Classic Values, Innovative Advice

Delaware State Police Pension Plan

Actuarial Valuation as of June 30, 2024

Produced by Cheiron

December 2024

TABLE OF CONTENTS

CHEIRON Classic Values, Innovative Advice

December 27, 2024

Board of Pension Trustees
State of Delaware
McArdle Building
860 Silver Lake Boulevard, Suite 1
Dover, Delaware 19904

Dear Members of the Board:

At your request, we have conducted the annual actuarial valuation of the Delaware State Police Pension Plan (Plan) as of June 30, 2024. The results of this valuation are contained in this report. The purpose of the valuation is discussed in the Foreword.

This report contains information on Plan assets and liabilities and analyses combining asset and liability performance and projections. It also discloses State contribution levels and certain required disclosures under the Governmental Accounting Standards Board (GASB) Statement No. 67.

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

The contribution results of this report are only applicable to the State contribution for Fiscal Year (FY) 2026 and rely on future Plan experience conforming to the underlying assumptions. Future experience may differ significantly from the current experience due to such factors as the following: Plan experience differing from that anticipated by the assumptions, changes in assumptions, and changes in Plan provisions or applicable law.

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

This report was prepared for the Delaware State Police Pension Plan for the purposes described herein and for the use by the Plan's auditor in completing an audit related to the matters herein. Other users of this valuation report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

Sincerely,
Cheiron

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

Elizabeth Wiley, FSA, EA, MAAA, FCA
Consulting Actuary

FOREWORD

Cheiron has performed the annual actuarial valuation of the Delaware State Police Pension Plan (Plan) as of June 30, 2024. The purpose of this report is to:

1) **Measure and disclose**, as of the valuation date, the financial condition of the Plan,

2) **Indicate trends** in the financial condition of the Plan,

3) **Determine the contribution rate** to be paid by the State for Fiscal Year (FY) 2026, and

4) **Provide** certain accounting statement information.

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

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

Section II reviews the primary risks facing the Plan and quantifies these using various risk and maturity measures.

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

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

Section V presents the FY 2026 Actuarially Determined Contribution.

Section VI includes certain required disclosures under Governmental Accounting Standards Board (GASB) Statement No. 67 and items recommended by the Government Finance Officers Association (GFOA).

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

The actuarial assumptions reflect our understanding of the likely future experience of the Plan, and the assumptions, individually and as a whole, represent our best estimate for the future experience of the Plan. The results of this report rely on future Plan experience conforming to the underlying assumptions and methods outlined in this report. To the extent that the actual Plan experience deviates from the underlying assumptions and methods, or there are any changes in Plan provisions, the true cost of the Plan will vary from our results.

SECTION I – BOARD SUMMARY

General Comments

The Actuarially Determined Contribution (ADC) rate was calculated to decrease from 29.64% for FY 2025 to 28.17% for FY 2026.

During the year ended June 30, 2024, the Plan's assets earned 10.16% on a market value basis. However, due to the Plan's asset smoothing method, which recognizes portions of investment gains and losses over time, the return on an actuarial value basis was less at 7.25%. This return was slightly more than the assumed investment rate of return of 7.0% for the prior year, resulting in an actuarial gain on investments of $1.7 million.

The Plan experienced an actuarial gain on Plan liabilities resulting from salary increases different from those assumed and members retiring, terminating, becoming disabled, and dying at rates different from the actuarial assumptions. This liability gain decreased the actuarial liability by $19.1 million. The source of this gain was primarily pay lower than the assumed salary increases.

Liabilities increased $2.6 million due to a 1% Post-Retirement Increase granted to all who retired prior to June 30, 2019 with an additional 1% payable to those who retired prior to June 30, 2004. These increases are payable commencing July 1, 2024.

This valuation report also contains certain information to be reported in the June 30, 2024 Annual Comprehensive Financial Report (ACFR) of the Delaware Public Employees' Retirement System (Delaware PERS) under GASB Statement No. 67, as well as additional disclosure information recommended by the Government Finance Officers Association (GFOA). The GASB disclosures are based on the use of updated procedures to roll forward the 2023 actuarial valuation liability results. The calculation of net pension liability in Section VI is shown as disclosed for the plan year ended June 30, 2024, based on the 2023 funding actuarial valuation liability results, updated by the roll forward. We also present a projection of the June 30, 2025 disclosure in Section VI, assuming all actuarial assumptions are exactly met over the coming year, which is based on the 2024 funding actuarial valuation liability results.

As of the June 30, 2024 funding actuarial valuation, the Plan's unfunded actuarial liability (UAL) was $64.4 million. This is a decrease from the $80.8 million UAL in the funding valuation for the prior year.

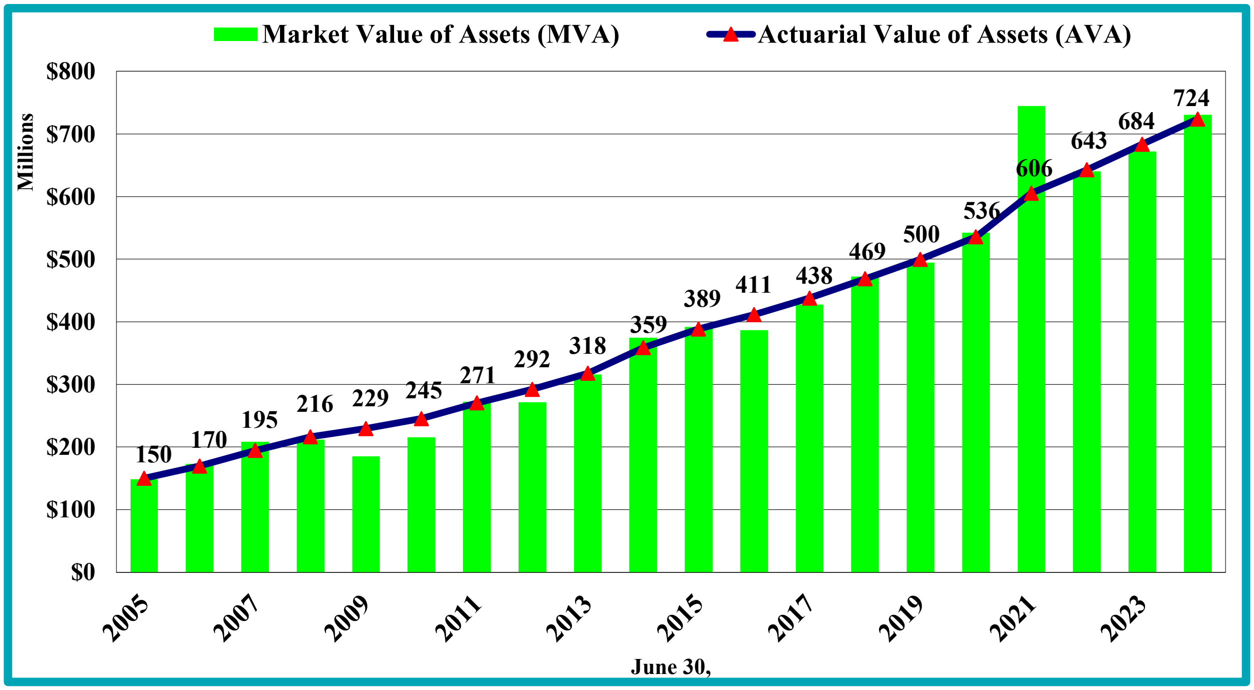
Effective with the June 30, 2018 valuation, the UAL as of June 30, 2018 was amortized over a closed 20-year period as a level percentage of payroll (14 years remaining as of June 30, 2024). Layers of UAL which have arisen since then are being amortized over their own individual closed 15-year periods as a level percentage of payroll.

SECTION I – BOARD SUMMARY

Trends

Asset Returns

The graph below shows measurements of the Plan's assets over the last 20 years based on market and actuarial values. The green bars represent the market value measurements, while the blue line shows the smoothed actuarial value measurements. The black labels above the blue line are the actuarial value of asset measurements as of the valuation date for each year in millions of dollars.



The Market Value of Assets (MVA) returned 10.2% over the last year. The determination of the Plan's Actuarial Value of Assets (AVA) for the current year reflects a portion of this return exceeding the 7.0% assumed for the prior year, and continued recognition of prior years' gains and losses, with the combined effect of returning 7.3% over FY 2024.

Over the period July 1, 2005 to June 30, 2024, the Plan's assets, measured using the Actuarial Value of Assets measurements returned a compound 7.4%, compared to the current valuation assumption of 7.0%. The Plan returned 7.5% over the same period on a Market Value of Assets basis.

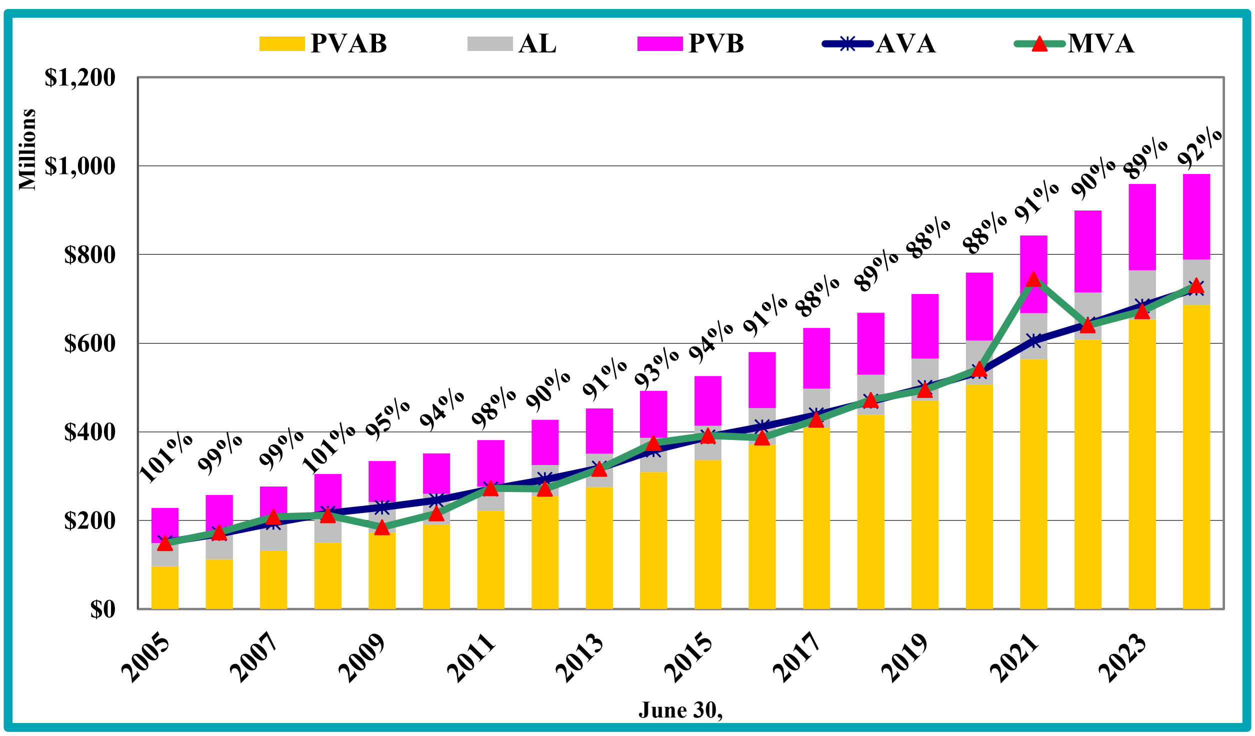
SECTION I – BOARD SUMMARY

Assets and Liabilities

The three colored bars below represent the three different measures of liability discussed in this report. The first measure is given by the yellow bars, the present value of accrued benefits (PVAB). The PVAB values represent the value of all benefits earned by current members through the valuation date. These values do not reflect any future additional service or salary increases for current members beyond the valuation dates.

The second liability measure shown is the one currently used for the Plan's funding target, the actuarial liability (AL). The top of the gray bars represents these target amounts. This measurement is also the basis of the liability measure used in GASB 67. The funded ratios reported by the Plan are the percentages shown above the bars and are developed by comparing the Actuarial value of Assets to these target measurements of liability at each valuation date.

