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

Actuarial Valuation as of January 1, 2025
to Determine the County's Contribution for the
Fiscal Year Ending June 30, 2026

Bolton

Submitted by:

Ann. M. Sturner, FSA, EA, FCA, MAAA
Senior Consulting Actuary
443.573.3922
asturner@boltonusa.com

Michelle L. Boyles, FSA, EA, FCA, MAAA
Consulting Actuary
443.255.1117
mboyles@boltonusa.com

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Bolton

May 1, 2025

Anne Budowski
Personnel Director
Anne Arundel County
2660 Riva Road
Annapolis, MD 21401

Re: Anne Arundel County Detention Officers' and Deputy Sheriffs' Retirement Plan Valuation

Dear Anne:

The following sets forth the actuarial valuation of the Anne Arundel County Detention Officers' and Deputy Sheriffs' Retirement Plan as of January 1, 2025. The actuarial valuation was performed at the request of Anne Arundel County (the County). Section I of the report provides a summary, Section II sets forth our Actuarial Certification, and Section III contains the development of the County's contribution for the 2026 fiscal year. Section IV provides a discussion of risk metrics in accordance with ASOP 51, while sections V through VIII contain a summary of the census and asset data, a ten-year projection of benefit payments, plan provisions, assumptions and actuarial methods. The appendices of the report provide information on plan funding, a glossary of many of the terms used in this report, and a summary of major legislative changes.

We are available to answer any questions on the material in this report or to provide explanations or further details as appropriate.

Respectfully submitted,

Ann M. Sturner, FSA, EA, FCA, MAAA

Michelle L. Boyles, FSA, EA, FCA, MAAA

Section I. Executive Summary

Background

Bolton Partners, Inc. (Bolton) has prepared the following report that sets forth the actuarial valuation of the Anne Arundel County Detention Officers' and Deputy Sheriffs' Retirement Plan as of January 1, 2025. This report provides the funded status of the plan as of January 1, 2025 as well as the Actuarially Determined Contribution (ADC) for the plan for the fiscal year ending June 30, 2026 (FY2026). Accounting results under Governmental Accounting Standards Board Statements 67 and 68 are provided in a separate report.

Actuarially Determined Contributions (ADC)

	FY2024	FY2025	FY2026
ADC	$ 10,663,336	$ 11,579,418	$ 12,575,511
Percent of Total Payroll	43.4%	43.9%	44.0%

The above amounts assume the County's contribution will be made monthly throughout the fiscal year. Details of the determination of the County's contribution for FY2026 are shown in Section III of this report.

Key Demographic Elements

	1/1/2024	1/1/2025	% Change
Participant Counts			
Active (excluding DROP)	300	319	6.3%
Active Enrolled in DROP	45	46	2.2%
In Receipt	362	374	3.3%
Inactive with Deferred Benefits	2	1	(50.0%)
Refunds Owed	38	41	7.9%
Total	747	781	4.6%

Funding Measures

		1/1/2024	1/1/2025	% Change
1.	Actuarial Accrued Liability	$ 270,676,268	$ 285,312,402	5.4%
2.	Actuarial Value of Assets	$ 199,246,105	$ 208,799,460	4.8%
3.	Plan Funded Ratio (2. / 1.)	73.6%	73.2%	(0.5%)
4.	Market Value of Assets	$ 191,259,963	$ 207,694,740	8.6%
5.	Funded Ratio based on Market Value of Assets (4. / 1.)	70.7%	72.8%	3.0%

Changes in Contribution

The following table shows the sources of changes in the County's contribution.

Description	Contribution ($ millions)
January 1, 2024 Valuation	$11.6
Investment Performance	0.2
Pay Increases	0.1
New Entrants/Change in Normal Cost	0.4
COLA	0.0
Change in Expenses	0.0
Assumption/Method Changes	N/A
Plan Changes	(0.1)
Demographics and Other Changes	0.4
January 1, 2025 Valuation	$12.6

Experience Analysis

The following factors affected the County's contribution:

- **Plan assets and investment performance** – the net return for the year ended December 31, 2024 after investment expenses was 9.9% on a market value basis and 6.0% on an actuarial value basis. Investment returns during CY2024 were about $5.5 million higher than assumed. A portion of this gain is reflected in the actuarial value of assets (AVA) in this valuation, and the remaining portions will be reflected in future valuations. The AVA and the return on the AVA also reflect the continued recognition of outstanding net investment losses from prior valuations. As of January 1, 2025, there is a total of $1.1 million in net deferred investment losses that will be reflected in future valuations.
- **Payroll changes** – Pay for returning employees, excluding members in DROP, increased approximately 6.9% over the prior year; a larger increase than the 5.9% increase that was expected. Total participant payroll, including payroll for members in DROP, increased by 8.3% over the prior year, resulting in a higher total payroll than anticipated by the 3.0% per year payroll growth assumption.
- **Cost-of-living adjustment** – Retiree COLAs effective July 1, 2024 (generally, 3.50% for pre-2/1/1997 accruals and 2.10% for post-1/31/1997 accruals) were greater than the assumed annual increases (3.00% for pre-2/1/1997 accruals and 1.80% for post-1/31/1997 accruals).

Risk Measures

The primary risk that a plan sponsor incurs from a defined benefit plan is the risk of substantial increases in annual contributions. Many variables can influence future results and the sensitivity of the ADC will vary from plan to plan. This valuation report includes information intended to assist plan sponsors and the readers of this report in understanding the most significant risks that affect the plan's future financial position. This report includes commentary about risks to be considered when developing the plan's investment and funding policies and why it is important that these two policies are connected. Preparing a full risk assessment for the plan is beyond the scope of this engagement.

We encourage plan sponsors and plan administrators to consider this information carefully, view the results of the annual valuation in the context of the risks to plan costs and member benefit security, and determine whether it is an appropriate time to consider a more in-depth, comprehensive risk assessment.

Changes in Methods, Assumptions, and Plan Provisions

The plan was amended to increase the maximum amount of time a participant is allowed to be in DROP from six year to seven. As a result of this change, the assumption for DROP participation is increased from four years to five years. There were no additional changes in assumption and no changes in methods.

Sources of Information

The January 1, 2025 participant data and market value of assets were provided by or at the direction of Anne Arundel County. While we have reviewed this data for consistency and completeness, we have not audited this data.

Section II. Actuarial Certification

This actuarial valuation sets forth our calculation of an estimate of the liabilities of the Anne Arundel County Detention Officers' and Deputy Sheriffs' Retirement Plan (the plan), together with a comparison of these liabilities with the value of the plan assets, as submitted by Anne Arundel County (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.

This report was prepared for the internal use of the County and its auditors in connection with our actuarial valuations of the pension plan. The purpose of this report is to provide the recommended employer contribution for the 2026 fiscal year. It is neither intended nor necessarily suitable for other purposes. Bolton is not responsible for the consequences of any other use or the reliance upon this report by any other party.

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.

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.

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.

Bolton does not practice law and, therefore, cannot and does not provide legal advice. Any statutory interpretation on which this report is based reflects Bolton's understanding as an actuarial firm. Bolton recommends that recipients of this report consult with legal counsel when making any decisions regarding compliance with ERISA, the Internal Revenue Code, or any other statute or regulation.

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.

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.

We are available to answer any questions on the material in this report to provide explanations or further details as appropriate.

Ann. M. Sturner, FSA, EA, FCA, MAAA

Michelle L. Boyles, FSA, EA, FCA, MAAA

Section III. Determination of Contributions

Derivation of Liabilities

Below is a summary of the actuarial accrued liability of the future benefits expected to be paid from the plan.

