,156
Plan fiduciary net position								
Contributions - employer	9,276	8,165	7,600	7,282	7,000	6,689	6,371	6,111
Contributions - member	1,494	1,530	1,402	1,352	1,354	1,316	1,317	1,298
Net investment income	24,208	11,639	19,918	(6,825)	19,607	8,159	(1,919)	4,944
Benefit payments, including refunds of member contributions	(11,098)	(8,863)	(8,610)	(8,162)	(6,821)	(6,485)	(6,279)	(5,819)
Administrative expense	(133)	(123)	(135)	(108)	(109)	(100)	(98)	(96)
Net change in plan fiduciary net position	23,748	12,348	20,174	(6,461)	21,030	9,579	(608)	6,438
Plan fiduciary net position - beginning	167,431	155,083	134,908	141,369	120,339	110,760	111,368	104,930
Plan fiduciary net position - ending (b)	$ 191,179	$ 167,431	$ 155,083	$ 134,908	$ 141,369	$ 120,339	$ 110,760	$ 111,368
County's net pension liability - ending (a)-(b)	$ 56,351	$ 56,450	$ 58,151	$ 65,798	$ 47,193	$ 55,230	$ 56,230	$ 43,788
Plan fiduciary net position as a percentage of the total pension liability	77.2%	74.8%	72.7%	67.2%	75.0%	68.5%	66.3%	71.8%
Covered payroll	$ 20,422	$ 21,401	$ 22,057	$ 19,573	$ 19,790	$ 19,801	$ 19,386	$ 19,776
County's net pension liability as a percentage of covered payroll	275.9%	263.8%	263.6%	336.2%	238.5%	278.9%	290.1%	221.4%
Expected average remaining service years of all participants	3	3	3	3	3	3	4	4

Notes to Schedule:

1 Source is actuarial data based on preliminary financials. The differences between this schedule and the final combining statement of changes in fiduciary net positio on page 14 are considered immaterial.

2 This schedule is presented to illustrate the requirement to show information for 10 years. However, until 10-year trend is compiled, pension plans should present for those years for which data is available.

3 There are no benefit changes reflected in the schedule for the current year.

4 For 2021, the discount rate / investment rate of return was lowered from 7.45% to 7.00%.

5 Full descriptions of the actuarial assumptions are available in the January 1, 2021 actuarial valuation report.

6 Covered Payroll does not include pay for members in DROP.

Schedule of Investment Returns

Annual Money-weighted Rate of Return

Year Ended	Net of Investment Expenses
2014	4.5%
2015	-1.8%
2016	6.2%
2017	15.7%
2018	-4.9%
2019	14.5%
2020	7.1%
2021	14.5%

Anne Arundel County Retirement and Pension System

Required Supplementary Information

Schedule of Employer's Contributions - Employees' Retirement Plan

For the Last Ten Years Ended December 31

(Dollars in thousands)

	2021	*2020*	*2019*	*2018*	*2017*	*2016*	*2015*	*2014*	*2013*	*2012*
Actuarially determined contribution	$ 36,178	$ 32,567	$ 29,637	$ 27,033	$ 25,654	$ 25,810	$ 25,655	$ 24,426	$ 22,362	$ 19,824
Contributions in relation to the actuarially determined contribution	36,178	32,567	29,637	27,033	25,654	25,810	25,630	24,451	22,362	19,824
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -	$ -	$ 25	$ (25)	$ -	$ -
Covered payroll	$ 142,222	$139,975	$138,428	$134,892	$138,239	$130,313	$127,827	$127,091	$115,809	$116,025
Contributions as a percentage of covered payroll	25.44%	23.27%	21.41%	20.04%	18.56%	19.81%	20.05%	19.24%	19.31%	17.09%

Notes to Schedule

Valuation Date: Actuarially determined contribution amounts are calculated as of each January 1 for the upcoming County fiscal year beginning July 1. Actuarial valuations are performed every year.

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Projected Unit Credit
Amortization method	Level percentage of payroll, closed, increasing 3.0% per year.
Remaining amortization period	Periods range from 13 to 22 years. Starting with new bases in 2018, assumption changes and gains and losses are amortized over 20 years and Plan changes are amortized over the average future service of the active population at the time of the change.
Asset valuation method	5-year smoothed market.
Inflation	3.00%
Salary increases	Rates vary by participant age.
Investment rate of return	7.00% Net of pension plan investment expense, including inflation.
Retirement age	Rates vary by participant age and service.
Mortality	RP-2014 Blue Collar Mortality Table for males and females projected generationally using scale MP-2018. A nine-year set forward is used for post-disability mortality.

Anne Arundel County Retirement and Pension System

Required Supplementary Information

Schedule of Employer's Contributions - Police Service Retirement Plan

For the Last Ten Years Ended December 31

(Dollars in thousands)

	2021	*2020*	*2019*	*2018*	*2017*	*2016*	*2015*	*2014*	*2013*	*2012*
Actuarially determined contribution	$ 29,599	$ 24,901	$ 23,094	$ 21,934	$ 20,931	$ 20,411	$ 19,560	$ 18,870	$ 17,746	$ 15,530
Contributions in relation to the actuarially determined contribution	29,599	24,901	23,094	21,934	20,931	20,411	19,560	18,870	17,746	15,530
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Covered payroll (Excluding members in DROP.)	$ 57,129	$ 58,777	$ 53,035	$ 48,322	$ 45,989	$ 44,894	$ 43,879	$ 42,960	$ 41,714	$ 40,522
Contributions as a percentage of covered payroll	51.81%	42.36%	43.54%	45.39%	45.51%	45.46%	44.58%	43.92%	42.54%	38.32%

Notes to Schedule

Valuation Date: Actuarially determined contribution amounts are calculated as of each January 1 for the upcoming County fiscal year beginning July 1. Actuarial valuations are performed every year.

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Projected Unit Credit
Amortization method	Level percentage of payroll, closed, increasing 3.0% per year.
Remaining amortization period	Periods range from 13 to 22 years. Starting with new bases in 2018, assumption changes and gains and losses are amortized over 20 years and Plan changes are amortized over the average future service of the active population at the time of the change.
Asset valuation method	5-year smoothed market.
Inflation	3.00%
Salary increases	Rates vary by participant age.
Investment rate of return	7.00% Net of pension plan investment expense, including inflation.
Retirement age	Rates vary by participant age and service.
Mortality	RP-2014 Blue Collar Mortality Table for males and females projected generationally using scale MP-2018. A five-year set forward is used for post-disability mortality.

Anne Arundel County Retirement and Pension System

Required Supplementary Information

Schedule of Employer's Contributions - Fire Service Retirement Plan

For the Last Ten Years Ended December 31

(Dollars in thousands)

	2021	*2020*	*2019*	*2018*	*2017*	*2016*	*2015*	*2014*	*2013*	*2012*
Actuarially determined contribution	$ 24,643	$ 20,506	$ 17,637	$ 15,704	$ 14,664	$ 14,591	$ 15,122	$ 15,899	$ 16,152	$ 15,238
Contributions in relation to the actuarially determined contribution	24,643	20,506	17,637	15,704	14,664	14,591	15,122	15,899	16,152	15,238
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Covered payroll (Excluding members in DROP.)	$ 58,237	$ 55,428	$ 51,011	$ 48,728	$ 46,954	$ 46,228	$ 43,838	$ 40,476	$ 44,951	$ 43,362
Contributions as a percentage of covered payroll	42.31%	36.99%	34.57%	32.23%	31.23%	31.56%	34.50%	39.28%	35.93%	35.14%

Notes to Schedule

Valuation Date: Actuarially determined contribution amounts are calculated as of each January 1 for the upcoming County fiscal year beginning July 1. Actuarial valuations are performed every year.

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Projected Unit Credit.
Amortization method	Level percentage of payroll, closed, increasing 3.0% per year.
Remaining amortization period	Periods range from 13 to 22 years. Starting with new bases in 2014, assumption changes and gains and losses are amortized over 20 years and Plan changes are amortized over the average future service of the active population at the time of the change.
Asset valuation method	5-year smoothed market.
Inflation	3.00%
Salary increases	Rates vary by participant age and service.
Investment rate of return	7.00% Net of pension plan investment expense, including inflation.
Retirement age	Rates vary by participant age and service.
Mortality	RP-2014 Blue Collar Mortality Table for males and females projected generationally using scale MP-2018. A five-year set forward is used for post-disability mortality.

Anne Arundel County Retirement and Pension System

Required Supplementary Information

Schedule of Employer's Contributions - Detention Officers' and Deputy Sheriffs' Retirement Plan

For the Last Ten Years Ended December 31

(Dollars in thousands)

	2021	*2020*	*2019*	*2018*	*2017*	*2016*	*2015*	*2014*	*2013*	*2012*
Actuarially determined contribution	$ 9,276	$ 8,165	$ 7,600	$ 7,282	$ 7,000	$ 6,689	$ 6,371	$ 6,111	$ 5,600	$ 5,141
Contributions in relation to the actuarially determined contribution	9,276	8,165	7,600	7,282	7,000	6,689	6,371	6,111	5,600	5,141
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Covered payroll (Excluding members in DROP.)	$ 20,422	$ 21,401	$ 22,057	$ 19,573	$ 19,790	$ 19,801	$ 19,386	$ 19,776	$ 18,133	$ 17,897
Contributions as a percentage of covered payroll	45.42%	38.15%	34.46%	37.20%	35.37%	33.78%	32.86%	30.90%	30.88%	28.73%

Notes to Schedule

Valuation Date: Actuarially determined contribution amounts are calculated as of each January 1 for the upcoming County fiscal year beginning July 1. Actuarial valuations are performed every year.

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Projected Unit Credit.
Amortization method	Level percentage of payroll, closed, increasing 3.0% per year.
Remaining amortization period	Periods range from 2 to 22 years. Starting with new basis in 2014, assumption changes and gains/losses are amortized over 20 years and Plan changes are amortized over the average future service of the active population at time of the change.
Asset valuation method	5-year smoothed market.
Inflation	3.00%
Salary increases	Rates vary by participant age.
Investment rate of return	7.00% Net of pension plan investment expense, including inflation.
Retirement age	Rates vary by participant age and service.
Mortality	RP-2014 Blue Collar Mortality Table for males and females projected generationally using scale MP-2018. A five-year set forward is used for post-disability mortality.

1 Changes in Actuarial Methods and Assumptions

The discount rate changed from 7.45% in 2020 to 7.00% in 2021. There were no Plan amendments that affect benefits since the prior valuation for any of the four Plans.

2 Significant Legislative Changes 2014 to 2021

Legislative changes are listed in the General Description of the System in the Notes to the Basic Financial Statements.

Schedule of Administrative Expenses

Professional Services		
Actuarial	$	247,651
Benefit payment processing		99,712
Insurance service fees		30,271
Audit		27,603
Investment consulting fees		569,419
Legal counsel		29,943
Misc. Fees/Other Consultants		53,905
		1,058,504
Travel and Entertainment		
Travel & meals		0
		0
Miscellaneous: County Paid		
Supplies		9,521
Postage		2,200
Printing		2,796
Medical evaluations		25,400
Training & memberships		860
Indirect costs paid to County		645,450
Legal notices		324
		686,551
Miscellaneous: System Paid		
Prudential administration		3,960
Tax withholding expenses		2,013
		5,973
Total Administrative Costs	**$**	**1,751,028**

Schedule of Investment Expenses

Management Fees		
Aetna/ING Investment Mgmt	$	419,865
Apollo		319,675
Causeway		319,957
Clarion Lion Real Estate		1,092,326
Crescent Mezzanine (TCW)		32,294
Dupont Capital Management		17,410
EIG Energy XV and XVI		290,536
EnTrust Spec Opp		85,239
Hardman Johnston Global		386,218
HRJ Special Opportunities		5,392
Loomis Sayles		444,437
Newstone (combined)		22,446
Management Fees (continued)		
Penn Capital		502,117
Pimco		611,139
Private Advisors		1,029,031
Quellos Private Capital		64,387
Siguler Guff Combined		283,281
Southeastern Asset Mgmt, Inc.		549,764
State Street Global Advisors		80,636
VOYA-ING		801,450
Warburg Pincus		388,117
Wedge Capital Management		910,448
Western Asset Management		353,593
Westwood Management Company		429,662
		9,439,420
Custodial Fees		
State Street Bank & Trust		465,119
Total Investment Expense	**$**	**9,904,539**

Schedule of Payments to Consultants

Company		*Fee*	*Nature of Service*
Aetna	$	30,271	Insurance Services
ADP		99,712	Benefit Payment Processing
Bolton Partners, Inc.		247,651	Actuarial Services
CliftonLarsonAllen		27,603	Audit Services
New England Pension Consultants		569,419	Investment Consulting Services
Other		83,848	Legal Services & Miscellaneous
	$	**1,058,504**	

Investment Section

INTRODUCTION:

The following is a review of investment activity of the System with discussion and comparisons to general investment market trends. NEPC, LLC (NEPC), the Investment Advisor, prepared this review using information provided by State Street Bank, the Custodian Bank. The following table illustrates the System's cumulative, net-of-fee, returns in relation to its actuarially assumed rate of return:

NEPC continues to serve as the System's pension and investment consultant. In 2021, the System retained two new investment managers (Axiom and Hardman Johnston) and made a $25 million in private equity follow-on commitments to the PIMCO Private Income Fund and $25 million commitment to Private Advisors Small Company PE Fund IX.

MARKET COMMENTARY:

GLOBAL EQUITY MARKETS

First Quarter 2021

Global equities continued their march upward in the first quarter bolstered by widespread vaccination efforts, a fresh round of fiscal stimulus, and renewed confidence in an economic recovery. U.S. stocks led the charge with gains of 6.2%, followed by international developed equities which returned 3.5%; emerging market equities were up 2.3%. Small-cap stocks outperformed large-cap equities. Catalyzed by rising interest rates, value bested growth for the second straight quarter, with the Russell 1000 Value Index up 11.3% compared to the paltry 0.9% gain by the Russell 1000 Growth Index. In a reversal from last year, energy led all sectors, followed by financials, while technology and consumer discretionary stocks lagged.

Second Quarter 2021

Global equities posted strong returns in the second quarter, propelled by continuing vaccine adoption, ongoing monetary and fiscal support, and a robust economic outlook. U.S. stocks led the way for a second straight quarter, with the S&P 500 up 8.5%; meanwhile, international developed-market equities gained 5.2% and emerging markets returned 5%. In the U.S. and international developed markets, small caps underperformed, while emerging market small caps bested emerging large caps. In a reversal from the first quarter, growth indexes outperformed value measures, with the Russell 1000 Growth returning 11.9% compared to gains of 5.2% for the Russell 1000 Value Index. Within sectors, real estate, information technology, energy and communication services led performance, while utilities, consumer staples, industrials and materials lagged the market.

Third Quarter 2021

Global equities turned in a mixed performance for the three months ended September 30, rounding out the quarter with a streak of volatility as inflationary pressures fueled concerns around economic growth and tapering of monetary stimulus. U.S. equities were modestly positive in the third quarter with the S&P 500 Index up 0.6%; international developed markets posted a moderate loss of 0.4%. Chinese stocks declined 18.2%, pulling down emerging markets, which fell 8.1%, as investors fretted over regulatory risk and contagion from a potential default by struggling Chinese real estate conglomerate Evergrande. U.S. small-cap stocks lagged large-cap equities, while international and emerging market small caps outperformed large-cap equities. The diverging performance between value and growth stocks narrowed in the third quarter, with U.S. large-cap growth equities modestly outperforming large-cap value, while U.S. small-cap growth equities underperformed small value. Within sectors financials, utilities, communication services, healthcare and technology led the market, while industrials, materials, energy, and consumer sectors underperformed.

Fourth Quarter 2021

Global stocks were a mixed bag in the fourth quarter. Domestic equities led the charge with the S&P 500 Index hitting a new record high in December and ending the quarter up 11%. Outside the United States, international developed markets gained 2.7%, while emerging market equities lost 1.3%, dragged down by Brazil and China. U.S. and developed international small-cap stocks underperformed large caps, while emerging market small-cap equities outperformed large-cap stocks. In the United States, within large-cap equites, growth outperformed value, while in small-cap stocks, value trumped growth; within sectors, energy, financials, materials and industrials led the market, while real estate, utilities and consumer staples lagged.

2021 Summary of Results – Global Equity

For comparison, the following table illustrates equity index returns across geographies, economic regions, and styles for the year and trailing time periods:

	1 YR	3 YR	5 YR	10 YR
MSCI ACWI	18.5%	20.4%	14.4%	11.9%
S&P 500	28.7%	26.1%	18.5%	16.6%
Russell 1000	26.5%	26.2%	18.4%	16.5%
Russell 2000	14.8%	20.0%	12.0%	13.2%
Russell 2500	18.2%	21.9%	13.8%	14.1%
MSCI EAFE	11.3%	13.5%	9.5%	8.0%
MSCI EM	-2.5%	10.9%	9.9%	5.5%

GLOBAL FIXED INCOME MARKETS

First Quarter 2021

U.S. interest rates rose significantly during the quarter, reaching pre-pandemic levels. Losses were felt across interest-rate sensitive indexes as a 0.8% increase in 10-year Treasury yields negatively impacted the fixed-income market. Investment-grade and high-yield spreads continued to compress in the first quarter with significant spread tightening occurring in lower-quality credit. However, returns for U.S. corporate credit were largely negative due to interest rates moving higher. The Bloomberg Barclays U.S. Aggregate Index was down 3.4%, while the Bloomberg Barclays U.S. Corporate High Yield Index was up a modest 0.8%.

Second Quarter 2021

U.S. Treasury yields reversed course in the second quarter, with yields falling on the 10-year Treasury note. The Federal Open Market Committee announced on the heels of its meeting in June that it would keep rates unchanged at 0.00%-0.25%. Credit spreads tightened in the three months ended June 30, reflecting a broader appetite for risk-taking; the spread tightening was more pronounced in lower-quality credit with the Bloomberg Barclays U.S. High Yield Index Option-Adjusted Spread decreasing nearly 40 basis points since March. Corporate credit gained in the second quarter with the Bloomberg Barclays U.S. Aggregate Index up 1.8%, while the Bloomberg Barclays U.S. Corporate High Yield Index returned 2.7% in the second quarter.

Third Quarter 2021

Fixed-income markets ended the quarter mostly flat despite an uptick in volatility. Initially, yields on the 10-year Treasury note dipped amid concerns around growth and the COVID-19 Delta variant, but they moved back up in the vicinity of

1.5% as the Federal Reserve stayed the course on future tapering. In corporate credit, shorter-duration securities and high-yield debt outperformed Treasuries, while longer-dated corporate credit lagged.

Fourth Quarter 2021

In the fourth quarter, fixed-income markets experienced continued volatility amid concerns around inflation and the new surge in Coronavirus infections, leading to the overall flattening of the Treasury yield curve. Yields pushed higher in the shorter maturities with the two-year note increasing 46 basis points to 0.74%, while the long-end saw 30-year yields rally 12 basis points to finish the quarter at 1.9%. U.S. investment-grade debt spreads continue to hover around the low-end of their historical ranges, finishing the quarter at 92 basis points, modestly wider by eight basis points. Agency pass-throughs felt the weight of future tapering by the Federal Reserve and widened four basis points. Spreads on high-yield credit—a bright spot within fixed income—tightened six basis points to finish the quarter at 283 basis points over comparable Treasuries.

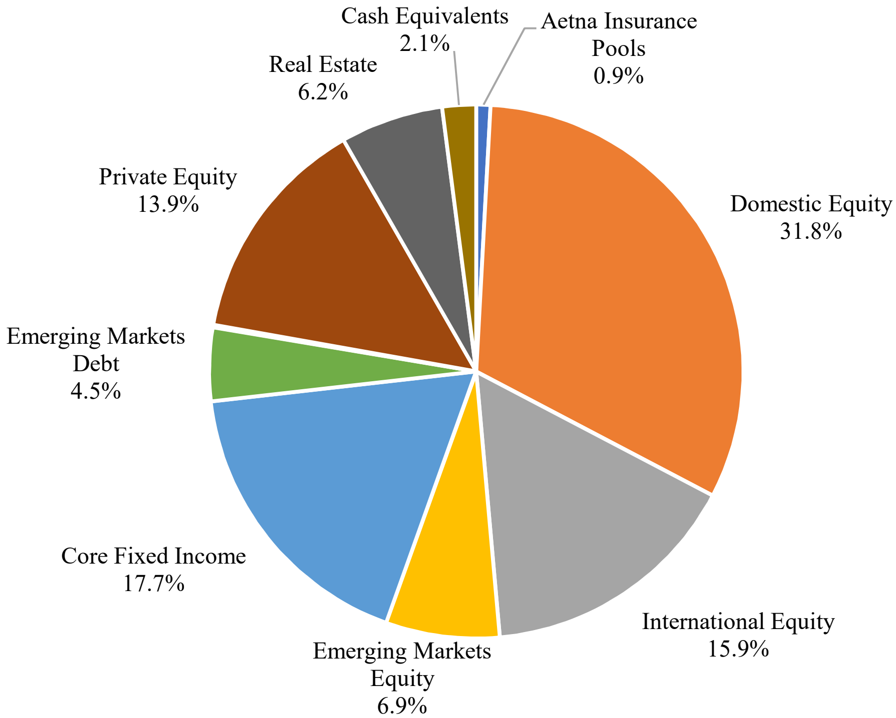
2021 Summary of Results — Global Fixed Income

For comparison, the following table illustrates fixed income index returns and yields across regions, countries, and styles for the year and trailing time periods:

	1 YR	3 YR	5 YR	10 YR
BBG Global Agg	-4.7%	3.6%	3.4%	1.8%
BBG US Agg	-1.5%	4.8%	3.6%	2.9%
BBG Credit	-1.1%	7.2%	5.1%	4.4%
BBG US HY	5.3%	8.8%	6.3%	6.8%
BBG Muni	1.5%	4.7%	4.2%	3.7%
BBG Muni HY	7.8%	7.8%	7.5%	6.7%
BBG TIPS	6.0%	8.4%	5.3%	3.1%
BBG 20+ STRIPS	-5.2%	12.4%	9.2%	6.1%
BBG Long Treasuries	-4.6%	8.8%	6.5%	4.5%
BBG Long Credit	-1.2%	11.4%	7.6%	6.4%
BBG Govt/Credit 1-3 Yr	-0.5%	2.3%	1.9%	1.4%
JPM EMBI Glob Div	-1.8%	5.9%	4.7%	5.3%
JPM GBI-EM Glob Div	-8.7%	2.1%	2.8%	0.7%

GROWTH OF ASSETS AND ASSET ALLOCATION:
As of December 31, 2021, the System's net assets stood at $2.4 billion, up approximately $67.8 million for the year. For the fiscal year, the System experienced $76.2 million in net cash outflows and $74.9 million in investment gains. At December 31, 2021, the System's assets were in compliance with Policy and were allocated as follows:

ASSET ALLOCATION
(As of December 31, 2021)



INVESTMENT PERFORMANCE:

For fiscal year ending December 31, 2021, the System's assets earned 14.5%, net of fees, exceeding its actuarially assumed rate of 7.0%. This also brought the System's return since inception (September 1990) to 3.3%, net of fees. These returns were calculated using a time-weighted approach (i.e., compound interest).