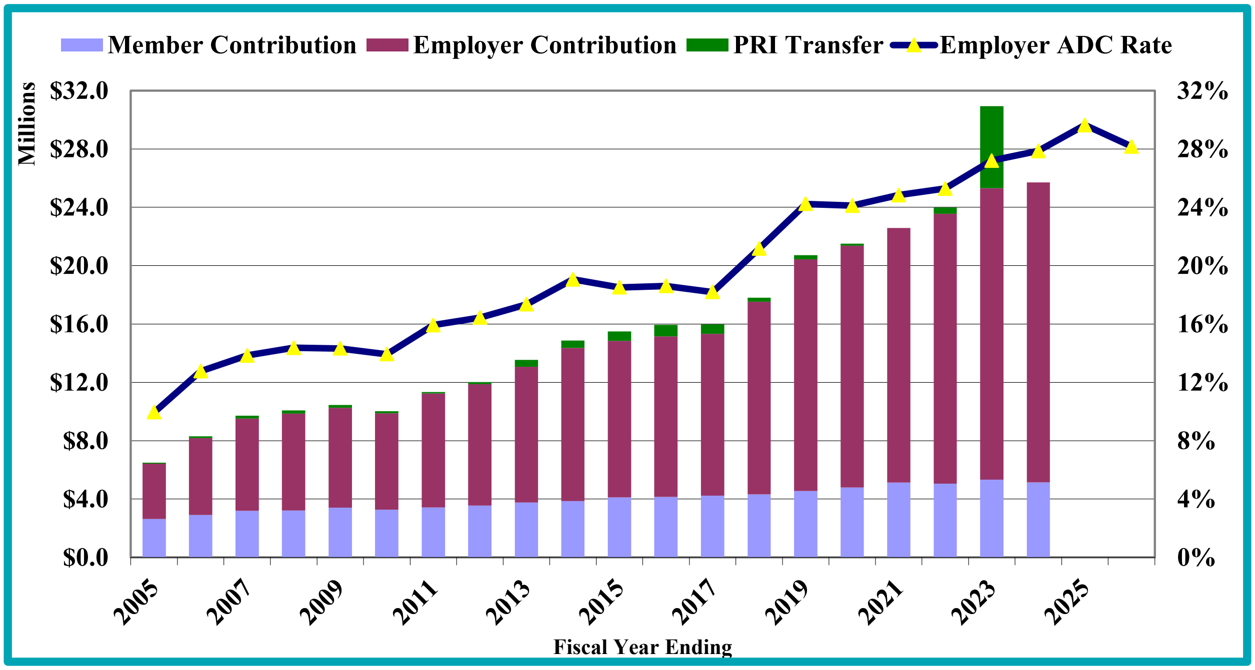
The amount represented by the top of the pink bars, the present value of future benefits (PVB), is the amount needed as of each valuation date to provide all benefits for the current members and their beneficiaries, including reflection of assumed future service and pay increases. If the Plan had assets equal to the PVB as of a certain date, no additional contributions would, in theory, be needed to pay the benefits of the current members if all assumptions were exactly met from that point forward.



The funded ratios shown are the AVA as a percentage of AL, and values would be different if presented as MVA as a percentage of AL.

SECTION I – BOARD SUMMARY

Contribution Rates



The stacked bars in the graph above show the actual dollar amounts of the contributions made by the State, the Post-Retirement Increase Fund (PRI), and the members for each fiscal year and are read using the left-hand scale. The blue line shows the State Actuarially Determined Contribution (ADC) rate for each fiscal year as a percentage of payroll and is read using the right-hand scale.

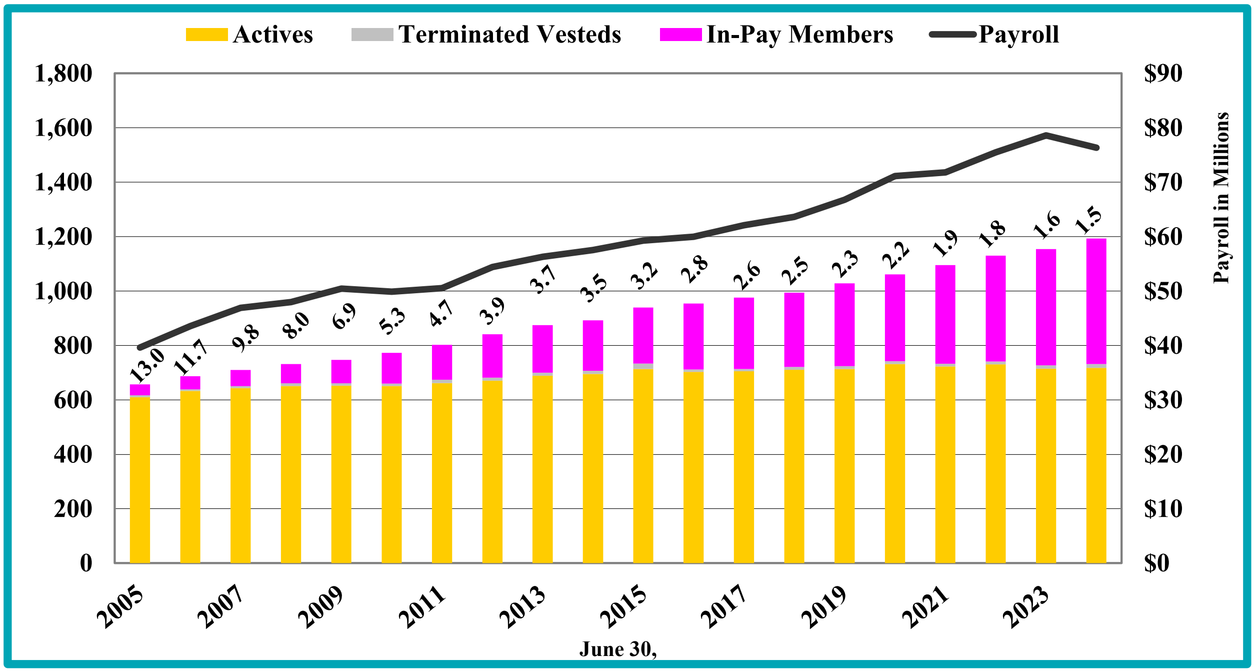
The member contribution rate is set by State law, based on the plan in which the member participates. The State contribution rate is set by the actuarial process, while the PRI transfer amounts depend on the increases granted by the State Legislature. Please note that there is a lag between the calculation of the State contribution rates shown and when they are payable. For example, the value shown for FY 2024 is the rate prepared by the June 30, 2022 valuation and implemented for the period July 1, 2023 to June 30, 2024. As such, two more years of rates are shown beyond the years of actual contributions.

SECTION I – BOARD SUMMARY

Participant Trends

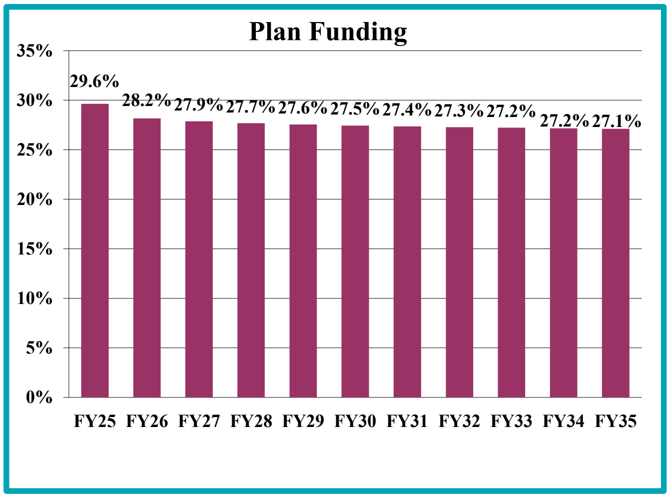
The bars below show the number of members as of each valuation date, divided between active members, terminated vested members, and retirees/beneficiaries. These bars are read using the left-hand scale. As with most maturing plans, this plan continues to show growth in the number of inactive members. The numbers that appear above each bar represent the ratio of active members to inactive members (retirees, beneficiaries, and terminated vested members) at each valuation date. This active-to-inactive ratio has decreased from 13.0 actives for each inactive in 2005 to 1.5 actives for each inactive in 2024. This rapid decline is simply due to the fact that this plan began in 1980 and did not yet have many retirees at the start of the period.

The black line shows the covered payroll for the Plan as of each valuation date and is read using the right-hand scale.



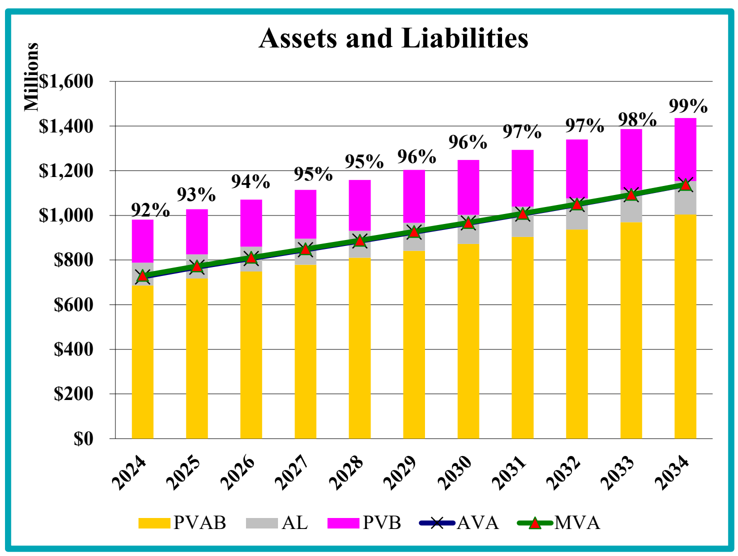
Future Outlook

Baseline Projections



These graphs show the expected progress of the Plan over the next 10 years, assuming the Plan's assets earn 7.0% on a *market value* basis and assuming all other assumptions are exactly met, including that the Actuarially Determined Contribution (ADC) amounts are made in full. The chart entitled "Plan Funding" shows the projected State ADC rate decreasing from 29.6% in FY 2025, determined by the 2023 valuation, to the 28.2% for FY 2026 determined by the current valuation, and then slowly decreasing to 27.1% at the end of this 10-year period, absent further gains or losses.

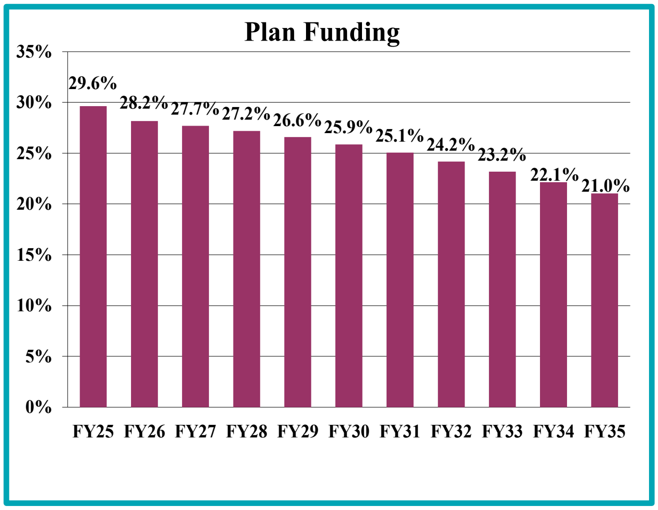
The "Assets and Liabilities" graph shows the projected funded ratios on an Actuarial Value of Assets basis for the Plan over the 10-year projection period. The Plan's funded status is projected to increase from 92% to 99% over the 10-year projection period, assuming all assumptions are exactly met.



The funded ratios shown are the AVA as a percentage of AL, and values would be different if presented as MVA as a percentage of AL.

SECTION I – BOARD SUMMARY

Projections with Asset Returns of 8.0%

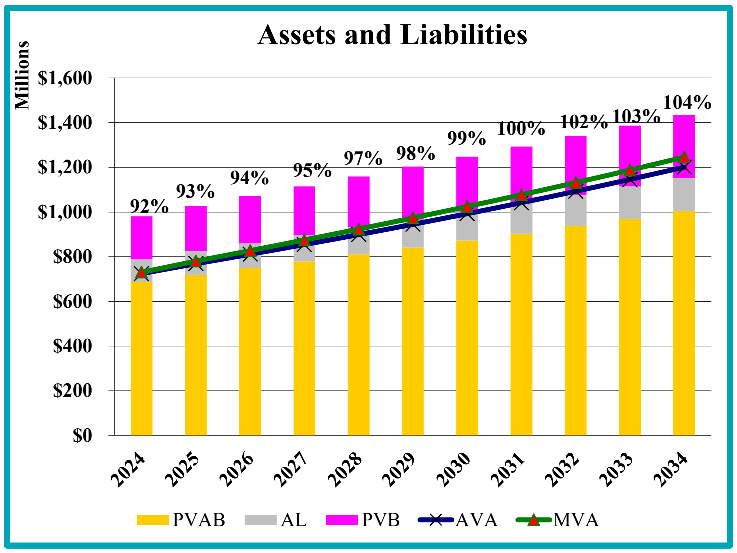


The Plan's investment earnings will affect the future funding status of the Plan. The two graphs on this page show what the next 10 years are expected to look like if the Plan's investment performance is 8.0% each year, 1.0% higher than the valuation investment rate of return assumption.

These two graphs assume that all other assumptions are exactly met, including actual State contributions equally the full actuarially determined amounts.

The "Plan Funding" graph shows that the State ADC rate would decrease under this scenario compared to the near flat forecast in the baseline case. The rate declines to 21.0% of payroll at the end of the 10-year projection period.

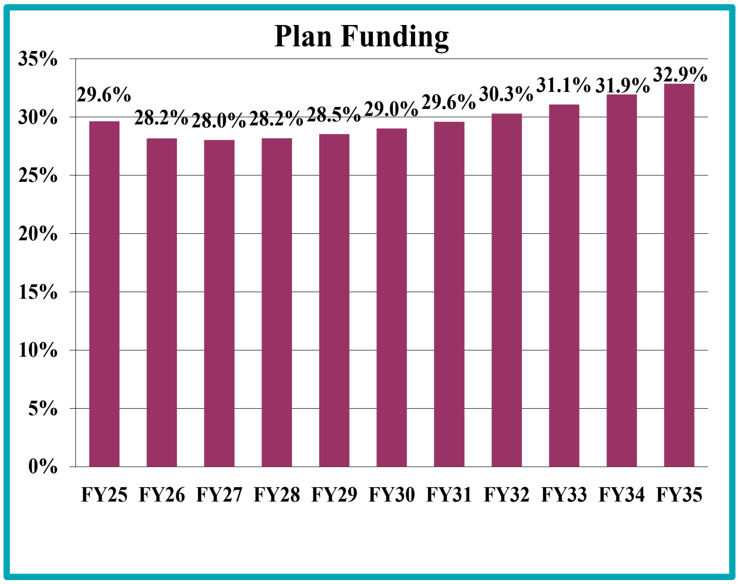
The "Assets and Liabilities" graph shows that under this scenario, the Plan would reach a 104% funded ratio by 2034, an improvement over the baseline scenario's ultimate ratio of 99%. With on-going investment gains, the Market Value would be higher than the Actuarial Value of Assets for the entire period..