Participants	1/1/2024	1/1/2025
1. Participants		
a. Active (excluding DROP)	300	319
b. Active Enrolled in DROP	45	46
c. Retirees and Alternate Payees	294	304
d. Beneficiaries	24	26
e. Disabled Participants	44	44
f. Terminated Vested	2	1
g. Refunds Owed	38	41
h. Total	747	781
2. Active Payroll	$ 26,379,858	$ 28,564,062

Actuarial Accrued Liability	1/1/2024	1/1/2025
1. Active Participants	$ 119,800,476	$ 126,955,423
2. In-Pay Participants		
a. Retirees	125,180,718	132,647,800
b. Beneficiaries	5,325,318	5,728,628
c. Disabled Participants	19,820,410	19,552,193
d. Total In-Pay Participants	$ 150,326,446	$ 157,928,621
3. Inactive with Deferred Benefits		
a. Terminated Vested	313,297	164,704
b. Refunds of Contributions Owed	236,049	263,654
c. Total Inactive with Deferred Benefits	$ 549,346	$ 428,358
4. Total Actuarial Accrued Liability (1. + 2.d. + 3.c)	$ 270,676,268	$ 285,312,402
5. Actuarial Value of Assets (AVA)	$ 199,246,105	$ 208,799,460
6. Unfunded Liability Based on AVA (4. - 5.)	$ 71,430,163	$ 76,512,942
7. Funded Ratio Based on AVA (5. / 4.)	73.6%	73.2%
8. Market Value of Assets (MVA)	$ 191,259,963	$ 207,694,739
9. Unfunded Liability Based on MVA (4. - 8.)	$ 79,416,305	$ 77,617,663
10. Funded Ratio Based on MVA (8. / 4.)	70.7%	72.8%

Normal Cost

The normal cost and the projected normal cost are shown below.

Normal Cost		1/1/2024		1/1/2025
1. Total Benefit Normal Cost	$	6,261,281	$	6,703,284
2. Employee Normal Cost		1,334,226		1,431,145
3. County Benefit Normal Cost (1. - 2.)	$	4,927,055	$	5,272,139
4. Estimated Expenses		148,000		161,000
5. County Benefit Normal Cost with Expenses	$	5,075,055	$	5,433,139
6. Projected Normal Cost with Expenses as of July 1 (5. x 1.03^0.5)	$	5,150,618	$	5,514,034

Projection of Unfunded Liability

The projection of the unfunded actuarial liability from January 1, 2025 to July 1, 2025 is shown below.

Projection of Unfunded Liability		1/1/2025
1. Unfunded Liability as of January 1, 2025	$	76,512,942
2. Expected Employer Contributions 01/01/2025-07/01/2025		5,789,709
3. Expected Employee Contributions 01/01/2025-07/01/2025		776,076
4. Expected Expenses 01/01/2025-07/01/2025		80,500
5. Total Normal Cost 01/01/2025-07/01/2025		3,351,642
6. Interest at 7.00%		2,637,355
7. Projected Unfunded Liability as of July 1, 2025 (1. - 2. - 3. + 4. + 5. + 6.)	$	76,016,654

Actuarially Determined Contribution

Below is the derivation of the actuarially determined contribution.

Actuarially Determined Contribution		FYE2026
1. Employer Normal Cost	$	5,514,034
2. Amortization Amount	$	6,643,171
3. Actuarially Determined Contribution (ADC) (1. + 2.)	$	12,157,205
4. Interest for Timing of Payment	$	418,306
5. ADC Adjusted for Timing of Payment (3. + 4.)	$	12,575,511
6. Participant Payroll as of January 1, 2025	$	28,564,062
7. Employer Contribution as a Percentage of Participant Payroll		44.0%

Actuarial Gain/Loss

Development of actuarial (gain)/loss for January 1, 2024 to January 1, 2025 is shown below.

		Liability	Actuarial Value of Assets	UAAL
1.	Beginning of year total	$ 270,676,268	$ 199,246,105	$ 71,430,163
2.	Normal cost (net of admin exp)	6,261,281		6,261,281
3.	Administration expense		(164,723)	164,723
4.	Benefit payments	(14,721,261)	(14,721,261)	0
5.	Contributions		12,532,885	(12,532,885)
6.	Interest	18,870,384	13,864,869	5,005,515
7.	Expected end of year total	$ 281,086,672	$ 210,757,875	$ 70,328,797
8.	Impact of plan changes	(460,392)	0	(460,392)
9.	Impact of assumption changes	0	0	0
10.	Actual end of year	285,312,402	208,799,460	76,512,942
11.	(Gain)/Loss	$ 4,686,122	$ 1,958,415	$ 6,644,537

Actuarial Experience

There was an actuarial loss of $6,644,537 from January 1, 2024 to January 1, 2025. The loss is measured by comparing expected liabilities to actual liabilities before any changes, such as any assumption or plan changes, are reflected in the current valuation. The individual sources of gains and losses that follow are based upon a comparison of actual and expected experience in the year ending on the valuation date.

Source		(Gain)/Loss
1.	Actuarial Value of Assets	$ 1,958,000
2.	New Entrants	446,000
3.	COLAs	502,000
4.	Salary increases	1,042,000
5.	Mortality	531,000
6.	Turnover	(991,000)
7.	Disability	(327,000)
8.	Retirement	472,000
9.	Other Demographic	3,012,000
10.	**Total**	**$ 6,645,000**

The actuarial loss/(gain) of $6,949,062 in the amortization table is equal to the sum of:

1. The actuarial loss/(gain) of $6,644,537 as of January 1, 2025, shown above, rolled forward to July 1, 2025, and
2. The actual FY2025 "contribution" loss/(gain) due to the sum of the actual FY2025 contributions to the plan falling short of/(exceeding) the amount necessary to align with the expected plan experience.

Schedule of Amortization Bases

Below is a schedule of the amortization bases as of July 1, 2025.

Description	Date Established	Years Remaining	Outstanding Balance	Amortization Amount
Unfunded Accrued Liability	1/1/2003	8	$ 6,618,801	$ 941,778
Actuarial (Gain)/Loss	1/1/2004	9	(1,040,469)	(133,990)
Actuarial (Gain)/Loss	1/1/2005	10	703,022	82,953
Actuarial (Gain)/Loss	1/1/2006	11	1,662,734	181,558
Plan & Assumption Change	1/1/2006	11	698,309	76,250
Actuarial (Gain)/Loss	1/1/2007	12	(1,126,309)	(114,745)
Actuarial (Gain)/Loss	1/1/2008	13	3,207,166	306,940
Assumption Change	1/1/2008	13	1,372,404	131,345
Actuarial (Gain)/Loss	1/1/2009	14	7,443,277	673,099
Actuarial (Gain)/Loss	1/1/2010	15	4,666,592	400,744
Actuarial (Gain)/Loss	1/1/2011	16	(365,471)	(29,933)
Asset Method Change	1/1/2011	16	5,281,109	432,540
Actuarial (Gain)/Loss	1/1/2012	17	3,562,815	279,369
Plan & Assumption Change	1/1/2013	18	1,327,638	100,000
Actuarial (Gain)/Loss	1/1/2013	18	3,935,059	296,397
Assumption Change	1/1/2014	9	2,309,814	297,455
Actuarial (Gain)/Loss	1/1/2014	9	(2,285,391)	(294,310)
Actuarial (Gain)/Loss	1/1/2015	10	970,542	114,519
Actuarial (Gain)/Loss	1/1/2016	11	665,202	72,635
Actuarial (Gain)/Loss	1/1/2017	12	(14,367)	(1,464)
Actuarial (Gain)/Loss	1/1/2018	13	2,271,817	217,423
Actuarial (Gain)/Loss	1/1/2019	14	4,312,204	389,954
Assumption Change - 7.45%	1/1/2019	14	(564,981)	(51,091)
Method change	7/1/2019	14	(29,221)	(2,642)
Actuarial (Gain)/Loss	7/1/2020	15	2,258,986	193,990
Actuarial (Gain)/Loss	7/1/2021	16	(2,638,881)	(216,133)
Assumption Change - 7.00%	7/1/2021	16	11,021,019	902,658
Actuarial (Gain)/Loss	7/1/2022	17	(2,950,438)	(231,351)
Actuarial (Gain)/Loss	7/1/2023	18	1,291,155	97,252
Assumption and Method Changes	7/1/2023	18	8,751,105	659,151
Actuarial (Gain)/Loss	7/1/2024	19	6,236,663	452,587
Actuarial (Gain)/Loss	7/1/2025	20	6,949,062	487,145
Plan Change	7/1/2025	8	(484,313)	(68,912)
Totals			$ 76,016,654	$ 6,643,171

Bases are amortized as an equal percent of payroll each year with total payroll expected to increase 3.0% annually. The July 1, 2025 amortization payment of $6,643,171 is sufficient to cover the interest on the plan's unfunded liability. Based on the the total payment shown above, the total amount will be fully amortized in approximately 14.7 years.