The following table summarizes investment holdings as of December 31, 2021, displaying fair market value and percent of the total value compared with the prior year data:

	2021		2020	
	Market Value	% of Total Fund	Market Value	% of Total Fund
Aetna Insurance Pools	20,215,616	1%	20,468,646	1%
Domestic Equity	753,128,317	32%	650,339,247	31%
Emerging Markets Equity	162,726,737	7%	147,724,330	7%
International Equity	376,249,742	16%	375,648,867	18%
Core Fixed Income	226,718,028	10%	227,959,559	11%
High Yield Fixed Income	97,044,149	4%	92,590,176	5%
Bank Loans	95,754,632	4%	92,886,443	5%
Emerging Markets Debt	105,297,298	4%	110,985,951	5%
Opportunistic	3,365,172	0%	4,338,931	0%
Real Estate	147,418,274	6%	123,787,995	6%
Private Equity	329,236,304	14%	190,006,343	9%
Cash Equivalents	48,519,601	2%	64,639,481	3%

The following table summarizes the System's net-of-fee returns by asset category and compares them to relevant benchmarks:

	Net of Fee Performance (%)				
	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)
Total Equity Composite	**16.5**	**15.9**	**11.4**	**8.7**	**10.5**
Domestic Equity Composite	**21.7**	**21.7**	**15.1**	**12.1**	**14.3**
eV US All Cap Equity Median	*23.3*	*24.2*	*16.5*	*12.7*	*14.9*
Large Cap Equity Composite	**23.5**	**23.4**	**16.9**	**13.4**	**15.1**
S&P 500 Index	*28.7*	*26.1*	*18.5*	*14.9*	*16.6*
Int'l Equity Composite	**9.5**	**11.5**	**7.8**	**5.2**	**7.5**
MSCI EAFE (Net)	11.3	*13.5*	9.5	6.8	8.0
Emerging Market Equity Composite	**10.9**	**7.7**	**8.0**	**5.3**	**4.6**
MSCI Emerging Markets (Net)	-2.5	10.9	9.9	6.1	5.5
Total Fixed Income Composite	**0.1**	**5.4**	**4.1**	**3.7**	**3.9**
Core Fixed Income Composite	**-0.2**	**5.8**	**4.4**	**3.9**	**3.9**
Blmbg. U.S. Aggregate Index	-1.5	4.8	3.6	3.0	2.9
Over/Under	1.3	1.0	0.8	0.9	1.0
Non-Core Fixed Income	**0.4**	**5.1**	**4.0**	**3.4**	**3.9**
Blmbg. U.S. Aggregate Index	*-1.5*	*4.8*	*3.6*	*3.0*	*2.9*
Over/Under	1.9	0.3	0.4	0.4	1.0
Emerging Fixed Income Composite	**-5.1**	**4.5**	**3.9**	**2.7**	**2.5**
JPM EMBI Global (USD)	-1.5	6.1	4.5	4.8	5.0
Opportunistic Composite	**6.5**	**4.1**	**2.7**	**3.0**	**6.7**
Real Estate Composite	**22.4**	**9.7**	**9.2**	**9.8**	**10.3**

*The Aetna Insurance Pool is included in the Core Fixed Income Composite, as of December 31, 2021 the market value of the Aetna Insurance Pool was $20,215,616.

The following table lists alphabetically lists all of the System's investment managers with their asset values, as of December 2021, describing each by service type:

Investment Manager	**2021 Market Value**
Aetna Insurance Pools	20,215,616
Axiom Emerging Markets Trust	76,566,524
Cash	48,519,601
Causeway	112,181,377
Clarion	147,418,274
Dimensional	86,160,213
Entrust Special Opportunities II	3,365,172
Hardman Johnston International Equity Group Trust	111,862,332
Lazard	152,206,033
Loomis Sayles Bank Loan	95,754,632
PENN Capital Management	97,044,149
PIMCO Emerging Markets Full Spectrum	105,297,298
Southeastern	96,813,030
SSGA Russell 2000 (R) Growth Index	69,607,091
SSgA S&P 500 ERISA	199,922,784
Voya Equity	199,898,030
Voya Fixed Income	89,600,313
Wedge Capital Management	88,661,000
Western Asset Management	137,117,715
Westwood	98,226,382

*Sum of Market Values does not equal total plan assets due to the exclusion of liquidating managers, private equity, and cash.

Investment Objectives

The Trustees of the Anne Arundel County Retirement System (System) seek to maintain the annual rate of pension contributions based on accepted actuarial practices, at a stable or declining percent of payroll. The Trustees also seek to maintain the funded ratio (market value of assets/actuarial value of benefits earned to date as measured by the Accrual Benefit Obligation) at a target level of 115% and in no event less than 100% in any given year. The System must remain capable of paying all benefits earned by employees. This principle is paramount and will not be compromised. Prudence is thus a mandatory factor in all decisions relating to the System. The disposition of the System's assets shall be made solely in the interest of the participants and their beneficiaries of the pension plan for exclusive purposes of providing benefits to such participants and their beneficiaries. Investments shall be made in a cost efficient manner, and reflect current industry best practices. The System return requirements are articulated in three separate ways:

- Nominal Returns – The actuarially required rate of return for the Fund is 7.00% annually, net of all fees and operating expenses. In order to achieve a buffer and have a somewhat higher likelihood of achieving the Fund's objective, the Board desires a net total return in excess of this 7.00% target.
- Real Returns – The Board is aware the preservation of purchasing power is driven by inflation. As the Consumer Price Index (CPI) is the most commonly accepted measure of inflation, The Board has defined its real rate of return target as the nominal return less CPI. With an actuarially assumed return rate of 7.45% (long-term) and an actuarially assumed CPI rate of 3.00% (long-term), the long-term, real return target is set at 4.45%.
- Relative Returns – Total return shall rank in the top half of the appropriate public fund universe. Risk-adjusted returns should also rank in the top half of the same universe. Returns for investment managers shall exceed their respective benchmarks, as well as rank in the top half of the appropriate universe of managers adhering to the same investment strategy.

The Board further recognizes that the return targets described herein may not be achieved in any single year. Instead, a longer-term horizon of 10 years shall be used in measuring the long-term success of the Fund. While the Board expects that returns will vary over time, the Fund shall have a risk tolerance consistent with that of other funds created for similar purposes, and the assets of the Fund shall be invested accordingly.

General Investment Policy

The System operates under the "Prudent Person" rule used herein, meaning that in investing, the governing authorities of the systems, funds and plans, shall exercise the judgment and care under the circumstances then prevailing, that an institutional investor of ordinary prudence, discretion, and intelligence exercises in the management of investments entrusted to it, not in regard to speculation, but in regard to the permanent disposition of funds, considering probable safety of capital as well as probable income.

Investments are made in full accordance with any and all applicable Maryland statutes, as well as any other applicable legislation or regulation, state, federal or otherwise. The roles and responsibilities of the Board of Trustees, the Investment Committee, the Investment Consultant, the Investment Managers and the Custodian are clearly defined. The Board has established a diversified portfolio to meet the System's return requirements. The table below summarizes the target asset allocation.

Asset Class	Market Value Target (%)	Minimum Exposure (%)	Maximum Exposure (%)
Equities	**55**	**45**	**65**
Domestic Large Cap	24	19	29
Domestic Small/Mid Cap	7	3	12
Established International (Lg Cap)	12	7	17
Established International (Sm Cap)	5	0	10
Emerging International Equity	7	0	12
Fixed Income	**25**	**13**	**33**
Core Fixed Income	10	4	15
Bank Loans	5	1	11
Domestic High Yield	5	1	11
Emerging Market Debt	5	0	10
Alternative Assets	**18**	**10**	**30**
Private Markets	12	1	21
Real Estate	6	0	11
Cash	**2**	**0**	**10**

The Chair of the Investment Committee reviews the asset allocation at least on a quarterly basis to determine if the asset allocation is consistent with the exposure ranges described herein. The Chair of the Investment Committee directs investment managers to transfer funds to rebalance the asset allocation as necessary with subsequent Board notification. The System shall strive to maintain a neutral bias with respect to Style Allocation (Growth versus Value) in its equity investments. As part of the normal rebalancing responsibilities, The Chair of the Investment Committee shall use appropriate judgment and care when rebalancing portfolios. Market conditions and transaction costs are considered.

For each separate account, investment managers must comply with the quality and diversification requirements stated in the investment policy. Investment managers have detailed reporting requirements and must certify policy compliance on a quarterly basis. Permissible derivative uses are hedging, creation of permitted market exposures, and management of country and asset allocation exposure.

Proxy Voting

The Board of Trustees delegates proxy voting responsibility to its investment managers. Investment managers are required to report to the Board on an annual basis, summarizing proxy voting over the previous fiscal year. The report must detail any changes that have occurred in the manager's proxy voting policies, and note any instances where proxies were not voted in accordance with the best interest of the System's beneficiaries.

The Investment Policy Statement requires that each manager shall provide an annual commission report to the Investment Committee and Investment Consultant within forty-five (45) days of the end of each calendar year. The report shall cover all trades executed during the prior year and should include a discussion of the firm's policy for selecting brokers, reviewing brokers, and negotiating brokerage commissions. This should include identification of any situations where the investment manager has a financial interest in brokers used to execute trades in the portfolio as well as a list of all broker-dealers used by the firm. Actual commission expenses are to be compared to the prior year. If the firm has a system for monitoring total transaction costs (commissions plus market impact), a copy of this analysis should be provided. If no such system is being used, the commission report should include a complete explanation of how the firm monitors selected brokers for best execution.

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Investment Manager Fees

The following table presents investment managers' fees paid by asset class.

Asset Class	Assets Managed (Includes Cash)	Fees Paid
Domestic equity	$ 742,117,075	$ 3,864,286
International equity	538,811,059	319,957
Domestic fixed income	329,363,511	1,300,147
Other*	165,335,716	-
Private markets**	343,461,744	3,502,871
Real estate	147,418,274	32,294
Stable value insurance account	109,880,372	419,865
Total Investment Managers' Fees		9,439,420
Other Investment Service Fees:		
Custodial fees		465,119
Total Investment Expenses		$ 9,904,539

* Fees net to fund assets. Not available as discrete amounts.

** Fees reported for a portion, but not all of private market accounts.

Brokerage Commissions

Broker's commissions on investment transactions, excluding mutual funds, for the year ended December 31, 2021 totaled $83,821. Brokerage firms receiving more than $5,000 in fees are listed below

Brokerage Firms	Fees Paid	Brokerage Firms	Fees Paid
Northern Trust Company	$ 36,286	INSTINET	$ 7,171
Credit Suisse Secuirties (USA) LLC	10,701	Barclays Capital LE	6,488
Cantor Fitzgerald + Co.	10,404	UBS AG	5,579
JonesTrading Institutional Services LLC	7,192		
			83,821

The Investment Policy Statement requires that each manager shall provide an annual commission report to the Investment Committee and Investment Consultant within forty-five (45) days of the end of each calendar year. The report shall cover all trades executed during the prior year and should include a discussion of the firm's policy for selecting brokers, reviewing brokers, and negotiating brokerage commissions. This should include identification of any situations where the investment manager has a financial interest in brokers used to execute trades in the portfolio as well as a list of all broker-dealers used by the firm. Actual commission expenses are to be compared to the prior year. If the firm has a system for monitoring total transaction costs (commissions plus market impact), a copy of this analysis should be provided. If no such system is being used, the commission report should include a complete explanation of how the firm monitors selected brokers for best execution.

Manager Name	Asset Class	Long-term Benchmark	Style Benchmark	Peer Group Universe	Guideline Exemptions
Aetna General	Domestic Fixed Income	Ryan Labs 5 Yr GIC	Ryan Labs 5 Yr GIC	All US Fixed Income Managers	None
Apollo Investment Fund VIII, L.P. Apollo Investment Fund IX, L.P.	Private Equity	7.5% Annualized Compound Return	7.5% Annualized Compound Return	Private Equity Managers	None
Axiom Emerging Markets Trust	International Equity	MSCI Emerging Markets Index	MSCI Emerging Markets Index	Emerging Markets Equity Managers	None
Causeway Capital Management LLC	International Equity	MSCI EAFE	MSCI EAFE	International Developed Equity	None
Clarion Partners	Real Estate	NCREIF Property Index	NCREIF Property Index	Real Estate Managers	None
Dimensional Fund Advisors, LP	Emerging Markets Equity	MSCI Emerging Markets Free Index	MSCI Emerging Markets Index (net div)	Emerging Markets Equity	None
DuPont Capital Management	Private Equity Fund of Funds	7.5% Annualized Compound Return	7.5% Annualized Compound Return	Private Equity Managers	None
EIG XV EIG XVI	Private Equity Fund of Funds	7.5% Annualized Compound Return	7.5% Annualized Compound Return	Private Equity Managers	None
Entrust	Opportunistic	HFRI ED: Distressed/Restructuring Index	HFRI ED: Distressed/Restructuring Index	Absolute Return Managers	None
Hardman Johnston International Equity	International Equity	MSCI EAFE - ND	MSCI EAFE	International Developed Equity	None
HRJ Capital (Capital Dynamics)	Private Equity Distressed Debt	7.5% Annualized Compound Return	7.5% Annualized Compound Return	Private Equity Managers	None
Lazard Asset Management LLC	International Equity	MSCI EAFE-ND	MSCI EAFE	International Developed Equity	None
Lexington Partners VI-B Lexington Partners VII Lexington Partners VIII Lexington Partners IX	Private Equity Secondaries	7.5% Constant Return	7.5% Constant Return	Private Equity Managers	None
Loomis Sayles Bank Loans	Bank Loans	S&P LSTA US BB Ratings Loan Index	S&P LSTA US BB Ratings Loan Index	Bank Loan Managers	None
Newstone Capital Partners I Newstone Capital Partners II	Private Equity Distressed Debt	7.5% Annualized Compound Return	7.5% Annualized Compound Return	Private Equity Managers	None

Manager Name	Asset Class	Long-term Benchmark	Style Benchmark	Peer Group Universe	Guideline Exemptions
Penn Capital	US High Yield Fixed Income	BofA ML US High Yield BB-B Rated Index	BofA ML US High Yield BB-B Rated Index	High Yield Bond	Note A
PIMCO	Emerging Market Debt	50% JPM EMBI Global Div./25% JPM EMBI Global/25% JPM	50% JPM EMBI Global Div./25% JPM EMBI Global/25% JPM	Emerging Market Debt	None
PIMCO Private Income Fund	Private Equity	7.5% Annualized Compound Return	7.5% Annualized Compound Return	Private Equity Managers	None
Private Advisors Small Company Buyout Fund V Private Advisors Small Company PE Fund IX. Private Advisors Small Company Buyout Fund VI Private Advisors Coinvestment Fund LP	Private Equity Small Buyout Fund of Funds	7.5% Annualized Compound Return	7.5% Annualized Compound Return	Private Equity Managers	None
Quellos Private Capital II, LP Quellos Private Capital III, LP	Private Equity Fund of Funds	7.5% Annualized Compound Return	7.5% Annualized Compound Return	Private Equity Managers	None
Siguler Guff DOF III Siguler Guff DOF IV Siguler Guff DOF V	Private Equity Distressed Debt	7.5% Constant Return	7.5% Constant Return	Private Equity Managers	None
Southeastern Asset Management	U.S. Large Cap Value Equity	Russell 1000 Index	Russell 1000 Value Index	U.S. Large Cap Value Equity	Note B
State Street Global Advisors	Domestic Equity	S&P 500 Index	S&P 500 Index	US Large Cap Core Equity	None
State Street Global Advisors	Domestic Equity	Russell 2000 Growth Index	Russell 2000 Growth Index	US Small Cap Growth Equity	None
TCW/Crescent Mezzanine Partners, LP IV TCW/Crescent Mezzanine Partners, LP V Crescent Mezzanine Partners, LP VI	Private Equity Mezzanine Debt	7.5% Annualized Compound Return	7.5% Annualized Compound Return	Private Equity Managers	None
VOYA Financial	Core Fixed Income	Barclays Capital Aggregate Bond Index	Barclays Capital Aggregate Bond Index	Core Fixed Income	Note C
VOYA Financial	U.S. Large Cap Growth Equity	Russell 1000 Index	Russell 1000 Growth Index	U.S. Large Cap Growth Equity	Note D
Warburg Pincus Private Equity XII, LP Warburg Pincus Global Growth	Private Equity Growth Equity	7.5% Annualized Compound Return	7.5% Annualized Compound Return	Private Equity Managers	None
WEDGE Capital Management	US Small Cap Value Equity	Russell 2000 Index	Russell 2000 Value Index	US Small Cap Value	None
Western Asset Management	Core Plus Fixed Income	Barclays Capital Aggregate Bond Index	Barclays Capital Aggregate Bond Index	Core Fixed Income	Note E
Westwood Management Corp.	U.S. Large Cap Value Equity	Russell 1000 Index	Russell 1000 Value Index	U.S. Large Cap Value Equity	None

Note A: 1. May hold up to 10% of the portfolio, at market value, in Senior Bank Loan Debt securities.

Note B:
1. May hold up to 10% of their portfolio in any one security.
2. May hold up to 30% of the portfolio in American Depository Receipts (ADRs), which are stocks or convertibles of foreign companies that are publicly traded in the US.
3. Is exempt from being required to hold at least 25 stocks in their portfolio.
4. For securities held in the Anne Arundel County Pension and Retirement System portfolio, Southeastern may own up to 20% of the outstanding market capitalization of a given company across all of their portfolios. If Southeastern owns more than this 20% limit for any security within the Anne Arundel County Pension and Retirement System portfolio, the Investment Committee Chairman and Investment Consultant of the Anne Arundel County Pension and Retirement System must be notified immediately for approval to continue holding the security, which may or may not be granted, depending on prevailing conditions.
5. May hold up to 20% of the portfolio in cash and equivalents if market conditions warrant, but Board must be notified if cash goes above 20%.

Note C: 1. May hold up to 5% of the portfolio, at market value, in Senior Bank Loan Debt securities.

Note D: 1. For the purposes of equitizing cash, Voya is permitted to invest in ETFs such as the iShares Russell 1000 Growth (Ticker: IWF). The objective of this policy allowance is to equitize residual cash holdings, not for speculation or market timing.

Note E:
1. Exempt from receiving at least two competitive offers on the same or similar securities prior to purchasing new issue mortgage back securities.
2. Permitted to invest in the securities referenced in Section A of the Anne Arundel County Retirement and Pension System Investment Policy Statement. In addition, Western Asset may hold investments in High yield Fixed Income, Emerging Market Debt, Emerging Market Debt Local Currency, and/or Bank Loans.

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Largest Stock Holdings (By Fair Value)

Rank	Shares	Company	Fair Value
1	60,330	Microsoft Corp Common Stock	$ 20,290,186
2	92,573	Apple Inc Common Stock	16,438,188
3	4,158	Amazon.com Inc Common Stock	13,864,186
4	3,729	Alphabet Inc CL A Common Stock	10,803,062
5	729,045	Lumen Technologies Inc Common Stock	9,149,515
6	24,291	Nvidia Corp Common Stock	7,144,226
7	11,879	Adobe Inc Common Stock	6,736,106
8	9,928	Intuit Inc Common Stock	6,385,888
9	24,085	FedEx Corp Common Stock	6,229,344
10	287,584	Mattel Inc Common Stock	6,200,311

Note: This list does not include investments in stock investment pools.
A complete list of portfolio holdings is available upon request.

Largest Bond Holdings (By Fair Value)

Rank	Par	Description	Fair Value
1	900,000	Hess Corp SR Unsecured 08/31 7.3	$ 1,198,305
2	1,135,000	Iron Mountain Inc. Company GUAR 144A 09/29 4.875	1,174,702
3	855,000	Ford Motor Company Sr Unsecurted 10/28 6.625	1,028,138
4	960,000	Tenet Healthcare Corp Sr Secured 144A 06/29 4.25	974,870
5	755,000	Occidental Petroleum Cor Sr Unsecured 09/36 6.45	962,633
6	875,000	Olin Corp Sr Unsecured 08/29 5.625	947,581
7	720,000	EQT Corp Sr Unsecured 02/30 7.5	925,200
8	670,000	Wells Fargo + Company Sr Unsecured 04/51 VAR	914,905
9	839,000	Petrobras Gloabal Finance Co GUAR 01/25 5.299	901,925
10	815,000	Tri Pointe Homes Inc Company GUAR 06/28 5.7	896,500

Note: A complete list of portfolio holdings is available upon request.

Actuarial Section

Board of Trustees
Anne Arundel County Retirement and Pension System
Annapolis, Maryland

Dear Members of the Board of Trustees

We prepared annual actuarial valuations as of January 1, 2022 for the Anne Arundel County Retirement and Pension System. The system consists of the following plans, each of which is valued separately:

- Employees' Retirement Plan
- Police Service Retirement Plan
- Fire Service Retirement Plan
- Detention Officers' and Deputy Sheriffs' Retirement Plan

The contributions determined in these valuations are for the Fiscal year ending June 30, 2023. The valuations are based on employee and financial data, which were provided by the County Office of Personnel and County Office of Finance, respectively. We have performed limited tests for consistency and reasonableness and have not found any material problems with the data.

The following GASB68 information is provided as of the December 31, 2021 measurement date for FYE2022. This will require that the actual County contributions for the second half of FY22 (i.e. contributions made after the measurement date) be treated as a deferred outflow (when the amount is known), but this will not affect the Total Pension Expense recognized for FY22. The methods, assumptions, and participant data as of December 31, 2021 used for these calculations are summarized in the relevant sections of this report. The GASB68 information was prepared using the Entry Age Normal actuarial cost method with Normal Cost ending at DROP entry date.

Methodology, Reliance and Certification

This report is prepared for the County. The report contains the actuarial information to be included with the County's financial statements for the year end June 30, 2022 (the County's fiscal year end date) as required by GASB68. This information has been prepared for use in the financial statements of the County. This information is not intended for, nor should it be used for, any additional purposes.

All costs, liabilities and other factors under the Plans were determined in accordance with generally accepted actuarial principles and procedures. The funding method used in the actuarial valuations is the projected unit credit cost method. The objective of this funding method is to produce level contributions as a percentage of payroll as long as the average age of the population does not change. The funding objective of the System is to meet long-term benefit promises through contributions and investment income. The funding ratio, which is the actuarial value of assets divided by the actuarial accrued liability, is an estimate of how well the System is meeting the objective. On the GASB reporting basis, the ratio for all four plans increased from the prior year.

The included calculations assume that the members and the County will continue to make all required actuarially determined contributions. Based on that assumption, the plan's fiduciary net position is expected to be available to make all future benefit payments of current plan members.

The actuarial valuation sets forth our calculation of an estimate of the liabilities of the Anne Arundel County Retirement Plans (the Plan), together with a comparison of these liabilities with the value of the plan assets, as submitted by Anne Arundel County Government (the County). This liability calculation and comparison with assets are applicable for the valuation date only. The future is uncertain, and the plan may become better funded or more poorly funded in the future. This valuation does not provide any guarantee that the plan will be able to provide the promised benefits in the future.

The information in this report was prepared for the internal use of the County, the plan and their auditors in connection with our actuarial valuations of the pension plan as required by GASB68. This report may not be used for any other purpose; Bolton Partners, Inc. is not responsible for the consequences of any unauthorized use or the reliance on this information by any other party.

Methodology, Reliance and Certification (cont.)

This report is based on plan provisions, census data, and asset data submitted by the County. We have relied on this information for purposes of preparing this report. We have not audited the census or asset data provided, however based on our review the data appears to be reasonable and consistent with previously provided information. Unless otherwise noted in our report, we believe the information provided is sufficiently complete and reliable for purposes of the results presented in this report. The accuracy of the results presented in this report is dependent upon the accuracy and completeness of the underlying information. The County is solely responsible for the validity and completeness of this information.

The County is responsible for selecting the plan's funding policy, actuarial valuation methods, asset valuation methods, and assumptions. The policies, methods and assumptions used in this valuation are those that have been so prescribed and are described in this report. The County is solely responsible for communicating to Bolton any changes required thereto.

The County is solely responsible for selecting the plan's investment policies, asset allocations and individual investments. Bolton's actuaries have not provided any investment advice to the County.

The calculation of actuarial liabilities for valuation purposes is based on a current estimate of future benefit payments. The calculation includes a computation of the "present value" of those estimated future benefit payments using an assumed discount rate; the higher the discount rate assumption, the lower the estimated liability will be. For purposes of estimating the liabilities (future and accrued) in this report, you selected an assumption based on the expected long-term rate of return on plan investments. Using a lower discount rate assumption, such as a rate based on long-term bond yields, could substantially increase the estimated present value of future and accrued liabilities.

The actuarial assumptions and methods used for these valuations meet the parameters set forth in the Governmental Accounting Standards Board (GASB) Statement No. 67, Financial Reporting for Defined Benefit Pension Plans.

This is a deterministic valuation in that it is based on a single set of assumptions. This set of assumptions is one possible basis for our calculations. We may consider that some factors are not material to the valuation of the plan and may not provide a specific assumption for those factors. We may have used other assumptions in the past. We will likely consider changes in assumptions at a future date.

Different assumptions or scenarios within the range of possibilities may also be reasonable and results based on those assumptions would be different. As a result of the uncertainty inherent in a forward-looking projection over a very long period of time, no one projection is uniquely "correct" and many alternative projections of the future could also be regarded as reasonable. Two different actuaries could, quite reasonably, arrive at different results based on the same data and different views of the future.

The County could reasonably ask how the valuation would change if we used a different assumption set or if plan experience exhibited variations from our assumptions. This report does not contain such an analysis. That type of analysis would be a separate assignment.