The funded ratios shown are the AVA as a percentage of AL, and values would be different if presented as MVA as a percentage of AL.

SECTION I – BOARD SUMMARY

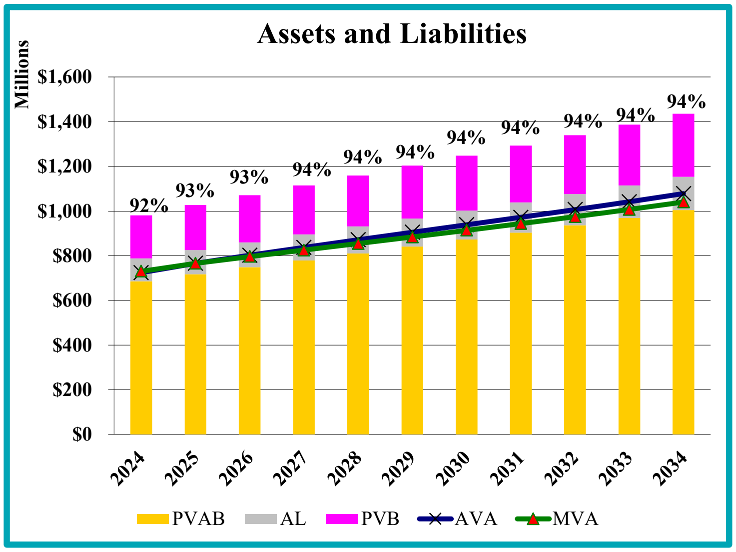
Projections with Asset Returns of 6.0%



The graphs on this page show projections of the Plan's funding status and contributions assuming that the Plan's investment performance is 6.0% each year of the projection, 1.0% lower than the valuation investment rate of return assumption.

Note that these projections assume all other assumptions are exactly met, including payment of State contributions made equal to the full Actuarially Determined Contribution.

Under this scenario, the State ADC rate increases to 32.9% of payroll by the end of the 10-year projection period, significantly greater than the 27.1% ultimate rate in the baseline projection. Additionally, the funded ratio is projected to be lower in this scenario, reaching 93% in 2025 and slowly increasing to 94%, lower than the 99% ultimate ratio in the baseline scenario. By introducing investment losses, the AVA exceeds the MVA starting in FY 2025.



The funded ratios shown are the AVA as a percentage of AL, and values would be different if presented as MVA as a percentage of AL.

SECTION I – BOARD SUMMARY

Table I-1
Summary of Principal Plan Results

Valuation as of:	June 30, 2023	June 30, 2024	% Change
Member Counts			
Active Members	715	717	0.28%
Disabled Members	30	33	10.00%
Retirees and Beneficiaries	397	428	7.81%
Terminated Vested Members	12	15	25.00%
Terminated Non-Vested Members	0	3	N/A
Total Member Counts	**1,154**	**1,196**	**3.64%**
Covered Payroll of Active Members*	$ 78,599,500	$ 76,360,100	(2.85)%
Annual Benefit Payments for Retirees, Disabled Members, and Beneficiaries	$ 32,702,600	$ 36,046,000	10.22%
Assets and Liabilities			
Actuarial Liability (AL)	$ 764,711,100	$ 788,126,700	3.06%
Actuarial Value of Assets (AVA)	683,879,700	723,738,500	5.83%
Unfunded AL (UAL)	$ 80,831,400	$ 64,388,200	(20.34)%
Funded Ratio on AVA Basis (AVA/AL)	89.4%	91.8%	
Funded Ratio on MVA Basis (MVA/AL)	87.9%	92.7%	
Present Value of Accrued Benefits (PVAB)	$ 654,275,600	$ 685,809,100	4.82%
Market Value of Assets (MVA)	671,946,600	730,403,700	8.70%
Unfunded PVAB	$ (17,671,000)	$ (44,594,600)	(152.36)%
Accrued Benefit Funded Ratio (MVA/PVAB)	102.7%	106.5%	
State Contribution Rate	**Fiscal Year 2025**	**Fiscal Year 2026**	
Entry Age Normal Cost	19.86%	19.88%	
UAL Amortization Payment	9.63%	8.14%	
Administrative Expense	0.15%	0.15%	
Actuarially Determined Contribution (ADC)	29.64%	28.17%	

* Assumes one year of payroll increase projection, representing payroll beginning on each valuation date.

SECTION II – RISK DISCLOSURE

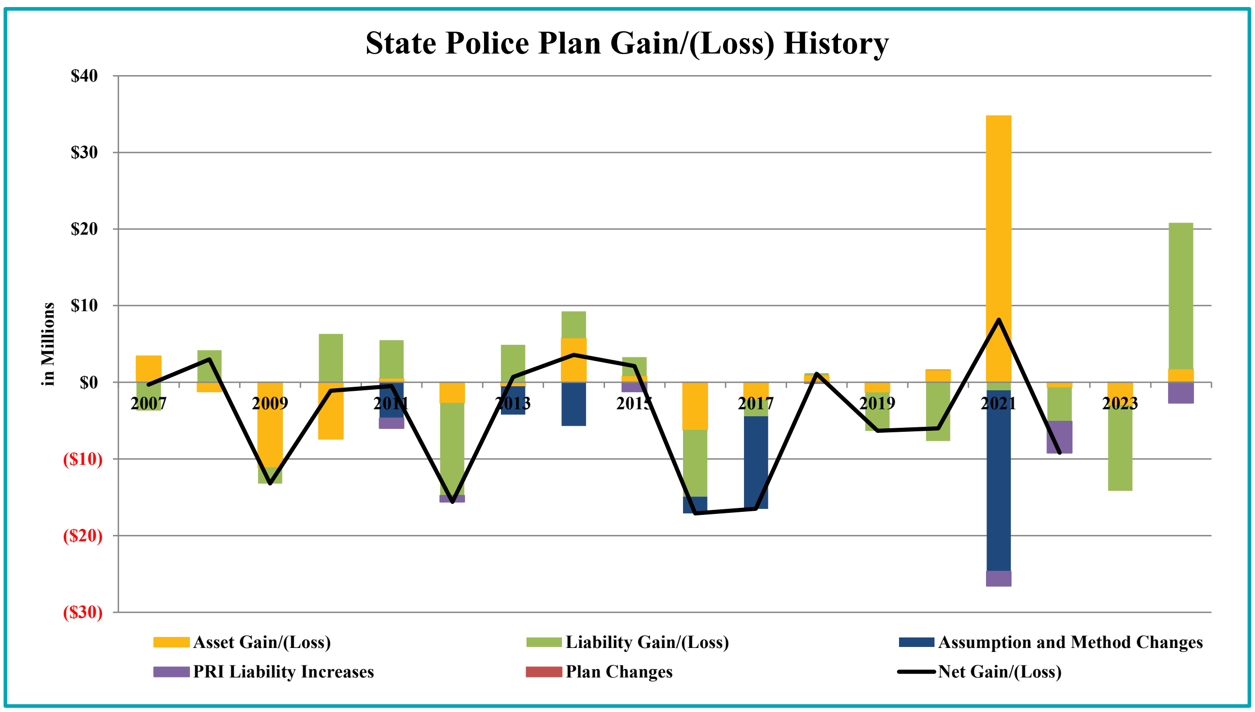
Introduction

The Plan's actuarial valuation results are dependent on assumptions about future economic and demographic experience. Based on actuarial standards of practice, the assumptions represent a reasonable estimate for future experience. However, actual future experience will never conform exactly to the assumptions and may differ significantly from the assumptions. This deviation is the risk that pension plan sponsors undertake in relying on a pension plan's actuarial valuation results.

This section of this report is intended to identify the primary drivers of these risks, provide background information and assessments about these identified risks, and communicate the significance of these risks to this plan.

Historical Experience

For this plan, the two primary measurements where there is risk that the actual measurements will significantly differ from the expected future measurements are the measurements of the liabilities of the Plan and the resulting calculation of the Actuarially Determined Contributions. Therefore, while future experience will not be the same as past experience, it is useful to look at what factors have contributed to the actual liability measurements at each valuation date deviating from that predicted by the prior year's valuation. The following graph shows the gains/(losses) for each valuation date between the actual unfunded liability measurement and the expected unfunded liability broken down by cause.



SECTION II – RISK DISCLOSURE

This shows that the liability gain/(loss) and assumption and method changes have been the most significant risks for the Plan in most years over this period in regard to the actual liability measurements deviating from the expected followed closely by the asset gain/(loss). Additionally, gains and losses from investment experience have been significant in many years. This history also shows that over the whole period shown, the bulk of both the asset and the liability gain/(loss) values have been offset by the experience in other years. Over the whole period, assumption and method changes have had the greatest cumulative impact on the liability at a loss of $52.0 million, followed by asset experience at a gain of $13.1 million, predominately from the 2021 investment gain, and liability experience at a loss of $12.2 million.

Risk Identification

Considering the specific characteristics of the Plan, the assumptions and methods used in the actuarial valuations for the Plan, and the recent history, we have identified the risks that we think are the most significant in terms of possibly leading to actual values of the measurements deviating from those expected by the valuation process, as follows:

- Investment risk,
- Longevity and other demographic risk, and
- Assumption change risk.

While we have identified these risks as potentially significant in regard to actual measurements deviating from expected, it is possible that there are other risks that we have not identified that will turn out to be significant. For example, while it is possible that the State could start paying contributions other than the Actuarially Determined Contributions and the measurements thus differ as a result of contribution risk, we have not included contribution risk above, as this plan has consistently received contributions equal to what is assumed in the valuation process.

Investment Risk is the potential for investment returns to be different than anticipated. In the case of this plan, that is the risk that the returns on assets will be materially different from the 7.0% that is currently assumed. If actual investment returns are lower than anticipated by the assumptions used in the actuarial valuation, this will increase the unfunded liability measurements and require higher contributions in the future than if the actual returns equaled the assumed returns. On the other hand, if the actual returns are higher than the assumptions, the resulting unfunded liability measurements and Actuarially Determined Contributions will be lower than anticipated. As seen in the historical section, this has been a significant driver of deviations in the actual measurements from those expected by the prior valuations.

Longevity and Other Demographic Risk is the potential for mortality or other demographic experience to be different than expected. Generally, longevity and other demographic risks emerge slowly over time as the actual experience deviates from expected and is typically periodically reduced through the Plan's regular actuarial experience process. As such, these risks are often dwarfed by other risks, particularly those due to the investment returns. However, for this plan, historically, the magnitude of the gains and losses from liability experience have been relatively similar in magnitude to the gains and losses from investment experience. The offsetting effects of the investment gains and losses have been such that the cumulative effect of this longevity and other demographic risk, as seen in the liability gains and losses, have been greater than the investment gains and losses during the period shown.

Assumption Change Risk is the potential for the environment to change such that future valuation assumptions are adjusted to be different than the current assumptions. Causes of these changes include capital market changes resulting in changes in the assumed rates of return, changes in employee behavior and/or plan provisions requiring changes in the demographic assumptions, and similar changes. Assumption change risk is an extension of the risks previously identified, but rather than capturing the risk as it is experienced, it captures the cost of recognizing a change in environment resulting in the current assumption no longer being reasonable. The historical review earlier in this section showed that assumption change risk has been a relatively significant risk for this plan over the recent historical period.

The revisions to the assumed rate of return from 8.0% to 7.5% in 2011, from 7.5% to 7.2% in 2014, and from 7.2% to 7.0% in 2017 constitute the majority of the increases to the unfunded measurements from the expected values as a result of assumption changes. Changes to the demographic assumptions to reflect mortality improvements have also had a relatively significant impact as have changes in the methodology of the funding policy throughout the years. The remaining changes to assumptions have had relatively insignificant impacts.

It is important to note that these changes simply reflect recognizing changes in the expected values of assumptions. If these revisions had not been made, we would anticipate that these Amounts would be gradually recognized in the other risks. If future expectations of assumptions such as interest rates or mortality change further, we anticipate similar amounts will have to be recognized. Amounts would be gradually recognized in the other risks. If future expectations of assumptions such as interest rates or mortality change further, we anticipate similar amounts will have to be recognized.

Plan Maturity Measures

The future financial condition of a mature pension plan is more sensitive to each of the risks identified in the previous section than a less mature plan. Before assessing the risks to the Plan from a forward-looking perspective, it is of value to understand the maturity of the Plan compared to other plans as well as how the Plan's maturity has changed over time.