Section IV. Risk Discussion

Risk Measures

Pension plans are complicated financial instruments designed to provide income security for plan participants as they move through their working lives and into retirement. As such they can be subject to many different forces that can put the plan in better or worse positions over time. The primary risk that a plan sponsor incurs from a defined benefit plan is the risk of substantial increases in annual contributions.

The "maturity" level of a plan can indicate the likely sensitivity the plan will have to different events whether positive or negative. Variations in the investment returns are a common source of these types of events or shocks. Other sources might be experience that differs from that assumed, assumption changes or plan changes.

The purpose of this section is to provide the reader with a basic understanding of the fundamentals of pension financing and the associated risks, including implications of the Plan's funding policy on future plan funding, how future experience may differ from the assumptions used, and the potential volatility of future measurements resulting from these differences.

Elements of Pension Plan Financing

The following equation lays out the fundamental elements of pension plan financing:

Contributions + Investment Returns = Benefit Payments + Expenses

Employers and employees **contribute** to a plan based on the statutory requirements, plan terms, and plan sponsor funding policy. The plan invests these contributions and earns a **return** on that investment. Together, these contributions and investment returns are the sole sources of income to the plan. **Benefits** are paid to participants who have met the eligibility and vesting requirements defined by the plan. Plans also pay administrative, investment, auditing, legal, and other **expenses** for maintaining the plan. **Over time, contributions and investment earnings must equal benefits and expenses.**

From this equation, it is evident that funding, investment, and benefit policies must be developed together. Once the benefit terms are established, each plan sponsor must determine the desired balance of contributions versus investment returns needed to finance benefits accrued to participants. It is important to remember that the plan sponsor's investment and funding policies, along with the selected actuarial assumptions, determine the assumed balance between contributions and investment returns. **The actual cost of a plan is based on the actual experience of the plan and may result in a different balance than is assumed.** Ultimately, the expected return does not impact the long-term relationship between the contributions required and the benefit level that can be supported by such contributions. Using a higher expected return assumption may give a false sense of benefit security if the plan does not realize that level of actual returns over time.

The development of integrated benefit, funding, and investment policies generally requires consideration of many factors such as:

- Balancing benefit security and intergenerational equity;
- Risk appetite and ability to absorb short-term volatility in plan contributions;
- Current plan funded status;
- Timing and expected duration of benefit payments; and
- Nature and frequency of past and anticipated future plan amendments..

Significant Risks Affecting Pension Plans

Examples of risk common to most public plans include the following (generally listed from greatest to least risk):

- Investment risk**:** The potential that investment returns will be different than expected.
- Contribution risk: the potential that actual future contributions are not made in accordance with the plan's actuarially based funding policy.
- Longevity and other demographic risks: The potential that mortality or other demographic experience will be different than expected.
- Asset/liability mismatch risk: The potential that changes in the value of liabilities are not matched by changes in asset values.
- Cash flow risks: The potential that contributions to the plan will not cover benefit payments and expenses.

Investment risk is often the single most significant risk for defined benefit plans. Plans that seek a higher investment return are typically forced to accept a higher level of volatility that can change the plan's funded status drastically year-to-year. Use of an asset smoothing method that phases in investment gains and losses over a period of years can give the perception of less volatility in the funded status from year to year.

Contribution risk most commonly results from either large contribution increases that are difficult for the plan sponsor to meet, or from a material decrease in the number of covered employees and/or covered payroll.

Assumptions regarding mortality and other demographic factors related to participant behavior bring the risk that future experience will diverge from the reasonable assumptions utilized within the actuarial valuation model. For example, participants living longer than expected will increase plan costs, while people terminating sooner than expected will generally decrease plan costs. Additionally, what is considered a reasonable assumption may change over time and lead to an increase or decrease in future contributions. Actual life expectancies may be longer or shorter than what is reflected in the valuation and benefit payment projections and will increase or decrease the cost of the plan as actual experience emerges.

Asset/liability mismatch risk is also another major risk for many pension plans. To the extent that the duration of plan assets is not matched to the duration of plan liabilities the change in discount rates could have a significant impact on the plan's funded status. For most public pension plans, changes in asset values and interest rates do not directly affect the

measurement of the plan's liability. Liability-driven investment approaches (where the liability is immunized by investments in fixed income whose cash inflows are matched to the benefit payment outflows, or the asset and liability durations are brought into close alignment) will reduce this risk, however it is difficult to invest in a manner that hedges all risks.

As plans mature, they become more reliant on investment returns to pay benefits and expenses. When plans have negative cash flows, they must spend interest and dividends, or may be forced to sell assets at inopportune times, to meet those obligations. Plans with DROP or other lump sum payment features are particularly exposed to this risk.

One item left off this list is "interest rate risk" (i.e., the potential that interest rates will be different than expected). This risk is common in corporate ERISA plans where funding is based on bond rates. Interest rates on bonds are still an important consideration when setting an expected return assumption and can change over time, along with long-term capital market expectations. Together these may lead to a change in the interest rate used to value plan liabilities which will increase or decrease the measurement of plan liabilities and the actuarially determined contribution.

Quantifying Investment and Funded Status Risk

Although cash and money market funds have the lowest absolute investment risk, they are typically not the lowest risk investment for a pension plan. With respect to interest rate risk, a pension plan liability behaves like the price of a bond because both equal the discounted value of a series of future cash flows. The present value will change in the opposite direction to a change in interest rates. Therefore, a bond portfolio with the timing of expected income cash flows matched to the expected benefit payment outflows is typically the lowest risk investment approach for a pension plan.

Corporate, Treasury, and municipal bonds, often considered lower risk investment classes, can still have a high level of interest rate risk in their present values. If the duration (timing and pattern of income payments) of the fixed income assets are misaligned with the duration of the plan's liability, there can be significant funded status volatility as interest rates change. The way to mitigate this volatility is minimizing the asset/liability (or duration) mismatch risk.

One means of quantifying the expected cost of assuming future investment and asset/liability mismatch risk is to compare the Plan's current assets to a liability calculated assuming very low default risk. One such measure is called a **Low-Default-Risk Obligation Measure** (LDROM). An example of an LDROM is the Plan's Funding Liability determined using a discount rate based on the yields on high quality municipal bonds, similar to what is referenced under GASB statement 68.

		Liability Measure	Assumed Return
Actuarial Liability – Funding Policy Return	$	285,312,402	7.00%
Actuarial Liability – Municipal Bond Yield (LDROM)	$	403,304,172	4.16%
Market Value of Assets	$	207,694,739	7.00%

The difference between the LDROM and the Actuarial Liability used to determine funding contributions can be viewed in several ways, and certain views of this measure may be more relevant for some plan sponsors:

- The expected long-term contribution savings to be achieved by investing in asset classes with higher expected risk and returns than bonds.
- The cost of investing in an all-bond portfolio and significantly lowering expected long-term investment returns in exchange for protecting the Plan's current funded status.
- A measure of the Plan's non-diversifiable investment risk.

Investors expect to be compensated for assuming risk when they make an investment. The risk premium of an investment is the return an asset is expected to generate in excess of the risk-free rate of return. The more risk assumed by the investor, the greater the return they expect to achieve in exchange for accepting that risk.