In addition, decisions regarding benefit improvements, benefit changes, the trust's investment policy, and similar issues should not be based on this valuation. These issues are complex and other factors should be considered when making such decisions. Other factors might include the anticipated vitality of the local economy and future growth expectations, as well as other economic and financial factors.

The cost of this plan is determined by the benefits promised by the plan, the plan's participant population, the investment experience of the plan and many other factors. An actuarial valuation is a budgeting tool for the County. It does not affect the cost of the plan. Different funding methods provide for different timing of contributions to the plan. As the experience of the plan evolves, it is normal for the level of contributions to the plan to change. If a contribution is not made for a particular year, either by deliberate choice or because of an error in a calculation, that contribution can be made in later years. We are not responsible for the consequences of any decision by the County to make contributions at a future time rather than an earlier time. The County is responsible for funding the cost of the plan.

Methodology, Reliance and Certification (cont.)

The report is conditioned on the assumption of an ongoing plan and is not meant to present the actuarial position of the plan in the case of plan termination. 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 economic or demographic assumptions, changes in economic or demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status), and changes in plan provisions or applicable law.

The valuation was completed using both proprietary and third-party models (including software and tools). We have tested these models to ensure they are used for their intended purposes, within their known limitations, and without any known material inconsistencies unless otherwise stated.

The calculations in this report have been computed in accordance with our understanding of generally accepted actuarial principles and practices and fairly reflect the actuarial position of the plan. The various actuarial assumptions and methods which have been used are, in our opinion, appropriate for the purposes of this report.

We make every effort to ensure that our calculations are accurately performed. We reserve the right to correct any potential errors by amending the results of this report or by including the corrections in a future valuation report.

The County should notify Bolton promptly after receipt of this report if the County disagrees with anything contained in the report or is aware of any information that would affect the results of the report that has not been communicated to Bolton or incorporated herein. The report will be deemed final and acceptable to the County unless the County promptly provides such notice to Bolton.

We have included the following supporting schedules: Actuarial Basis, Schedule of Member Valuation Data, Summary of Plan Provisions, Summary of Major Legislative changes, a Solvency Test, and Analysis of Financial Experience.

The undersigned credentialed actuaries meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. We are not aware of any direct or material indirect financial interest or relationship, including investments or other services, which could create a conflict of interest that would impair the objectivity of our work.

Ann M. Sturner, FSA, EA, FCA, MAAA	May 16, 2022 Date
Jordan McClane, FSA, EA, FCA, MAAA	May 16, 2022 Date

Order of Attachments by Plan

Attachment A

Employees' Retirement Plan

A. Method Used for Funding Purposes

This valuation was performed using the projected unit credit cost method. The contribution equals the sum of the normal cost and the amount necessary to amortize any actuarial gains/(losses) over closed periods. Effective January 1, 2014, new bases due to changes in actuarial assumptions or differences between actual and expected experience are amortized over closed periods of 20 years. New bases due to changes in plan benefits are amortized over the expected future working lifetime of affected employees. Amortization payments increase 3.0% per year.

B. Asset Valuation Method

The actuarial value of assets is determined by spreading the asset gain or loss over a 5-year period. The asset gain or loss is the amount by which the actual market value investment return differs from the expected market value investment return. The actuarial value of assets can be no less than 50% of market value of assets and no more than 150% of market value of assets.

There is a six-month lag between the valuation and the fiscal year. The 2022 valuation determines the County contributions due for the fiscal year ending June 30, 2023.

C. Valuation Procedures

Tier One active participants who terminate prior to age 40 are assumed to elect to receive a refund of employee contributions with interest. Employees who terminate at or after age 40 are assumed to receive their vested benefit at normal retirement date.

D. Actuarial Assumptions

The following assumptions were used in valuing the liabilities and benefits under the Plan for purposes of determining pension expense and liabilities under GASB. These assumptions are used for all members eligible to receive benefits under the Employees' Plan provisions.

Economic	
Investment Return	7.00% compounded annually net of investment expenses (3.0% inflation and 4.00% real return) effective January 1, 2021.
Salary Increases	A graded schedule is used. See Earnings Progression Table.
Cost of Living Adjustment	Benefits accrued before Bill 88-96 are assumed to increase by 3.0% of the original benefit each year. Benefits accrued after Bill 88-96 are assumed to increase by 1.8% of the current benefit each year.
Other	
Mortality	Healthy: RP-2014 Blue Collar Mortality Table for males and females with the 2006 base rates projected generationally from 2006 using scale MP-2018. Disabled: RP-2014 Blue Collar Mortality Table for males and females set forward nine years with the 2006 base rates then projected generationally from 2006 using scale MP-2018. Projections from 2006 to the valuation date represent current mortality and projections beyond the valuation date represent future mortality improvements. 100% of pre-retirement deaths are assumed to be non-duty related.
Withdrawal	See Table of Sample Rates.
Disability	See Table of Sample Rates. 10% of disablement is assumed to be duty-related.

Administrative Expenses — The average of actual expenses for the two years preceding the valuation date, rounded to the nearest thousand.

Retirement Rates

	Years of Service			
Age	< 20	20-29	30	31+
50 - 54	N/A	4%	50%	25%
55 - 59	N/A	9%	40%	5%
60	15%	15%	15%	15%
61	12%	12%	12%	12%
62	20%	20%	20%	20%
63 - 64	12%	12%	12%	12%
65	25%	25%	40%	25%
66 - 69	15%	15%	25%	15%
70	100%	100%	100%	100%

Percentage Married — Males – 70%; Females – 70%

Age Difference — Males are assumed to be four years older than their spouses.

Military Service — Active liabilities (which depend on credited service) are loaded by 1.0% to account for future crediting of military service.

Disability Leave — Active liabilities (which depend on credited service) are loaded by 1.5% to account for future crediting of disability service.

The Tier 1 service cap of 60% is valued as 62% to account for Disability and Military service credit not being limited by the 30-year cap on service.

	Table of Sample Mortality Rates (Base Rates)			
	Healthy Mortality		Disabled Mortality	
Age	Males	Females	Males	Females
20	0.07%	0.02%	0.06%	0.02%
25	0.07%	0.02%	0.07%	0.03%
30	0.06%	0.02%	0.09%	0.05%
35	0.07%	0.03%	0.14%	0.08%
40	0.10%	0.05%	0.23%	0.12%
45	0.16%	0.09%	0.35%	0.18%
50	0.26%	0.13%	0.57%	0.28%
55	0.38%	0.19%	1.08%	0.46%
60	0.64%	0.31%	1.89%	0.76%
65	1.23%	0.50%	3.12%	1.27%

	Table of Sample Decrement Rates		
	Percentage		
		Withdrawal	
Attained Age	Disablement	Males	Females
20	0.018%	12.47%	21.57%
25	0.018	9.97	18.12
30	0.018	6.78	13.34
35	0.027	4.37	9.05
40	0.055	3.48	7.48
45	0.090	2.40	5.95
50	0.146	0.95	2.34
55	0.240	0.65	1.61
60	0.358	0.00	0.00
64	0.487	0.00	0.00

Earnings Progression	
Attained Age	Percentage Increase at Attained Age
20	6.75%
25	6.25
30	5.75
35	5.25
40	4.75
45	4.25
50	3.75
55	3.75

Active Members

Valuation Date	Number	Annual Payroll (Jan. 1 Rate)	Average Annual Pay	% Increase in Average Pay
January 1, 2013	2,152	116,024,717	53,915	(1.1%)
January 1, 2014	2,125	115,809,426	54,499	1.1%
January 1, 2015	2,207	127,090,869	57,585	5.7%
January 1, 2016	2,186	127,827,040	58,475	1.5%
January 1, 2017	2,187	130,312,665	59,585	1.9%
January 1, 2018	2,278	138,239,224	60,684	1.8%
January 1, 2019	2,191	134,891,500	61,566	1.5%
January 1, 2020	2,170	138,428,352	63,792	3.6%
January 1, 2021	2,158	139,975,356	64,863	1.7%
January 1, 2022	2,137	142,221,699	66,552	2.6%

Members With Deferred Benefits

Year	Number at Beginning of Year	Additions	Decreases	Number at End of Year
1/1/12 to 12/31/12	260	41	(28)	273
1/1/13 to 12/31/13	273	34	(36)	271
1/1/14 to 12/31/14	271	27	(29)	269
1/1/15 to 12/31/15	269	30	(23)	276
1/1/16 to 12/31/16	276	18	(16)	278
1/1/17 to 12/31/17	278	24	(25)	277
1/1/18 to 12/31/18	277	43	(17)	303
1/1/19 to 12/31/19	303	32	(34)	301
1/1/20 to 12/31/20	301	16	(22)	295
1/1/21 to 12/31/21	295	21	(12)	304

Members Receiving Benefits

Year	Number at Beginning of Year	Additions	Decreases	Number at End of Year
1/1/12 to 12/31/12	1,393	110	(35)	1,468
1/1/13 to 12/31/13	1,468	130	(54)	1,544
1/1/14 to 12/31/14	1,544	113	(34)	1,623
1/1/15 to 12/31/15	1,623	123	(36)	1,710
1/1/16 to 12/31/16	1,710	139	(42)	1,807
1/1/17 to 12/31/17	1,807	131	(44)	1,894
1/1/18 to 12/31/18	1,894	141	(61)	1,974
1/1/19 to 12/31/19	1,974	128	(51)	2,051
1/1/20 to 12/31/20	2,051	108	(63)	2,096
1/1/21 to 12/31/21	2,096	123	(69)	2,150

Summary of Retirees and Beneficiaries Added to and Removed from Rolls

	Added to Rolls		Removed from Rolls		Rolls End of Year			
Year Ending	Number	Annual Allowance[1]	Number	Annual Allowance	Number	Annual Allowance	% Increase in Average Annual Allowance	Average Annual Allowance
12/31/2012	110	$3,351,810	35	$557,851	1,468	$35,270,352	3.05%	$24,026
12/31/2013	130	$3,331,597	54	$1,034,187	1,544	$37,567,762	1.27%	$24,331
12/31/2014	113	$2,915,234	34	$720,676	1,623	$39,762,320	0.69%	$24,499
12/31/2015	123	$3,092,029	36	$775,758	1,710	$42,078,591	0.44%	$24,607
12/31/2016	139	$3,935,345	42	$693,441	1,807	$45,320,495	1.93%	$25,081
12/31/2017	131	$4,473,521	44	$831,055	1,894	$48,962,961	3.07%	$25,852
12/31/2018	141	$5,147,623	61	$1,133,546	1,974	$52,977,038	3.81%	$26,837
12/31/2019	128	$4,694,293	51	$1,110,285	2,051	$56,561,046	2.76%	$27,577
12/31/2020	108	$3,287,830	63	$1,096,975	2,096	$58,751,900	3.87%	$28,030
12/31/2021	123	$4,384,762	69	$1,323,740	2,150	$61,812,922	5.21%	$28,750

[1] Includes COLAs for all retirees

Tier One Members

Compensation — For purposes of the pension plan, compensation is the regular annual rate of pay, exclusive of extra compensation of any kind such as overtime pay, bonuses and commissions.

Final Earnings — The average of the highest 3 years of annual basic pay.

Eligibility Requirements — Full-time general employees of the County will be eligible to participate in the pension plan upon hire.

Employee Contributions — 4% of compensation.

Retirement Date

Normal Retirement — The first of the month coincident with or next following the participant's 60th birthday and attainment of vested status or, if earlier, when the participant has 30 years of service.

Early Retirement — Reduced benefits are available the first of any month coincident with or next following the completion of 20 years of continuous service, provided the participant is at least age 50.

Postponed Retirement — A participant may work beyond his normal retirement date and may subsequently retire on the first of any month.

Retirement Benefits

Normal Retirement — 2.0% of final earnings for each year of service (maximum 60% plus 2% times unused disability credit and pre-employment military service credit).

Early Retirement — Same as normal retirement but reduced actuarially for early commencement.

Years Early	Reduction Factor
1	2%
2	5%
3	9%
4	14%
5	20%
6	28%
7	36%
8	44%
9	52%
10	60%

Postponed Retirement — Same as normal retirement but based on continued accrual past normal retirement date.

Disability

Eligibility — Totally and permanently disabled (except as the result of actions specified in the County code). To receive duty-related disability benefits, there is no service requirement. Five years of service are required to receive non-duty related benefits.

Duty-Related — The greater of the accrued benefit or 66-2/3% of final earnings, payable immediately, unreduced.

Non-Duty Related — The greater of the accrued benefit or 25% of final earnings, payable immediately, unreduced.

Normal form of Payment	Monthly life annuity with modified cash refund.
Termination of Employment	
Vesting Date	Hired before July 1, 2015: 5 years of service Hired on or after July 1, 2015: 10 years of service County Council member whose first term begins on or after December 1, 2014: 10 years of service County Executive and appointed exempt members hired on or after December 1, 2014: 8 years of service
Prior to vesting date	Return of employee contributions with 4.25% interest.
On or after vesting date	At the discretion of the employee, either a return of contributions with interest or the accrued normal retirement benefit taking into account final earnings and service at date of termination, payable at normal retirement date.
Death Benefits	
Married and vested	Elect one of the following: • Other Pre-Retirement Death Benefit • The accrued benefit, reduced actuarially for early commencement and the joint and 100% survivor form. The benefit is payable immediately if the member was eligible for retirement or deferred to early or normal retirement date, as elected, if not eligible to receive an immediately benefit.
Other Pre-Retirement Death Benefits	Return of employee contributions with 4.25% interest plus a lump sum of 50% of final earnings.
Cost of Living Increase (simple, for benefits accrued as of 1/31/1997)	Retiree benefits are adjusted each year. The revised benefit amount is the lesser of: • Prior year benefit plus base benefit multiplied by increase in current March CPI from March CPI for prior year. • Benefit increased by 3% of initial benefit.
Cost of Living Increase (compound, for benefits accrued after 1/31/1997)	Retiree benefits are adjusted each year. The revised benefit amount is the lesser of: • Prior year benefit multiplied by 60% of the increase in current March CPI from March CPI for prior year. • Benefit increased by 2.5%. Benefit payments can be reduced or increased. However, the amount can never be less than the initial benefit amount.

<u>Tier Two Members</u>

Compensation	For purposes of the pension plan, compensation is the regular annual rate of pay, exclusive of extra compensation of any kind such as overtime pay, bonuses and commissions.
Final Earnings	The average of the highest 3 years of annual basic pay.
Eligibility Requirements	Full-time general employees of the County will be eligible to participate in the pension plan upon hire. Members can elect to join Tier One.
Employee Contributions	No employee contributions required or allowed.

Retirement Date

Normal Retirement — The first of the month coincident with or next following the participant's 60th birthday and attainment of vested status or, if earlier, when the participant has 30 years of service.

Early Retirement — Reduced benefits are available the first of any month coincident with or next following the completion of 20 years of continuous service, provided the participant is at least age 50.

Postponed Retirement — A participant may work beyond his normal retirement date and may subsequently retire on the first of any month.

Retirement Benefits

Normal Retirement — 1.0% of final earnings for each year of service.

Early Retirement — The normal retirement benefit is reduced for early commencement, using the same reduction factors as Tier 1.

Postponed Retirement — Same as normal retirement but based on continued accrual past normal retirement date.

Normal form of Payment — Monthly life annuity.

Disability

Eligibility — Totally and permanently disabled (except as the result of actions specified in the County code). To receive duty-related disability benefits, there is no service requirement. Five years of service are required to receive non-duty related benefits.

Duty-Related — The greater of the accrued benefit or 66-2/3% of final earnings, payable immediately, unreduced.

Non-duty Related — The greater of the accrued benefit or 25% of final earnings, payable immediately, unreduced.

Termination of Employment

Vesting date — Hired before July 1, 2015: 5 years of service
Hired on or after July 1, 2015: 10 years of service
County Council member whose first term begins on or after December 1, 2014: 10 years of service
County Executive and appointed exempt members hired on or after December 1, 2014: 8 years of service

Prior to vesting date — No benefit is payable.

On or after vesting date — The accrued normal retirement benefit taking into account final earnings and service at date of termination, payable at normal retirement date.

Death benefits

Married and vested	Elect one of the following: • A lump sum of 50% of the final earnings • The accrued benefit, reduced actuarially for early commencement and the joint and 100% survivor form. The benefit is payable immediately if the member was eligible for retirement or deferred to early or normal retirement date, as elected, if not eligible to receive an immediately benefit
Unmarried or not vested	A lump sum of 50% of final earnings.
Cost of Living Increase (compound)	Retiree benefits are adjusted each year. The revised benefit amount is the lesser of: • Prior year benefit multiplied by 60% of the increase in current March CPI from March CPI for prior year. • Benefit increased by 2.5%. Benefit payments can be reduced or increased. However, the amount can never be less than the initial benefit amount.

County Council Bill No. 36-89	Effective 7/1/1989.
	Pension benefits and vesting provisions were improved. The accrual percentage per year of service was increased from 1.8% to 2.0%, permitting accrual of the maximum 60% benefit in 30 years instead of 33-1/3. Full vesting was granted after 5 years of service. The old provisions used a graded scale granting 75% vesting after 10 years, climbing to 100% vesting after 15 years.
County Council Bill No. 34-92	Effective 6/1/1992 through 8/31/1992.
	Participants age 50 or older with at least 20 years of service could elect to retire with an additional pension equal to 1/12 of 2% for each year of credited service. The additional amount could be taken as a pension increase, a lump sum, or as a temporary supplement to age 62. Appropriate actuarial adjustments apply.
State House Bill No. 687	Effective 7/1/1990.
	County employees were given the opportunity to apply for credit under the County's plan for previous service with the State of Maryland (or a political subdivision of the State).
County Council Bill No. 90-93	Effective 12/22/1993.
	Plan participants are required to pay the full actuarial value of service purchases. Purchases can only be made at retirement. To be eligible, an employee must have 60 months of County service. Existing plan participants must be notified of their right to purchase service under existing law.
County Council Bill No. 82-94	Effective 10/31/1994.
	Transfers assets from general employees plan to A&E plan for participants who have transferred between these two plans.
County Council Bill No. 88-96	Effective 12/4/1996.
	The previous method of calculating cost of living increase will only apply to benefits accrued as of 1/31/1997. The cost of living increase for future benefits is a compound increase equal to 60% of the annual change in the CPI, not to exceed 2.5%. Employees hired, or rehired, on or after 12/4/1996 will be Tier Two employees and will have different benefits than current employees.
County Council Bill No. 41-99	Effective 6/15/1999.
	Employees paid under the deputy sheriff employees pay schedule become Tier Two members of the Detention Center Plan effective as of January 1, 1999. Service credited under the Employees' Plan will count as credited service in the Detention Center Plan and no future benefit will be paid from the Employees' Plan. Assets are transferred from the Employees' Plan to the Detention Center Plan in an amount equal to the projected unit credit accrued liability in the Employees' Plan.
Recodification	Effective 2/25/2002.
	Allows a benefit based on disability leave service and pre-plan military service to be paid over the 60% cap. Normal retirement was changed to the earlier of 30 years of service or age 60.
County Council Bill No. 74-09	Effective 12/11/2009.
	For non-represented members, FY2010 annual pay shall be determined by increasing FY2009 annual pay by an assumed 3% for determining the final average basic pay.
County Council Bill No. 6-10	Effective 4/18/2010.
	Provides for a disability benefit for those participants who are totally and permanently disabled as a result of qualified military service.
County Council Bill No. 98-12	Effective 5/13/2013.
	Changed the definition of "final average basic pay" from highest 3 out of the last 5 years basic pays to highest 3 of all basic pays.
County Council Bill No. 97-13	Effective 4/14/2014.

	Members of the Employees' Plan and Category II members of the Detention and Deputy Sheriffs' Plan hired on or after July 1, 2015 will be subject to 10-year vesting and 10-year normal retirement provisions. The 10-year requirement also affects the ability to purchase service or get credit for pre-plan military service. The 10-year requirement extends to County Council members hired on or after December 1, 2014.
County Council Bill No. 86-16	Effective 1/1/2017.
	To ensure compliance with IRS regulations, members of the Employees' Plan have 30 days from date of hire to make an irrevocable election between Tier 1 and Tier 2; and effective January 1, 2017 members of Tier 2 the Employees' Plan can no longer later elect to transfer to Tier 1. Employees hired before December 31, 2016 who elect Tier 2 may still be allowed to transfer to Tier 1 before their 5th year anniversary.
County Council Bill No. 95-17	Effective 3/23/2018.
	Created the Employee Retirement Savings Plan and allowed certain non-vested members of the Employees' Plan a one-time opportunity to transfer the present value of their Employees' Plan accrued benefit to it.
County Council Bill No. 70-20	Effective: 11/22/2020.
	Each of the pension plans provide pension benefits for an employee who is or becomes totally and permanently disabled and meets certain criteria. To be eligible for a disability pension, the plan requires that the disability prevent the participant from performing the duties of the participant's regular duties. The purpose of the bill is to eliminate the participant's ability to perform any other assignment within their Department as a disqualifying factor for a service connected disability.

Net Pension Liability of the County

The components of the net pension liability of the County at December 31, 2021, were as follows:

Total pension liability	$ 1,077,190,517
Plan fiduciary net position	(803,075,985)
County's net pension liability	$ 274,114,532
Plan fiduciary net position as a percentage of the total pension liability	74.55%

Actuarial assumptions. The total pension liability was determined by an actuarial valuation as of December 31, 2021 using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3.00%
Salary increases	Rates vary by participant age
Investment rate of return	7.00%, net of pension plan investment expense, including inflation
Mortality	RP-2014 Blue Collar Mortality Table for males and females projected generationally using scale MP-2018. A nine-year set forward is used for post-disability mortality.

The above is a summary of key actuarial assumptions. Full descriptions of the actuarial assumptions are contained in the Actuarial Basis section of this report.

Sensitivity of the net pension liability to changes in the discount rate

	1% Decrease 6.00%	*Current Discount Rate* 7.00%	*1% Increase* 8.00%
County's net pension liability	$ 398,926,717	$ 274,114,532	$ 169,309,986

Changes in the Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances at 12/31/20	$ 998,524,396	$ 718,989,813	$ 279,534,583
Changes for the year:			
Service cost	18,885,715		18,885,715
Interest	67,771,708		67,771,708
Changes of benefit terms	-		-
Differences between expected and actual experience	1,093,035		1,093,035
Changes of assumptions	51,629,954		51,629,954
Contributions - employer		36,178,170	(36,178,170)
Contributions - member		5,527,603	(5,527,603)
Net investment income		103,655,704	(103,655,704)
Benefit payments, including refunds of member contributions	(60,714,291)	(60,714,291)	-
Administrative expense		(561,014)	561,014
Other		-	-
Net Changes	78,666,121	84,086,172	(5,420,051)
Balances at 12/31/21	$ 1,077,190,517	$ 803,075,985	$ 274,114,532

Changes in the County's Net Pension Liability and Related Ratios
Last 10 Fiscal Years
(Dollar amounts in thousands)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Total pension liability										
Service cost	$ 18,886	$ 16,774	$ 16,344	$ 16,687	$ 15,497	$ 15,144	$ 15,115	$ 14,159		
Interest	$ 67,772	$ 70,363	$ 65,128	$ 63,246	$ 60,502	$ 59,292	$ 58,329	$ 53,353		
Changes of benefit terms	-	-	-	-	-	-	-	-		
Differences between expected and actual experience	1,093	(4,189)	12,546	3,826	9,562	(12,599)	(17,971)	16,408		
Changes of assumptions	51,630	-	32,671	-	-	-	-	22,567	Information for FY2013	
Benefit payments, including refunds of member contributions	(60,714)	(57,779)	(55,081)	(50,575)	(47,380)	(44,024)	(41,253)	(39,012)	and earlier is not available	
Net change in total pension liability	78,666	25,168	71,608	33,184	38,181	17,813	14,221	67,475		
Total pension liability - beginning	998,524	973,356	901,748	868,564	830,383	812,570	798,349	730,874		
Total pension liability - ending (a)	$ 1,077,191	$ 998,524	$ 973,356	$ 901,748	$ 868,564	$ 830,383	$ 812,570	$ 798,349		
Plan fiduciary net position										
Contributions - employer	$ 36,178	$ 32,567	$ 29,637	$ 27,033	$ 25,654	$ 25,810	$ 25,630	$ 24,451		
Contributions - member	5,528	5,764	5,512	5,612	5,472	5,182	4,847	4,662		
Net investment income	103,656	48,590	90,338	(31,166)	94,908	41,345	(8,374)	28,451		
Benefit payments, including refunds of member contributions	(60,714)	(57,779)	(55,081)	(50,575)	(47,380)	(44,024)	(41,253)	(39,012)		
Administrative expense	(561)	(535)	(609)	(543)	(526)	(497)	(504)	(519)		
Other	-	-	-	-	-	-	-	-		
Net change in plan fiduciary net position	$ 84,086	$ 28,606	$ 69,797	$ (49,640)	$ 78,127	$ 27,816	$ (19,654)	$ 18,034		
Plan fiduciary net position - beginning	718,990	690,383	620,587	670,226	592,099	564,283	583,936	565,902		
Plan fiduciary net position - ending (b)	$ 803,076	$ 718,990	$ 690,383	$ 620,587	$ 670,226	$ 592,099	$ 564,283	$ 583,936		
County's net pension liability - ending (a)-(b)	$ 274,115	$ 279,535	$ 282,973	$ 281,161	$ 198,337	$ 238,284	$ 248,287	$ 214,413		
Plan fiduciary net position as a percentage of the total pension liability	74.55%	72.01%	70.93%	68.82%	77.16%	71.30%	69.44%	73.14%		
Covered payroll	$ 142,222	$ 139,975	$ 138,428	$ 134,892	$ 138,239	$ 130,313	$ 127,827	$ 127,091		
County's net pension liability as a percentage of covered payroll	192.74%	199.70%	204.42%	208.43%	143.47%	182.86%	194.24%	168.71%		
Expected average remaining service years of all participants	5	5	5	5	5	5	5	5		

Notes to Schedule:

Benefit changes: There are no benefit changes reflected in the current schedule.