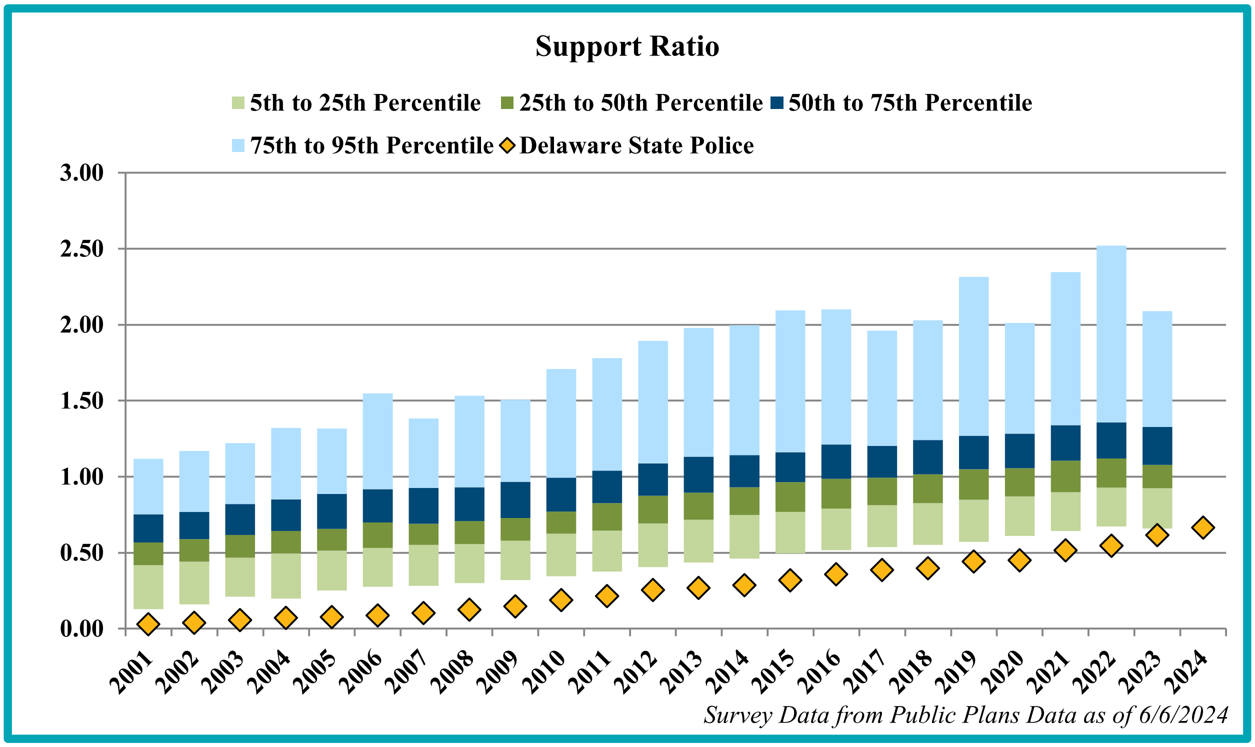
Plan maturity can be measured in a variety of ways, but they all get at one basic dynamic, the larger the plan is compared to the contribution or revenue base that supports it, the more sensitive the plan will be to risk. Extensive measures available to assess plan maturity. For this plan, we have examined a number of these, and all indicate that the Plan is maturing but is less mature than most of its peers. We have included the most simplistic of these measures to demonstrate this.

SECTION II – RISK DISCLOSURE

The most simplistic measure of the Plan's maturity is the support ratio, which is the ratio of the number of inactive members (those receiving benefits currently or entitled to a deferred benefit) to the number of active members. The following graph shows the support ratio over time for the Plan versus a universe of other public plans.

Boston College's Center for Retirement Research, NASRA, and the Center for State and Local Government Excellence maintain the Public Plans Database, which contains the majority of state plans and many large municipal plans. It covers over 95% of the membership in public plans and over 95% of the assets held by public pension plans.

The following chart shows the support ratio for all plans in this database since 2001. The colored bars represent the central 90% of the support ratios for the plans in the database. The gold diamonds represent the Delaware State Police Pension Plan. Note that this chart shows one more year for the System than the universe as the 2024 numbers are not yet available for the database.



This graph shows that the support ratio for the Plan has generally increased over time. This graph shows that Delaware State Police's support ratio is lower than a typical plan, indicating that the Plan is less mature based on this metric. As of the most recent dates for which the full database is available, the Delaware State Police's support ratio has consistently been below the 5th percentile among all plans in the database, reflecting the Plan being relatively young.

SECTION II – RISK DISCLOSURE

More Detailed Assessment

A more detailed assessment is always valuable to enhance the understanding of the risks identified above, however, this value must be compared alongside the costs of such an exercise. The costs, in this case, are both measurable costs as expressed by the actuarial fees for the additional assessment and the cost of staff time required to support the effort and more intangible costs, such as the additional information potentially drowning out the principal findings from the valuation and overwhelming decision makers.

Whether or not to have a more detailed risk assessment performed at this time is the Board's decision, but we do not believe that this additional risk assessment is required at this time based on our understanding of the Board's priorities.

Conclusion

The results of this valuation are based on the assumptions and methodology used within the valuation, and to the extent that actual experience deviates from these, the actual future measurements will deviate from those projected by this valuation. The most significant risks related to this are anticipated to be investment risk, mortality and other demographic risk, and assumption change risk.

SECTION III – ASSETS

Pension plan assets play a key role in the financial operation of the Plan and in the decisions that the Board of Trustees may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely affect benefit levels, State Actuarially Determined Contributions, and the ultimate security of members' benefits.

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

- **Disclosure** of the Plan's assets at June 30, 2023 and June 30, 2024,
- Statement of the **changes** in market values during FY 2024,
- Development of the **Actuarial Value of Assets**,
- An assessment of **investment performance**, and
- A projection of the Plan's expected **cash flows** for the next 10 years.

Market Value of Assets Disclosure

The market values of assets represent "snap-shot" or "cash-out" values that provide the principal basis for measuring financial performance from one year to the next. However, market values can fluctuate widely with swings in the marketplace, and as such, are usually not suitable for budgeting and long-range planning.

Table III-1 below shows the market values as of June 30, 2023 and June 30, 2024, along with the changes between the two.

Table III-1
Changes in Market Values of Assets

Market Value of Assets – June 30, 2023		$ **671,946,600**
Additions		
Member Contributions	$ 5,151,700	
State Contributions	20,559,200	
PRI Transfers	0	
Other Contributions	27,800	
Investment Returns	67,814,200	
Total Additions	**$ 93,552,900**	
Deductions		
Benefit Payments	$ 34,958,000	
Administrative Expenses	137,800	
Total Deductions	**$ 35,095,800**	
Market Value of Assets – June 30, 2024		**$ 730,403,700**

SECTION III – ASSETS

Actuarial Value of Assets

The Actuarial Value of Assets represents a "smoothed" value developed by the actuary to reduce, or eliminate, erratic results that could develop from short-term fluctuations in the Market Value of Assets. The actuarial value for this plan equals the expected Actuarial Value of Assets, developed from the immediately prior valuation, plus 20% of the difference between the actual Market Value of Assets and that expected Actuarial Value of Assets at the valuation date. The table below illustrates the calculation of the Actuarial Value of Assets as of June 30, 2024.

Table III-2
Development of Actuarial Value of Assets

1.	Actuarial Value of Assets at June 30, 2023	$	683,879,700
2.	Amount in (1) with interest to June 30, 2024 at 7.0% per year		731,751,300
3.	State, PRI, other, and member contributions for FY 2024		25,738,700
4.	Interest on contributions assuming payments made uniformly throughout the year to June 30, 2024 at 7.0% per year		885,600
5.	Disbursements from the Trust, except investment expenses, July 1, 2023 through June 30, 2024		35,095,800
6.	Interest on disbursements to June 30, 2024 at 7.0% per year		1,207,600
7.	Expected Actuarial Value of Assets at June 30, 2024 = (2) + (3) + (4) – (5) – (6)	$	722,072,200
8.	Actual Market Value of Assets at June 30, 2024	$	730,403,700
9.	Excess of (8) over (7)	$	8,331,500
10.	Actuarial Value of Assets at June 30, 2024 = (7) + 20% of (9)	$	723,738,500

Investment Performance

The Market Value of Assets (MVA) returned 10.2% during 2024, which is more than the prior year's assumed 7.0% investment rate of return. The Actuarial Value of Assets (AVA) returned 7.3% over this same year, reflecting the asset smoothing methodology being utilized by the Plan to measure the AVA. Because a maximum of 20% of the gain or loss from the performance of the Plan is typically recognized in a given year under the adopted asset smoothing method, in periods of very good performance, the AVA can lag significantly behind the MVA, and in a period of negative returns, the AVA does not decline as rapidly as the MVA.

Projection of Cash Flows

Table III-3
Cash Flow Projections

Year Beginning July 1,	Expected Benefit Payments and Administrative Expenses	Expected Contributions*
2024	$ 38,593,000	$ 30,564,000
2025	42,767,000	27,527,000
2026	46,069,000	28,215,000
2027	48,504,000	28,921,000
2028	51,255,000	29,644,000
2029	53,766,000	30,385,000
2030	56,861,000	31,145,000
2031	58,831,000	31,923,000
2032	60,955,000	32,721,000
2033	63,217,000	33,539,000

* Expected contributions include State contributions, member contributions and PRI transfers. For illustration purposes, we have assumed the State contribution rate will remain level at 28.17% from FY 2026 forward and that payroll will increase at the actuarially assumed rate of 2.50% per year.

Expected benefit payments are projected for the closed group valued at June 30, 2024. Projecting any further than 10 years using a closed group would not yield reliable projections due to the omission of new hires in the benefit payments, compounded by their inclusion in the expected contributions.

SECTION IV – LIABILITIES

In this section, we present detailed information on the Plan's liabilities for funding purposes, including:

- **Disclosure** of the Plan's liabilities at June 30, 2023 and June 30, 2024, and
- Statement of **changes** in these liabilities during the year.

Disclosure

Three liability measurements are calculated and presented in this report. Each type is distinguished by the purpose or purposes for which it is used.

- **Present Value of Benefits (PVB):** Used for analyzing the financial outlook of plans, this represents the amount of money needed today to fund all future benefits and expenses of a plan, assuming current members continue to accrue benefits, there are no new entrants, and that all actuarial assumptions are met.
- **Actuarial Liability (AL):** Used for funding calculations for a plan and GASB disclosures, this liability is calculated by taking the present value of benefits (PVB) and subtracting the present value of future member contributions (PVFEEC) and the present value of future State normal costs (PVFNC) under an acceptable actuarial funding method. The Plan uses the **Entry Age Normal** funding method.
- **Present Value of Accrued Benefits (PVAB):** Used for communicating the current level of liabilities, this liability represents the total amount of money needed today to fully fund the current accrued obligations of a plan, assuming no future accruals of benefits or salary increases. These liabilities are also required for some accounting purposes of some plans (Topic No. 960). This plan is not subject to this requirement, but this information is provided for informational purposes, as it is sometimes used as part of assessing whether a plan can meet its current benefit commitments. However, it is not intended as a settlement liability value. Note that the development of this amount also assumes that all actuarial assumptions are met, including the assets earning 7.0% per year.

None of the liability amounts disclosed in this report are appropriate for measuring a settlement of the Plan's liabilities.

The following table discloses each of these liabilities for the current and immediately prior funding valuations. With respect to each disclosure, a subtraction of an appropriate value of plan assets yields, for each respective type, either a net surplus or an unfunded amount.

SECTION IV – LIABILITIES

Table IV-1 Liabilities and Net (Surplus)/Unfunded Amounts	June 30, 2023	June 30, 2024
<u>**Present Value of Benefits**</u>		
Active Member Benefits	$ 562,962,400	$ 544,704,000
Retiree, Beneficiary, Disabled, and Terminated Members Benefits	396,374,800	436,413,500
Present Value of Benefits (PVB)	**$ 959,337,200**	**$ 981,117,500**
Market Value of Assets (MVA)	$ 671,946,600	$ 730,403,700
Future Member Contributions	50,552,600	50,088,600
Future State Contributions & PRI Fund Transfers	236,838,000	200,625,200
Total Resources	**$ 959,337,200**	**$ 981,117,500**
<u>**Actuarial Liability**</u>		
Present Value of Benefits (PVB)	$ 959,337,200	$ 981,117,500
Present Value of Future State Normal Costs (PVFNC)	144,073,500	142,902,200
Present Value of Future Member Contributions (PVFEEC)	50,552,600	50,088,600
Actuarial Liability (AL=PVB–PVFNC–PVFEEC)	**$ 764,711,100**	**$ 788,126,700**
Actuarial Value of Assets (AVA)	683,879,700	723,738,500
Net (Surplus)/Unfunded AL (AL – AVA)	**$ 80,831,400**	**$ 64,388,200**
<u>**Present Value of Accrued Benefits**</u>		
Present Value of Benefits (PVB)	$ 959,337,200	$ 981,117,500
Present Value of Future Benefit Accruals (PVFBA)	305,061,600	295,308,400
Present Value of Accrued Benefits (PVAB=PVB–PVFBA)	**$ 654,275,600**	**$ 685,809,100**
Market Value of Assets (MVA)	$ 671,946,600	$ 730,403,700
Net (Surplus)/Unfunded PVAB (PVAB – MVA)	**$ (17,671,000)**	**$ (44,594,600)**

Low-Default-Risk Obligation Measure (LDROM)

The System invests in a diversified portfolio with the objective of maximizing investment returns at a reasonable level of risk. The lowest risk portfolio for a pension plan would be composed entirely of low-default-risk fixed income securities whose cash flows match the benefit cash flows of the System. Such a portfolio, however, would have a lower expected rate of return than the diversified portfolio. The LDROM represents what the Present Value of Accrued Benefits would be if the System invested its assets in such a portfolio. As of June 30, 2024, we estimate that a portfolio representative of the Financial Times Stock Exchange (FTSE) Pension Liability index would have an expected return of 5.25% rounded to the nearest 0.25%, compared to the System's discount rate of 7.00%, and the LDROM would be $847.6 million compared to the Present Value of Accrued Benefits of $685.8 million. The $161.8 million difference represents the expected taxpayer savings from bearing the risk of investing in the diversified portfolio. Alternatively, it also represents the cost of eliminating the investment risk.

