Delaware State Employees' Pension Plan

Actuarial Valuation as of June 30, 2021

Produced by Cheiron

January 2022

Classic Values, Innovative Advice

www.cheiron.us 1.877.CHEIRON (243.4766)

TABLE OF CONTENTS

January 20, 2022

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 Employees' Pension Plan (Plan) as of June 30, 2021. 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, as well as 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 staff of the Office of Pensions. 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) 2023 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: program experience differing from that anticipated by the assumptions, changes in assumptions, and changes in program 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 Employees' 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.

This report does not contain any adjustments for the potential impact of COVID-19 on either economic or demographic assumptions. We anticipate that the virus may have implications in both the short and long term, but the net impact of these is not determinable at this time.

Sincerely,
Cheiron

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

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

FOREWORD

Cheiron has performed the annual actuarial valuation of the Delaware State Employees' Pension Plan (Plan) as of June 30, 2021. 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) 2023, 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 disclosing 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 2023 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 is calculated to decrease from 12.45% for FY 2022 to 11.15% for FY 2023.

During the year ended June 30, 2021, the Plan's assets earned 37.8% 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 13.5%. Although less than the return on a market value basis, this return was more than the assumed investment rate of return of 7.0% for the prior year, resulting in an actuarial gain on investments of $606 million.

The Plan experienced an actuarial loss 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 loss increased the actuarial liability by $15 million, 0.12% of the total actuarial liability. This type of relatively small gain or loss is normal in the course of Plan experience, as we cannot predict exactly how people will behave. In addition to the actuarial loss, the Plan's liabilities also increased by $205 million due to changes in assumptions as recommended in an experience study performed in 2021.

There was also an increase in the liability of $53 million due to a staggered benefit increase for those who retired before July 1, 2016. Retired State Employees and beneficiaries with a date of retirement before July 1, 2016 were eligible for an increase in pension of between 1% and 3% of their benefit depending on their date of retirement. Anticipated FY 2022 benefit payments were also increased to reflect an expected $15 million in one-time retiree benefits to be paid in November 2021 that will be reimbursed by the State. This one-time payment has no impact on the State's ongoing contribution requirement.

This valuation report also contains certain information to be reported in the June 30, 2021 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 2020 actuarial valuation liability results. The calculation of net pension liability in Section VI is shown as disclosed for the plan year ending June 30, 2021, based on the 2020 funding actuarial valuation liability results, updated by the roll forward and to reflect the assumption changes adopted by the Board of Trustees as recommended in the recent experience study. We also present a projection of the June 30, 2022 disclosure in Section VI, assuming all actuarial assumptions are exactly met over the coming year, which is based on the 2021 funding actuarial valuation liability results.

As of the June 30, 2021 funding actuarial valuation, the Plan's unfunded actuarial liability (UAL) was $1.272 billion. This is a decrease from the $1.610 billion UAL in the funding valuation for the prior year.