Changes of assumptions: For 2021, the discount rate / investment rate of return was lowered from 7.45% to 7.00%.

Schedule of County Contributions
Last 10 Fiscal Years
(Dollar amounts in thousands)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Actuarially determined contribution	$ 36,178	$ 32,567	$ 29,637	$ 27,033	$ 25,654	$ 25,810	$ 25,655	$ 24,426		
Contributions in relation to the actuarially determined contribution	36,178	32,567	29,637	27,033	25,654	25,810	25,630	24,451	Information for FY2013 and earlier is not available	
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -	$ -	$ 25	$ (25)		
Covered payroll	$ 142,222	$ 139,975	$ 138,428	$ 134,892	$ 138,239	$ 130,313	$ 127,827	$ 127,091		
Contributions as a percentage of covered payroll	25.44%	23.27%	21.41%	20.04%	18.56%	19.81%	20.05%	19.24%		

Notes to Schedule

Valuation date:
Actuarially determined contribution amounts are calculated as of each January 1 for the upcoming County fiscal year beginning July 1. Actuarial valuations are performed every year.

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Projected Unit Credit
Amortization method	Level percent of payroll (closed), increasing 3.0% per year
Remaining amortization period	Remaining amortization periods range from 13 to 22 years
Asset valuation method	5-year smoothed market
Inflation	3.00%
Salary increases	Rates vary by participant age
Investment rate of return	7.00%, net of pension plan investment expense, including inflation
Retirement age	Rates vary by participant age and service
Mortality	RP-2014 Blue Collar Mortality Table for males and females projected generationally using scale MP-2018. A nine-year set forward is used for post-disability mortality.

The Anne Arundel County Employees' Retirement Plan

Solvency Test

2013 to 2022

Actuarial Valuation Date	Active Member Contribution (1)	Retirees and Beneficiaries Inactive and Pay-Status Members (2)	Active Members Employer Financed Portion (3)	Actuarial Value of Assets	Portion of Actuarial Accrued Liabilities Covered by Assets (1)	(2)	(3)
1/1/2013	63,403,319	423,101,739	207,075,617	508,232,321	100%	100%	10.5%
1/1/2014	63,002,887	460,323,316	212,402,830	545,812,384	100%	100%	10.6%
1/1/2015	65,660,434	486,377,944	229,067,582	582,795,438	100%	100%	13.4%
1/1/2016	66,159,912	490,715,140	228,431,557	604,433,282	100%	100%	20.8%
1/1/2017	65,446,178	523,475,213	224,074,001	627,147,522	100%	100%	17.1%
1/1/2018	66,260,425	558,360,980	226,842,467	653,155,048	100%	100%	12.6%
1/1/2019	64,509,950	610,456,195	238,768,689	665,037,621	100%	98%	0.0%
1/1/2020	64,342,594	646,055,438	243,254,365	682,574,049	100%	96%	0.0%
1/1/2021	66,471,072	691,165,055	270,591,234	715,818,072	100%	94%	0.0%
1/1/2022	65,830,121	723,239,180	268,421,772	757,974,584	100%	96%	0.0%

Analysis of Financial Experience

Reasons for Change in the Unfunded Accrued Liability
The unfunded accrued liability decreased from $312,409,289 to $299,516,489. The funded status increased from 69.6% to 71.7%.

Reasons for Change in Contribution Rates
The employer contribution rate decreased from 27.5% for the fiscal year ending June 30, 2022 to 27.1% for the fiscal year ending June 30, 2023. The decrease of 0.4% is due to the following reasons:

Investment Performance	-0.7%
Pay Increases	-0.1%
New Entrants/Change in Normal Cost	0.1%
COLA	-0.1%
Change in Expenses	0.0%
Assumption and Method Changes	0.0%
Demographics and Other Changes	0.4%
Total	**-0.4%**

Attachment B

Police Service Retirement Plan

A. Method Used for Funding Purposes

This valuation was performed using the projected unit credit cost method. The contribution equals the sum of the normal cost and the amount necessary to amortize any actuarial gains/(losses) over closed periods. Effective January 1, 2014, new bases due to changes in actuarial assumptions or differences between actual and expected experience are amortized over closed periods of 20 years. New bases due to changes in plan benefits are amortized over the expected future working lifetime of affected employees. Amortization payments increase 3.0% per year.

B. Asset Valuation Method

The actuarial value of assets is determined by spreading the asset gain or loss over a 5-year period. The asset gain or loss is the amount by which the actual market value investment return differs from the expected market value investment return. The actuarial value of assets can be no less than 50% of market value of assets and no more than 150% of market value of assets.

There is a six-month lag between the valuation and the fiscal year. The 2022 valuation determines the County contributions due for the fiscal year ending June 30, 2023.

C. Valuation Procedures

Generally, the plan provides a 100% survivor benefit to the spouse at the time of the retiree's death. This allows for post-retirement marriages. 80% of employees and 70% of current retired and disabled members are assumed married. Males are assumed to be four years older than their spouses.

D. Actuarial Assumptions

The following assumptions were used in valuing the liabilities and benefits under the Plan for purposes of determining pension expense and liabilities under GASB. These assumptions are used for all members eligible to receive benefits under the Police Service Retirement Plan provisions.

Economic	
Investment Return	7.00% compounded annually net of investment expenses (3.0% inflation and 4.00% real return) effective January 1, 2021.
Salary Increases	A graded schedule is used. See Earnings Progression Table.
Cost of Living Adjustment	Benefits accrued before Bill 88-96 are assumed to increase by 3.0% of the current benefit each year. Benefits accrued after Bill 88-96 are assumed to increase by 1.8% of the current benefit each year.
Other	
Mortality	Healthy: RP-2014 Blue Collar Mortality Table for males and females with the 2006 base rates projected generationally from 2006 using scale MP-2018. Disabled: RP-2014 Blue Collar Mortality Table for males and females set forward five years with the 2006 base rates then projected generationally from 2006 using scale MP-2018. Projections from 2006 to the valuation date represent current mortality and projections beyond the valuation date represent future mortality improvements. 100% of pre-retirement deaths are assumed to be non-duty-related
Withdrawal	See Table of Sample Rates.
Disability	See Table of Sample Rates. 75% of disablement is assumed to be duty-related.
Administrative Expenses	The average of actual expenses for the two years preceding the valuation date, rounded to the nearest thousand.

Insured Benefits Our calculations reflect that some benefits have already been purchased.

Retirement Rates[1]

For GASB68 accounting

Sample Rates:

	Years of Service		
Age	20	22	23+
40	26.40%	5.00%	100.00%
45	18.34%	5.00%	100.00%
50	36.66%	25.00%	100.00%
55	30.00%	30.00%	100.00%

Percentage Married 80% of employees and 70% of current retirees and disabled retirees are assumed married.

Age Difference Males are assumed to be four years older than their spouses.

Military Service Active liabilities (which depend on credited service) are loaded by 3.25% to account for future crediting of military service.

Disability Leave Active liabilities (which depend on credited service) are loaded by 1.75% to account for future crediting of disability service.

Table of Sample Mortality Rates (Base Rates)				
	Healthy Mortality		Disabled Mortality	
Age	Males	Females	Males	Females
20	0.07%	0.02%	0.07%	0.02%
25	0.07%	0.02%	0.06%	0.02%
30	0.06%	0.02%	0.07%	0.03%
35	0.07%	0.03%	0.10%	0.05%
40	0.10%	0.05%	0.16%	0.09%
45	0.16%	0.09%	0.26%	0.13%
50	0.26%	0.13%	0.38%	0.19%
55	0.38%	0.19%	0.64%	0.31%
60	0.64%	0.31%	1.23%	0.50%
65	1.23%	0.50%	2.09%	0.85%

[1] 100% at age 60.

Attained Age	Table of Sample Decrement Rates	
	Percentage	
	Disability	**Withdrawal**
20	0.3060%	7.97%
25	0.3060	5.31
30	0.3060	3.51
35	0.4526	2.56
40	0.9340	1.28
45	1.5619	0.64
50	2.2983	0.00
55	0.0000	0.00
60	0.0000	0.00
64	0.0000	0.00

Earnings Progression	
Attained Age	Percentage Increase at Attained Age
20	6.0%
25	6.0
30	5.5
35	5.0
40	4.5
45	4.0
50	4.0

Active Members

Valuation Date	Number	Annual Payroll (Jan. 1 Rate)	Average Annual Pay	% Increase in Average Pay
January 1, 2013	640[1]	40,521,944	63,316	(2.58%)
January 1, 2014	666[2]	41,714,302	62,634	(1.08%)
January 1, 2015	693[3]	48,261,635	69,642	11.19%
January 1, 2016	684[4]	48,116,765	70,346	1.01%
January 1, 2017	699[5]	50,560,385	72,332	2.82%
January 1, 2018	688[6]	51,758,654	75,231	4.01%
January 1, 2019	699[7]	55,101,812	78,829	4.78%
January 1, 2020	786[8]	61,345,095	78,047	(0.01%)
January 1, 2021	791[9]	67,888,039	85,826	9.97%
January 1, 2022	769[10]	68,149,222	88,621	3.26%

[1] Includes 60 participants in DROP.
[2] Includes 58 participants in DROP.
[3] Includes 55 participants in DROP.
[4] Includes 43 participants in DROP.
[5] Includes 55 participants in DROP.
[6] Includes 54 participants in DROP.
[7] Includes 61 participants in DROP.
[8] Includes 73 participants in DROP.
[9] Includes 76 participants in DROP.
[10] Includes 89 participants in DROP.

Members Receiving Benefits

Year	Number at Beginning of Year	Additions	Decreases	Number at End of Year
1/1/12 to 12/31/12	600	40	(11)	629
1/1/13 to 12/31/13	629	22	(12)	639
1/1/14 to 12/31/14	639	29	(13)	655
1/1/15 to 12/31/15	655	46	(12)	689
1/1/16 to 12/31/16	689	37	(15)	711
1/1/17 to 12/31/17	711	33	(14)	730
1/1/18 to 12/31/18	730	31	(22)	739
1/1/19 to 12/31/19	739	32	(13)	758
1/1/20 to 12/31/20	758	35	(16)	777
1/1/21 to 12/31/21	777	36	(22)	791

Summary of Retirees and Beneficiaries Added to and Removed from Rolls

	Added to Rolls		Removed from Rolls		Rolls End of Year			
Year Ending	Number	Annual Allowance[11]	Number	Annual Allowance	Number	Annual Allowance	% Increase in Average Annual Allowance	Average Annual Allowance
12/31/2012	40	$2,627,863	11	$542,409	629	$25,962,733	3.72%	$41,276
12/31/2013	22	$1,353,267	12	$401,425	639	$26,914,575	2.04%	$42,120
12/31/2014	29	$1,788,688	13	$669,885	655	$28,033,378	1.61%	$42,799
12/31/2015	46	$1,714,607	12	$416,626	689	$29,331,359	(0.53%)	$42,571
12/31/2016	37	$1,638,640	15	$529,572	711	$30,440,427	0.57%	$42,814
12/31/2017	33	$2,373,201	14	$590,897	730	$32,279,545	3.28%	$44,219
12/31/2018	31	$2,019,609	22	$798,878	739	$33,500,276	2.52%	$45,332
12/31/2019	32	$2,215,052	13	$519,946	758	$35,195,382	2.43%	$46,432
12/31/2020	35	$2,176,769	16	$757,261	777	$36,614,890	4.03%	$47,123
12/31/2021	36	$2,511,699	22	$1,064,127	791	$38,062,462	3.95%	$48,119

[11] Includes COLAs for all retirees

Compensation	For purposes of the pension plan, compensation is the regular annual rate of pay, exclusive of extra compensation of any kind such as overtime pay, bonuses and commissions.
Final Earnings	The average of the highest 3 years of annual basic pay.
Eligibility Requirements	Full-time employees occupying the classes of work listed below and making contributions to the plan will be eligible to participate in the pension plan upon hire: • Police Officer • Police Sergeant • Police Lieutenant • Police Captain • Police Major • Deputy Police Chief • Chief of Police, by election
Employee Contributions	7.25% of compensation for all participants.
Retirement Date	
Normal Retirement	The first of the month coincident with or next following the participant's 50^{th} birthday with 5 years of service or the completion of 20 years of service. For those hired prior to February 25, 2002, the five years of service is not required.
Postponed Retirement	A participant may work beyond his normal retirement date and may subsequently retire on the first of any month.
Retirement Benefits	
Normal Retirement	2.5% of final earnings for each year of service up to 20 years plus 2.0% of final earnings per year of service in excess of 20 years (maximum 70% plus 2% times unused disability credit and pre-employment military service credit).
Postponed Retirement	Same as normal retirement but based on continued accrual past normal retirement date.
Normal Form of Payment	For single participants, monthly life annuity with payments guaranteed for 5 years. For married participants, unreduced 100% joint and survivor annuity with payments guaranteed for 5 years.
Disability	
Eligibility	Totally and permanently disabled (except as the result of activities specified in the County code) regardless of length of service.
Duty-Related	The greater of the accrued benefit or 66-2/3% of final earnings, payable immediately, unreduced.
Non-Duty Related	The greater of the accrued benefit or 20% of final earnings, payable immediately, unreduced.
Termination of Employment	
Less than 20 years of service	Return of employee contributions with 3.00% interest.

Death Benefits

Married	Duty-Related: Greater of accrued benefit or 66-2/3% of final earnings. Non-duty Related: Accrued Benefit.
Unmarried	Return of employee contributions with 3.00% interest plus, if one or more years of service, a lump sum of 50% of final earnings.
Cost of Living Increase (for benefits accrued as of 1/31/1997)	Retiree benefits are adjusted each year. The revised benefit amount is the lesser of: • Base benefit multiplied by ratio of current 12-month average CPI to 12-month average CPI at retirement. • Prior year benefit increased by 4%. Benefit payments can be reduced or increased. However, the amount can never be less than the initial amount.
Cost of Living Increase (for benefits accrued after 1/31/1997)	Retiree benefits are adjusted each year. The revised benefit amount is the lesser of: • Prior year benefit multiplied by 60% of the increase in current March CPI from March CPI for prior year. • Prior year benefit increased by 2.5%. Benefit payments can be reduced or increased. However, the amount can never be less than the initial amount.
Deferred Retirement Option Program (DROP)	Allows accumulation of pension after 20 years of County service. DROP period must be between three and six years (with the sixth year requiring approval for certain job classifications). Interest shall be credited to the DROP account on a monthly basis at an interest rate of 0.34745%, which provides an effective annual yield of 4.25%.

County Council Bill No. 48-89	Effective 9/13/1989
	The previously combined Police and Fire plan was separated into distinct plans for each group. The reduction for retirement prior to age 50 was changed to 0.2% per month from 0.3% per month.
County Council Bill No. 34-92	Effective 6/1/1992 through 8/31/1992
	Participants age 50 or with at least 20 years of service could elect to retire with an additional pension equal to 1/12 of 2.5% of final earnings for the first 20 years of service, plus 1/12 of 2% of final earnings for each additional year of service. The additional amount could be taken as a pension increase, a lump sum, or as a temporary supplement to age 62. Appropriate actuarial adjustments apply.
County Council Bill No. 66-92	Effective 7/2/1992
	The plan was amended to allow normal, unreduced retirement after 20 years of service.
	Employee contributions were increased to 6% from 5%.
	Participants under age 50 were not allowed to retire and receive retirement incentives (under Bill No, 34-92) in addition to unreduced retirement. They could either retire early with the incentives, or normally without the incentives.
State House Bill No. 687	Effective 7/1/1990
	County employees were given the opportunity to apply for credit under the County's plan for previous service with the State of Maryland (or a political subdivision of the State).
County Council Bill No. 88-96	Effective 12/4/1996
	The previous method of calculating cost of living increase will only apply to benefits accrued as of 1/31/97. The cost of living increase for future benefits is a compound increase equal to 60% of the annual change in the CPI, not to exceed 2.5%. Employees hired, or rehired, on or after 12/4/96 will be Tier Two employees and will have different benefits than current employees.
County Council Bill No. 80-00/ Recodification	Effective 2/25/2002
	Allows a benefit based on disability leave service and pre-plan military service to be paid over the 70% cap. Normal Retirement was changed to the earlier of 20 years of service or age 50 with 5 years of service. Elimination of Tier 2 benefits. Implemented a Deferred Retirement Option Program (DROP), a voluntary program that provides an alternative way to earn and receive retirement benefits.
County Council Bill No. 66-05	Effective 10/10/2005
	Reduced the contribution percentage for Category II participants from 6% to 5%.
County Council Bill No. 58-07	Effective 10/11/2007
	Reduced the contribution percentage for Category I participants from 6% to 5%.
County Council Bill No. 74-09	Effective 12/11/2009.
	For non-represented members, FY2010 annual pay shall be determined by increasing FY2009 annual pay by an assumed 3% for determining the average basic pay. Clarified the limits on those entering DROP. The effective annual interest rate for the DROP account changed from 8% to 4.25% for those entering DROP on or after July 1, 2009.
County Council Bill No. 6-10	Effective 4/18/2010
	Provides for a disability benefit for those participants who are totally and permanently disabled as a result of qualified military service.
County Council Bill No. 41-10	Effective 7/1/2010.
	Increased the contribution rate for Police Officers, Police Officer First Class, Police Corporals, and Police Sergeants to 7.25%.

County Council Bill No. 30-12	Effective 2/1/2013
	All participant except for those in the Police Lieutenant classification shall contribute 7.25% of his or her annual basic pay in each calendar year or portion of a calendar year while an active participant in the plan.
County Council Bill No. 67-12	Effective 2/1/2013
	Participant in the Police Lieutenant classification shall contribute 7.25% of his or her annual basic pay in each calendar year or portion of a calendar year while an active participant in the plan.
County Council Bill No. 56-16	Effective 7/1/2016
	Allows for interest to be credited to a DROP member's account in the sixth year of DROP participation. Requires Appointing Authority approval for DROP participation in 6th year for the following classifications: Police Sergeant, Police Lieutenant, Police Captain, Police Major, Deputy Chief or Police Chief.
County Council Bill No. 78-17	Effective: 7/1/2017
	Eliminates the reduction in benefit for DROP retirees if they are reemployed in any capacity that meets the exceptions set forth in 5-1-203(c)(1). Also adds an exception under 5-1-203(c) for any retirees (including DROP participants) who are reemployed into a grant funded contractual position under 802(a)(17) of the Charter.
County Council Bill No. 55-20	Effective 11/09/2020.
	The legislation permits Police Lts and Sgts participant in the 6th year of DROP without requiring Appointing Authority approval.
County Council Bill No. 70-20	Effective 11/22/2020.
	Each of the pension plans provide pension benefits for an employee who is or becomes totally and permanently disabled and meets certain criteria. To be eligible for a disability pension, the plan requires that the disability prevent the participant from performing the duties of the participant's regular duties. The purpose of the bill is to eliminate the participant's ability to perform any other assignment within their Department as a disqualifying factor for a service connected disability.

Net Pension Liability of the County

The components of the net pension liability of the County at December 31, 2021, were as follows:

Total pension liability	$ 898,694,627
Plan fiduciary net position	(696,773,180)
County's net pension liability	$ 201,921,447
Plan fiduciary net position as a percentage of the total pension liability	77.53%

Actuarial assumptions. The total pension liability was determined by an actuarial valuation as of December 31, 2021 using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3.00%
Salary increases	Rates vary by participant age
Investment rate of return	7.00%, net of pension plan investment expense, including inflation
Mortality	RP-2014 Blue Collar Mortality Table for males and females projected generationally using scale MP-2018. A five-year set forward is used for post-disability mortality.

The above is a summary of key actuarial assumptions. Full descriptions of the actuarial assumptions are contained in the Actuarial Basis section of this report.

Sensitivity of the net pension liability to changes in the discount rate

	1% Decrease 6.00%	*Current Discount Rate* 7.00%	*1% Increase* 8.00%
County's net pension liability	$ 325,179,553	$ 201,921,447	$ 102,372,585

Changes in the Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances at 12/31/20	$ 810,929,345	$ 613,858,749	$ 197,070,596
Changes for the year:			
Service cost	17,595,554		17,595,554
Interest	55,380,629		55,380,629
Changes of benefit terms	-		-
Differences between expected and actual experience	5,788,746		5,788,746
Changes of assumptions	48,555,347		48,555,347
Contributions - employer		29,598,702	(29,598,702)
Contributions - member		4,255,390	(4,255,390)
Net investment income		89,124,692	(89,124,692)
Benefit payments, including refunds of member contributions	(39,554,994)	(39,554,994)	-
Administrative expense		(509,359)	509,359
Other		-	-
Net Changes	87,765,282	82,914,431	4,850,851
Balances at 12/31/21	$ 898,694,627	$ 696,773,180	$ 201,921,447

Changes in the County's Net Pension Liability and Related Ratios
Last 10 Fiscal Years
(Dollar amounts in thousands)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Total pension liability										
Service cost	$ 17,596	$ 14,504	$ 13,064	$ 12,826	$ 12,689	$ 12,057	$ 12,258	$ 10,951		
Interest	55,381	55,149	52,474	50,963	48,563	47,032	45,473	41,480		
Changes of benefit terms	-	-	-	-	-	-	-	-		
Differences between expected and actual experience	5,789	20,346	(2,017)	(2,591)	6,202	(4,527)	(4,693)	12,801		
Changes of assumptions	48,555	-	10,096	-	-	-	-	18,331	Information for FY2013 and earlier is not available	
Benefit payments, including refunds of member contributions	(39,555)	(38,637)	(36,791)	(35,938)	(34,950)	(33,357)	(31,134)	(29,507)		
Net change in total pension liability	87,765	51,361	36,826	25,261	32,504	21,205	21,903	54,055		
Total pension liability - beginning	810,929	759,569	722,742	697,482	664,978	643,773	621,870	567,815		
Total pension liability - ending (a)	$ 898,695	$ 810,929	$ 759,569	$ 722,742	$ 697,482	$ 664,978	$ 643,773	$ 621,870		
Plan fiduciary net position										
Contributions - employer	$ 29,599	$ 24,901	$ 23,094	$ 21,934	$ 20,931	$ 20,411	$ 19,560	$ 18,870		
Contributions - member	4,255	4,181	3,669	3,372	3,250	3,158	3,104	2,950		
Net investment income	89,125	42,158	75,786	(25,860)	78,155	33,500	(7,869)	21,813		
Benefit payments, including refunds of member contributions	(39,555)	(38,637)	(36,791)	(35,938)	(34,950)	(33,357)	(31,134)	(29,507)		
Administrative expense	(509)	(477)	(530)	(464)	(445)	(417)	(423)	(418)		
Other	-	-	-	-	-	-	-	-		
Net change in plan fiduciary net position	$ 82,914	$ 32,125	$ 65,228	$ (36,956)	$ 66,941	$ 23,295	$ (16,762)	$ 13,707		
Plan fiduciary net position - beginning	613,859	581,734	516,505	553,461	486,520	463,225	479,988	466,281		
Plan fiduciary net position - ending (b)	$ 696,773	$ 613,859	$ 581,734	$ 516,505	$ 553,461	$ 486,520	$ 463,225	$ 479,988		
County's net pension liability - ending (a)-(b)	$ 201,921	$ 197,071	$ 177,835	$ 206,237	$ 144,020	$ 178,458	$ 180,547	$ 141,882		
Plan fiduciary net position as a percentage of the total pension liability	77.53%	75.70%	76.59%	71.46%	79.35%	73.16%	71.95%	77.18%		
Covered payroll	$ 57,129	$ 58,777	$ 53,035	$ 48,322	$ 45,989	$ 44,894	$ 43,879	$ 42,960		
County's net pension liability as a percentage of covered payroll	353.45%	335.28%	335.32%	426.79%	313.16%	397.51%	411.47%	330.26%		
Expected average remaining service years of all participants	4	4	4	4	4	4	4	4		

Notes to Schedule:

Benefit changes: There are no benefit changes reflected in the current schedule.