If the System were to invest in the LDROM portfolio, the reported funded status would decrease, and contribution requirements would increase. Benefit security for members of the plan relies on a combination of the assets in the System, the investment returns generated on those assets, and the promise of future contributions. If the System were to invest in the LDROM portfolio, it would not change the amount of assets currently in the System, but it would reduce expected future investment returns and increase expected future contributions. However, the range of future investment returns and future contributions needed would narrow significantly.

Changes in Liabilities

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

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

Unfunded liabilities (or surpluses), developed from subtraction of an appropriate value of Plan assets from these liability measures, will change because of all of the above as well as due to changes in Plan asset measures resulting from:

- State contributions different than expected
- Investment earnings different than expected
- A change in the methodology used to measure Plan assets

SECTION IV – LIABILITIES

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

Table IV-2
Liability Changes

(In Thousands)	Present Value of Benefits	Actuarial Liability	Present Value of Accrued Benefits
Liabilities June 30, 2023	$ 959,337	$ 764,711	$ 654,276
Liabilities June 30, 2024	981,118	788,127	685,809
Liability Increase/(Decrease)	21,781	23,416	31,533
Change Due to:			
PRI	2,585	2,585	2,585
Actuarial (Gain)/Loss	NC *	(19,125)	NC *
Benefit Changes	0	0	0
Assumption Changes	0	0	0
Benefits Accumulated and Other (Gain)/Loss	19,196	39,956	28,948

* NC = not calculated.

SECTION IV – LIABILITIES

Table IV-3 below provides additional information about the liability measurements for funding purposes as of both the current and the immediately prior valuations.

Table IV-3
Actuarial Liabilities for Funding

		June 30, 2023	June 30, 2024
1.	Actuarial Liabilities		
	Retiree, Beneficiary, Disabled, and Terminated Members	$ 396,374,800	$ 436,413,500
	Active Members	368,336,300	351,713,200
	Total Actuarial Liability (AL)	**$ 764,711,100**	**$ 788,126,700**
2.	Actuarial Value of Assets (AVA)	$ 683,879,700	$ 723,738,500
3.	Unfunded Actuarial Liability (UAL) [AL – AVA]	$ 80,831,400	$ 64,388,200
4.	Present Value of Outstanding PRI Transfers	$ 0	$ 2,584,700
5.	Outstanding Base for 20-Year 2018 UAL Amortization (14 Years Remaining as of June 30, 2024)	$ 55,645,500	$ 54,269,800
6.	Outstanding Base for 15-Year 2019 UAL Amortization (10 Years Remaining as of June 30, 2024)	$ 5,543,100	$ 5,268,800
7.	Outstanding Base for 15-Year 2020 UAL Amortization (11 Years Remaining as of June 30, 2024)	$ 5,209,000	$ 4,991,800
8.	Outstanding Base for 15-Year 2021 UAL Amortization (12 Years Remaining as of June 30, 2024)	$ (8,590,000)	$ (8,288,100)
9.	Outstanding Base for 15-Year 2022 UAL Amortization (13 Years Remaining as of June 30, 2024)	$ 6,804,300	$ 6,603,200
10.	Outstanding Base for 15-Year 2023 UAL Amortization (14 Years Remaining as of June 30, 2024)	**$ 16,219,500**	$ 15,818,500
11.	**Net Base for 15-Year 2024 UAL Amortization (3-4-5-6-7-8-9-10)**	N/A	**$ (16,860,500)**

SECTION V – CONTRIBUTIONS

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

For this plan, the funding method employed is the **Entry Age Normal** actuarial funding method. Under this method, the total contribution has three components: the **normal cost contribution**, the **unfunded actuarial liability contribution** (UAL contribution), and the **administrative expense contribution**.

The State normal cost contribution rate is determined in the following steps. First, for each active member, an individual total normal cost rate is determined by taking the value, as of entry age into the Plan, of that member's projected future benefits and dividing it by the value, also at entry age, of the member's expected future salary. Then, the member's contribution rate reduces this individual total normal cost rate to produce the State normal cost rate for each member. This State normal cost rate, times payroll for each active member, equals the State normal cost. The sum of the State normal cost amounts for all active members is then divided by the covered payroll for all active members to produce the State normal cost contribution rate.

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

The UAL amortization payment rate is calculated by amortizing this UAL, after subtracting the present value of scheduled PRI transfers, over closed amortization periods. All payments are determined assuming total pay increases by the current annual inflation assumption of 2.50%.

The current assumed administrative expense rate is 0.15% of payroll. When applied to payroll, this rate is intended to provide an allowance above the cost of funding the benefits to pay for the expense of operating the Plan.

The table below presents and compares the State contribution rates for the Plan based on this funding valuation and the one immediately prior.

Table V-1
State Contribution Rate

Valuation Date	**June 30, 2023**	**June 30, 2024**
FY Contribution Rate Payable	**FY 2025**	**FY 2026**
State Entry Age Normal Cost Rate	19.86%	19.88%
UAL Amortization Payment Rate	9.63%	8.14%
Administrative Expense Rate	0.15%	0.15%
Actuarially Determined Contributions	29.64%	28.17%

SECTION V – CONTRIBUTIONS

Table V-2 below provides additional detail about the development of the actuarially determined State contribution rate as well as the expected dollar amounts these rates will result in for FY 2026.

Table V-2
Expected FY 2026
State Contributions

	In Dollars	As % of Payroll
1. Present Value of Projected Benefits Attributable to:		
a. Total Normal Cost	$ 20,525,600	26.88%
b. Expected Member Contributions	5,345,200	7.00%
c. State Normal Cost (a) – (b)	$ 15,180,400	19.88%
2. Amortization of Unfunded Liability		
a. 14-year Amortization of 2018 UAL	5,223,000	6.84%
b. 10-Year Amortization of 2019 Base	656,200	0.86%
c. 11-Year Amortization of 2020 Base	576,600	0.76%
d. 12-Year Amortization of 2021 Base	(895,000)	(1.17%)
e. 13-Year Amortization of 2022 Base	671,200	0.88%
f. 14-Year Amortization of 2023 Base	1,522,400	1.99%
g. 15-Year Amortization of 2024 Base	(1,544,000)	(2.02%)
h. Total UAL Amortization	6,210,400	8.14%
3. Allowance for Administrative Expense	114,500	0.15%
4. Total State Actuarially Determined Contributions (1c) + (2h) + (3)	$ 21,505,300	28.17%

SECTION VI – ACCOUNTING STATEMENT INFORMATION

ASC Topic No. 960 of the Financial Accounting Standards Board (FASB) requires plans subject to it to disclose certain information regarding their funded status. This plan is not subject to this requirement, but this information is provided for informational purposes. Statement No. 67 of the Governmental Accounting Standards Board (GASB) establishes standards for disclosure of pension information by public employee retirement systems (PERS) and governmental employers in notes to financial statements and supplementary information.

Disclosures based on FASB ASC Topic No. 960 provide a quasi "snap-shot" view of how the Plan's assets compare to its liabilities if contributions stopped and accrued benefit claims had to be satisfied. However, due to potential legal requirements and the possibility that alternative interest rates would have to be used to determine the liabilities, these values may not be a good indication of the amount of money it would take to buy the benefits for all members if the Plan were to terminate and should not be considered a settlement value.

FASB ASC Topic No. 960 specifies that a comparison of the present value of accrued (accumulated) benefits, with the market value of the assets as of the valuation date, must be provided. Again, this plan is not subject to this requirement, but the relevant amounts as of June 30, 2023 and June 30, 2024 are provided for informational purposes and are exhibited in Table VI-1, which also includes a reconciliation of liabilities determined as of the prior valuation, July 1, 2023, to the liabilities as of June 30, 2024. These values are based on the funding liability results.

This valuation contains information reported in the June 30, 2024 Annual Comprehensive Financial Report (ACFR) of Delaware PERS under GASB Statement No. 67. Disclosures are based on the use of updated procedures to roll forward the 2023 funding valuation results. The calculation of Net Pension Liability in Table VI-2 shows the amounts to be disclosed for FY 2024, based on the liabilities of the roll forward of the 2023 funding valuation, as well as a projection of the anticipated FY 2025 disclosures, based on liabilities from the 2024 funding valuation, assuming all actuarial assumptions are met over the coming year. The actual disclosures for FY 2025 will be developed once the asset measure for GASB as of June 30, 2025 is known.

Tables VI-3 through VI-5 are exhibits to be used for the State's ACFR. Table VI-3 is the Note to Required Supplementary Information. Table VI-4 is a history of gains and losses in accrued liability. Table VI-5 is the Schedule of Funded Liabilities by Type, which shows the portion of accrued liability covered by the Actuarial Value of Assets. The Government Finance Officers Association (GFOA) has named this exhibit the Schedule of Funded Liabilities by Type. None of the liabilities or assets shown are appropriate for settlement purposes. Furthermore, the Schedule of Funded Liabilities by Type does not accurately depict a plan's future financial condition but rather is a test developed by the GFOA to assess the level of funding that relies on the payroll for future hires to pay for the benefits that have already been accrued by the current population. This valuation does not contain the additional disclosures required by GASB Statement No. 68, only for the State's ACFR.

SECTION VI – ACCOUNTING STATEMENT INFORMATION

Table VI-1
Accounting Statement Disclosure and
Reconciliation of Present Value of Accrued Benefits

	June 30, 2023	June 30, 2024
FASB ASC Topic No. 960 Basis		
1. Present Value of Accrued Benefits (PVAB)		
a. Members Currently Receiving Payments	$ 395,129,900	$ 433,481,200
b. Former Vested Members	1,244,900	2,932,300
c. Active Members	257,900,800	249,395,600
2. Total PVAB [1(a) + 1(b) + 1(c)]	$ 654,275,600	$ 685,809,100
3. Market Value of Assets (MVA)	671,946,600	730,403,700
4. Unfunded PVAB [2 – 3]	$ (17,671,000)	$ (44,594,600)
5. Ratio of MVA to PVAB [3 / 2]	102.7%	106.5%
Reconciliation of PVAB		
PVAB at June 30, 2023		**$ 654,275,600**
Increase/(Decrease) During Year Attributable to:		
Passage of Time		44,596,500
Benefits Paid – FY 2024		(34,958,000)
Benefit Changes (PRI)		2,584,700
Assumption Changes		0
Benefits Accrued, Other Gains/Losses		19,310,300
Net Increase/(Decrease)		31,533,500
PVAB at June 30, 2024		**$ 685,809,100**

SECTION VI – ACCOUNTING STATEMENT INFORMATION

Table VI-2
GASB No. 67 Disclosures

	June 30, 2024	Estimated June 30, 2025
Total Pension Liability (TPL)		
Service cost	$ 21,109,000	$ 20,529,000
Interest	53,805,000	55,282,000
Changes in benefit terms	2,585,000	0
Differences between expected and actual experience	11,165,000	(19,125,000)
Changes in assumptions	0	0
Benefit payments, including refunds of member contributions	(34,958,000)	(38,479,000)
Net change in TPL	**$ 53,706,000**	**$ 18,207,000**
TPL – beginning	**$ 753,545,000**	**$ 807,251,000**
TPL - ending (a)	**$ 807,251,000**	**$ 825,460,000**
Fiduciary Net Position (FNP)		
Contributions – State	$ 20,559,000	$ 22,633,000
Contributions - Non-employer (PRI)	0	2,585,000
Contributions – State Ad-Hoc	0	0
Contributions – Others	28,000	0
Contributions - Member	5,152,000	5,345,000
Net investment income	67,814,000	50,852,000
Benefit payments, including refunds of member contributions	(34,958,000)	(38,479,000)
Administrative expenses	(138,000)	(115,000)
Net change in FNP	**$ 58,457,000**	**$ 42,821,000**
FNP – beginning	**$ 671,946,000**	**$ 730,403,000**
FNP - ending (b)	**$ 730,403,000**	**$ 773,225,000**
Net Pension Liability/(Asset) - ending [(a)-(b)]	**$ 76,848,000**	**$ 52,235,000**

Items printed in red will be replaced with actual amounts once known at the end of FY 2025.

SECTION VI – ACCOUNTING STATEMENT INFORMATION

Table VI-3
Note to Required Supplementary Information

The June 30, 2024 total pension liability presented in Table VI-2 was determined as part of the measurement at the date indicated. Additional information as of the latest measurement date follows.

Measurement date:	July 1, 2024
Valuation date:	July 1, 2023
Actuarial cost method:	Entry age normal
Actuarial assumptions:	
Investment rate of return*	7.0%
Projected salary increases*	2.5% plus merit component based on service
Cost-of-living adjustments	ad hoc
* Includes inflation at	2.50%

The Actuarially Determined Contribution for fiscal year 2026 will use the contribution rate developed in Section V of this valuation. It was determined using the measurement date and key assumptions that follow.