For plans whose assumed long-term rate of return on plan assets is greater than the municipal bond yield used for the LDROM calculation, the expected cost to the plan sponsor of funding the plan will be lower because of the greater level of investment risk accepted. This in turn leads to greater volatility in the plan's funded status because the actual return on plan investments is expected to vary considerably year-to-year. Conversely, if a plan has taken steps to reduce asset/liability mismatch risk the expected cost of contributions to fund the plan will be greater (if the plan is not already fully funded) and the volatility in the plan's funded status will be reduced.

Selecting the right level of investment risk (and associated asset/liability mismatch risk) for a plan requires complex analysis that goes beyond the scope of these basic disclosures. Included in any such analysis must be an evaluation of the plan sponsor's funding policy.

Risk Considerations in Assessing a Funding Policy

When assessing a plan's funding policy, two primary considerations are:

- whether the contributions are determined using reasonable and appropriate actuarial cost, amortization, and asset valuation methods (i.e., is the contribution an Actuarially Determined Contribution (ADC)), and
- the projected period until any Unfunded Actuarial Accrued Liability (UAAL) is fully amortized.

Under the current funding policy, the annual contribution is an ADC. The Plan's UAAL is required to be amortized varying periods ranging up to 20 years, depending on the source of the change, with new layered amortization bases established annually. If the plan is in a surplus position, i.e., the actuarial value of assets exceed AAL, a new single amortization base with a 30-year amortization period is established each year equal to the current year's UAAL.

Assuming all actuarial assumptions are met and contributions are made according to the funding policy, the plan's unfunded liability is expected to decrease in future years. The effect of declining interest rates, investment losses, or other actuarial losses may offset the favorable effect of these contributions and cause the unfunded liability to remain steady or increase in future years.

The second consideration for plan sponsors is the projected period until full funding. Based on the Plan's amortization policy, if contributions are made as expected based on the current valuation and plan funding policy, and all actuarial assumptions are met, the plan is expected to pay off the UAAL in approximately 20 years. Depending on future actuarial and investment experience, the plan may be projected to reach $0 in unfunded accrued liability in greater than or fewer than 20 years.

Some examples of changes from year to year that will shorten or lengthen the period until the UAAL is fully amortized include:

Factors that Shorten the Amortization Period	Factors that Lengthen the Amortization Period
Contributing more than the ADC	Contributing less than the ADC
Investment and demographic gains	Investment and demographic losses
Increasing interest rates	Decreasing interest rates
Shorter life expectancies	Longer life expectancies
Reducing or eliminating future benefit accruals	Increasing benefit accruals (past and/or future)

Historical Plan Risk and Maturity Measures

While historical plan experience is no guaranteed predictor of the future, it can be informative in assessing the degree of risk and variability in the annual valuation results year-to-year, and in understanding how certain factors influence future outcomes.

There are several plan maturity measures that can be significant to understanding the risks associated with the plan. The following table shows four commonly used measures of the relative riskiness of a pension plan, relative to the plan sponsor and the employee group covered by the plan and how they have changed over time.

Risk Measure	January 1, 2023	January 1, 2024	January 1, 2025
In-Pay Liability as a Percent of Total Liability	55%	56%	55%
Assets to Payroll	7.0	7.3	7.3
Liabilities to Payroll	10.4	10.3	10.0
Benefit Payments to Contributions	0.9	1.1	1.3

The Assets to Payroll ratio, also called the Asset Volatility Ratio (AVR), is equal to the Market Value of Assets (MVA) divided by payroll. A higher AVR implies that the plan is exposed to greater contribution volatility. The current AVR of 7.3 indicates that a:

- 1% asset gain/loss can be related to about 7.3% of the annual payroll.

- The County's contribution changes by about 0.5% of payroll for each 1.0% gain or loss on the market assets (the plan currently amortizes asset gains/losses over a period of 20 years)

The Liabilities to Payroll ratio, also call the Liability Volatility Ratio (LVR), is equal to the Actuarial Accrued Liability (AAL) divided by payroll. A higher LVR implies that the plan is exposed to greater contribution volatility due to changes in liability measurements. The current LVR of 10.0 indicates that a:

- 1% liability gain/loss can be related to about 10.0% of the annual payroll.
- The County's contribution changes by about 0.7% of payroll for each 1.0% gain or loss on the AAL (the plan currently amortizes liability gains/losses over a period of 20 years).

As the plan approaches a 100% funded level, the AVR will converge to the LVR.

The use of payroll in these risk measures is an easily available substitute for the employer's revenue and often reflects the employer's ability to afford the plan. Each of these measures is a measure of plan maturity. The common evolution of a pension plan is to become more mature over time. Mature plans present more risk to plan sponsors because changes to the liability or assets will result in large changes in the unfunded liability as compared to the overall size of the employer as measured by payroll. As a result, the change in the metrics over time can be as important as the nominal size of the metric itself.

Additional Review

In some instances, more detailed quantitative assessment of risks is warranted either by the above maturity metrics, part of a periodic self-assessment of risks, or due to changes in investment allocations and capital market assumptions. When risks are identified and discussed early, Plan Sponsors may have more options available to them to address those risks. As plans mature, however, certain tools become less effective for addressing potential future funding shortfalls.

The following are examples of tests that could be performed:

- Scenario Test—A process for assessing the impact of one possible event, or several simultaneously or sequentially occurring possible events, on a plan's financial condition. A scenario test could show, for example, the effect of a layoff or reduction in workforce, or early retirement program.

- Sensitivity Test—A process for assessing the impact of a change in an actuarial assumption on an actuarial measurement. A sensitivity analysis could demonstrate, for example, the impact of a decrease in the valuation discount rate or a change in future life expectancies.

- Stochastic Modeling—A process for generating numerous potential outcomes by allowing for random variations in one or more inputs over time for the purpose of assessing the distribution of those outcomes. This type of analysis could show, for example, a range of potential future contribution levels and the likelihood of contributions increasing to a certain level.

- Stress Test—A process for assessing the impact of adverse changes in one or relatively few factors affecting a plan's financial condition. A stress test could show, for example, the impact of a single year or period of several years with significant investment losses.

Section V. Assets

Reconciliation of Assets

Below is a reconciliation of assets (unaudited) from January 1, 2023 through December 31, 2024.

			1/1/2023 to 12/31/2023		1/1/2024 to 12/31/2024
1.	Beginning of Year Assets	$	170,976,714	$	190,199,845
2.	Receipts				
	a. Employer Contributions	$	10,415,749	$	10,080,083
	b. Employee Contributions		1,420,935		1,305,542
	c. Investment Income & Dividends		3,389,462		4,335,293
	d. Realized and Unrealized Gain/(Loss)		16,700,159		12,787,689
	e. Stock Loan Income		15,987		15,793
	f. Other		1,176,530		2,450,711
	g. Total Receipts	$	33,118,822	$	30,975,111
3.	Deductions				
	a. Benefit Payments	$	12,983,325	$	14,721,261
	b. Administrative Expenses		144,049		164,723
	c. Investment Expenses	$	768,317	$	801,610
	d. Total Disbursements	$	13,895,691	$	15,687,594
4.	Net Increase (2.g. - 3.d.)	$	19,223,131	$	15,287,517
5.	Preliminary Ending Value (1. + 4.)	$	190,199,845	$	205,487,362
6.	Contribution Receivable	$	1,060,118	$	2,207,378
7.	End of Year Assets	$	191,259,963	$	207,694,739
8.	Rate of Return Net of Investment Fees (2I / [A + B - I] Method)		12.0%		9.9%

Determination of Investment Gain/(Loss) for Assets

Market Value of Assets	
As of December 31, 2023	$ 191,259,963

Item (1)	Amount (2)	Weight for Timing (3)	Weighted Amount (2) × (3)
Contributions	$ 12,532,885	50%	$ 6,266,443
Benefits Paid	(14,721,261)	50%	(7,360,631)
Expenses	(164,723)	50%	(82,362)
Total			(1,176,550)
Market Value plus Total Weighted Amount			190,083,413
Assumed Rate of Return for the Year			7.00%
Expected Return			$ 13,305,838

Actual Return		
1.	Market Value as of December 31, 2023	$ 191,259,963
2.	Contributions	12,532,885
3.	Benefits and Administrative Expenses Paid	(14,885,984)
4.	Market Value as of December 31, 2024	207,694,739
5.	Actual Return [(4) - (1) - (2) - (3)]	$ 18,787,875
6.	Calculation Base (1) + 50% × [(2) + (3)]	190,083,414
7.	Market Value Return as a Percentage [(5) / (6)]	9.9%

Investment Gain/(Loss)	
Actual Return minus Expected Return	$ 5,482,037

Development of Actuarial Value of Assets

The actuarial asset value as of January 1, 2025 is determined by spreading the asset gain or loss for each year over a five-year period. The asset gain or loss is the amount by which the actual asset return differs from the expected asset return.