Changes of assumptions: For 2021, the discount rate / investment rate of return was lowered from 7.45% to 7.00%.

Covered Payroll: Does not include pay for members in DROP.

Schedule of County Contributions
Last 10 Fiscal Years
(Dollar amounts in thousands)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Actuarially determined contribution	$ 29,599	$ 24,901	$ 23,094	$ 21,934	$ 20,931	$ 20,411	$ 19,560	$ 18,870		
Contributions in relation to the actuarially determined contribution	29,599	24,901	23,094	21,934	20,931	20,411	19,560	18,870	Information for FY2013 and earlier is not available	
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -	$ 0	$ -	$ -		
Covered payroll (excluding members in DROP)	$ 57,129	$ 58,777	$ 53,035	$ 48,322	$ 45,989	$ 44,894	$ 43,879	$ 42,960		
Contributions as a percentage of covered payroll	51.81%	42.36%	43.54%	45.39%	45.51%	45.46%	44.58%	43.92%		

Notes to Schedule

Valuation date:
Actuarially determined contribution amounts are calculated as of each January 1 for the upcoming County fiscal year beginning July 1. Actuarial valuations are performed every year.

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Projected Unit Credit
Amortization method	Level percent of payroll (closed), increasing 3.0% per year
Remaining amortization period	Remaining amortization periods range from 13 to 22 years
Asset valuation method	5-year smoothed market
Inflation	3.00%
Salary increases	Rates vary by participant age
Investment rate of return	7.00%, net of pension plan investment expense, including inflation
Retirement age	Rates vary by participant age and service
Mortality	RP-2014 Blue Collar Mortality Table for males and females projected generationally using scale MP-2018. A five-year set forward is used for post-disability mortality.

The Anne Arundel County Police Service Retirement Plan

Solvency Test

2013 to 2022

Actuarial Valuation Date	Active Member Contribution (1)[1]	Retirees and Beneficiaries Inactive and Pay-Status Members (2)	Active Members Employer Financed Portion (3)	Actuarial Value of Assets	Portion of Actuarial Accrued Liabilities Covered by Assets (1)	(2)	(3)
1/1/2013	22,454,626	357,544,534	175,292,937	420,675,703	100%	100%	23.2%
1/1/2014	24,465,302	364,953,146	186,969,390	452,075,806	100%	100%	33.5%
1/1/2015	26,791,267	381,682,950	205,142,796	481,633,710	100%	100%	35.7%
1/1/2016	28,952,829	400,644,387	205,420,231	498,491,072	100%	100%	33.5%
1/1/2017	29,153,543	410,045,649	213,498,527	517,010,261	100%	100%	36.4%
1/1/2018	30,742,890	430,537,535	223,106,492	540,292,183	100%	100%	35.4%
1/1/2019	31,312,419	448,094,223	228,963,359	553,866,523	100%	100%	32.5%
1/1/2020	31,595,788	463,770,764	236,284,457	575,083,049	100%	100%	33.7%
1/1/2021	33,388,307	504,461,405	285,246,640	610,249,155	100%	100%	25.4%
1/1/2022	33,242,264	532,235,730	300,021,625	657,356,435	100%	100%	30.6%

Analysis of Financial Experience

Reasons for Change in the Unfunded Accrued Liability
The unfunded accrued liability decreased from $212,847,197 to $208,143,184. The funded status increased from 74.1% to 76.0%.

Reasons for Change in Contribution Rates
The employer contribution rate decreased from 48.7% for the fiscal year ending June 30, 2022 to 48.4% for the fiscal year ending June 30, 2023. The decrease of 0.3% is due to the following reasons:

Investment Performance	-1.2%
Pay Increases	0.0%
New Entrants/Change in Normal Cost	-0.2%
COLA	-0.5%
Change in Expenses	0.0%
Assumption and Method Changes	0.0%
Demographics and Other Changes	1.6%
Total	**-0.3%**

[1] Does not include contribution balances for any participants currently in DROP

Attachment C

Fire Service Retirement Plan

A. Method Used for Funding Purposes

This valuation was performed using the projected unit credit cost method. The contribution equals the sum of the normal cost and the amount necessary to amortize any actuarial gains/(losses) over closed periods. Effective January 1, 2014, new bases due to changes in actuarial assumptions or differences between actual and expected experience are amortized over closed periods of 20 years. New bases due to changes in plan benefits are amortized over the expected future working lifetime of affected employees. Amortization payments increase 3.0% per year.

B. Asset Valuation Method

The actuarial value of assets is determined by spreading the asset gain or loss over a 5-year period. The asset gain or loss is the amount by which the actual market value investment return differs from the expected market value investment return. The actuarial value of assets can be no less than 50% of market value of assets and no more than 150% of market value of assets.

There is a six-month lag between the valuation and the fiscal year. The 2022 valuation determines the County contribution due for the fiscal year ending June 30, 2023.

C. Valuation Procedures

Generally, the plan provides a 100% survivor benefit to the spouse at the time of the retiree's death. This allows for post retirement marriages. 80% of employees and 70% of current retired and disabled members are assumed married. Males are assumed to be four years older than their spouses.

D. Actuarial Assumptions

The following assumptions were used in valuing the liabilities and benefits under the Plan for purposes of determining pension expense and liabilities under GASB. These assumptions are used for all members eligible to receive benefits under the Fire Plan provisions.

Economic	
Investment Return	7.00% compounded annually net of investment expenses (3.0% inflation and 4.00% real return) effective January 1, 2021.
Salary Increases	A graded schedule is used. See Earnings Progression Table.
Cost of Living Adjustment	Benefits accrued before Bill 88-96 are assumed to increase by 3.0% of the current benefit each year. Benefits accrued after Bill 88-96 are assumed to increase by 1.8% of current benefit each year.
Other	
Mortality	Healthy: RP-2014 Blue Collar Mortality Table for males and females with the 2006 base rates projected generationally from 2006 using scale MP-2018. Disabled: RP-2014 Blue Collar Mortality Table for males and females set forward five years with the 2006 base rates then projected generationally from 2006 using scale MP-2018. Projections from 2006 to the valuation date represent current mortality and projections beyond the valuation date represent future mortality improvements. 100% of pre-retirement deaths are assumed to be non-duty related.
Withdrawal	See Table of Sample Rates.
Disability	See Table of Sample Rates. 75% of disablement is assumed to be duty-related.
Administrative Expenses	The average of actual expenses for the two years preceding the valuation date, rounded to the nearest thousand.

Insured Benefits — Our calculations reflect that some benefits have already been purchased.

Retirement Rates — ***Sample Rates:***

For GASB68 accounting

	Years of Service			
Age	20	22	24	25+
40	5.00%	5.00%	25.00%	100.00%
45	5.00%	5.00%	25.00%	100.00%
50	10.00%	10.00%	15.00%	100.00%
55	15.00%	10.00%	20.00%	100.00%
59	23.00%	23.00%	28.00%	100.00%
62	100.00%	100.00%	100.00%	100.00%

Percentage Married — 80% of employees and 70% of current retirees and disabled retirees are assumed married.

Age Difference — Males are assumed to be four years older than their spouses.

Military Service — Active liabilities (which depend on credited service) are loaded by 3.25% to account for future crediting of military service.

Disability Leave — Service credit for benefit formula purposes is increased by 1.75% to account for disability leave, which is converted to service credit at retirement.

Table of Sample Mortality Rates (Base Rates)				
	Healthy Mortality		Disabled Mortality	
Age	Males	Females	Males	Females
20	0.07%	0.02%	0.07%	0.02%
25	0.07%	0.02%	0.06%	0.02%
30	0.06%	0.02%	0.07%	0.03%
35	0.07%	0.03%	0.10%	0.05%
40	0.10%	0.05%	0.16%	0.09%
45	0.16%	0.09%	0.26%	0.13%
50	0.26%	0.13%	0.38%	0.19%
55	0.38%	0.19%	0.64%	0.31%
60	0.64%	0.31%	1.23%	0.50%
65	1.23%	0.50%	2.09%	0.85%

	Table of Sample Decrement Rates	
	Percentage	
Attained Age	Disability	**Withdrawal**
20	0.2203%	7.33%
25	0.2203	5.68
30	0.2203	3.44
35	0.3259	1.77
40	0.6725	1.35
45	1.1245	0.97
50	1.6548	0.00
55	0.0000	0.00
60	0.0000	0.00
65	0.0000	0.00

Earnings Progression			
	Service		
Attained Age	<20	20-26	27+
20	7.5%	3.5%	6.5%
25	7.0%	3.0%	6.0%
30	6.5%	2.5%	5.5%
35	6.0%	2.0%	5.0%
40	5.5%	1.5%	4.5%
45	5.0%	1.0%	4.0%

Active Members

Valuation Date	Number	Annual Payroll (Jan. 1 Rate)	Average Annual Pay	% Increase in Average Pay
January 1, 2013	713[1]	43,361,686	60,816	0.1%
January 1, 2014	754[2]	44,950,885	59,617	(2.0%)
January 1, 2015	780[3]	48,549,950	62,244	4.41%
January 1, 2016	832[4]	49,181,953	59,113	(5.03%)
January 1, 2017	837[5]	50,412,257	60,230	1.89%
January 1, 2018	835[6]	51,766,876	61,996	2.93%
January 1, 2019	840[7]	54,769,258	65,201	5.17%
January 1, 2020	852[8]	58,710,040	68,909	5.69%
January 1, 2021	870[9]	63,461,220	72,933	5.84%
January 1, 2022	886[10]	67,851,357	76,582	5.00%

[1] Includes 127 members in DROP.
[2] Includes 115 members in DROP.
[3] Includes 87 members in DROP.
[4] Includes 59 members in DROP.
[5] Includes 45 members in DROP.
[6] Includes 51 members in DROP.
[7] Includes 60 members in DROP.
[8] Includes 73 members in DROP.
[9] Includes 74 members in DROP.
[10] Includes 87 members in DROP.

Members Receiving Benefits

Year	Number at Beginning of Year	Additions	Decreases	Number at End of Year
1/1/12 to 12/31/12	439	24	(4)	459
1/1/13 to 12/31/13	459	27	(5)	481
1/1/14 to 12/31/14	481	45	(9)	517
1/1/15 to 12/31/15	517	38	(5)	550
1/1/16 to 12/31/16	550	49	(8)	591
1/1/17 to 12/31/17	591	31	(6)	616
1/1/18 to 12/31/18	616	25	(15)	626
1/1/19 to 12/31/19	626	12	(12)	626
1/1/20 to 12/31/20	626	28	(9)	645
1/1/21 to 12/31/21	645	28	(12)	661

Summary of Retirees and Beneficiaries Added to and Removed from Rolls

	Added to Rolls		Removed from Rolls		Rolls End of Year			
Year Ending	Number	Annual Allowance[11]	Number	Annual Allowance	Number	Annual Allowance	% Increase in Average Annual Allowance	Average Annual Allowance
12/31/2012	24	$1,419,348	4	$53,068	459	$18,602,167	3.22%	$40,528
12/31/2013	27	$1,516,284	5	$182,136	481	$19,936,315	2.27%	$41,448
12/31/2014	45	$2,426,712	9	$307,354	517	$22,055,673	2.93%	$42,661
12/31/2015	38	$2,037,484	5	$208,634	550	$23,884,523	1.79%	$43,426
12/31/2016	49	$2,058,968	8	$179,838	591	$25,763,653	0.39%	$43,593
12/31/2017	31	$1,862,863	6	$217,350	616	$27,409,166	2.07%	$44,495
12/31/2018	25	$1,781,286	15	$499,156	626	$28,691,296	3.01%	$45,833
12/31/2019	12	$1,042,384	12	$430,679	626	$29,303,001	2.13%	$46,810
12/31/2020	28	$1,822,652	9	$402,610	645	$30,723,043	4.85%	$47,633
12/31/2021	28	$1,879,003	12	$502,637	661	$32,099,409	4.48%	$48,562

[11] Includes COLAs for all retirees

Compensation	For purposes of the pension plan, compensation is the regular annual rate of pay, exclusive of extra compensation of any kind such as overtime pay, bonuses and commissions.
Final Earnings	The average of the highest 3 years of annual basic pay.
Eligibility Requirements	Full-time employees occupying the classes of work listed below and making contributions to the plan will be eligible to participate in the pension plan upon hire: • Fire Fighter II • Fire Fighter III • Fire Fighter/Cardiac Rescue Technician • Fire Fighter/Emergency Medical Technician Paramedic • Fire Lieutenant • Fire Captain • Fire Battalion Chief • Fire Division Chief • Deputy Fire Chief • Fire Chief, by election
Employee Contributions	7.25% of compensation for all participants.
Retirement Date	
Normal Retirement	The first of the month coincident with or next following the participant's 50th birthday and 5 years of service or the completion of 20 years of service.
Postponed Retirement	A participant may work beyond his normal retirement date and may subsequently retire on the first of any month.
Retirement Benefits	
Normal Retirement	2.5% of final earnings for each year of service up to 20 years plus 2.0% of final earnings per year of service in excess of 20 years (maximum 70% plus 2% times unused disability credit and pre-employment military service credit.)
Postponed Retirement	Same as normal retirement but based on continued accrual past normal retirement date.
Normal Form of Payment	For single participants, monthly life annuity with payments guaranteed for 5 years. For married participants, unreduced 100% joint and survivor annuity with payments guaranteed for 5 years.
Disability	
Eligibility	Totally and permanently disabled (except as the result of activities specified in the Country code) regardless of length of service.
Duty-Related	The greater of the accrued benefit or 66-2/3% of final earnings, payable immediately, unreduced.
Non-Duty Related	The greater of the accrued benefit or 20% of final earnings, payable immediately, unreduced.
Termination of Employment	Return of employee contributions with 3.00% interest.

Death Benefits

Married	Duty-Related: Greater of accrued benefit or 66-2/3% of final earnings. Non-duty Related: Accrued Benefit.
Unmarried	Return of employee contributions with 3.00% interest plus, if one or more years of service, a lump sum of 50% of final earnings.
Cost of Living Increase (for benefits accrued as of 1/31/1997)	Retiree benefits are adjusted each year. The revised benefit amount is the lesser of: • Base benefit multiplied by ratio of current 12-month average CPI to 12-month average CPI at retirement. • Prior year benefit increased by 4%. Benefit payments can be reduced or increased. However, the amount can never be less than the initial benefit amount.
Cost of Living Increase (for benefits accrued after 1/31/1997)	Retiree benefits are adjusted each year. The revised benefit amount is the lesser of: • Prior year benefit multiplied by 60% of the increase in current March CPI from March CPI for prior year. • Prior year benefit increased by 2.5%. Benefit payments can be reduced or increased. However, the amount can never be less than the initial benefit amount.
Deferred Retirement Option Program (DROP)	Allows accumulation of pension after 20 years of County service. DROP period must be between three and six years (with the sixth year requiring approval for certain job classifications). Interest shall be credited to the DROP account on a monthly basis at an interest rate of 0.34745%, which provides an effective annual yield of 4.25%.

County Council Bill No. 48-89	Effective 9/13/1989
	The previously combined Police and Fire plan was separated into distinct plans for each group.
	The reduction for retirement prior to age 50 was changed to 0.2% per month from 0.3% per month.
County Council Bill No. 34-92	Effective 6/1/1992 through 8/31/1992
	Participants age 50 or with at least 20 years of service could elect to retire with an additional pension equal to 1/12 of 2.5% of final earnings for the first 20 years of service, plus 1/12 of 2% of final earnings for each additional year of service. The additional amount could be taken as a pension increase, a lump sum, or as a temporary supplement to age 62. Appropriate actuarial adjustments apply.
State House Bill No. 687	Effective 7/1/1990
	County employees were given the opportunity to apply for credit under the County's plan for previous service with the State of Maryland (or a political subdivision of the State).
County Council Bill No. 88-96	Effective 12/4/1996
	The previous method of calculating cost of living increase will only apply to benefits accrued as of 1/31/97. The cost of living increase for future benefits is a compound increase equal to 60% of the annual change in the CPI, not to exceed 2.5%. Employees hired, or rehired, on or after 12/4/96 will be Tier Two employees and will have different benefits than current employees.
County Council Bill No. 80-00 Recodification	Effective 2/25/2002
	Allows a benefit based on disability leave service and pre-plan military service to be paid over the 70% cap. Normal Retirement was changed to the earlier of 20 years of service or age 50 with 5 years of service. Elimination of Tier 2 benefits. Implemented a Deferred Retirement Option Program (DROP), a voluntary program that provides an alternative way to earn and receive retirement benefits (retroactive to 1/1/2001).
County Council Bill No. 74-09	Effective 12/11/2009
	For non-represented members, FY2010 annual pay shall be determined by increasing FY2009 annual pay by an assumed 3% for determining the final average basic pay. For represented members, FY2010 annual pay shall be determined by increasing FY2009 annual pay by an assumed 5% for determining the final average basic pay.
County Council Bill No. 6-10	Effective 4/18/2010
	Provides for a disability benefit for those participants who are totally and permanently disabled as a result of qualified military service.
County Council Bill No. 41-10	Reduced the DROP interest rate from 8 % to 4.25%. Increased the contribution rate for all but Battalion Chief, Division Chief, Deputy Chief and Fire Chief to 7.25%.
County Council Bill No. 98-12	Effective 5/13/2013.
	Changed the definition of "final average basic pay" from highest 3 out of the last 5 years basic pays to highest 3 of all basic pays.
County Council Bill No. 30-12	Effective 2/1/2013.
	All participants shall contribute 7.25% of his or her annual basic pay in each calendar year or portion of a calendar year while an active participant in the plan.
County Council Bill No. 66-18	Effective 7/1/2016.
	Except for Battalion Chiefs, allows for interest to be credited to a DROP member's account in the sixth year of DROP participation, for members entering their sixth year in DROP after July 1, 2018.
County Council Bill No. 55-20	Effective: 11/09/2020.
	The legislation permits Battalion Chiefs to now earn interest in the 6th year of DROP for Members entering the 6th year of DROP after July 1, 2020.
County Council Bill No. 70-20	Effective: 11/22/2020.

	Each of the pension plans provide pension benefits for an employee who is or becomes totally and permanently disabled and meets certain criteria. To be eligible for a disability pension, the plan requires that the disability prevent the participant from performing the duties of the participant's regular duties. The purpose of the bill is to eliminate the participant's ability to perform any other assignment within their Department as a disqualifying factor for a service connected disability.
County Council Bill No. 79-21	Effective 12/4/2021
	This bill allows Battalion Chiefs to extend their DROP participation period to the sixth year without approval of the Fire Chief.

Net Pension Liability of the County

The components of the net pension liability of the County at December 31, 2021, were as follows:

Total pension liability	$ 818,854,297
Plan fiduciary net position	(692,932,130)
County's net pension liability	$ 125,922,167
Plan fiduciary net position as a percentage of the total pension liability	84.62%

Actuarial assumptions. The total pension liability was determined by an actuarial valuation as of December 31, 2021 using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3.00%
Salary increases	Rates vary by participant age and service
Investment rate of return	7.00%, net of pension plan investment expense, including inflation
Mortality	RP-2014 Blue Collar Mortality Table for males and females projected generationally using scale MP-2018. A five-year set forward is used for post-disability mortality.

The above is a summary of key actuarial assumptions. Full descriptions of the actuarial assumptions are contained in the Actuarial Basis section of this report.

Sensitivity of the net pension liability to changes in the discount rate

	1% Decrease 6.00%	*Current Discount Rate* 7.00%	*1% Increase* 8.00%
County's net pension liability	$ 239,103,866	$ 125,922,167	$ 34,238,061

Changes in the Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances at 12/31/20	$ 728,904,028	$ 609,695,729	$ 119,208,299
Changes for the year:			
Service cost	17,011,774		17,011,774
Interest	49,831,575		49,831,575
Changes of benefit terms	-		-
Differences between expected and actual experience	14,680,330		14,680,330
Changes of assumptions	42,475,362		42,475,362
Contributions - employer		24,642,756	(24,642,756)
Contributions - member		4,203,216	(4,203,216)
Net investment income		88,951,763	(88,951,763)
Benefit payments, including refunds of member contributions	(34,048,772)	(34,048,772)	-
Administrative expense		(512,562)	512,562
Other		-	-
Net Changes	89,950,269	83,236,401	6,713,868
Balances at 12/31/21	$ 818,854,297	$ 692,932,130	$ 125,922,167

Changes in the County's Net Pension Liability and Related Ratios
Last 10 Fiscal Years
(Dollar amounts in thousands)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Total pension liability										
Service cost	$ 17,012	$ 14,146	$ 12,612	$ 11,785	$ 11,556	$ 11,102	$ 10,339	$ 9,184		
Interest	49,832	50,305	47,454	45,537	43,670	42,294	41,924	38,949		
Changes of benefit terms	-	-	-	-	-	-	-	-		
Differences between expected and actual experience	14,680	(913)	(573)	3,521	2,210	(1,552)	(14,630)	3,679		
Changes of assumptions	42,475	6,468	10,153	-	-	-	-	18,028	Information for FY2013 and	
Benefit payments, including refunds of member contributions	(34,049)	(32,663)	(30,098)	(31,973)	(33,129)	(33,868)	(31,520)	(28,823)	earlier is not available	
Net change in total pension liability	89,950	37,342	39,548	28,869	24,309	17,976	6,112	41,016		
Total pension liability - beginning	728,904	691,562	652,014	623,144	598,836	580,860	574,748	533,731		
Total pension liability - ending (a)	$ 818,854	$ 728,904	$ 691,562	$ 652,014	$ 623,144	$ 598,836	$ 580,860	$ 574,748		
Plan fiduciary net position										
Contributions - employer	$ 24,643	$ 20,506	$ 17,637	$ 15,704	$ 14,664	$ 14,591	$ 15,122	$ 15,899		
Contributions - member	4,203	4,093	3,652	3,524	3,441	3,257	3,050	2,778		
Net investment income	88,952	42,359	75,388	(25,208)	77,992	33,899	(7,744)	22,688		
Benefit payments, including refunds of member contributions	(34,049)	(32,663)	(30,098)	(31,973)	(33,129)	(33,868)	(31,520)	(28,823)		
Administrative expense	(513)	(486)	(522)	(430)	(448)	(428)	(436)	(423)		
Other	-	-	-	-	-	-	-	-		
Net change in plan fiduciary net position	$ 83,236	$ 33,809	$ 66,058	$ (38,382)	$ 62,520	$ 17,451	$ (21,528)	$ 12,119		
Plan fiduciary net position - beginning	609,696	575,887	509,828	548,211	485,690	468,239	489,767	477,648		
Plan fiduciary net position - ending (b)	$ 692,932	$ 609,696	$ 575,887	$ 509,828	$ 548,211	$ 485,690	$ 468,239	$ 489,767		
County's net pension liability - ending (a)-(b)	$ 125,922	$ 119,208	$ 115,675	$ 142,185	$ 74,934	$ 113,145	$ 112,621	$ 84,981		
Plan fiduciary net position as a percentage of the total pension liability	84.62%	83.65%	83.27%	78.19%	87.97%	81.11%	80.61%	85.21%		
Covered payroll	$ 58,237	$ 55,428	$ 51,011	$ 48,728	$ 46,954	$ 46,228	$ 43,838	$ 40,476		
County's net pension liability as a percentage of covered payroll	216.22%	215.07%	226.76%	291.79%	159.59%	244.76%	256.90%	209.95%		
Expected average remaining service years of all participants	5	5	6	6	6	6	5	5		

Notes to Schedule:

Benefit changes: There are no benefit changes reflected in the current schedule.