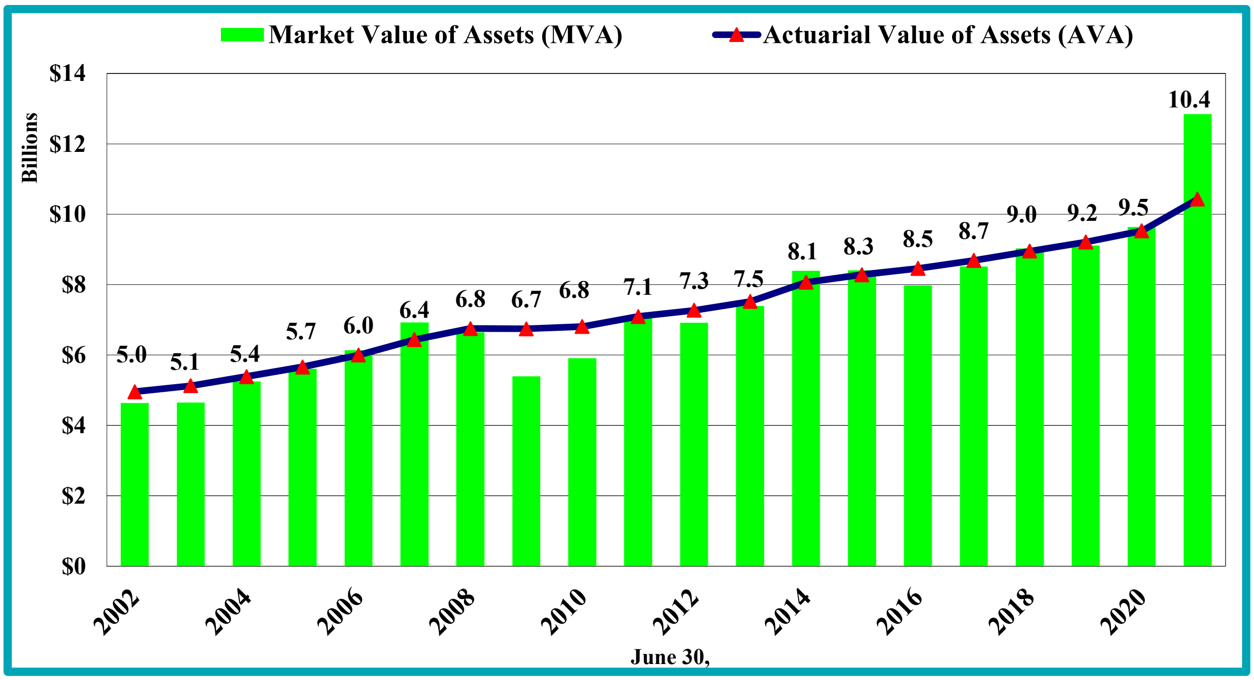
Effective with the June 30, 2018 valuation, the UAL as of June 30, 2018 is being amortized over a closed 20-year period (17 years remaining as of June 30, 2021). Layers of UAL which have arisen since then are being amortized over their own individual closed 15-year periods as a level percentage of payroll.

SECTION I – BOARD SUMMARY

Trends

Asset Returns

The graph below shows measurements of the Plan's assets over the last 20 years based on both market values 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 billions of dollars.



The market value of assets (MVA) returned 37.8% 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 above the 7.0% assumed for the prior year, and continued recognition of prior years' gains and losses, with the combined effect of returning 13.5% over FY 2021.

Over the period July 1, 2002 to June 30, 2021, the Plan's assets measured using the actuarial value of asset measurements returned a compound 7.4%, compared to the current valuation assumption of 7.0%. On a market value of assets basis, the Plan returned 9.1% over the same period.