Market Value of Assets		
As of December 31, 2024	$	207,694,739

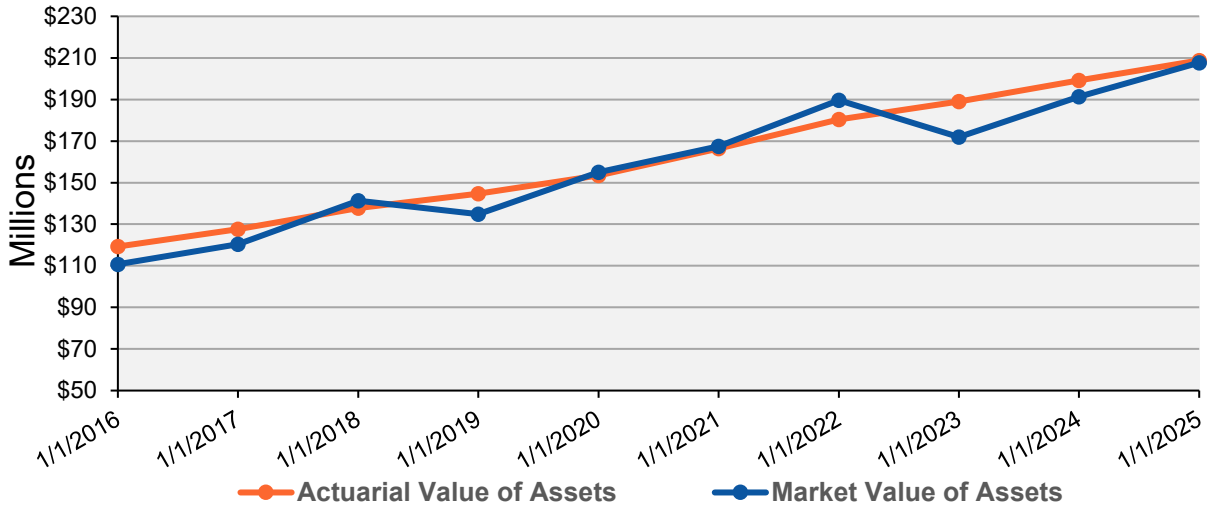
Plan Year End (1)	Investment Gain/(Loss) (2)	Percent Deferred (4)		Deferred Gain/(Loss) (2) × (4)
12/31/2024	5,482,037	80%	$	4,385,630
12/31/2023	8,518,023	60%		5,110,814
12/31/2022	(31,949,711)	40%		(12,779,884)
12/31/2021	10,893,595	20%		2,178,719
Total Deferred			$	(1,104,721)

Preliminary Actuarial Value of Assets		
As of January 1, 2025 (Market Value of Assets less total Deferred Gain/(Loss))	$	208,799,460

Final Actuarial Value of Assets		
Minimum Actuarial Value of Assets (50% of MVA)	$	103,847,370
Maximum Actuarial Value of Assets (150% of MVA)		311,542,109
As a Percentage of Market Value		100.5%
Actuarial Value of Assets as of January 1, 2025	$	208,799,460

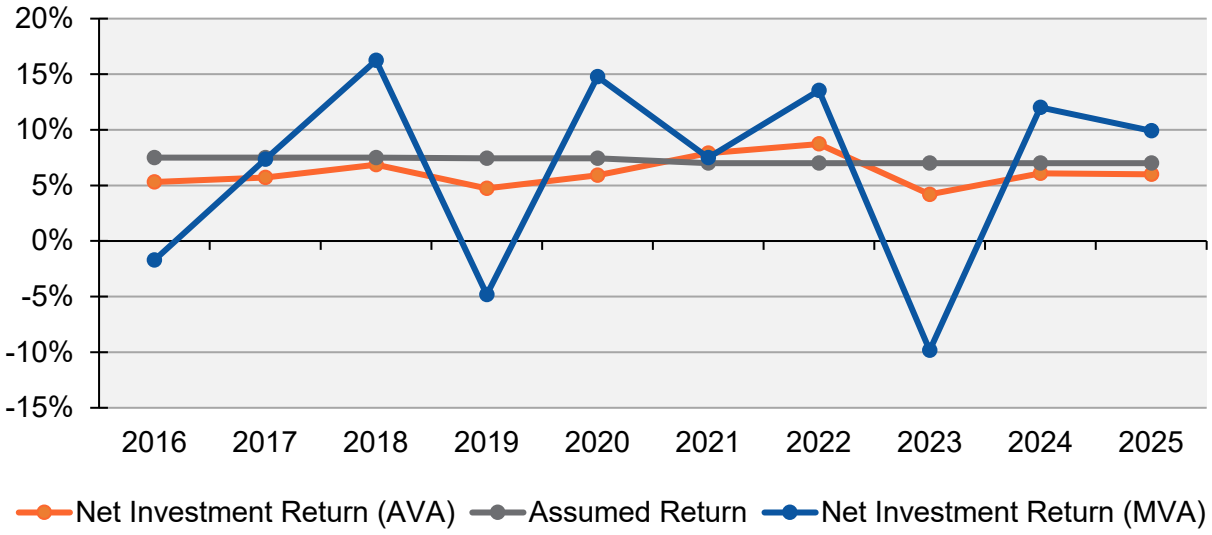
Calculation of Actuarial Return		
1. Actuarial Value as of January 1, 2024	$	199,246,105
2. Contributions		12,532,885
3. Benefits and Administrative Expenses Paid		(14,885,984)
4. Actuarial Value as of January 1, 2025		208,799,460
5. Actuarial Return [(4) - (1) - (2) - (3)]		11,906,454
6. Calculation Base (1) + 50% × [(2) + (3)]		198,069,556
7. Actuarial Return as a Percentage [(5) / (6)]		6.0%

10-Year: Market Value vs. Actuarial Value of Assets



10-Year: Market Value vs. Actuarial Value Rates of Return

The assumed long-term rate of return 7.00% considers past experience, the Trustees' asset allocation policy and future expectations.