Changes of assumptions: For 2021, the discount rate / investment rate of return was lowered from 7.45% to 7.00%

Covered Payroll: Does not include pay for members in DROP.

Schedule of County Contributions
Last 10 Fiscal Years
(Dollar amounts in thousands)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Actuarially determined contribution	$ 24,643	$ 20,506	$ 17,637	$ 15,704	$ 14,664	$ 14,591	$ 15,122	$ 15,899		
Contributions in relation to the actuarially determined contribution	24,643	20,506	17,637	15,704	14,664	14,591	15,122	15,899	Informaiton for FY 2013	
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -	$ 0	$ 0	$ 0	and earlier is not available	
Covered payroll (excluding members in DROP)	$ 58,237	$ 55,428	$ 51,011	$ 48,728	$ 46,954	$ 46,228	$ 43,838	$ 40,476		
Contributions as a percentage of covered payroll	42.31%	36.99%	34.57%	32.23%	31.23%	31.56%	34.49%	39.28%		

Notes to Schedule

Valuation date:
Actuarially determined contribution amounts are calculated as of each January 1 for the upcoming County fiscal year beginning July 1. Actuarial valuations are performed every year.

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Projected Unit Credit
Amortization method	Level percent of payroll (closed), increasing 3.0% per year
Remaining amortization period	Remaining amortization periods range from 13 to 22 years
Asset valuation method	5-year smoothed market
Inflation	3.00%
Salary increases	Rates vary by participant age and service
Investment rate of return	7.00%, net of pension plan investment expense, including inflation
Retirement age	Rates vary by participant age and service
Mortality	RP-2014 Blue Collar Mortality Table for males and females projected generationally using scale MP-2018. A five-year set forward is used for post-disability mortality.

The Anne Arundel County Fire Service Retirement Plan

Solvency Test

2013 to 2022

Actuarial Valuation Date	Active Member Contribution (1)[1]	Retirees and Beneficiaries Inactive and Pay-Status Members (2)	Active Members Employer Financed Portion (3)	Actuarial Value of Assets	Portion of Actuarial Accrued Liabilities Covered by Assets (1)	(2)	(3)
1/1/2013	20,011,772	259,809,098	230,649,782	426,659,036	100%	100%	63.7%
1/1/2014	21,692,514	278,481,205	241,904,214	462,235,880	100%	100%	67.0%
1/1/2015	24,732,788	311,351,876	231,670,080	490,533,983	100%	100%	66.7%
1/1/2016	27,679,531	335,464,387	211,631,903	503,389,792	100%	100%	66.3%
1/1/2017	29,579,980	358,058,086	202,630,706	516,044,681	100%	100%	63.4%
1/1/2018	30,315,919	376,991,732	202,482,078	534,987,849	100%	100%	63.1%
1/1/2019	31,349,277	389,664,773	218,448,234	546,237,670	100%	100%	57.3%
1/1/2020	32,739,814	392,274,171	247,342,807	568,443,867	100%	100%	58.0%
1/1/2021	35,184,300	426,297,038	287,018,977	605,126,804	100%	100%	50.0%
1/1/2022	36,610,624	450,113,593	313,166,675	652,769,215	100%	100%	53.0%

Analysis of Financial Experience

Reasons for Change in the Unfunded Accrued Liability
The unfunded accrued liability increased from $143,373,511 to $147,121,677. The funded status increased from 80.8% to 81.6%.

Reasons for Change in Contribution Rates
The employer contribution rate decreased from 42.8% for the fiscal year ending June 30, 2022 to 42.1% for the fiscal year ending June 30, 2023. The decrease of 0.7% is due to the following reasons:

Investment Performance	-1.3%
Pay Increases	0.1%
New Entrants/Change in Normal Cost	-0.2%
COLA	-0.5%
Change in Expenses	-0.1%
Assumption and Method Changes	0.0%
Demographics and Other Changes	1.3%
Total	**-0.7%**

[1] Does not include contribution balances for any participants currently in DROP

Attachment D

Detention Officers' and Deputy Sheriffs' Retirement Plan

A. Method Used for Funding Purposes

This valuation was performed using the projected unit credit cost method. The contribution equals the sum of the normal cost and the amount necessary to amortize any actuarial gains/(losses) over closed periods. Effective January 1, 2014, new bases due to changes in actuarial assumptions or differences between actual and expected experience are amortized over closed periods of 20 years. New bases due to changes in plan benefits are amortized over the expected future working lifetime of affected employees. Amortization payments increase 3.0% per year.

B. Asset Valuation Method

The actuarial value of assets is determined by spreading the asset gain or loss over a 5-year period. The asset gain or loss is the amount by which the actual market value investment return differs from the expected market value investment return. The actuarial value of assets can be no less than 50% of market value of assets and no more than 150% of market value of assets.

There is a six-month lag between the valuation and the fiscal year. The 2022 valuation determines the County contribution due for the fiscal year ending June 30, 2023.

C. Valuation Procedures

Active participants who terminate prior to age 40 are assumed to elect to receive a refund of employee contributions with interest. Employees who terminate at or after age 40 are assumed to receive their vested benefit at normal retirement date.

D. Actuarial Assumptions

The following assumptions were used in valuing the liabilities and benefits under the Plan for purposes of determining pension expense and liabilities under GASB. These assumptions are used for all members eligible to receive benefits under the Detention Officers and Deputy Sheriffs' Retirement Plan provisions.

Economic	
Investment Return	7.00% compounded annually net of investment expenses (3.0% inflation and 4.00% real return) effective January 1, 2021.
Salary Increases	A graded schedule is used. See Earnings Progression Table.
Cost of Living Adjustment	Benefits accrued before Bill 88-96 are assumed to increase by 3.0% of the original benefit each year. Benefits accrued after Bill 88-96 are assumed to increase by 1.8% of the current benefit each year.
Other	
Mortality	Healthy: RP-2014 Blue Collar Mortality Table for males and females with the 2006 base rates projected generationally from 2006 using scale MP-2018. Disabled: RP-2014 Blue Collar Mortality Table for males and females set forward five years with the 2006 base rates then projected generationally from 2006 using scale MP-2018. Projections from 2006 to the valuation date represent current mortality and projections beyond the valuation date represent future mortality improvements. 100% of pre-retirement deaths are assumed to be non-duty related.
Withdrawal	See Table of Sample Rates.
Disability	See Table of Sample Rates. 75% of disablement is assumed to be duty-related.

Administrative Expenses — The average of actual expenses for the two years preceding the valuation date, rounded to the nearest thousand.

Retirement Rates

For GASB 68 accounting (Category I)

Annual Rate — Years of Service

Age	Less than 20	20	21 or more but less than 23	23 or more
40-49	N/A	25%	15%	100%
50	10%	40%	20%	100%
51-54	7%	40%	20%	100%
55-59	10%	40%	20%	100%
60-61	100%	40%	20%	100%
62	100%	100%	100%	100%

(Category II)

Sample Annual Rates — Years of Service

Age	Less than 20	20	25	30 or more
<50	N/A	5%	2%	100%
50	10%	46%	35%	100%
55	10%	31%	10%	100%
60	7%	40%	14%	100%
64	7%	14%	100%	100%
>64	100%	100%	100%	100%

Percentage Married — Males – 80%; Females – 80%

Age Difference — Males are assumed to be four years older than their spouses.

Military Service — Active liabilities (which depend on credited service) are loaded by 3.25% to account for future crediting of military service.

Disability Leave — Service credit for benefit formula purposes is increased by 1.75% to account for disability leave which is converted to service credit at retirement.

In addition, it is assumed that participants with 30 or more years of service will have credit for 1 year of combined Disability Leave and Military Service.

Table of Sample Mortality Rates (Base Rates)

	Healthy Mortality		Disabled Mortality	
Age	Males	Females	Males	Females
20	0.07%	0.02%	0.07%	0.02%
25	0.07%	0.02%	0.06%	0.02%
30	0.06%	0.02%	0.07%	0.03%
35	0.07%	0.03%	0.10%	0.05%
40	0.10%	0.05%	0.16%	0.09%
45	0.16%	0.09%	0.26%	0.13%
50	0.26%	0.13%	0.38%	0.19%
55	0.38%	0.19%	0.64%	0.31%
60	0.64%	0.31%	1.23%	0.50%
65	1.23%	0.50%	2.09%	0.85%

Attained Age	Table of Sample Disability Rates
	Percentage
20	0.147%
25	0.147%
30	0.147%
35	0.217%
40	0.448%
45	0.750%
50	1.103%
55	0.000%
60	0.000%
64	0.000%

Attained Age	Table of Sample Withdrawal Rates			
	Less Than 10 Years of Service		10 or more Years of Service	
	Male Percentage	Female Percentage	Male Percentage	Female Percentage
20	14.24%	21.56%	6.50%	13.13%
25	10.33%	16.17%	4.72%	9.84%
30	7.83%	12.94%	3.58%	7.88%
35	5.69%	9.71%	2.60%	5.91%
40	3.92%	7.12%	1.79%	4.33%
45	2.14%	4.53%	0.98%	2.76%
50	0.00%	0.00%	0.00%	0.00%

Earnings Progression	
Attained Age	Percentage Increase at Attained Age
20	6.00%
25	6.00
30	5.50
35	5.25
40	4.75
45	4.25
50	4.25

Active Members

Valuation Date	Number	Annual Payroll (Jan. 1 Rate)	Average Annual Pay	% Increase in Average Pay
January 1, 2013	338	17,896,574	52,948	(2.1%)
January 1, 2014	342	18,132,868	53,020	0.1%
January 1, 2015	345	19,775,644	57,321	8.1%
January 1, 2016	350[1]	19,974,632	57,070	(0.4%)
January 1, 2017	358[2]	21,000,562	58,661	2.79%
January 1, 2018	345[3]	21,268,895	61,649	5.09%
January 1, 2019	343[4]	21,444,603	62,521	1.41%
January 1, 2020	380[5]	24,504,133	64,485	3.14%
January 1, 2021	372[6]	24,702,134	66,381	2.94%
January 1, 2022	359[7]	24,679,159	68,744	3.56%

[1] Includes 8 members in DROP.
[2] Includes 15 members in DROP.
[3] Includes 18 members in DROP.
[4] Includes 21 members in DROP.
[5] Includes 26 members in DROP.
[6] Includes 34 members in DROP.
[7] Includes 43 members in DROP.

Members With Deferred Benefits

Year	Number at Beginning of Year	Additions	Decreases	Number at End of Year
1/1/12 to 12/31/12	9	3	0	12
1/1/13 to 12/31/13	12	0	(3)	9
1/1/14 to 12/31/14	9	0	(1)	8
1/1/15 to 12/31/15	8	0	0	8
1/1/16 to 12/31/16	8	1	(2)	7
1/1/17 to 12/31/17	7	0	(1)	6
1/1/18 to 12/31/18	6	0	(2)	4
1/1/19 to 12/31/19	4	2	0	6
1/1/20 to 12/31/20	6	1	(1)	6
1/1/21 to 12/31/21	6	0	(2)	4

Members Receiving Benefits

Year	Number at Beginning of Year	Additions	Decreases	Number at End of Year
1/1/12 to 12/31/12	179	22	(4)	197
1/1/13 to 12/31/13	197	14	(3)	208
1/1/14 to 12/31/14	208	18	(3)	223
1/1/15 to 12/31/15	223	19	(3)	239
1/1/16 to 12/31/16	239	15	(4)	250
1/1/17 to 12/31/17	250	17	(1)	266
1/1/18 to 12/31/18	266	23	(5)	284
1/1/19 to 12/31/19	284	15	(4)	295
1/1/20 to 12/31/20	295	15	(4)	306
1/1/21 to 12/31/21	306	32	(8)	330

Summary of Retirees and Beneficiaries Added to and Removed from Rolls

	Added to Rolls		Removed from Rolls		Rolls End of Year			
Year Ending	Number	Annual Allowance[6]	Number	Annual Allowance	Number	Annual Allowance	% Increase in Average Annual Allowance	Average Annual Allowance
12/31/2012	22	$701,667	4	$72,326	197	$5,110,146	3.63%	$25,940
12/31/2013	14	$378,114	3	$47,509	208	$5,440,751	0.84%	$26,157
12/31/2014	18	$416,562	3	$46,299	223	$5,811,014	(0.38%)	$26,058
12/31/2015	19	$487,445	3	$99,378	239	$6,199,081	(0.46%)	$25,938
12/31/2016	15	$332,225	4	$52,161	250	$6,479,145	(0.08%)	$25,917
12/31/2017	17	$707,232	1	$30,830	266	$7,155,547	3.80%	$26,901
12/31/2018	23	$874,647	5	$127,854	284	$7,902,340	3.43%	$27,825
12/31/2019	15	$468,513	4	$85,850	295	$8,285,002	0.93%	$28,085
12/31/2020	15	$665,070	4	$109,859	306	$8,840,214	6.70%	$28,890
12/31/2021	32	$1,124,499	8	$158,767	330	$9,805,946	10.92%	$29,715

[6] Includes COLAs for all retirees

Compensation	For purposes of the pension plan, compensation is the regular annual rate of pay, exclusive of extra compensation of any kind such as overtime pay, bonuses and commissions.
Final Earnings	The average of the highest 3 years of annual basic pay.
Eligibility Requirements	Permanent employees who work at least 50% of the time specified for their position. They are either Category I or Category II:
Category I	• Detention Officer • Detention Corporal • Detention Sergeant • Detention Lieutenant • Detention Captain • Deputy Sheriff I, II, III, and IV
Category II	• Correctional Program Specialist I and II (hired prior to 10/29/2020) • Criminal Justice Program Supervisor (hired prior to 10/29/2020) • Correctional Facility Administrator • Assistant Correctional Facility Administrator • Superintendent of Detention Facilities, by election
Employee Contributions	6.75% of compensation for all plan members.
Retirement Date	
Normal Retirement	Category I: The first of the month coincident with or next following the participant's 50th birthday and five years of service or 20 years of service whichever comes first. Category II: The first of the month coincident with or next following the participant's 50th birthday and 10 years of service or age 50 with five years of service for members hired before July 1, 2015.
Early Retirement	Reduced benefits are available the first of any month coincident with or next following the completion of 20 years of continuous service for Category II.
Postponed Retirement	A participant may work beyond his normal retirement date and may subsequently retire on the first of any month.
Retirement Benefits	
Normal Retirement	2.5% of final earnings for each year of service up to 20 years plus 2.0% of final earnings per year of service in excess of 20 years (maximum 70% plus 2% times unused disability credit and pre-employment military service credit)
Early Retirement	Same as normal retirement but reduced for early commencement.
Postponed Retirement	Same as normal retirement but based on continued accrual past normal retirement date.
Normal Form of Payment	Monthly life annuity with payments guaranteed for 5 years.

Disability

Eligibility	Totally and permanently disabled (except as the result of activities specified in the County code) regardless of length of service.
Duty-Related	The greater of the accrued benefit or 66-2/3% of final earnings, payable immediately, unreduced.
Non-Duty Related	The greater of the accrued benefit or 20% of final earnings, payable immediately, unreduced.

Termination of Employment

Vesting date	Category I hired before August 9, 2004: 5 years of service Category I hired on or after August 9, 2004: 20 years of service Category II hired before July 1, 2015: 5 years of service Category II hired on or after July 1, 2015: 10 years of service
Prior to vesting date	Return of employee contributions with 4.25% interest.
On or after vesting date	At the discretion of the employee, either a return of contributions with interest or the accrued normal retirement taking into account final earnings and service at date of termination, payable at normal retirement date.

Death Benefits

Line of duty	Greater of accrued benefit or 66-2/3% of final earnings.
Non-line of duty	If participant is vested, surviving spouse's choice of an annuity equal to the participant's accrued benefit, or a lump sum equal to return of employee contributions with 4.25% interest plus 50% of annual pay. If the participant is not vested, return of employee contributions with 4.25% interest plus a lump sum equal to 50% of annual pay.
Cost of Living Increase (simple, for benefits accrued as of 1/31/1997)	Retiree benefits are adjusted each year. The revised benefit amount is the lesser of: • Prior year benefit plus base benefit multiplied by increase in current CPI from CPI for prior year. • Benefit increased by 4% of original benefit.
Cost of Living Increase (compound, for benefits accrued after 1/31/1997)	Retiree benefits are adjusted each year. The revised benefit amount is the lesser of: • Prior year benefit multiplied by 60% of the increase in current March CPI from March CPI for prior year. • Prior year Benefit increased by 2.5%.
Deferred Retirement Option Program (DROP)	Allows accumulation of pension after 20 years of County service. DROP period must be between three and six years (with years beyond the third requiring approval). Interest shall be credited to the DROP account on a monthly basis at an interest rate of 0.34745%, which provides an effective annual yield of 4.25%.

County Council Bill No. 34-92	Effective 6/1/1992 through 8/31/1992
	Participants over age 50 or with at least 20 years of service could elect to retire with an additional pension equal to 1/12 of 2.5% of final earnings for the first 20 years of service, plus 1/12 of 2% of final earnings for each additional year of service. The additional amount could be taken as a pension increase, a lump sum, or as a temporary supplement to age 62. Appropriate actuarial adjustments apply.
State House Bill No. 687	Effective 7/1/1990
	County employees were given the opportunity to apply for credit under the County's plan for previous service with the State of Maryland (or a political subdivision of the State).
County Council Bill No. 90-93	Effective 12/22/1993
	Plan participants are required to pay the full actuarial value for service purchases. Purchases can only be made at retirement. To be eligible, an employee must have 60 months of County service. Existing plan participants must be notified of their right to purchase service under existing law.
County Council Bill No. 94-93	Effective 11/19/1993
	All current and future employees shall be 100% vested after 5 years of Credited service.
County Council Bill No. 88-96	Effective 12/4/1996
	The previous method of calculating cost of living increase will only apply to benefits accrued as of 1/31/97. The cost of living increase for future benefits is a compound increase equal to 60% of the annual change in the CPI, not to exceed 2.5%. Employees hired, or rehired, on or after 12/4/96 will be Tier Two employees and will have different benefits than current employees.
County Council Bill No. 41-99	Effective 6/15/1999
	Employees paid under the deputy sheriff employees pay schedule become members of the Detention Center Plan effective as of January 1, 1999. Service credited under the Employees' Plan will count as credited service in the Detention Center plan and no future benefit will be paid from the Employees' Plan. Assets are transferred from the Employees' Plan to the Detention Center Plan in an amount equal to the projected unit credit accrued liability in the Employees' Plan.
Recodification	Effective 2/25/2002
	Allows a benefit based on disability leave service and pre-plan military service to be credited over the 70% cap. Elimination of Tier Two benefits. Changed early retirement factors. Added a death benefit.
County Council Bill No. 32-04	Effective 7/1/2004
	Allows retirement after 20 years of service for "Category I" participants. Changes vesting for new hires from 5 years to 20 years. Provides for employees' contributions to be made on a pre-tax ("pick up") basis.
County Council Bill No. 74-09	Effective 12/11/2009
	For non-represented members, FY2010 annual pay shall be determined by increasing FY2009 annual pay by an assumed 3% for determining the final average basic pay. For D3 and S2 members, FY2010 annual pay shall be determined by increasing FY2009 annual pay by an assumed 4% for determining the final average basic pay.
County Council Bill No. 78-09	Effective 11/16/2009
	For D1 and D2 members, FY2010 annual pay shall be determined by increasing FY2009 annual pay by an assumed 4% for determining the final average basic pay.
County Council Bill No. 6-10	Effective 4/18/2010
	Provides for a disability benefit for those participants who are totally and permanently disabled as a result of qualified military service.
County Council Bill No. 41-10	Effective 7/1/2010
	Increased the contribution rate for Detention Officers, Detention Corporals and Detention Sergeants to 6.75%. Added a "pop-up" option.

County Council Bill No. 98-12	Effective 5/13/2013.
	Changed the definition of "final average basic pay" from highest 3 out of the last 5 years basic pays to highest 3 of all basic pays.
County Council Bill No. 30-12	Effective 2/1/2013
	A participant in the classification of Detention Officer, Detention Corporal, or Detention Sergeant shall contribute 6.75% of his or her annual basic pay in each calendar year or portion of a calendar year while an active participant in the plan.
County Council Bill No. 97-13	Effective 4/14/2014
	Category II members of the Detention and Deputy Sheriffs' Plan hired on or after July 1, 2015 will be subject to 10-year vesting and 10-year normal retirement provisions. The 10-year requirement also affects the ability to purchase service or get credit for pre-plan military service.
County Council Bill No. 50-15	Effective 7/21/2015
	Category I members of the Detention and Deputy Sheriffs' Plan, as well as correctional facility administrators, assistant correctional facility administrators, and superintendents of detention facilities are eligible to participate in DROP upon completion of 20 years of actual plan service.
County Council Bill No. 56-16	Effective 7/1/2016
	Allows for interest to be credited to a DROP member's account in the sixth year of DROP participation.
County Council Bill No. 78-17	Effective 7/1/2017
	Eliminates the reduction in benefit for DROP retirees if they are reemployed in any capacity that meets the exceptions set forth in 5-1-203(c)(1). Also adds an exception under 5-1-203(c) for any retirees (including DROP participants) who are reemployed into a grant funded contractual position under 802(a)(17) of the Charter.
County Council Bill No. 54-20	Effective 10/29/2020.
	Permits that employees in the classifications of Correctional Program Specialist and Criminal Justice Program Specialist as of the effective date of the legislation participate in the DROP program. All new employees hired as CPS or CJPS will be enrolled in the Employees' Retirement Plan.
County Council Bill No. 70-20	Effective: 11/22/2020.
	Each of the pension plans provide pension benefits for an employee who is or becomes totally and permanently disabled and meets certain criteria. To be eligible for a disability pension, the plan requires that the disability prevent the participant from performing the duties of the participant's regular duties. The purpose of the bill is to eliminate the participant's ability to perform any other assignment within their Department as a disqualifying factor for a service connected disability.

Net Pension Liability of the County

The components of the net pension liability of the County at December 31, 2021, were as follows:

Total pension liability	$ 247,529,692
Plan fiduciary net position	(191,178,583)
County's net pension liability	$ 56,351,109
Plan fiduciary net position as a percentage of the total pension liability	77.23%

Actuarial assumptions. The total pension liability was determined by an actuarial valuation as of December 31, 2021 using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3.00%
Salary increases	Rates vary by participant age
Investment rate of return	7.00%, net of pension plan investment expense, including inflation
Mortality	RP-2014 Blue Collar Mortality Table for males and females projected generationally using scale MP-2018. A five-year set forward is used for post-disability mortality.

The above is a summary of key actuarial assumptions. Full descriptions of the actuarial assumptions are contained in the Actuarial Basis section of this report.