Measurement date:	July 1, 2024
Valuation date:	July 1, 2024
Actuarial cost method:	Entry age normal
Amortization method:	Percentage of pay – closed Pay increases at 2.5% per year
Amortization period:	Separate periods for UAL as of 6/30/2018 (14 years remaining as of June 30, 2024) and 15-year layers for unexpected changes in UAL after 6/30/2018) Equivalent single amortization period 13.2 years
Asset valuation method:	Smoothed market, 20% annual market weight
Actuarial assumptions:	
Investment rate of return*	7.0%
Projected salary increases*	2.5% plus merit component based on service
Cost-of-living adjustments	ad hoc
* Includes inflation at	2.50%

The actuarial assumptions used have been recommended by the actuary and adopted by the Plan's Board of Trustees based on the most recent review of the Plan's experience completed in 2021. The economic assumptions were updated first effective with the 2017 valuation based on the Board's annual review of these assumptions.

The total rate of State contributions to the Plan is composed of the State normal cost rate, the unfunded actuarial liability amortization payment rate, and the administrative expenses rate. The State normal cost rate is a level percent of payroll cost that, along with member contributions, will pay for projected benefits at retirement for each active member. The actuarial liability is that portion of the present value of projected benefits that will not be paid by future State normal costs or future member contributions. The difference between this liability and the funds accumulated as the same date is the unfunded actuarial liability. The allowance for administrative expenses is based upon the Plan's actual administrative expenses.

SECTION VI – ACCOUNTING STATEMENT INFORMATION

Table VI-4
Analysis of Financial Experience

Gain and Loss in Accrued Liability during Years Ended June 30
Resulting from Differences between Assumed Experience and Actual Experience

Gain (or Loss) for Year Ending June 30,
(expressed in thousands)

Type of Activity	2019	2020	2021	2022	2023	2024
Investment Income on Actuarial Assets	$ (1,327)	$ 1,609	$ 34,745	$ (642)	$ (2,983)	$ 1,666
Combined Liability Experience	(4,998)	(7,646)	(1,023)	(4,471)	(11,165)	19,125
(Loss)/Gain during Year from Financial Experience	$ (6,325)	$ (6,037)	$ 33,722	$ (5,113)	$ (14,148)	$ 20,791
Non-Recurring Items	0	(30)	(25,543)	(4,075)	0	(2,585)
Composite Gain (or Loss) during Year	$ (6,325)	$ (6,067)	$ 8,179	$ (9,188)	$ (14,148)	$ 18,206

Table VI-5
Schedule of Funded Liabilities by Type
Aggregate Accrued Liabilities for
(expressed in thousands)

Valuation Date June 30,	Active Member Contributions (1)	Retirees & Beneficiaries (2)	Active Member State-Financed Contributions (3)	Actuarial Value of Reported Assets	Portion of Accrued Liabilities Covered by Reported Assets (1)	(2)	(3)
2024	$ 71,794	$ 433,481	$ 282,852	$ 723,739	100%	100%	77%
2023	71,475	395,130	298,106	683,880	100	100	73
2022	71,284	356,541	286,742	642,827	100	100	75
2021	68,700	325,840	273,166	605,555	100	100	77
2020	70,543	270,344	265,277	535,705	100	100	73
2019	65,698	256,423	243,376	499,809	100	100	73

APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Police Pension Plan
Data Reconciliation

	A	P-TDV	P-RET	P-NSR	P-SR	P-SRSU	P-SURV	Total
1. June 30, 2023 valuation	**715**	**12**	**384**	**6**	**24**	**3**	**10**	**1,154**
2. Additions								
(a) New entrants	43	2						45
(b) New Beneficiary/QDRO							3	3
(c) Total	43	2					3	48
3. Reductions								
(a) Terminated - not vested	(7)							(7)
(b) Paid Out/Expired/Death			(2)					(2)
(c) Total	(7)		(2)					(9)
4. Changes in status								
(a) P-TDV	(2)	2						
(b) P-SUPP								
(c) Returned to work								
(d) P-RET	(30)		30					
(e) P-NSR								
(f) P-DIS								
(g) P-LTD								
(h) P-SURV								
(i) P-SRSU								
(j) P-SR	(2)	(1)			3			
(k) Data corrections								
(l) Total	(34)	1	30		3			
5. June 30, 2024 valuation	**717**	**15**	**412**	**6**	**27**	**3**	**13**	**1,193**

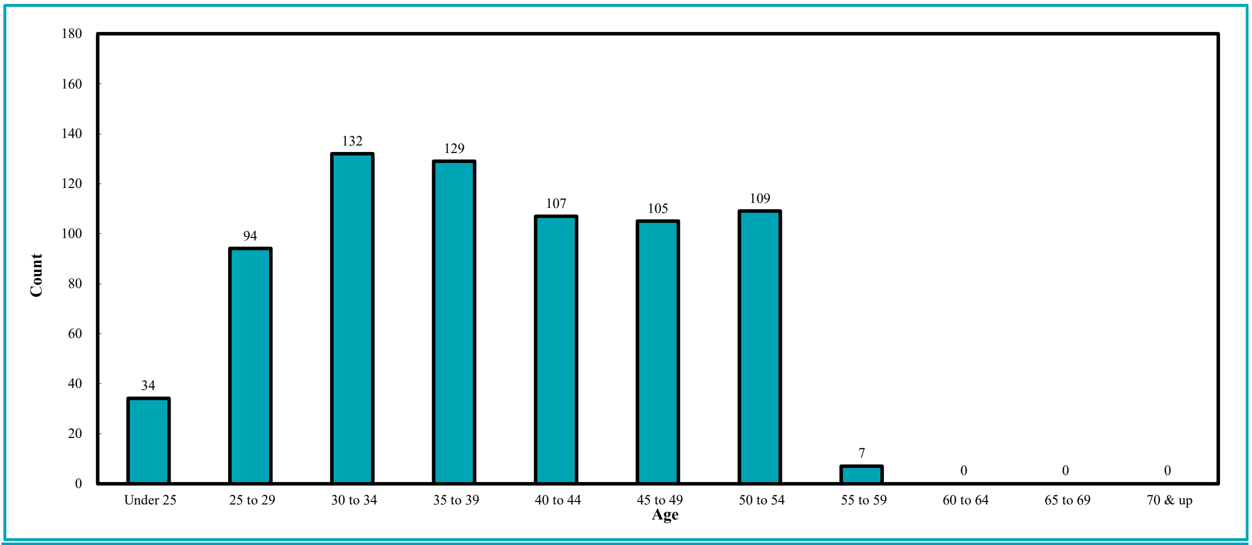
A=Active, P-TDV=Terminated Deferred Vested,, P-RET=Retired, P-NSR=Disabled, P-SR=Disabled P-SRSU=Surviving Beneficiary, P-SURV=Surviving Beneficiary

APPENDIX A – MEMBERSHIP INFORMATION

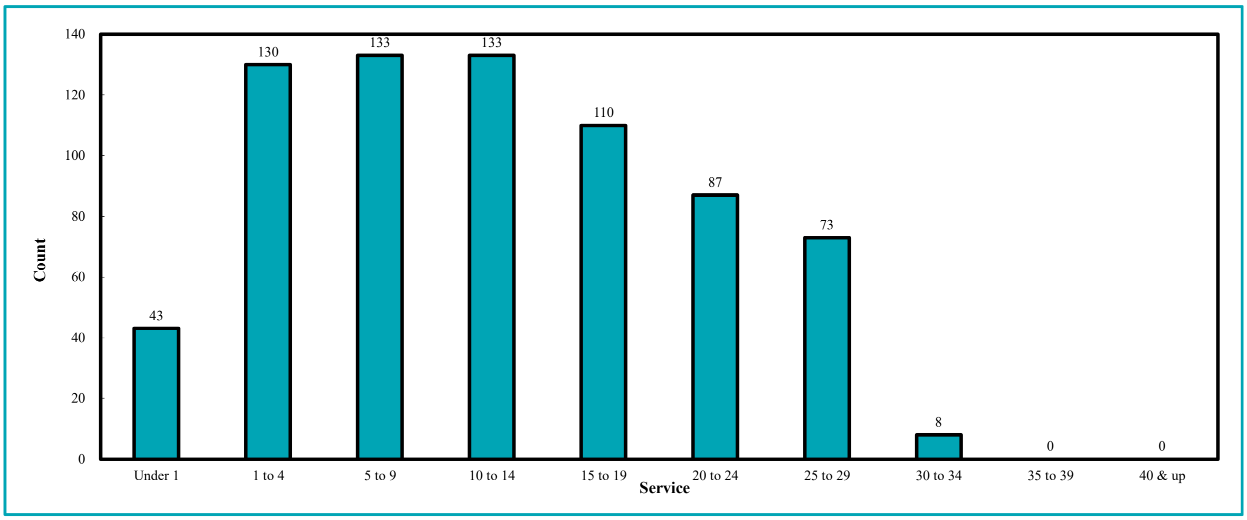
Delaware State Police Pension Plan Population Distribution of Active Members by Age and Service as of June 30, 2024											
Counts By Age/Service											
	Service										
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	**Total**
Under 25	18	16	0	0	0	0	0	0	0	0	34
25 to 29	21	56	17	0	0	0	0	0	0	0	94
30 to 34	3	43	66	20	0	0	0	0	0	0	132
35 to 39	1	12	41	65	10	0	0	0	0	0	129
40 to 44	0	3	5	24	63	12	0	0	0	0	107
45 to 49	0	0	4	21	25	44	11	0	0	0	105
50 to 54	0	0	0	3	11	29	59	7	0	0	109
55 to 59	0	0	0	0	1	2	3	1	0	0	7
60 to 64	0	0	0	0	0	0	0	0	0	0	0
65 to 69	0	0	0	0	0	0	0	0	0	0	0
70 & up	0	0	0	0	0	0	0	0	0	0	0
Total	43	130	133	133	110	87	73	8	0	0	717

APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Police Pension Plan Population Distribution of Active Members by Age as of June 30, 2024



Delaware State Police Pension Plan Population Distribution of Active Members by Service as of June 30, 2024