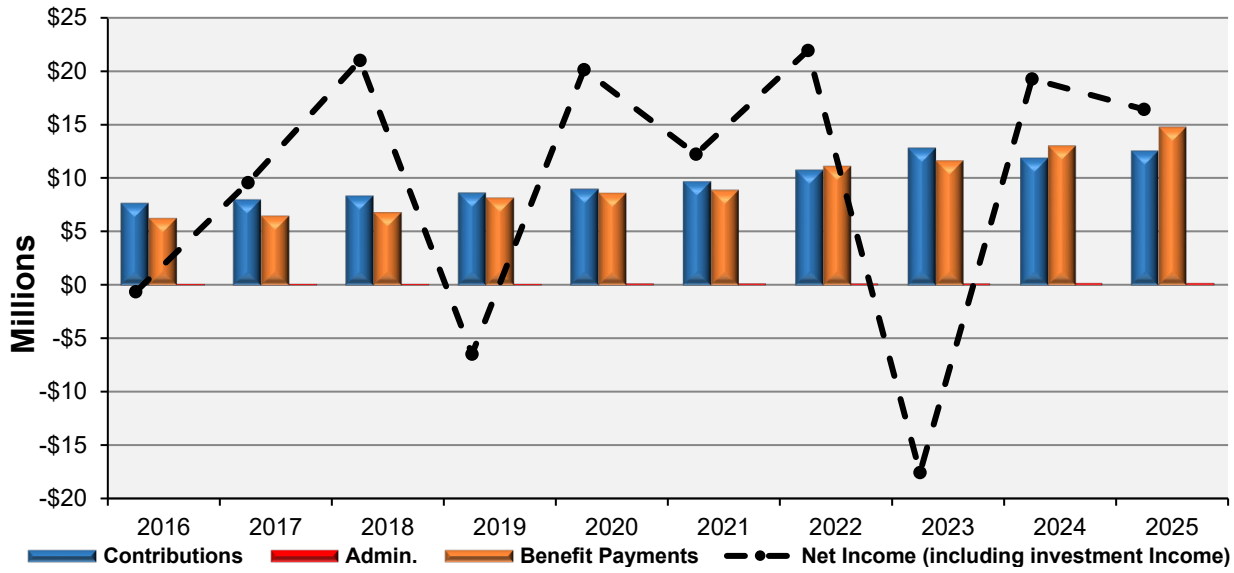


Average Rates of Return	Market Value	Actuarial Value
Most recent year return	9.9%	6.0%
Most recent five-year average return	6.3%	6.6%
Most recent ten-year average return	6.1%	6.1%

Summary of Investment Returns & Historical Cash Flows

Plan Year Ending	Market Value Net Investment Return Amount	Market Value Net Investment Return Percent	Total Contributions	Benefit Payments	Admin. Expenses	Net Income
2016	$ (1,950,895)	(1.7%)	$ 7,687,901	$ 6,278,726	98,399	$ (640,118)
2017	8,135,293	7.3%	8,004,650	6,485,372	99,535	9,555,037
2018	19,582,597	16.2%	8,353,810	6,821,395	109,213	21,005,799
2019	(6,847,391)	(4.8%)	8,634,170	8,161,906	107,635	(6,482,762)
2020	19,874,549	14.8%	9,002,021	8,609,648	135,493	20,131,428
2021	11,524,509	7.5%	9,694,932	8,863,045	123,305	12,233,091
2022	22,401,313	13.6%	10,770,387	11,097,546	133,032	21,941,122
2023	(18,642,656)	(9.8%)	12,793,714	11,589,085	139,029	(17,577,056)
2024	20,513,821	12.0%	11,882,585	12,983,325	144,049	19,269,032
2025	18,787,876	9.9%	12,532,885	14,721,261	164,723	16,434,777
Total	**$ 93,379,016**		**$ 99,357,055**	**$ 95,611,310**	**$ 1,254,412**	**$ 95,870,349**

Comparison of Net Income versus Historical Cash Flows



Benefit Payment Projection

The following table shows the estimated benefit payments, including DROP lump sum payments and DROP annuity payments after DROP exit, from January 1, 2025 through December 31, 2034 based on existing members of the plan.

Calendar Year	Benefits
2025	$ 16,597,707
2026	16,947,012
2027	19,387,383
2028	19,064,276
2029	20,768,228
2030	21,731,655
2031	21,914,972
2032	22,035,807
2033	22,962,259
2034	23,949,497

Section VI. Participant Information

Participant Summary

The following table summarizes the counts, ages and benefit information for plan participants used in this valuation.

		1/1/2024	1/1/2025	% Change
1.	Actives, not in DROP			
a.	Number	300	319	6.3%
b.	Average Age	42.9	42.6	(0.7%)
c.	Average Service	9.4	8.8	(6.4%)
d.	Total Compensation	$ 21,465,000	$ 23,294,494	8.5%
e.	Average Salary	$ 71,550	$ 73,023	2.1%
2.	Actives, in DROP			
a.	Number	45	46	2.2%
b.	Average Age	56.7	57.2	0.9%
c.	Average Service	27.3	28.0	2.6%
d.	Total Compensation	$ 4,914,977	$ 5,269,568	7.2%
e.	Average Salary	$ 109,222	$ 114,556	4.9%
3.	Service Retirements and Alternate Payees			
a.	Number	294	304	3.4%
b.	Average Age	65.9	66.3	0.6%
c.	Total Annual Benefit	$ 9,832,443	$ 10,637,246	8.2%
d.	Average Annual Benefits	$ 33,444	$ 34,991	4.6%
4.	Disabled Retirees			
a.	Number	44	44	0.0%
b.	Average Age	59.4	60.4	1.7%
c.	Total Annual Benefit	$ 1,403,067	$ 1,421,758	1.3%
d.	Average Annual Benefits	$ 31,888	$ 32,313	1.3%
5.	Beneficiaries			
a.	Number	24	26	8.3%
b.	Average Age	69.7	70.4	1.0%
c.	Total Annual Benefit	$ 485,903	$ 537,371	10.6%
d.	Average Annual Benefits	$ 20,246	$ 20,668	2.1%
6.	Vested Terminated			
a.	Number	2	1	(50.0%)
b.	Average Age	49.1	49.4	0.6%
c.	Total Annual Benefit	$ 20,954	$ 10,785	(48.5%)
d.	Average Annual Benefits	$ 10,477	$ 10,785	2.9%
7.	Refunds Owed			
a.	Number	38	41	7.9%
b.	Total Lump Sum Amount Due	$ 236,049	$ 263,654	11.7%

Active Age/Service Distribution Including Compensation

Shown below is the distribution of active participants, excluding those currently enrolled in DROP, based on age and service. The compensation shown is the average rate of pay as of January 1, 2025.

	Years of Service as of 07/01/2025										
Age	Under 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up	Total
Under 25	9	5	-	-	-	-	-	-	-	-	14
	55,001	54,001	-	-	-	-	-	-	-	-	54,644
25 to 29	8	15	8	1	-	-	-	-	-	-	32
	56,366	59,427	65,284	68,407	-	-	-	-	-	-	60,406
30 to 34	8	14	13	4	-	-	-	-	-	-	39
	55,189	58,095	66,229	76,315	-	-	-	-	-	-	62,079
35 to 39	6	13	13	17	5	-	-	-	-	-	54
	57,088	60,105	69,602	77,034	91,779	-	-	-	-	-	70,318
40 to 44	3	5	11	3	15	1	-	-	-	-	38
	54,001	58,069	70,948	80,540	87,412	96,529	-	-	-	-	75,845
45 to 49	5	6	13	4	11	5	2	-	-	-	46
	57,970	73,105	68,271	89,099	90,621	102,276	115,598	-	-	-	80,691
50 to 54	5	7	15	6	9	5	7	1	-	-	55
	55,721	62,678	68,553	78,170	99,141	112,080	112,083	93,716	-	-	82,648
55 to 59	3	5	7	2	6	3	1	2	-	-	29
	54,001	69,895	68,056	75,977	98,613	105,426	97,529	102,967	-	-	81,077
60 to 64	2	2	2	1	4	-	-	-	-	-	11
	54,001	62,171	71,741	76,330	93,165	-	-	-	-	-	74,983
65 to 69	-	-	1	-	-	-	-	-	-	-	1
	-	-	62,602	-	-	-	-	-	-	-	62,602
70 & up	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-
Total	49	72	83	38	50	14	10	3	-	-	319
	55,723	61,078	68,274	78,383	92,470	106,042	111,331	99,884	-	-	73,023

Averages	
Age	42.6
Service	8.8

Participant Reconciliation

Shown below is the reconciliation of participants between the prior and current valuation date.