Sensitivity of the net pension liability to changes in the discount rate

	1% Decrease 6.00%	*Current Discount Rate* 7.00%	*1% Increase* 8.00%
County's net pension liability	$ 86,557,993	$ 56,351,109	$ 31,410,707

Changes in the Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances at 12/31/20	$ 223,880,890	$ 167,430,551	$ 56,450,339
Changes for the year:			
Service cost	4,982,213		4,982,213
Interest	15,283,248		15,283,248
Changes of benefit terms	-		-
Differences between expected and actual experience	2,519,617		2,519,617
Changes of assumptions	11,961,270		11,961,270
Contributions - employer		9,276,240	(9,276,240)
Contributions - member		1,494,147	(1,494,147)
Net investment income		24,208,223	(24,208,223)
Benefit payments, including refunds of member contributions	(11,097,546)	(11,097,546)	-
Administrative expense		(133,032)	133,032
Other		-	-
Net Changes	23,648,802	23,748,032	(99,230)
Balances at 12/31/21	$ 247,529,692	$ 191,178,583	$ 56,351,109

Changes in the County's Net Pension Liability and Related Ratios
Last 10 Fiscal Years
(Dollar amounts in thousands)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Total pension liability										
Service cost	$ 4,982	$ 4,704	$ 4,147	$ 4,533	$ 4,658	$ 4,461	$ 4,634	$ 4,602		
Interest	15,283	15,556	14,632	13,836	12,912	12,281	11,401	10,301		
Changes of benefit terms	-	-	-	-	-	-	4,635	-		
Differences between expected and actual experience	2,520	(750)	1,010	1,938	2,244	(1,678)	(2,558)	2,322		
Changes of assumptions	11,961	-	1,348	-	-	-	-	3,494	Information for FY2013	
Benefit payments, including refunds of member contributions	(11,098)	(8,863)	(8,610)	(8,162)	(6,821)	(6,485)	(6,279)	(5,819)	and earlier is not available	
Net change in total pension liability	23,649	10,647	12,528	12,145	12,993	8,579	11,834	14,900		
Total pension liability - beginning	223,881	213,234	200,706	188,562	175,569	166,990	155,156	140,256		
Total pension liability - ending (a)	$ 247,530	$ 223,881	$ 213,234	$ 200,706	$ 188,562	$ 175,569	$ 166,990	$ 155,156		
Plan fiduciary net position										
Contributions - employer	$ 9,276	$ 8,165	$ 7,600	$ 7,282	$ 7,000	$ 6,689	$ 6,371	$ 6,111		
Contributions - member	1,494	1,530	1,402	1,352	1,354	1,316	1,317	1,298		
Net investment income	24,208	11,639	19,918	(6,825)	19,607	8,159	(1,919)	4,944		
Benefit payments, including refunds of member contributions	(11,098)	(8,863)	(8,610)	(8,162)	(6,821)	(6,485)	(6,279)	(5,819)		
Administrative expense	(133)	(123)	(135)	(108)	(109)	(100)	(98)	(96)		
Other	-	-	-	-	-	-	-	-		
Net change in plan fiduciary net position	$ 23,748	$ 12,348	$ 20,174	$ (6,461)	$ 21,030	$ 9,579	$ (608)	$ 6,438		
Plan fiduciary net position - beginning	167,431	155,083	134,908	141,369	120,339	110,760	111,368	104,930		
Plan fiduciary net position - ending (b)	$ 191,179	$ 167,431	$ 155,083	$ 134,908	$ 141,369	$ 120,339	$ 110,760	$ 111,368		
County's net pension liability - ending (a)-(b)	$ 56,351	$ 56,450	$ 58,151	$ 65,798	$ 47,193	$ 55,230	$ 56,230	$ 43,788		
Plan fiduciary net position as a percentage of the total pension liability	77.23%	74.79%	72.73%	67.22%	74.97%	68.54%	66.33%	71.78%		
Covered payroll	$ 20,422	$ 21,401	$ 22,057	$ 19,573	$ 19,790	$ 19,801	$ 19,386	$ 19,776		
County's net pension liability as a percentage of covered payroll	275.93%	263.77%	263.64%	336.16%	238.47%	278.92%	290.05%	221.43%		
Expected average remaining service years of all participants	3	3	3	3	3	3	4	4		

Notes to Schedule:

Benefit changes: There are no benefit changes reflected in the current schedule.

Changes of assumptions: For 2021, the discount rate / investment rate of return was lowered from 7.45% to 7.00%.

Covered Payroll: Does not include pay for members in DROP.

Schedule of County Contributions
Last 10 Fiscal Years
(Dollar amounts in thousands)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Actuarially determined contribution	$ 9,276	$ 8,165	$ 7,600	$ 7,282	$ 7,000	$ 6,689	$ 6,371	$ 6,111		
Contributions in relation to the actuarially determined contribution	9,276	8,165	7,600	7,282	7,000	6,689	6,371	6,111	Information for FY2013 and earlier is not available	
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
Covered payroll (excluding members in DROP)	$ 20,422	$ 21,401	$ 22,057	$ 19,573	$ 19,790	$ 19,801	$ 19,386	$ 19,776		
Contributions as a percentage of covered payroll	45.42%	38.15%	34.46%	37.20%	35.37%	33.78%	32.86%	30.90%		

Notes to Schedule

Valuation date:
Actuarially determined contribution amounts are calculated as of each January 1 for the upcoming County fiscal year beginning July 1. Actuarial valuations are performed every year.

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Projected Unit Credit
Amortization method	Level percent of payroll (closed), increasing 3.0% per year
Remaining amortization period	Remaining amortization periods range from 2 to 22 years
Asset valuation method	5-year smoothed market
Inflation	3.00%
Salary increases	Rates vary by participant age
Investment rate of return	7.00%, net of pension plan investment expense, including inflation
Retirement age	Rates vary by participant age and service
Mortality	RP-2014 Blue Collar Mortality Table for males and females projected generationally using scale MP-2018. A five-year set forward is used for post-disability mortality.

The Anne Arundel County Detention Officers' and Deputy Sheriffs' Retirement Plan

Solvency Test

2013 to 2022

Actuarial Valuation Date	Active Member Contribution (1)[1]	Retirees and Beneficiaries Inactive and Pay-Status Members (2)	Active Members Employer Financed Portion (3)	Actuarial Value of Assets	Portion of Actuarial Accrued Liabilities Covered by Assets (1)	(2)	(3)
1/1/2013	10,907,008	68,999,860	53,771,217	92,617,788	100%	100%	23.6%
1/1/2014	11,270,515	73,758,850	58,666,981	102,136,092	100%	100%	29.2%
1/1/2015	12,626,207	78,123,913	64,234,148	112,017,103	100%	100%	33.1%
1/1/2016	12,720,040	82,685,631	68,009,223	119,275,911	100%	100%	35.1%
1/1/2017	13,431,665	84,771,888	73,488,955	127,553,081	100%	100%	39.9%
1/1/2018	14,015,668	92,026,542	78,317,776	137,791,833	100%	100%	40.5%
1/1/2019	13,891,558	101,070,151	80,134,623	144,689,347	100%	100%	37.1%
1/1/2020	14,240,571	105,162,356	86,423,100	153,490,883	100%	100%	39.4%
1/1/2021	13,965,928	116,253,336	96,463,780	166,339,896	100%	100%	37.4%
1/1/2022	12,902,768	127,241,725	97,446,400	180,363,012	100%	100%	41.3%

Analysis of Financial Experience

Reasons for Change in the Unfunded Accrued Liability

The unfunded accrued liability decreased from $60,343,148 to $57,227,881. The funded status increased from 73.4% to 75.9%.

Reasons for Change in Contribution Rates

The employer contribution rate increased from 40.5% for the fiscal year ending June 30, 2022 to 41.5% for the fiscal year ending June 30, 2023. The increase of 1.0% is due to the following reasons:

Investment Performance	-0.9%
Pay Increases	0.4%
New Entrants/Change in Normal Cost	1.0%
COLA	-0.1%
Change in Expenses	0.0%
Assumption and Method Changes	0.0%
Demographics and Other Changes	0.6%
Total	**1.0%**

[1] Does not include contribution balances for any participants currently in DROP

Statistical Section

Anne Arundel County Retirement and Pension System

Statement of Changes in Plan Net Position - Employees' Retirement Plan

For the Last Ten Years Ended December 31

	2021	*2020*	*2019*	*2018*	*2017*	*2016*	*2015*	*2014*	*2013*	*2012*
ADDITIONS										
Contributions:										
Employer	$ 36,178,170	$ 32,566,842	$ 29,637,342	$ 27,032,514	$ 25,654,218	$ 25,809,828	$ 25,629,927	$ 24,451,074	$ 22,361,658	$ 19,823,814
Participant	5,527,603	5,764,368	5,511,825	5,611,993	5,471,911	5,181,705	4,846,856	4,662,147	4,452,981	4,416,529
Total contributions	41,705,773	38,331,210	35,149,167	32,644,507	31,126,129	30,991,533	30,476,783	29,113,221	26,814,639	24,240,343
Total investment income (loss)	101,005,006	50,447,442	91,472,051	(31,257,326)	94,922,075	40,737,517	(8,460,297)	28,221,576	52,230,456	63,100,607
Total Additions	142,710,779	88,778,652	126,621,218	1,387,181	126,048,204	71,729,050	22,016,486	57,334,797	79,045,095	87,340,950
DEDUCTIONS										
Benefit payments and refunds	60,687,800	57,779,072	55,015,580	50,574,448	47,406,822	44,007,025	41,260,300	39,008,750	36,727,715	34,375,282
Administrative expenses	570,998	535,391	618,605	533,927	519,027	459,455	505,852	502,007	757,210	546,061
Total deductions	61,258,798	58,314,463	55,634,185	51,108,375	47,925,849	44,466,480	41,766,152	39,510,757	37,484,925	34,921,343
Net increases (decreases)	81,451,981	30,464,189	70,987,033	(49,721,194)	78,122,355	27,262,570	(19,749,666)	17,824,040	41,560,170	52,419,607
Net position, January 1	721,624,004	691,159,815	620,172,782	669,893,976	591,771,621	564,509,051	584,258,717	566,434,677	584,258,717	625,818,887
Net position, December 31	$ 803,075,985	$ 721,624,004	$ 691,159,815	$ 620,172,782	$ 669,893,976	$ 591,771,621	$ 564,509,051	$ 584,258,717	$ 625,818,887	$ 678,238,494

Anne Arundel County Retirement and Pension System

Statement of Changes in Plan Net Position - Police Service Retirement Plan

For the Last Ten Years Ended December 31

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
ADDITIONS										
Contributions:										
Employer	$ 29,598,702	$ 24,900,576	$ 23,093,892	$ 21,933,942	$ 20,931,078	$ 20,410,896	$ 19,559,952	$ 18,869,736	$ 17,745,906	$ 15,530,322
Participant	4,255,390	4,180,925	3,669,199	3,371,789	3,250,062	3,158,451	3,104,338	2,949,789	2,679,723	2,553,740
Total contributions	33,854,092	29,081,501	26,763,091	25,305,731	24,181,140	23,569,347	22,664,290	21,819,525	20,425,629	18,084,062
Total investment income (loss)	86,863,310	43,682,826	76,854,873	(25,925,725)	78,166,498	33,000,617	(7,936,443)	22,133,732	41,763,446	50,828,258
Total Additions	120,717,402	72,764,327	103,617,964	(619,994)	102,347,638	56,569,964	14,727,847	43,953,257	62,189,075	68,912,320
DEDUCTIONS										
Benefit payments and refunds	39,547,361	38,637,477	36,852,665	35,929,917	35,023,110	33,356,257	31,131,759	29,507,128	26,936,388	28,241,364
Administrative expenses	521,901	478,380	540,088	470,041	441,820	389,320	427,109	406,090	615,138	444,328
Total deductions	40,069,262	39,115,857	37,392,753	36,399,958	35,464,930	33,745,577	31,558,868	29,913,218	27,551,526	28,685,692
Net increases (decreases)	80,648,140	33,648,470	66,225,211	(37,019,952)	66,882,708	22,824,387	(16,831,021)	14,040,039	34,637,549	40,226,628
Net position, January 1	616,125,041	582,476,571	516,251,360	553,271,312	486,388,604	463,564,217	480,395,238	466,355,199	480,395,238	515,032,787
Net position, December 31	$ 696,773,181	$ 616,125,041	$ 582,476,571	$ 516,251,360	$ 553,271,312	$ 486,388,604	$ 463,564,217	$ 480,395,238	$ 515,032,787	$ 555,259,415

Anne Arundel County Retirement and Pension System

Statement of Changes in Plan Net Position - Fire Service Retirement Plan

For the Last Ten Years Ended December 31

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
ADDITIONS										
Contributions:										
Employer	$ 24,642,756	$ 20,505,510	$ 17,637,120	$ 15,703,506	$ 14,664,432	$ 14,591,340	$ 15,121,806	$ 15,898,956	$ 16,152,402	$ 15,238,104
Participant	4,203,216	4,093,239	3,652,415	3,523,812	3,440,550	3,257,340	3,050,456	2,778,355	2,432,737	2,453,627
Total contributions	28,845,972	24,598,749	21,289,535	19,227,318	18,104,982	17,848,680	18,172,262	18,677,311	18,585,139	17,691,731
Total investment income (loss)	86,714,769	43,919,134	76,173,892	(25,253,407)	78,004,491	33,397,135	(7,794,949)	23,014,967	43,133,618	51,522,774
Total Additions	115,560,741	68,517,883	97,463,427	(6,026,089)	96,109,473	51,245,815	10,377,313	41,692,278	61,718,757	69,214,505
DEDUCTIONS										
Benefit payments and refunds	34,048,772	32,663,118	30,091,059	31,571,336	33,353,794	33,888,976	31,492,994	28,842,723	21,870,063	19,520,674
Administrative expenses	522,403	489,265	530,549	452,952	439,507	401,289	438,008	409,916	633,476	444,256
Total deductions	34,571,175	33,152,383	30,621,608	32,024,288	33,793,301	34,290,265	31,931,002	29,252,639	22,503,539	19,964,930
Net increases (decreases)	80,989,566	35,365,500	66,841,819	(38,050,377)	62,316,172	16,955,550	(21,553,689)	12,439,639	39,215,218	49,249,575
Net position, January 1	611,942,565	576,577,065	509,735,246	547,785,623	485,469,451	468,513,901	490,067,590	477,627,951	490,067,590	529,282,808
Net position, December 31	$ 692,932,131	$ 611,942,565	$ 576,577,065	$ 509,735,246	$ 547,785,623	$ 485,469,451	$ 468,513,901	$ 490,067,590	$ 529,282,808	$ 578,532,383

Anne Arundel County Retirement and Pension System

Statement of Changes in Plan Net Position - Detention Officers' and Deputy Sheriffs' Retirement Plan

For the Last Ten Years Ended December 31

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
ADDITIONS										
Contributions:										
Employer	$ 9,276,240	$ 8,165,094	$ 7,600,380	$ 7,282,176	$ 6,999,882	$ 6,688,662	$ 6,370,758	$ 6,110,988	$ 5,600,178	$ 5,141,280
Participant	1,494,147	1,529,838	1,401,641	1,351,994	1,353,928	1,315,988	1,317,143	1,297,641	1,195,439	1,120,848
Total contributions	10,770,387	9,694,932	9,002,021	8,634,170	8,353,810	8,004,650	7,687,901	7,408,629	6,795,617	6,262,128
Total investment income (loss)	23,599,271	12,076,765	20,166,487	(6,837,179)	19,607,238	8,037,893	(1,931,936)	5,017,294	9,305,671	10,887,141
Total Additions	34,369,658	21,771,697	29,168,508	1,796,991	27,961,048	16,042,543	5,755,965	12,425,923	16,101,288	17,149,269
DEDUCTIONS										
Benefit payments and refunds	11,097,546	8,863,045	8,591,801	8,164,410	6,818,726	6,488,977	6,275,285	5,812,419	5,397,604	5,018,268
Administrative expenses	135,726	123,860	138,074	115,778	107,893	92,392	99,084	91,235	137,963	93,341
Total deductions	11,233,272	8,986,905	8,729,875	8,280,188	6,926,619	6,581,369	6,374,369	5,903,654	5,535,567	5,111,609
Net increases (decreases)	23,136,386	12,784,792	20,438,633	(6,483,197)	21,034,429	9,461,174	(618,404)	6,522,269	10,565,721	12,037,660
Net position, January 1	168,042,196	155,257,404	134,818,772	141,301,969	120,267,540	110,806,366	111,424,770	104,902,501	111,424,770	121,990,491
Net position, December 31	$ 191,178,582	$ 168,042,196	$ 155,257,405	$ 134,818,772	$ 141,301,969	$ 120,267,540	$ 110,806,366	$ 111,424,770	$ 121,990,491	$ 134,028,151

Anne Arundel County Retirement and Pension System

Schedule of Additions by Source - Employees' Retirement Plan

For the Last Ten Years Ended December 31

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Employer Data										
Contributions	$ 36,178,170	$ 32,566,842	$ 29,637,342	$ 27,032,514	$ 25,654,218	$ 25,809,828	$ 25,629,927	$ 24,451,074	$ 22,361,658	$ 19,823,814
% of Covered Payroll	(25.4)	(23.3)	(21.4)	(20.0)	(18.6)	(19.8)	(20.1)	(19.2)	(19.3)	(17.1)
Participant Data										
Contributions	5,527,603	5,764,368	5,511,825	5,611,993	5,471,911	5,181,705	4,846,856	4,662,147	4,452,981	4,416,529
Total contributions	41,705,773	38,331,210	35,149,167	32,644,507	31,126,129	30,991,533	30,476,783	29,113,221	26,814,639	24,240,343
Total investment income (loss)	101,005,006	50,447,442	91,472,051	(31,257,326)	94,922,075	40,737,517	(8,460,297)	28,221,576	52,230,456	63,100,607
Total Additions	$ 142,710,779	$ 88,778,652	$ 126,621,218	$ 1,387,181	$ 126,048,204	$ 71,729,050	$ 22,016,486	$ 57,334,797	$ 79,045,095	$ 87,340,950

Anne Arundel County Retirement and Pension System

Schedule of Additions by Source - Police Service Retirement Plan

For the Last Ten Years Ended December 31

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Employer Data										
Contributions	$ 29,598,702	$ 24,900,576	$ 23,093,892	$ 21,933,942	$ 20,931,078	$ 20,410,896	$ 19,559,952	$ 18,869,736	$ 17,745,906	$ 15,530,322
% of Covered Payroll	(43.4)	(36.7)	(37.6)	(39.8)	(40.4)	(40.4)	(40.7)	(39.1)	(42.5)	(38.3)
Participant Data										
Contributions	4,255,390	4,180,925	3,669,199	3,371,789	3,250,062	3,158,451	3,104,338	2,949,789	2,679,723	2,553,740
Total contributions	33,854,092	29,081,501	26,763,091	25,305,731	24,181,140	23,569,347	22,664,290	21,819,525	20,425,629	18,084,062
Total investment income (loss)	86,863,310	43,682,825	76,854,873	(25,925,725)	78,166,498	33,000,617	(7,936,443)	22,133,732	41,763,446	50,828,258
Total Additions	$ 120,717,402	$ 72,764,326	$ 103,617,964	$ (619,994)	$ 102,347,638	$ 56,569,964	$ 14,727,847	$ 43,953,257	$ 62,189,075	$ 68,912,320

Anne Arundel County Retirement and Pension System

Schedule of Additions by Source - Fire Service Retirement Plan

For the Last Ten Years Ended December 31

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Employer Data										
Contributions	$ 24,642,756	$ 20,505,510	$ 17,637,120	$ 15,703,506	$ 14,664,432	$ 14,591,340	$ 15,121,806	$ 15,898,956	$ 16,152,402	$ 15,238,104
% of Covered Payroll	(36.3)	(32.3)	(30.0)	(28.7)	(28.3)	(28.9)	(30.7)	(32.7)	(35.9)	(35.1)
Participant Data										
Contributions	4,203,216	4,093,239	3,652,415	3,523,812	3,440,550	3,257,340	3,050,456	2,778,355	2,432,737	2,453,627
Total contributions	28,845,972	21,289,535	19,227,318	18,104,982	17,848,680	18,172,262	18,677,311	18,585,139	17,691,731	16,618,966
Total investment income (loss)	86,714,769	76,173,892	(25,253,407)	78,004,491	33,397,135	(7,794,949)	23,014,967	43,133,618	51,522,774	7,013,478
Total Additions	$ 115,560,741	$ 97,463,427	$ (6,026,089)	$ 96,109,473	$ 51,245,815	$ 10,377,313	$ 41,692,278	$ 61,718,757	$ 69,214,505	$ 23,632,444

Anne Arundel County Retirement and Pension System

Schedule of Additions by Source - Detention Officers' and Deputy Sheriffs' Retirement Plan

For the Last Ten Years Ended December 31

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Employer Data										
Contributions	$ 9,276,240	$ 8,165,094	$ 7,600,380	$ 7,282,176	$ 6,999,882	$ 6,688,662	$ 6,370,758	$ 6,110,988	$ 5,600,178	$ 5,141,280
% of Covered Payroll	(37.6)	(33.1)	(31.0)	(34.0)	(32.9)	(31.8)	(31.9)	(30.9)	(30.9)	(28.7)
Participant Data										
Contributions	1,494,147	1,529,838	1,401,641	1,351,994	1,353,928	1,315,988	1,317,143	1,297,641	1,195,439	1,120,848
Total contributions	10,770,387	9,694,932	9,002,021	8,634,170	8,353,810	8,004,650	7,687,901	7,408,629	6,795,617	6,262,128
Total investment income (loss)	23,599,271	12,076,766	20,166,486	(6,837,179)	19,607,237	8,037,893	(1,931,936)	5,017,294	9,305,671	10,887,141
Total Additions	$ 34,369,658	$ 21,771,698	$ 29,168,507	$ 1,796,991	$ 27,961,047	$ 16,042,543	$ 5,755,965	$ 12,425,923	$ 16,101,288	$ 17,149,269

Anne Arundel County Retirement and Pension System

Schedule of Expenses by Type - Employees' Retirement Plan

For the Last TenYears Ended December 31

	2021	*2020*	*2019*	*2018*	*2017*	*2016*	*2015*	*2014*	*2013*	*2012*
Retirement Benefits	$ 60,209,803	$ 57,515,993	$ 54,651,796	$ 50,218,702	$ 46,845,091	$ 43,550,814	$ 40,941,647	$ 38,790,383	$ 36,318,903	$ 34,031,017
Refunds	477,997	263,079	363,784	355,745	561,731	456,211	318,653	218,367	408,812	344,265
Administrative	570,998	535,391	618,605	533,928	519,027	459,455	505,852	502,007	757,210	546,061
Total Expenses	$ 61,258,798	$ 58,314,463	$ 55,634,185	$ 51,108,375	$ 47,925,849	$ 44,466,480	$ 41,766,152	$ 39,510,757	$ 37,484,925	$ 34,921,343

Anne Arundel County Retirement and Pension System

Schedule of Expenses by Type - Police Service Retirement Plan

For the Last TenYears Ended December 31

	2021	*2020*	*2019*	*2018*	*2017*	*2016*	*2015*	*2014*	*2013*	*2012*
Retirement Benefits	$ 37,096,892	$ 35,563,797	$ 34,093,805	$ 32,231,240	$ 30,707,970	$ 29,719,138	$ 28,042,800	$ 26,857,368	$ 25,801,600	$ 24,178,421
Refunds	680,302	346,046	30,417	154,429	210,180	354,899	113,762	47,790	4,271	245,111
DROP payments	1,770,167	2,727,634	2,728,443	3,544,248	4,104,960	3,282,220	2,975,197	2,601,970	1,130,517	3,817,832
Administrative	521,901	478,380	540,088	470,041	441,820	389,320	427,109	406,090	615,138	444,328
Total Expenses	$ 40,069,262	$ 39,115,857	$ 37,392,753	$ 36,399,958	$ 35,464,930	$ 33,745,577	$ 31,558,868	$ 29,913,218	$ 27,551,526	$ 28,685,692

Anne Arundel County Retirement and Pension System

Schedule of Expenses by Type - Fire Service Retirement Plan

For the Last TenYears Ended December 31

	2021	*2020*	*2019*	*2018*	*2017*	*2016*	*2015*	*2014*	*2013*	*2012*
Retirement Benefits	$ 31,995,051	$ 29,920,324	$ 29,118,078	$ 29,960,925	$ 27,621,511	$ 25,293,551	$ 23,806,037	$ 20,143,295	$ 19,577,152	$ 17,701,069
Refunds	110,734	457,865	223,669	320,586	440,518	157,533	199,254	20,220	119,655	199,210
DROP payments	1,942,987	2,284,929	749,312.1	1,289,825	5,291,764	8,437,892	7,487,703	8,679,208	2,173,256	1,620,395
Administrative	522,403	489,265	530,549	452,952	439,507	401,289	438,008	409,916	633,476	444,256
Total Expenses	$ 34,571,175	$ 33,152,383	$ 30,621,608	$ 32,024,288	$ 33,793,301	$ 34,290,265	$ 31,931,002	$ 29,252,639	$ 22,503,539	$ 19,964,930

Anne Arundel County Retirement and Pension System

Schedule of Expenses by Type - Detention Officers' and Deputy Sheriffs' Retirement Plan

For the Last TenYears Ended December 31

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Retirement Benefits	$ 9,499,764	$ 8,532,501	$ 8,190,264	$ 7,465,177	$ 6,780,248	$ 6,430,861	$ 6,129,460	$ 5,768,304	$ 5,364,396	$ 4,824,001
Refunds	966,395	194,445	112,585	78,777	38,478	58,116	145,825	44,115	33,208	194,267
DROP payments	631,387	136,099	288,952	620,456	-	-	-	-	-	-
Administrative	135,726	123,860	138,075	115,778	107,893	92,392	99,084	91,235	137,963	93,341
Total Expenses	$ 11,233,272	$ 8,986,905	$ 8,729,876	$ 8,280,188	$ 6,926,619	$ 6,581,369	$ 6,374,369	$ 5,903,654	$ 5,535,567	$ 5,111,609