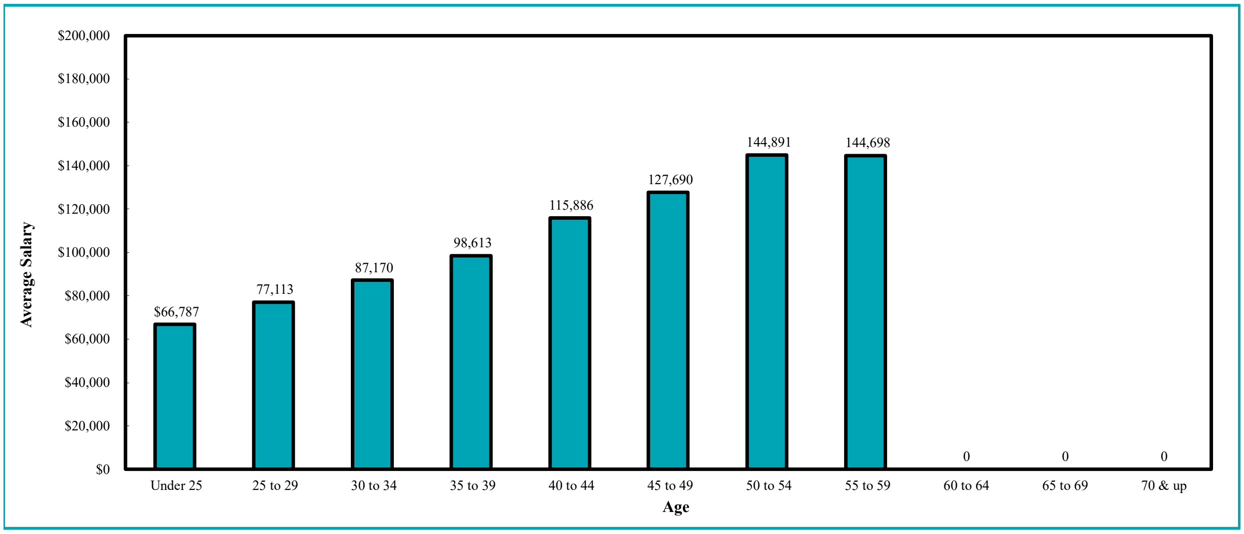


APPENDIX A – MEMBERSHIP INFORMATION

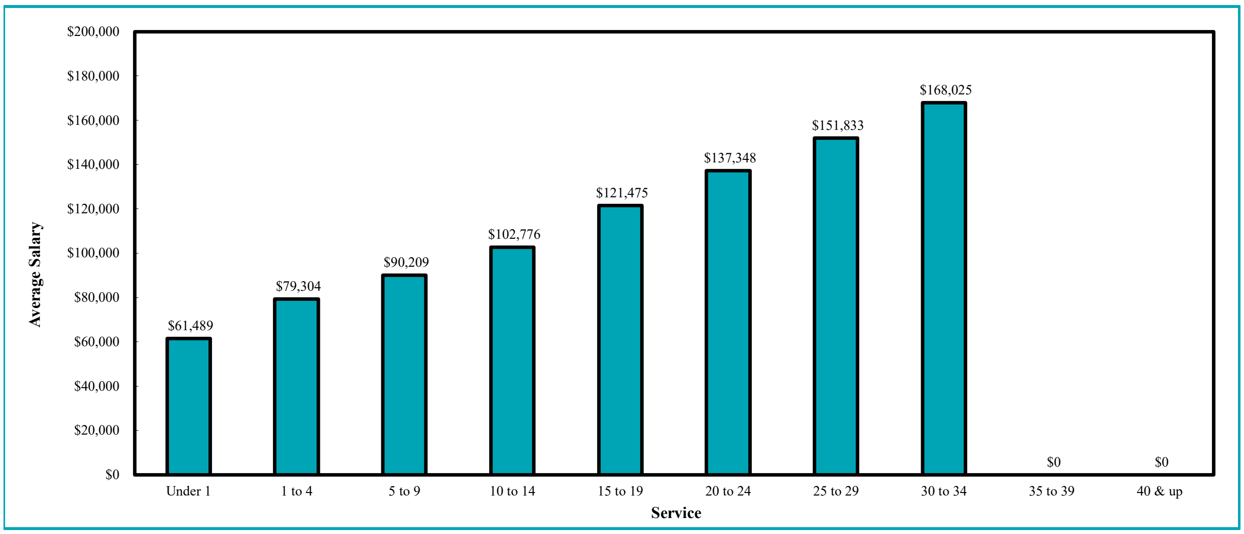
Delaware State Police Pension Plan Salary Distribution of Active Members by Age and Service as of June 30, 2024											
Average Salary by Age/Service											
	Service										
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	Total
Under 25	$ 59,310	$ 75,198	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 66,787
25 to 29	63,100	79,634	86,119	0	0	0	0	0	0	0	77,113
30 to 34	64,710	80,342	89,586	97,244	0	0	0	0	0	0	87,170
35 to 39	57,221	79,088	91,763	103,930	119,706	0	0	0	0	0	98,613
40 to 44	0	81,035	96,890	103,113	120,839	132,053	0	0	0	0	115,886
45 to 49	0	0	93,587	103,732	122,546	139,116	151,818	0	0	0	127,690
50 to 54	0	0	0	105,281	123,617	136,851	151,620	171,888	0	0	144,891
55 to 59	0	0	0	0	128,852	137,425	156,067	140,985	0	0	144,698
60 to 64	0	0	0	0	0	0	0	0	0	0	0
65 to 69	0	0	0	0	0	0	0	0	0	0	0
70 & up	0	0	0	0	0	0	0	0	0	0	0
Total	$ 61,489	$ 79,304	$ 90,209	$ 102,776	$ 121,475	$ 137,348	$ 151,833	$ 168,025	$ 0	$ 0	$ 106,499

APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Police Pension Plan Salary Distribution of Active Members by Age as of June 30, 2024



Delaware State Police Pension Plan Salary Distribution of Active Members by Service as of June 30, 2024



APPENDIX A – MEMBERSHIP INFORMATION

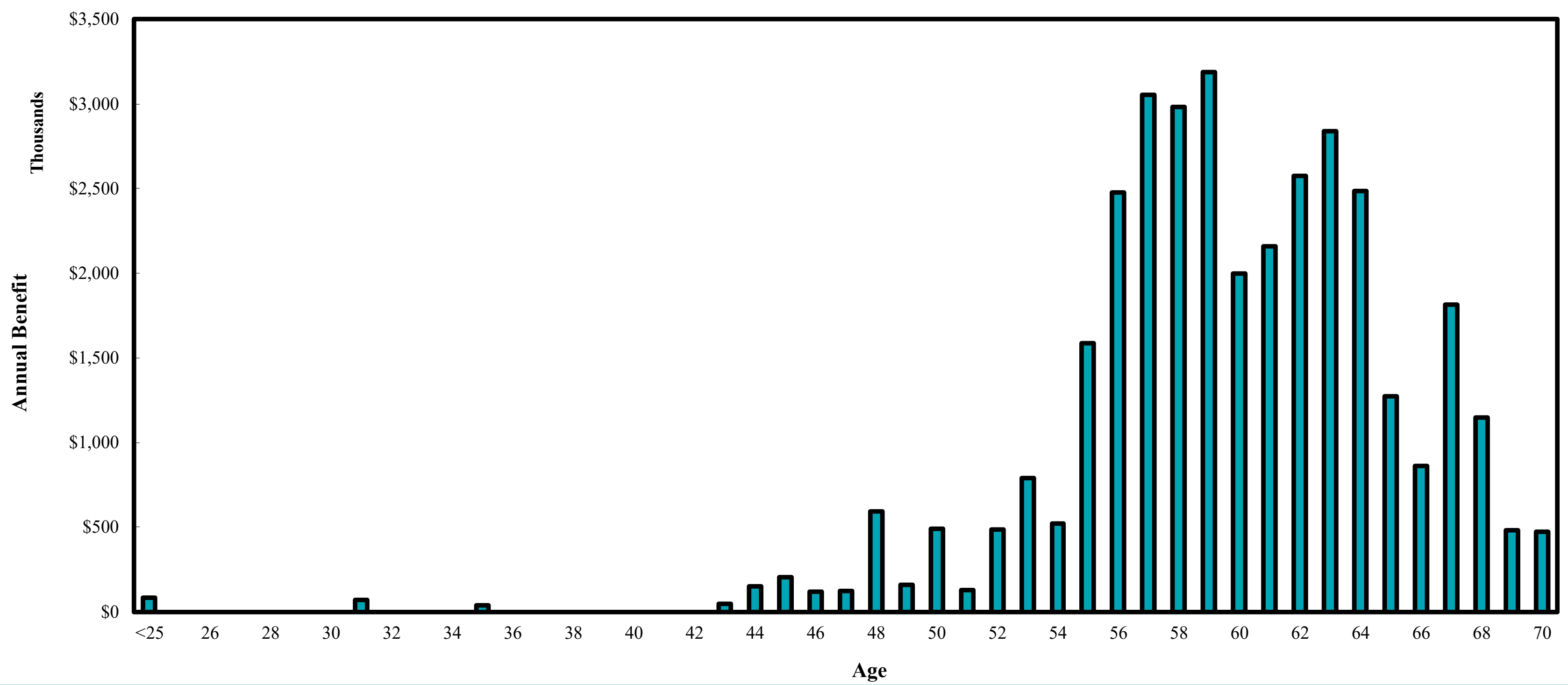
Delaware State Police Pension Plan Annual Benefit Distribution by Age of Retired Members, Survivors, and Disabled Members as of June 30, 2024

Age	Count	Annual Benefit
<25	3	$82,468
25	0	$0
26	0	$0
27	0	$0
28	0	$0
29	0	$0
30	0	$0
31	1	$70,748
32	0	$0
33	0	$0
34	0	$0
35	1	$41,122
36	0	$0
37	0	$0
38	0	$0
39	0	$0
40	0	$0
41	0	$0
42	0	$0
43	1	$48,764
44	3	$150,570
45	4	$206,604
46	2	$120,989
47	4	$122,745
48	9	$592,995
49	3	$159,016
50	7	$492,113
51	2	$129,145
52	6	$485,279
53	11	$791,916
54	6	$521,256
55	19	$1,588,070
56	27	$2,476,538
57	32	$3,052,417
58	32	$2,984,048
59	36	$3,188,675
60	23	$2,000,363
61	26	$2,157,571
62	32	$2,576,315
63	39	$2,841,458
64	27	$2,485,029
65	16	$1,275,227
66	17	$861,613
67	23	$1,814,248
68	17	$1,150,355
69	9	$479,529
70	9	$471,229
71	9	$473,237
72	2	$96,244

Age	Count	Annual Benefit
73	0	$0
74	2	$38,511
75	0	$0
76	1	$19,586
77	0	$0
78	0	$0
79	0	$0
80	0	$0
81	0	$0
82	0	$0
83	0	$0
84	0	$0
85	0	$0
86	0	$0
87	0	$0
88	0	$0
89	0	$0
90	0	$0
91	0	$0
92	0	$0
93	0	$0
94	0	$0
95	0	$0
96	0	$0
97	0	$0
98	0	$0
99	0	$0
100	0	$0
101	0	$0
102	0	$0
103	0	$0
104	0	$0
105	0	$0
106	0	$0
107	0	$0
108	0	$0
109	0	$0
110	0	$0
111	0	$0
112	0	$0
113	0	$0
114	0	$0
115	0	$0
116	0	$0
117	0	$0
118	0	$0
119	0	$0
120	0	$0
Totals	461	$36,045,994

APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Police Pension Plan Annual Benefit Distribution by Age of Retired Members, Beneficiaries, and Disabled Members as of June 30, 2024



APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Police Pension Plan Annual Benefit Distribution by Age of Vested Members as of June 30, 2024

Age	Count	Annual Benefit
<25	0	$0
25	0	$0
26	0	$0
27	0	$0
28	0	$0
29	0	$0
30	0	$0
31	0	$0
32	0	$0
33	0	$0
34	0	$0
35	0	$0
36	0	$0
37	1	$24,033
38	0	$0
39	0	$0
40	0	$0
41	1	$16,802
42	0	$0
43	0	$0
44	0	$0
45	0	$0
46	0	$0
47	0	$0
48	0	$0
49	1	$29,573
50	0	$0
51	1	$28,869
52	0	$0
53	0	$0
54	2	$46,630
55	1	$58
56	2	$193,724
57	0	$0
58	0	$0
59	3	$29,079
60	0	$0
61	1	$12,793
62	2	$34,055
63	0	$0
64	0	$0
65	0	$0
66	0	$0
67	0	$0
68	0	$0
69	0	$0
70	0	$0
71	0	$0
72	0	$0
73	0	$0
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89	0	$0
90	0	$0
91	0	$0
92	0	$0
93	0	$0
94	0	$0
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99	0	$0
100	0	$0
101	0	$0
102	0	$0
103	0	$0
104	0	$0
105	0	$0
106	0	$0
107	0	$0
108	0	$0
109	0	$0
110	0	$0
111	0	$0
112	0	$0
113	0	$0
114	0	$0
115	0	$0
116	0	$0
117	0	$0
118	0	$0
119	0	$0
120	0	$0
Totals	15	$415,616

Amounts shown are those payable once the participant reaches retirement eligibility.

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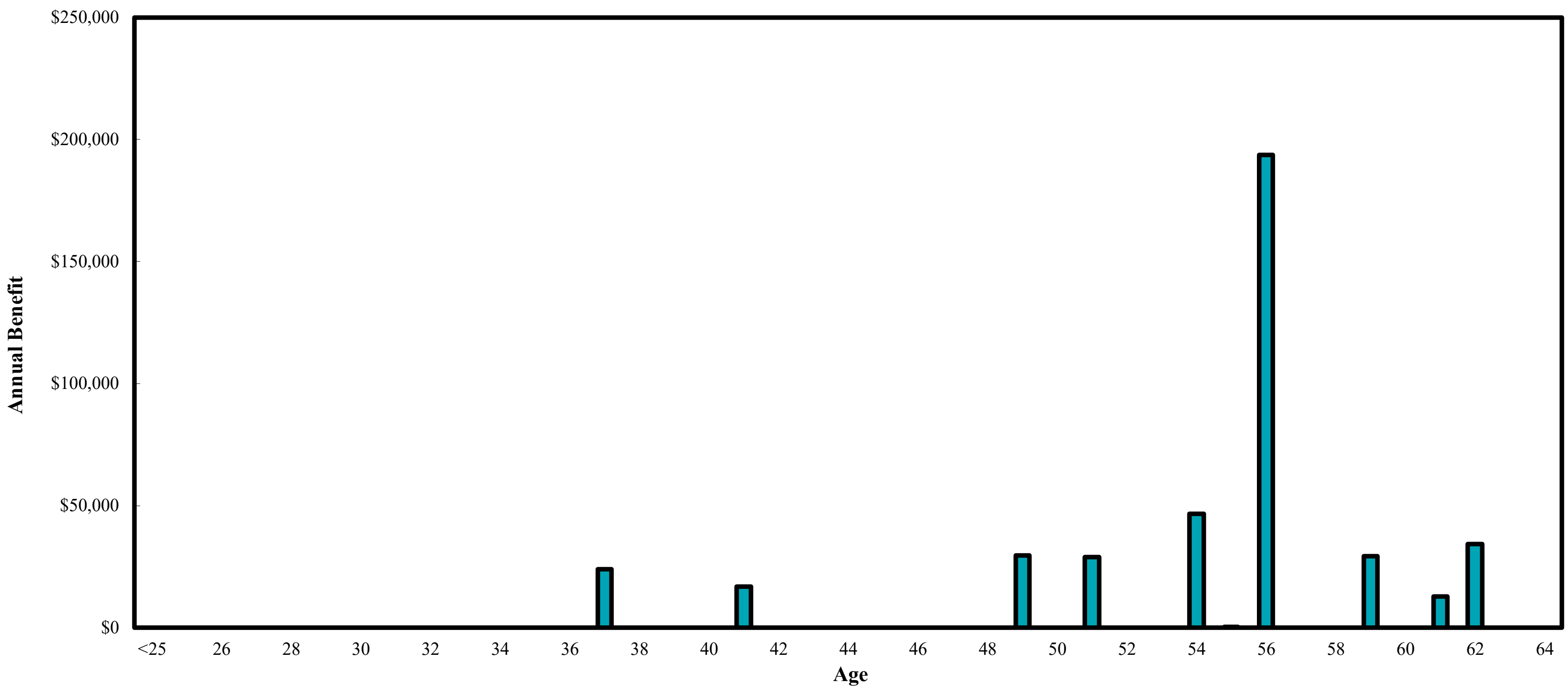
APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Police Pension Plan Annual Benefit Distribution by Age of Vested Members as of June 30, 2024