			Inactive Participants						
	Active Participants	DROP	With Deferred Benefits	Owed a Refund of Contributions	Retirees	Disabled Retirees	Beneficiaries	Alternate Payees	Total
Participants in Last Valuation	300	45	2	38	284	44	24	10	747
Retired	(5)	(7)	(1)	0	13	0	0	0	0
Disabled	0	0	0	0	0	0	0	0	0
Vested Termination	0	0	0	0	0	0	0	0	0
Nonvested Termination/ Lump Sum Paid	(14)	0	0	3	0	0	0	0	(11)
Deceased/Payment Expired	0	0	0	0	(4)	0	0	0	(4)
Beneficiary	0	0	0	0	0	0	2	0	2
New QDRO	0	0	0	0	0	0	0	1	1
Transfer In From:				0		0	0	0	0
Fire Plan	0	0	0	0	0	0	0	0	0
Police Plan	0	0	0	0	0	0	0	0	0
Employee Plan	2	0	0	0	0	0	0	0	2
Transfer Out To:				0		0	0	0	0
Fire Plan	0	0	0	0	0	0	0	0	0
Police Plan	(2)	0	0	0	0	0	0	0	(2)
Employee Plan	(3)	0	0	0	0	0	0	0	(3)
Rehired	0	0	0	0	0	0	0	0	0
New Participants	49	0	0	0	0	0	0	0	49
Entered DROP	(8)	8	0	0	0	0	0	0	0
Adjustments	0	0	0	0	0	0	0	0	0
Participants in This Valuation	319	46	1	41	293	44	26	11	781

Section VII. Summary of Plan Provisions

Plan Year
January 1 – December 31.

Compensation
Regular annual rate of pay, exclusive of extra compensation of any kind such as overtime pay, bonuses, and commissions.

Final Average Basic Pay
The average of the highest 3 years of annual basic pay.

Employee Contributions
6.75% of compensation for all plan members. Contributions are not required after 30 years of service.

Employee Contributions Benefit
The sum of the employee contributions made by the participant and interest, including contributions made to other plans and transferred to this plan, as allowed by plan provisions.

Years of Service
Total number of years and nearest months.

Normal Retirement
Eligibility
Category I Participants: 20 years of service, or age 50 with 5 years.

Category II Participants: Age 50 with 10 years of service, or age 50 with 5 years of service for members hired before July 1, 2015.

Benefit
2 ½% of final average basic pay for each year of service up to 20 years plus 2% of final average basic pay for each year of service after 20 years (maximum 70% plus 2% times unused disability credit and pre-employment military service credit).

DROP
Allows accumulation of pension after 20 years of County service. DROP period must be between three and seven 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%. Employee contributions cease upon entry into DROP.

Early Retirement
Reduced benefits are available the first of any month coincident with or next following the completion of 20 years of continuous service if not otherwise eligible for a Normal Retirement benefit.

Termination Prior to Retirement

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

Termination prior to Vesting Date
Return of employee contributions with 4.25% interest.

Termination 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.

Disability Benefit
Must be totally and permanently disabled (except as the result of activities specified in the County code) regardless of length of service.

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

Non-Line of Duty Disability
The greater of the accrued benefit or 20% of final earnings, payable immediately, unreduced.

Pre-Retirement Death Benefits

Pre-Retirement Death Benefit (Line of duty)

Married
Greater of accrued benefit or 66 2/3% of final average basic pay, payable immediately, unreduced.

Not Married
Other Pre-Retirement Death Benefit

Pre-Retirement Death Benefit (Non-line of duty)

Married and Vested
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 final average basic pay. If participant is not vested, return of employee contributions with 4.25% interest, and a lump sum equal to 50% of final average basic pay.

Not Married or Not Vested
Other Pre-Retirement Death Benefit

Other Pre-Retirement Death Benefits
Return of employee contributions with 4.25% interest, and a lump sum equal to 50% of final average basic pay.

Normal Form of Benefit
Monthly life annuity with payments guaranteed for 5 years.

Alternative Forms of Benefit
Alternative forms of payment available to employees at retirement include joint and 50%, 66 2/3%, 80%, or 100% continued to the survivor upon the death of the participant (joint and survivor pop-up option is also available).

Actuarial Equivalence

Actuarial Equivalence is determined using 6.00% interest rate, 0% cost-of living adjustment, and the 1983 group annuity mortality table, blended 50% male and 50% female.

Post-Retirement Cost of Living Increases

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, or
- Benefit increased by 4% of original benefit.

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 the current March CPI from March CPI for prior year, or
- Benefit increased by 2.5%.

Changes Since Prior Valuation

The plan was amended to increase the maximum amount of time a participant is allowed to be in DROP from six years to seven.

Section VIII. Actuarial Methods and Assumptions

Funding Method

Entry Age Normal Funding Method. A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit (or DROP entry, if applicable and earlier).

Amortization Policy

The unfunded actuarial accrued liability (UAAL) is amortized as a level percentage of payroll over the following closed periods:

- Gains and losses over 20 years
- Assumption changes over 20 years
- Active plan amendments over the lesser of 15 years and the average expected future service period for participants impacted by the plan amendment
- Inactive plan amendments over the lesser of 10 years and the average life expectancy for participants impacted by the plan amendment
- Early retirement incentives over 5 years or less
- Surplus, when reached, over 30 years (open)

Different amortization periods were utilized prior to 1/1/2014.

Amortization payments increase 3.0% per year.

Asset Method

Asset smoothing method which spreads the investment gains or losses in excess of the assumed return over a five-year period. 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.

Discount Rate and Investment Rate of Return

7.00% compounded annually, net of investment expenses.

Inflation

3.0%, compounded annually.

Post-Retirement COLA Increases

Benefits accrued before Bill 88-96 are assumed to increase by 3.0% of the current benefit each year from retirement.

Benefits accrued after Bill 88-96 are assumed to increase by 1.8% of the current benefit each year from retirement.

Salary Increases

Samples rates are:

Years of Service	Rate
0	6.50%
5	6.50%
10	6.00%
15	5.75%
20	5.25%
>=25	4.25%

Payroll Growth

3.0%, compounded annually.

Mortality

Healthy Actives, Terminated Vested Participants, and Retirees

Pub-2010 Safety Employee and Healthy Retiree Amount-Weighted Mortality Tables, with 2010 base rates set forward 1 year, and projected generationally from the 2010 base year with improvement scale MP-2021.

Disabled Retirees

Pub-2010 Safety Disabled Retiree Amount-Weighted Mortality Tables, with 2010 base rates set forward 1 year, and projected generationally from the 2010 base year with improvement scale MP-2021.

Contingent/Beneficiaries

Pub-2010 Contingent Survivor Amount-Weighted Mortality Tables, with 2010 base rates set forward 1 year, and projected generationally from the 2010 base year with improvement scale MP-2021.

100% of pre-retirement deaths are assumed to be non-duty related.

The mortality improvement scale is the scale most recently published by the Society of Actuaries as of the valuation date and may change in future actuarial valuations.

Retirement (Reflects DROP Entry)

	Years of Service				
Age	<20	20	21-29	30-32	33+
<50	N/A	35%	10%	50%	100%
50-61	10%	35%	20%	50%	100%
62+	100%	100%	100%	100%	100%

Members Participating in DROP on the Valuation Date

Members are assumed to exit DROP upon the later of (1) five years from their DROP entry date and (2) the valuation date.

DROP Election Rate

80% of eligible participants who are under age 59 and have less than 31 years of service are assumed to elect to enter DROP.

Termination of Employment

Service	Proposed Rate	Service	Proposed Rate
0	12.00%	8	3.00%
1	12.00%	9	3.00%
2	12.00%	10	1.00%
3	10.00%	11	0.00%
4	5.00%	12	0.00%
5	5.00%	13	0.00%
6	5.00%	14	0.00%
7	5.00%	15+	0.00%

Disability

Sample rates are:

Age	Current Rate	Proposed Rate
30	0.1469%	0.1102%
35	0.2173%	0.1630%
40	0.4483%	0.3362%
45	0.7497%	0.5623%
50	1.1032%	0.8274%
55	0.0000%	0.0000%

75% of disablements are assumed to be duty-related.

Marriage

It is assumed that 70% of employees are married. Husbands are assumed to be 4 years older than wives.

Special service credit assumptions

Disability Leave

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

Military Service

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

In addition, it is assumed that participants with 30 or more years of service will have credit for one year of combined disability leave and military service.