Anne Arundel County Retirement and Pension System
Average Benefit Payments - Employees' Plan
Retirement Effective Dates for the last Ten Fiscal Years Ended June 30, and the Six Months Ended December 31, 2021

		Years of Credited Service						
Retirement Effective Dates		**0 to 4**	**5 to 9**	**10 to 14**	**15 to 19**	**20 to 24**	**25 to 29**	**Over 30**
Period 7/1/2012 to 6/30/2013	Average monthly benefit	$0	$751	$1,373	$1,493	$2,113	$3,021	$3,531
	Average final average salary	$0	$63,180	$61,423	$53,374	$54,783	$67,402	$73,827
	Number of retired members	0	17	18	9	20	13	24
Period 7/1/2013 to 6/30/2014	Average monthly benefit	$0	$762	$969	$1,896	$1,749	$2,664	$3,533
	Average final average salary	$0	$69,049	$52,434	$64,927	$51,423	$62,863	$77,560
	Number of retired members	0	22	22	7	13	19	22
Period 7/1/2014 to 6/30/2015	Average monthly benefit	$0	$589	$1,396	$2,044	$2,684	$3,247	$3,313
	Average final average salary	$0	$45,005	$51,336	$76,409	$79,510	$79,151	$73,566
	Number of retired members	0	23	12	12	8	22	22
Period 7/1/2015 to 6/30/2016	Average monthly benefit	$0	$585	$948	$1,707	$2,265	$3,113	$3,790
	Average final average salary	$0	$48,114	$44,409	$69,116	$63,456	$76,545	$82,715
	Number of retired members	0	14	9	10	11	28	24
Period 7/1/2016 to 6/30/2017	Average monthly benefit	$0	$783	$1,416	$1,799	$2,421	$3,295	$3,525
	Average final average salary	$0	$52,506	$72,550	$68,233	$70,410	$74,690	$78,814
	Number of retired members	0	13	20	18	14	17	30
Period 7/1/2017 to 6/30/2018	Average monthly benefit	$1,952	$741	$1,425	$1,639	$2,222	$3,649	$3,801
	Average final average salary	$36,067	$58,201	$66,465	$69,641	$81,177	$86,795	$81,469
	Number of retired members	1	9	18	18	14	18	35
Period 7/1/2018 to 6/30/2019	Average monthly benefit	$160	$518	$1,049	$1,787	$2,302	$3,395	$4,341
	Average final average salary	$40,040	$43,496	$57,181	$74,659	$80,425	$85,077	$94,675
	Number of retired members	1	14	17	21	15	20	38
Period 7/1/2019 to 6/30/2020	Average monthly benefit	$0	$518	$1,450	$1,799	$2,487	$3,721	$3,831
	Average final average salary	$0	$43,013	$68,290	$66,768	$76,270	$92,412	$86,446
	Number of retired members	0	17	17	10	11	9	36
Period 7/1/2020 to 6/30/2021	Average monthly benefit	$0	$584	$1,361	$1,876	$2,322	$3,701	$3,587
	Average final average salary	$0	$58,795	$61,616	$63,781	$71,714	$91,449	$79,219
	Number of retired members	0	14	16	16	12	16	29
Period 7/1/2021 to 12/31/2021	Average monthly benefit	$0	$707	$1,911	$2,051	$2,495	$3,726	$4,072
	Average final average salary	$17,766	$43,308	$96,159	$86,464	$75,515	$92,819	$88,212
	Number of retired members	1	10	5	13	10	4	23

Anne Arundel County Retirement and Pension System
Average Benefit Payments - Police Service Retirement Plan
Retirement Effective Dates for the last Ten Fiscal Years Ended June 30, and the Six Months Ended December 31, 2021

		Years of Credited Service						
Retirement Effective Dates		**0 to 4**	**5 to 9**	**10 to 14**	**15 to 19**	**20 to 24**	**25 to 29**	**Over 30**
Period 7/1/2012	Average monthly benefit	$0	$0	$3,291	$3,535	$4,310	$4,960	$0
to 6/30/2013	Average final average salary	$0	$0	$58,658	$74,339	$86,975	$91,069	$0
	Number of retired members	0	0	1	2	8	3	0
Period 7/1/2013	Average monthly benefit	$0	$3,011	$3,429	$3,355	$3,927	$0	$0
to 6/30/2014	Average final average salary	$0	$55,286	$63,264	$82,074	$82,427	$0	$0
	Number of retired members	0	1	2	1	2	0	0
Period 7/1/2014	Average monthly benefit	$2,653	$2,617	$4,417	$3,622	$3,770	$4,781	$0
to 6/30/2015	Average final average salary	$51,685	$51,685	$83,747	$81,979	$91,405	$88,845	$0
	Number of retired members	1	2	1	5	4	1	0
Period 7/1/2015	Average monthly benefit	$2,680	$3,003	$3,860	$4,417	$4,418	$5,616	$0
to 6/30/2016	Average final average salary	$50,932	$58,489	$72,240	$83,747	$95,013	$102,581	$0
	Number of retired members	2	2	1	1	6	3	0
Period 7/1/2016	Average monthly benefit	$2,817	$3,519	$3,055	$3,962	$5,110	$5,069	$0
to 6/30/2017	Average final average salary	$51,685	$66,170	$74,113	$86,796	$107,768	$94,257	$0
	Number of retired members	1	3	3	4	3	1	0
Period 7/1/2017	Average monthly benefit	$0	$1,611	$2,359	$3,059	$3,980	$5,871	$0
to 6/30/2018	Average final average salary	$0	$81,323	$73,362	$80,916	$90,301	$105,397	$0
	Number of retired members	0	1	3	3	5	2	0
Period 7/1/2018	Average monthly benefit	$885	$648	$3,754	$4,278	$4,306	$6,007	$0
to 6/30/2019	Average final average salary	$56,274	$63,953	$73,060	$93,414	$100,251	$119,909	$0
	Number of retired members	1	1	2	2	5	2	0
Period 7/1/2019	Average monthly benefit	$0	$3,516	$4,604	$4,142	$4,375	$5,584	$0
to 6/30/2020	Average final average salary	$0	$67,188	$88,280	$92,100	$101,164	$104,678	$0
	Number of retired members	0	1	2	4	5	1	0
Period 7/1/2020	Average monthly benefit	$0	$1,945	$2,987	$0	$4,688	$6,903	$0
to 6/30/2021	Average final average salary	$0	$106,217	$91,643	$0	$106,821	$134,661	$0
	Number of retired members	0	1	3	0	7	4	0
Period 7/1/2021	Average monthly benefit	$0	$0	$0	$5,584	$4,795	$6,928	$8,115
to 12/31/2021	Average final average salary	$0	$0	$0	$105,069	$111,131	$131,678	$132,743
	Number of retired members	0	0	0	2	4	3	1

Anne Arundel County Retirement and Pension System
Average Benefit Payments - Fire Service Retirement Plan
Retirement Effective Dates for the last Ten Fiscal Years Ended June 30, and the Six Months Ended December 31, 2021

		Years of Credited Service						
Retirement Effective Dates		**0 to 4**	**5 to 9**	**10 to 14**	**15 to 19**	**20 to 24**	**25 to 29**	**Over 30**
Period 7/1/2012	Average monthly benefit	$0	$2,708	$2,203	$3,854	$3,651	$0	$4,492
to 6/30/2013	Average final average salary	$0	$48,963	$67,073	$82,747	$79,277	$0	$77,005
	Number of retired members	0	2	1	3	8	0	1
Period 7/1/2013	Average monthly benefit	$0	$2,747	$0	$3,351	$3,278	$4,088	$0
to 6/30/2014	Average final average salary	$0	$50,146	$0	$71,511	$77,656	$84,977	$0
	Number of retired members	0	2	0	2	1	1	0
Period 7/1/2014	Average monthly benefit	$0	$2,490	$3,257	$3,753	$4,764	$7,584	$0
to 6/30/2015	Average final average salary	$0	$46,132	$61,179	$69,802	$96,184	$160,740	$0
	Number of retired members	0	2	1	1	2	2	0
Period 7/1/2015	Average monthly benefit	$0	$0	$2,607	$3,753	$4,166	$3,905	$0
to 6/30/2016	Average final average salary	$0	$43,912	$57,129	$70,887	$90,016	$100,211	$0
	Number of retired members	0	1	5	2	5	2	0
Period 7/1/2016	Average monthly benefit	$0	$0	$2,805	$0	$3,942	$2,356	$0
to 6/30/2017	Average final average salary	$0	$0	$63,911	$0	$88,391	$86,220	$0
	Number of retired members	0	0	3	0	3	1	0
Period 7/1/2017	Average monthly benefit	$0	$0	$2,097	$0	$4,113	$4,883	$6,319
to 6/30/2018	Average final average salary	$0	$0	$60,667	$0	$87,260	$98,019	$100,474
	Number of retired members	0	0	3	0	2	3	1
Period 7/1/2018	Average monthly benefit	$0	$0	$3,314	$3,786	$2,389	$5,501	$11,260
to 6/30/2019	Average final average salary	$0	$0	$64,893	$69,120	$77,463	$109,527	$194,906
	Number of retired members	0	0	1	1	3	1	1
Period 7/1/2019	Average monthly benefit	$2,359	$3,030	$0	$4,144	$3,940	$5,328	$5,488
to 6/30/2020	Average final average salary	$44,339	$57,738	$0	$82,178	$93,538	$104,750	$114,888
	Number of retired members	1	1	0	1	3	1	3
Period 7/1/2020	Average monthly benefit	$0	$2,823	$0	$4,732	$5,445	$0	$0
to 6/30/2021	Average final average salary	$0	$55,578	$0	$89,843	$111,035	$0	$0
	Number of retired members	0	3	0	6	2	0	0
Period 7/1/2021	Average monthly benefit	$0	$0	$1,729	$3,975	$4,298	$0	$0
to 12/31/2021	Average final average salary	$0	$0	$70,936	$94,289	$99,502	$0	$0
	Number of retired members	0	0	1	1	4	0	0

Anne Arundel County Retirement and Pension System
Average Benefit Payments - Detention Officers' and Deputy Sheriffs' Retirement Plan
Retirement Effective Dates for the last Ten Fiscal Years Ended June 30, and the Six Months Ended December 31, 2021

		Years of Credited Service						
Retirement Effective Dates		**0 to 4**	**5 to 9**	**10 to 14**	**15 to 19**	**20 to 24**	**25 to 29**	**Over 30**
Period 7/1/2012	Average monthly benefit	$0	$577	$1,877	$2,113	$3,283	$0	$4,158
to 6/30/2013	Average final average salary	$0	$37,324	$50,974	$61,015	$74,501	$0	$85,146
	Number of retired members	0	3	5	2	8	0	1
Period 7/1/2013	Average monthly benefit	$0	$563	$1,353	$2,526	$2,683	$0	$0
to 6/30/2014	Average final average salary	$0	$47,394	$55,388	$69,155	$65,806	$0	$0
	Number of retired members	0	2	4	4	2	0	0
Period 7/1/2014	Average monthly benefit	$0	$736	$1,657	$2,012	$3,888	$4,448	$4,185
to 6/30/2015	Average final average salary	$0	$45,855	$55,828	$57,174	$89,482	$94,120	$72,918
	Number of retired members	0	5	2	7	2	1	1
Period 7/1/2015	Average monthly benefit	$0	$643	$1,266	$2,574	$3,098	$3,124	$0
to 6/30/2016	Average final average salary	$0	$43,049	$49,626	$68,661	$67,546	$69,804	$0
	Number of retired members	0	1	1	4	3	1	0
Period 7/1/2016	Average monthly benefit	$0	$831	$1,452	$2,116	$2,747	$0	$0
to 6/30/2017	Average final average salary	$0	$48,832	$57,652	$63,089	$64,943	$0	$0
	Number of retired members	$0	4	3	3	3	0	0
Period 7/1/2017	Average monthly benefit	$0	$732	$1,229	$2,309	$2,800	$3,519	$5,806
to 6/30/2018	Average final average salary	$0	$52,091	$57,759	$65,116	$68,500	$71,631	$105,609
	Number of retired members	0	1	2	1	10	2	1
Period 7/1/2018	Average monthly benefit	$0	$1,104	$1,941	$0	$3,300	$5,401	$0
to 6/30/2019	Average final average salary	$0	$51,499	$55,889	$0	$76,152	$117,929	$0
	Number of retired members	0	2	3	0	5	3	0
Period 7/1/2019	Average monthly benefit	$812	$1,621	$1,329	$1,983	$2,679	$3,671	$0
to 6/30/2020	Average final average salary	$49,855	$55,495	$60,251	$69,462	$76,768	$88,499	$0
	Number of retired members	1	3	3	2	4	1	0
Period 7/1/2020	Average monthly benefit	$0	$992	$2,228	$2,575	$4,148	$5,657	$0
to 6/30/2021	Average final average salary	$0	$60,194	$69,329	$72,626	$101,947	$124,191	$0
	Number of retired members	0	4	3	3	3	3	0
Period 7/1/2021	Average monthly benefit	$0	$1,317	$0	$2,473	$3,832	$3,577	$5,030
to 12/31/2021	Average final average salary	$0	$58,054	$0	$73,144	$83,532	$90,188	$89,677
	Number of retired members	0	5	0	2	2	2	1

Anne Arundel County Retirement and Pension System

Schedule of Members by Years of Service - Employees' Retirement Plan

For the Last Ten Years Ended December 31

Years of Credited Service	*2021*	*2020*	*2019*	*2018*	*2017*	*2016*	*2015*	*2014*	*2013*	*2012*
0 to 4	738	732	751	791	262	721	647	614	468	443
5 to 9	434	403	364	285	298	373	437	512	578	533
10 to 14	262	317	363	415	404	364	354	347	333	432
15 to 19	268	262	269	263	286	287	269	236	229	220
20 to 24	211	205	168	156	156	148	141	163	196	233
25 to 29	105	103	114	140	143	170	200	203	205	170
30 and over	119	136	141	141	127	124	138	132	116	121
Total members	2,137	2,158	2,170	2,191	1,676	2,187	2,186	2,207	2,125	2,152
Average years of service	11.6	11.8	11.7	11.8	11.4	12.0	12.4	12.4	12.8	13.1
Average age	48.3	48.4	48.2	48.4	48.5	48.8	48.9	48.6	49.0	48.6
Average salary	$ 66,552	$ 64,863	$ 63,792	$61,566	$60,684	$59,585	$58,475	$ 57,585	$ 54,499	$ 53,915

Anne Arundel County Retirement and Pension System

Schedule of Members by Years of Service - Police Service Retirement Plan

For the Last Ten Years Ended December 31

Years of Credited Service	*2021*	*2020*	*2019*	*2018*	*2017*	*2016*	*2015*	*2014*	*2013*	*2012*
0 to 4	241	282	278	196	190	199	194	183	157	135
5 to 9	153	138	128	120	110	132	123	151	158	138
10 to 14	111	105	130	136	129	112	119	98	92	126
15 to 19	102	108	90	84	109	125	119	138	142	126
20 to 24	57	58	63	81	73	58	58	53	49	49
25 to 29	13	18	18	17	21	18	27	13	7	4
30 and over	3	6	6	4	2	-	1	2	3	2
Total members	680	715	713	638	634	644	641	638	608	580
Average years of service	9.7	9.5	9.4	10.8	11.0	10.6	10.9	10.6	10.7	10.7
Average age	36.1	35.9	35.9	37.2	37.3	37.0	37.4	37.2	37.4	37.4
Average salary	$ 84,014	$ 82,206	$ 74,383	$75,741	$75,538	$69,711	$68,454	$ 67,336	$ 62,122	$ 62,102

Anne Arundel County Retirement and Pension System

Schedule of Members by Years of Service - Fire Service Retirement Plan

For the Last Ten Years Ended December 31

Years of Credited Service	*2021*	*2020*	*2019*	*2018*	*2017*	*2016*	*2015*	*2014*	*2013*	*2012*
0 to 4	193	199	243	273	311	288	239	142	71	98
5 to 9	238	198	114	64	79	104	194	258	320	240
10 to 14	98	179	230	282	216	206	157	118	63	85
15 to 19	195	146	113	61	80	70	85	76	84	77
20 to 24	44	51	48	58	51	75	52	60	71	60
25 to 29	28	21	29	37	40	39	38	36	29	24
30 and over	3	2	2	5	7	10	8	3	1	2
Total members	799	796	779	780	784	792	773	693	639	586
Average years of service	10.7	10.7	10.6	10.4	10.3	10.2	10.2	10.6	10.8	11.2
Average age	37.5	37.7	37.6	37.4	37.3	37.2	37.3	37.5	37.9	38.2
Average salary	$ 72,888	$ 69,633	$ 65,483	$ 62,472	$59,891	$58,368	$56,711	$ 58,407	$ 54,752	$ 55,581

Anne Arundel County Retirement and Pension System

Schedule of Members by Years of Service - Detention Officers' and Deputy Sheriffs' Retirement Plan

For the Last Ten Years Ended December 31

Years of Credited Service	*2021*	*2020*	*2019*	*2018*	*2017*	*2016*	*2015*	*2014*	*2013*	*2012*
0 to 4	119	122	131	99	103	112	103	85	76	79
5 to 9	69	69	57	45	50	53	57	85	82	72
10 to 14	38	40	63	65	55	55	64	50	59	71
15 to 19	45	55	43	49	54	85	78	82	88	87
20 to 24	33	35	41	48	53	26	28	33	28	22
25 to 29	11	13	15	12	10	10	9	5	5	4
30 and over	1	4	4	4	2	2	3	5	4	3
Total members	316	338	354	322	327	343	342	345	342	338
Average years of service	9.9	10.3	10.3	11.1	11.4	11.0	11.1	11.4	11.3	11.0
Average age	42.7	43.3	43.4	44.3	44.0	43.8	44.1	44.7	45.0	44.3
Average salary	$ 64,628	$ 63,317	$ 62,307	$ 60,787	$60,519	$57,730	$56,685	$ 57,321	$ 53,020	$ 52,949

Anne Arundel County Retirement and Pension System

Summary of Current Active Members and DROP Members by Years of Service and Plan

For the Year Ended December 31, 2021

Active	***Employees' Retirement Plan***	***Police Service Retirement Plan***	***Fire Service Retirement Plan***	***Detention Officers' and Deputy Sheriffs' Retirement Plan***	***Total***
Years of Credited Service					
0-4	738	241	193	119	1291
5-9	434	153	238	69	894
10-14	262	111	98	38	509
15-19	268	102	195	45	610
20-24	211	57	44	33	345
25-29	105	13	28	11	157
30+	119	3	3	1	126
Total Current Active Members	2,137	680	799	316	3,932
Drop					
0-4	N/A	-	-	-	-
5-9	N/A	-	-	-	-
10-14	N/A	-	-	-	-
15-19	N/A	-	-	-	-
20-24	N/A	34	11	24	69
25-29	N/A	34	38	7	79
30+	N/A	21	38	12	71
Total Current Active DROP Members		89	87	43	219

Anne Arundel County Retirement and Pension System

Schedule of Current Active DROP Members by Year of Entry

For the Last Six Years Years Ended December 31

	Police Service Retirement Plan	*Fire Service Retirement Plan*	*Detention & Sheriff Officers Retirement Plan*	*Total*
2016	10	6	2	18
2017	5	15	3	23
2018	18	18	6	42
2019	13	12	6	31
2020	19	16	10	45
2021	24	20	16	60
	89	87	43	219

Notes:
1) The Employee's Retirement Plan does not provide a DROP.
2) The Police Service Retirement Plan DROP was initiated in 2002.
3) The Fire Service Retirement Plan DROP was initiated in 2001.
4) The Detention Officers' and Deputy Sheriffs' Retirement Plan was initated in 2015.
5) Actuarial data is based on preliminary employee information which therefore, may not agree with the final census data reflected above.

Anne Arundel County Retirement and Pension System

Schedule of Retirees and Beneficiaries by Attained Age and Type of Retirement

For the Year Ended December 31, 2021

Age Group	*Normal Retirement*	*Early Retirement*	*Service Connected Disability*	*Non-Service Connected Disability*	*Total*
19 & Under	-	-	1	-	1
20 - 24	1	-	-	-	1
25 - 29	-	-	-	-	-
30 - 34	1	-	6	2	9
35 - 39	1	-	12	4	17
40 - 44	10	-	21	3	34
45 - 49	24	-	39	6	69
50 - 54	149	7	65	6	227
55 - 59	301	38	73	9	421
60 - 64	597	44	59	13	713
65 - 69	722	61	58	11	852
70 - 74	670	32	32	6	740
75 - 79	399	8	20	4	431
80 - 84	243	-	4	4	251
85 & Up	164	-	2	-	166
Total Members	3,282	190	392	68	3,932

Anne Arundel County Retirement and Pension System

History of Operating Revenues and Expenses

For the Last Ten Years Ended December 31

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
REVENUES										
Employer Contributions	$ 99,695,868	$ 86,138,022	$ 77,968,734	$ 71,952,138	$ 68,249,610	$ 67,500,726	$ 66,682,443	$ 65,330,754	$ 61,860,144	$ 55,733,520
Participant Contributions	15,480,356	15,568,370	14,235,080	13,859,588	13,516,451	12,913,484	12,318,793	11,687,932	10,760,880	10,544,744
Investment Income	298,182,356	150,126,168	264,667,302	(89,273,637)	270,700,301	115,173,162	-26,123,625	78,387,569	145,893,607	176,338,780
Total Revenues	$ 413,358,580	$ 251,832,559	$ 356,871,116	$ (3,461,911)	$ 352,466,362	$ 195,587,372	$ 52,877,611	$ 155,406,255	$ 218,514,631	$ 242,617,044
EXPENSES										
Benefits and Refunds	145,381,479	$ 137,942,712	$ 130,551,105	$ 126,240,111	$ 122,602,452	$ 117,741,235	$ 110,160,338	$ 103,171,020	$ 90,931,770	$ 87,155,588
Administrative Expenses	1,751,028	1,626,896	1,827,317	1,572,698	1,508,247	1,342,456	1,470,053	1,409,248	1,604,203	1,527,986
Total Expenses	$ 147,132,507	$ 139,569,608	$ 132,378,422	$ 127,812,809	$ 124,110,699	$ 119,083,691	$ 111,630,391	$ 104,580,268	$ 92,535,973	$ 88,683,574
COVERED PAYROLL										
Annual Covered Payroll	$ 302,901,437	$ 296,026,749	$ 282,987,620	$ 266,207,173	$ 263,033,649	$ 252,285,869	$ 245,100,390	$ 243,678,098	$ 220,607,481	$ 217,804,921
Employer Contributions as a Percent of Covered Payroll	32.91%	29.10%	27.55%	27.03%	25.95%	26.76%	27.21%	26.81%	28.04%	25.59%

Anne Arundel County Retirement and Pension System

History of Plan Investments and Liabilities

For the Ten Years Ended December 31

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Total Net Assets Fair Market Value	$ 2,383,959,879	$ 2,117,733,806	$ 2,005,470,854	$ 1,780,978,160	$ 1,912,252,881	$ 1,684,262,514	$ 1,604,773,484	$ 1,668,780,810	$ 1,623,305,968	$ 1,498,074,369
Actuarial Accrued Liability (AAL)	$ 2,960,472,477	$ 2,826,507,072	$ 2,563,486,225	$ 2,456,663,451	$ 2,330,000,504	$ 2,227,654,391	$ 2,158,514,771	$ 2,117,461,985	$ 1,997,891,150	$ 1,893,021,509
Actuarial Value of Assets (AVA)	$ 2,248,463,246	$ 2,097,533,927	$ 1,979,591,848	$ 1,909,831,161	$ 1,866,226,913	$ 1,787,755,545	$ 1,725,590,057	$ 1,666,980,234	$ 1,562,260,162	$ 1,448,184,848
Unfunded Actuarial Liability (UAL)	$ 712,009,231	$ 728,973,145	$ 583,894,377	$ 546,832,290	$ 463,773,591	$ 439,898,846	$ 432,924,714	$ 450,481,751	$ 435,630,988	$ 444,836,661
Funded Ratio (AVA/AAL)	75.95%	74.21%	77.22%	77.74%	80.10%	80.25%	79.94%	78.73%	78.20%	76.50%