Amounts shown are those payable once the participant reaches retirement eligibility.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

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

1. Demographic Assumptions

a. Rates of Mortality

Mortality rates are based on the sex-distinct employee, healthy annuitant, and disabled annuitant mortality tables described below, including adjustment factors applied to the published tables for each group. Future mortality improvements are reflected by applying a custom projection scale on a generational basis to adjusted base tables from the base year shown below.

i. Sample Rates of Mortality for Active Healthy Lives at Selected Ages (number of deaths per 10,000 members):

(2024 Values Shown)		
Age	**Male**	**Female**
25	3	1
30	5	2
35	7	3
40	9	4
45	10	5
50	14	8
55	21	12
60	33	19
65	47	28
70	65	43
75	97	71
80	155	122

Rates are based on 100% of the Pub-2010 General Employee Mortality Table, for males and females, using the Pub-2010 General Benefits Weighted Healthy Annuitant Mortality Table rates after the end of the General Employee Mortality Table, both projected from the 2010 base rates using the RPEC-2020 model, with an ultimate rate of 0.85% for ages 20-80, grading down to an ultimate rate of 0% for ages 114-120, and convergence to the ultimate rate in the year 2027. The valuation uses a fully generational projection of mortality improvements. Sample rates shown are those projected through the valuation date. Two-thirds of deaths are assumed to be non-duty and one-third assumed duty-related.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

ii. Sample Rates of Mortality for Healthy Annuitant Lives at Selected Ages (number of deaths per 10,000 members):

(2024 Values Shown)		
Age	Male	Female
50	30	21
55	44	29
60	68	40
65	98	58
70	150	93
75	253	166
80	458	308
85	846	588
90	1,478	1,104
95	2,311	1,807
100	3,328	2,722

Rates are based on 107% and 100% of the Pub-2010 General Benefits Weighted Healthy Annuitant Mortality Table, respectively, for males and females, using the Pub-2010 General Employee Mortality Table for ages prior to start of the Healthy Annuitant Mortality Table, both projected from the 2010 base rates using the RPEC-2020 model, with an ultimate rate of 0.85% for ages 20-80, grading down to an ultimate rate of 0% for ages 114-120, and convergence to the ultimate rate in the year 2027. The valuation uses a fully generational projection of mortality improvements. Sample rates shown are those projected through the valuation date.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

iii. Sample Rates of Mortality for Disabled Annuitant Lives at Selected Ages (number of deaths per 10,000 members):

(2024 Values Shown)		
Age	Male	Female
25	36	22
30	54	38
35	74	59
40	91	79
45	113	101
50	160	146
55	216	187
60	275	217
65	326	227
70	384	266
75	493	374
80	704	584
85	1,065	937
90	1,637	1,392
95	2,385	1,963
100	3,328	2,886

Rates are based on 107% and 106% of the Pub-2010 General Benefits Weighted Disabled Annuitant Mortality Table, respectively, for males and females, projected from the 2010 base rates using the RPEC-2020 model, with an ultimate rate of 0.85% for ages 20-80, grading down to an ultimate rate of 0% for ages 114-120, and convergence to the ultimate rate in the year 2027. The valuation uses a fully generational projection of mortality improvements. Sample rates shown are those projected through the valuation date.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

b. Sample Rates of Active Disability

Rates of Active Disability	
Age	**Current**
20	0.030%
25	0.030
30	0.150
35	0.230
40	0.320
45	0.410
50	0.500
55	0.800
60	0.960

No disabilities are assumed with 20 or more years of service.

1/3 of disabilities are assumed partial disability and 2/3 are assumed total disability.
1/3 of disabilities are assumed duty-related and 2/3 are assumed non-duty related.
For total disability, one eligible dependent is assumed.

c. Termination of Employment Rates (Prior to Retirement Eligibility)

Termination	
Service	**Rate**
0	5.00%
1	4.00
2-9	1.50
Ultimate	0.50

* Termination rates are zero once a member has reached retirement eligibility regardless of service.

d. Rates of Retirement

Normal Retirement	
Service	**Rate**
<20	0%
20-25	5
26	10
27-29	15
30	25
31	35
32-34	50
35+	100

Rates only applied once eligibility for retirement is reached.
Terminated vested members are assumed to retire at age 62.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

e. Salary Increase Rates

Service-based tables include an annual inflation rate of 2.50%.

Service	Increase
0	12.24%
1	9.16
2	7.62
3	6.60
4	6.09
5	5.83
6-24	5.58
25+	4.55

f. Family Composition

Female spouses are assumed to be three years younger than males. 80% are assumed married for both male and female employees. This assumption applies to both the pre-retirement death benefits as well as the 50% joint and survivor form of payment post retirement.

Actual marital characteristics are used for pensioners.

2. Economic Assumptions

a.	Investment Rate of Return net of investment fees:	7.00%
b.	General Wage Increase Rate:	2.50%
c.	Annual Assumed Cost-of-Living Increase Rate for Retirees:	0.00%
d.	Total Payroll Increase Rate (for Amortization):	2.50%
e.	Administrative Expenses as a Percentage of Covered Payroll:	0.15%

3. Technical and Miscellaneous Assumptions

a.	Decrement timing:	Middle of year, except at 100% retirement, which is assumed at the beginning of year
b.	Eligibility timing:	As of beginning of year
c.	Terminated vested marital status:	All terminated vested members are assumed married for purposes of both the pre-retirement death benefit and electing the 50% joint and survivor form of payment post-retirement.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

4. Disclosures Regarding Models Used

In accordance with Actuarial Standard of Practice (ASOP) No. 56 *Modeling*, the following disclosures are made:

a. Valuation Software

Cheiron utilizes ProVal, an actuarial valuation software program leased from Winklevoss Technologies (WinTech), to calculate liabilities and projected benefit payments. We have reviewed the underlying workings of this model to the degree feasible and consistent with ASOP No. 56 and believe them to be appropriate for the purposes of the valuation.

b. Projections

This valuation report includes projections of future contributions and funded status for the purpose of assisting the Board of Trustees and the sponsors of the Plan with the management of the Plan.

The projections are based on the same census data and financial information as of June 30, 2024 as disclosed in this actuarial valuation. The projections assume continuation of the Plan provisions and actuarial assumptions in effect as of June 30, 2024 and do not reflect the impact of any changes in benefits or actuarial assumptions that may be adopted after June 30, 2024.

The projections assume that all future assumptions are met except where specifically indicated. The future outcomes become increasingly uncertain over time, and therefore the general trends and not the absolute values should be considered in the review of these projections. Further, for the purpose of these projections, we have only reflected the impact of new entrants entering the Plan in aggregate and have not developed individual liabilities or detailed profiles related to these potential new entrants. We feel this is appropriate for the purpose of these projections, but if they were to be used for other purposes, this may not be appropriate and alternative projections may need to be developed.

5. Rationale for Assumptions

The assumptions were adopted by the Board of Trustees upon the recommendation of the actuary, based on an experience study review performed in 2021 and covering the period July 1, 2015 through June 30, 2020. The Board continually reviews the investment rate of return assumption and adopted a reduced rate of 7.0% at the advice of its investment consultants, first effective for funding with the 2017 valuation. We find the investment return assumption to be reasonable based on the System's current asset allocation and the capital market outlook of the Delaware Office of the State Treasurer and Cash Management Policy Board.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

6. Disclosure for Reasonable Actuarially Determined Contribution Method (ADC)

The rate determined in this valuation meets the requirements of a reasonable ADC as defined by the Actuarial Standards of Practice. The actuarial methods used to determine the reasonable ADC have been selected to balance benefit security, intergenerational equity, and stability of contributions. The selection of the actuarial methods has taken into account the demographics of plan members, the funding goals and objectives of the Board, and the need to accumulate assets to make benefit payments when due.

7. Changes and Rationale Since Last Valuation

None

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Methods

1. Funding Method

The Entry Age Normal funding method is used to determine costs. Under this funding method, a normal cost rate is determined as a level percent of pay for each active member. The normal cost rate times payroll equals the normal cost for each active member. The normal cost plus member contributions will pay for projected benefits at retirement for each active plan participant.

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

The portion of the actuarial liability in excess of Plan assets is amortized to develop an additional cost or savings that is added to each year's State normal cost. Under this cost method, actuarial gains and losses are directly reflected in the size of the unfunded actuarial liability.

The portion of unfunded liability not expected to be paid through PRI transfers or state reimbursements is amortized over closed periods. The UAL as of July 1, 2018 uses a 20-year period as a level percentage of payroll. UAL layers arising in future valuations will be amortized over their own 15-year periods. PRI transfers are made to pay for each PRI as granted. These transfers are treated as a receivable for purposes of developing the State rate. All payments are determined assuming total payroll increases by the annual inflation rate.

2. Actuarial Value of Assets

For purposes of determining the State contribution rate to the Plan, we use an Actuarial Value of Assets. This asset smoothing method dampens the volatility in asset values that could occur because of fluctuations in market conditions. Use of an asset smoothing method is consistent with the long-term nature of the actuarial valuation process.

The Actuarial Value of Assets is a weighted average giving 20% weight to the current market value and 80% weight to the prior year's actuarial value increased by expected interest and contributions and decreased by benefit payments and expenses. This is mathematically equivalent to recognizing 100% of the actuarially assumed interest rate, plus contributions, less payments each year, and 20% of the portion of each year's returns that have not already been reflected in asset values.

3. Changes Since Last Valuation

None

APPENDIX C – SUMMARY OF PLAN PROVISIONS

This appendix provides a summary of the Plan provisions. Where the Plan, as determined by the State Code and the Plan Rules and Regulations, and this summary differ, the Plan governs.

1. Membership

The Plan covers full-time State Police Officers first hired on or after July 1, 1980.

2. Member Contributions

7% of compensation

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

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

3. Credited Service

All service as a member plus certain claimed and purchased service.

4. Final Average Compensation

Final average compensation (FAC) is the average of any 36 months comprised of three periods of 12 consecutive months (or shorter period of total service) of compensation paid to the member, including salary or wages, excluding overtime payments and special payments for extra duty.

5. Normal Retirement

Eligibility: (i) Must be employed at 55 with 10 years of credited service, or (ii) any age with 20 years of credited service, or (iii) 10 years of credited service when age plus service equals 75

Benefit: 2.5% of final average compensation multiplied by years of service up to a maximum of 20 years, plus 3.5% of final average compensation multiplied by years of service in excess of 20 years

6. Duty-Connected Disability Benefit

Eligibility: Disabled in the performance of his or her duties

Benefit: If member is totally disabled: 75% of salary at the time disability commences plus 10% for each eligible dependent not to exceed 100%

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Eligibility: If member is partially disabled: the normal retirement benefit based on credited service at date of disability, but is not less than 50% of salary at the time disability commences

7. **Ordinary Disability**

Eligibility: Five years of credited service

Benefit: If member is totally disabled: the normal retirement benefit based on credited service at date of disability, but is not less than 50% of the salary at the time of disability plus 5% for each eligible dependent to a maximum of 70%

If member is partially disabled: the normal retirement benefit based on credited service at the date of disability, but is not less than 30% of salary at the time of disability

8. **Survivor's Benefit**

Eligibility: Death while active or death after retirement

Benefit: For eligible survivors of employees who die in the line of duty: 75% of salary, payable to the primary survivor

For eligible survivors of pensioners who die: the greater of 50% of the member's pension at the time of death or whichever alternative option elected by the deceased retired member

Eligible survivors include: (1) widow or widower, or (2) child or children under 18, or between 18 and 22 and attending school on a full-time basis, or over 18 and permanently disabled before 18, or (3) dependent parent or parents. If there are no eligible survivors, accumulated contributions with interest over aggregate pension payments made are payable to the beneficiary.

9. **Burial Benefit**

$7,000 lump sum, paid at death after disability or service retirement of a member.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

10. Vesting

Eligibility: 10 years of credited service

Benefit: Normal retirement benefit, payable at age 62, based on final average compensation and credited service at date of termination. In lieu of a pension, a member may receive a refund of accumulated contributions with interest. Upon application for a refund of contributions, a member's vested right to a monthly benefit shall be forfeited.

11. Withdrawal

Eligibility: Terminated service

Benefit: Accumulated employee contributions with interest

12. Form of Payment

The normal form of payment is a 50% joint and survivor annuity.

As an alternative to the normal form, a member may elect one of the following optional forms of payment upon service retirement or disability:

- 66 2/3% joint and survivor form with a 2% reduction in benefits,
- 75% joint and survivor form with a 3% reduction in benefits, or
- 100% joint and survivor form with a 6% reduction in benefits.

The 66 2/3% and 100% options are only available for retirement on or after January 1, 2015.

13. Cost-of-Living Adjustment

Cost-of-living adjustments are made only on an ad hoc basis.

14. Changes Since Last Valuation

Senate Bill 326 included a Post-Retirement Increase starting on June 30, 2024 based on retiree's effective date of retirement of the following percentages:

- 2% effective date of retirement prior to July 1, 2004
- 1% effective date of retirement from July 1, 2004 and June 30, 2019

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