Transferred Service

Transferred service is included in the calculation of a participant's benefit starting at the time the service is originally transferred to the County.

Administrative Expenses

A load for estimated administrative expenses is included in the Actuarially Determined Contribution. Expenses are assumed to be the average of the administrative expenses for the prior two years increased with the assumed payroll growth, with the resulting average rounded to the nearest $1,000.

CIGNA Benefit

Our calculations and the data exhibits reflect that some benefits have already been purchased.

Other Methods and Assumptions

It is assumed that vested terminations prior to age 40 will choose to take a lump sum while those 40 and older will choose a deferred benefit.

Rationale for Assumptions

The following assumptions are deemed to have a significant effect on the calculations and were selected by the County based on the most recent Experience Study dated November 14, 2022 covering plan experience from January 1, 2017 to January 1, 2022.

- Inflation
- Salary increases
- Payroll growth
- Mortality
- Retirement
- Disability
- Termination of employment
- Marriage

The discount rate/investment rate of return is reviewed at least once annually following the same procedures as outlined in the Experience Study.

Anything not specifically noted is deemed to be not significant.

The various actuarial assumptions and methods which have been used are, in our opinion, appropriate for the purposes of this report.

Changes Since Prior Valuation

The assumption for DROP participation is increased from four years to five years.

Appendix 1

Summary of Funding Progress

Valuation Date	(1) Actuarial Value of Assets	(2) Actuarial Accrued Liability	(3) Percentage Funded (1) / (2)	(4) Unfunded Actuarial Accrued Liability (2) - (1)	(5) Annual Covered Payroll	(6) Unfunded Actuarial Accrued Liability as a Percentage of Covered Payroll (4) / (5)
1/1/2015	$112,017,103	$154,984,268	72.3%	$42,967,165	$19,775,644	217.3%
1/1/2016	$119,275,911	$163,414,894	73.0%	$44,138,983	$19,974,632	221.0%
1/1/2017	$127,553,081	$171,692,508	74.3%	$44,139,427	$21,000,562	210.2%
1/1/2018	$137,791,834	$184,359,986	74.7%	$46,568,152	$21,268,895	218.9%
1/1/2019	$144,689,347	$195,096,332	74.2%	$50,406,985	$21,444,603	235.1%
1/1/2020	$153,490,883	$205,826,027	74.6%	$52,335,144	$24,504,133	213.6%
1/1/2021	$166,339,896	$226,683,044	73.4%	$60,343,148	$24,702,134	244.3%
1/1/2022	$180,363,012	$237,590,893	75.9%	$57,227,881	$24,679,159	231.9%
1/1/2023	$189,019,409	$255,470,213	74.0%	$66,450,804	$24,585,810	270.3%
1/1/2024	$199,246,105	$270,676,268	73.6%	$71,430,163	$26,379,858	270.8%
1/1/2025	$208,799,460	$285,312,402	73.2%	$76,512,942	$28,564,062	267.9%

Analysis of the dollar amounts of net assets available for benefits, actuarial accrued liability, and unfunded actuarial accrued liability in isolation can be misleading. Expressing the net assets available for benefits as a percentage of the actuarial accrued liability provides one indication of funding status on a going-concern basis. Analysis of this percentage over time indicates whether the plan is becoming financially stronger or weaker. Generally, the greater this percentage, the stronger the plan. Trends in unfunded actuarial accrued liability and annual covered payroll are both affected by inflation. Expressing the unfunded actuarial accrued liability as a percentage of annual covered payroll approximately adjusts for the effects of inflation and aids analysis of Anne Arundel County's progress made in accumulating sufficient assets to pay benefits when due. Generally, the smaller this percentage, the stronger the plan.

Appendix 2 – Glossary

Actuarial Accrued Liability (AAL)
The difference between the Present Value of Future Benefits and the Present Value of Future Normal Costs or the portion of the present value of future benefits allocated to service before the valuation date in accordance with the actuarial cost method. Represents the present value of benefits expected to be paid from the plan in the future allocated to service prior to the date of the measurement.

Actuarial Assumptions
Estimates or projections of future plan experience such as investment return, expected lifetimes and the likelihood of receiving a pension from the pension plan. Demographic, or "people" assumptions include rates of mortality, retirement and separation. Economic, or "money" assumptions, include expected investment return, inflation and salary increases. Assumptions of a long-term nature are representative of average expectations (i.e., they will not be exactly realized in every year, however over an extended period are a reasonable projection of future outcomes).

Actuarial Cost Method
A procedure for allocating the Present Value of Future Benefits into the Present Value of Future Normal Costs and the Actuarial Accrued Liability. Also known as the "funding method".

Actuarial Value of Assets (AVA)
The value of the assets as of a given date, used by the actuary for valuation purposes. The AVA may be the market or fair value of plan assets or a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the actuarially determined contribution (ADC).

Actuarial or Experience Gain/Loss
A measure of the difference between actual experience and experience anticipated by a set of Actuarial Assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used. Such gains or losses are not actual economic gains or losses immediately incurred by a plan, as experience in future years could offset the effect of experience in a single year due to the typically long-term average nature of actuarial assumptions.

Actuarially Determined Contribution (ADC)
The employer's periodic determined contribution to a pension plan, calculated in accordance with the assumptions and methods used by the plan actuary.

Amortization Method
A procedure for payment of the Unfunded Actuarial Accrued Liability (UAAL) by means of periodic contributions of interest and principal. The components of the amortization payment for the UAAL includes the amortization period length, amortization payment increase (level dollar or level percentage of pay), and amortization type (closed or open).

Funded Ratio
The actuarial value of assets expressed as a percentage of the plan's actuarial accrued liability.

Low-Default-Risk Obligation Measure (LDROM)
The present value of benefits accrued at the valuation date using actuarial assumptions that are generally the same as those used in determining the plan's funding liability, with the discount

rate changed to reflect the expected return on a low-default-risk investment portfolio. For plans using a funding method that does not quantify gains and losses annually (but rather spreads them over future years through the changes in the normal cost), the actuarial cost method is also changed to reflect a different pattern of allocating costs to historical periods than is used to determine the ADC.

Market Value of Assets (MVA)
The value of the assets as of a given date held in the trust available to pay for benefits of the pension plan.

Normal Cost
That portion of the Present Value of Future Benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

Present Value of Future Benefits (PVFB)
The present value of amounts which are expected to be paid at various future times to active members, retired members, beneficiaries receiving benefits, and inactive, non-retired members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.

Present Value of Future Normal Cost (PVFNC)
The portion of the Present Value of Future Benefits (PVFB) allocated to future service.

Unfunded Actuarial Accrued Liabilities (UAAL)
The difference between the Actuarial Accrued Liability (AAL) and the Actuarial Value of Assets (AVA).

Appendix 3 – Summary of Major Legislative Changes

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 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 88-96
Effective 12/4/1996.

The previous method of calculating cost of living increases 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 70% cap. Elimination of Tier 2 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 employee contributions to be made on a pre-tax (“pick up”) basis.

County Council Bill 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 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 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 7/1/2015.

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.

County Council Bill No. 100-21
Effective 02/05/2022.

Clarified that the exception to the reduction in pension benefit for rehired classified employees who are reemployed in a contractual position pursuant to § 802(a)(14) of the County Charter is limited to the first 1500 hours per calendar year.

County Council Bill No. 31-24
Effective 08/08/2024

Established an exception to the reduction in pension benefit for rehired retirees who are retired from the classified system and are reemployed in a classified position at least 90 days after their date of retirement that is a different job classification than that which the retiree held prior to retirement, and, if the retiree was a uniformed officer, is reemployed as a non-uniformed officer or in a different department from which the retiree retired.

County Council Bill No. 50-24
Effective 08/08/2024

Extends the total DROP participation period to seven years for those participants in the following classifications: Detention Officer, Detention Corporal, Detention Sergeant, Detention Lieutenant, Detention Captain, or Assistant Correctional Facility Administrator or Correctional Facility Administrator (hired before 10/29/2020).