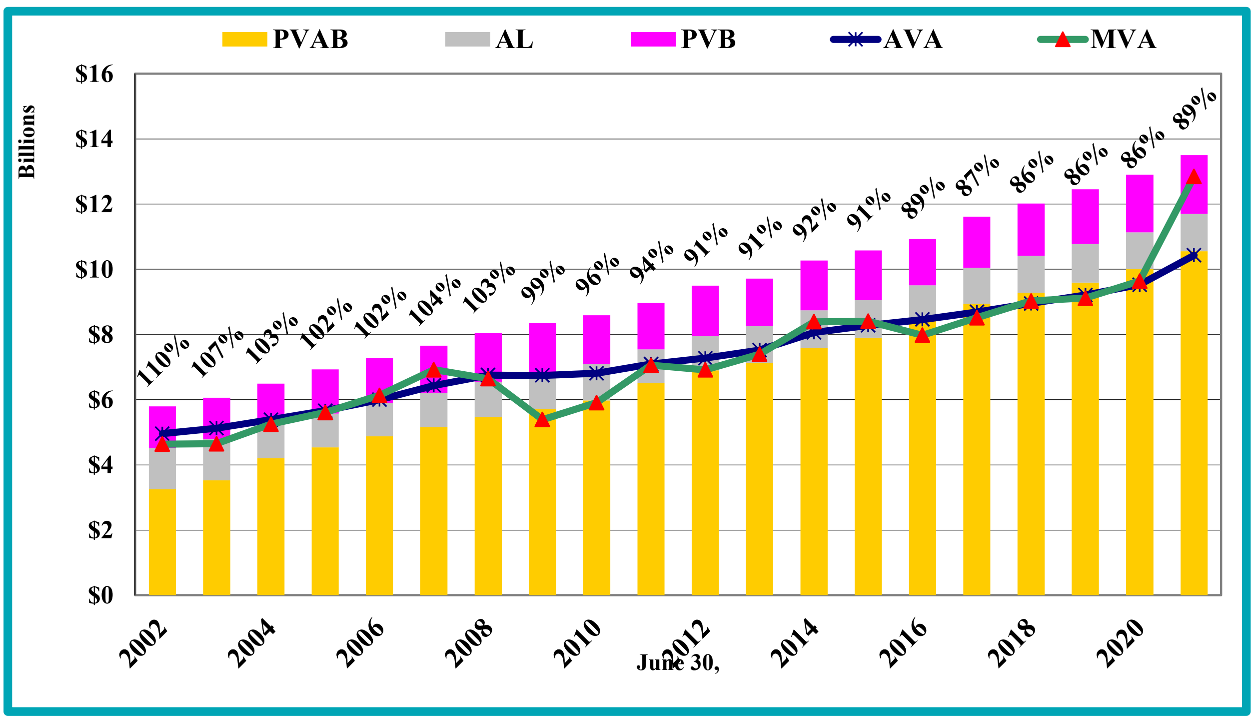
SECTION I – BOARD SUMMARY

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). These target amounts are represented by the top of the gray bars. 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 these target measurements of liability to the actuarial value of assets at each valuation date.

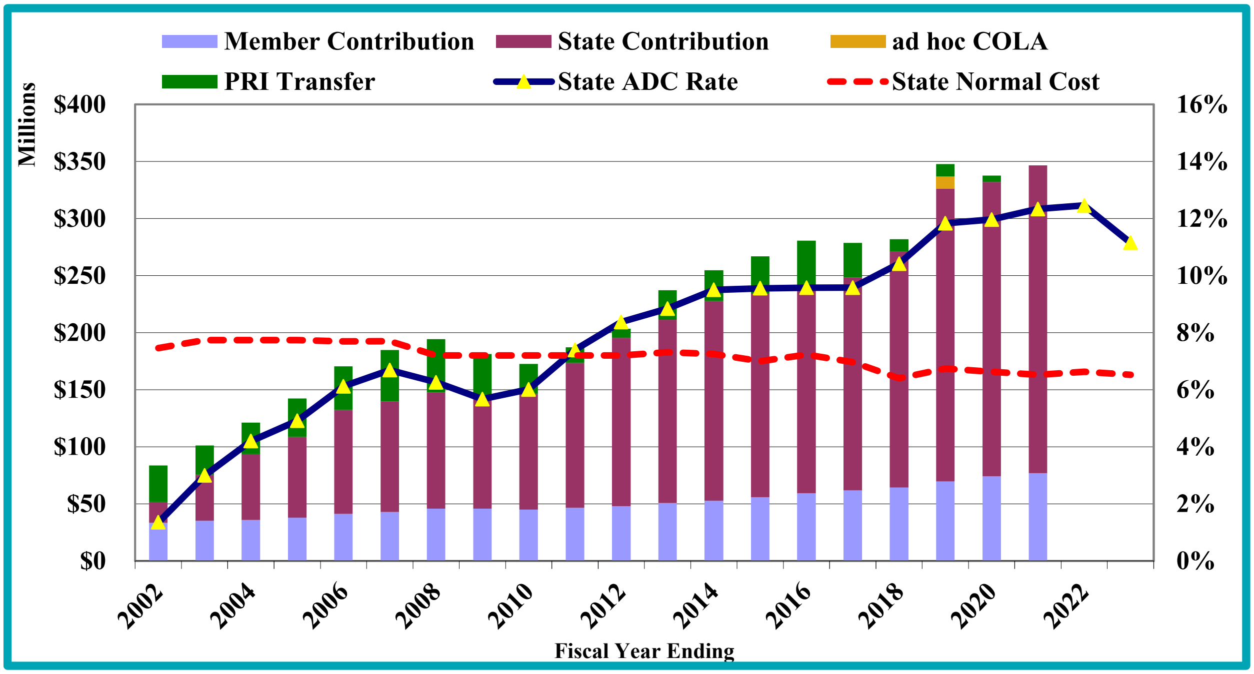
The amount represented by the top of the pink bars, the present value of future benefits (PVB), is the amount needed as of each valuation date to provide all benefits for the current members and their beneficiaries, including reflection of assumed future service and pay increases. If the Plan had assets 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.



Funded ratios are as a percentage of MVA, and values would be different if presented as percentage of AVA.

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 red line shows the level of the State normal cost rate, which measures the value of benefits being accrued each year, offset by the portion paid through member contributions, also read with the right-hand scale.

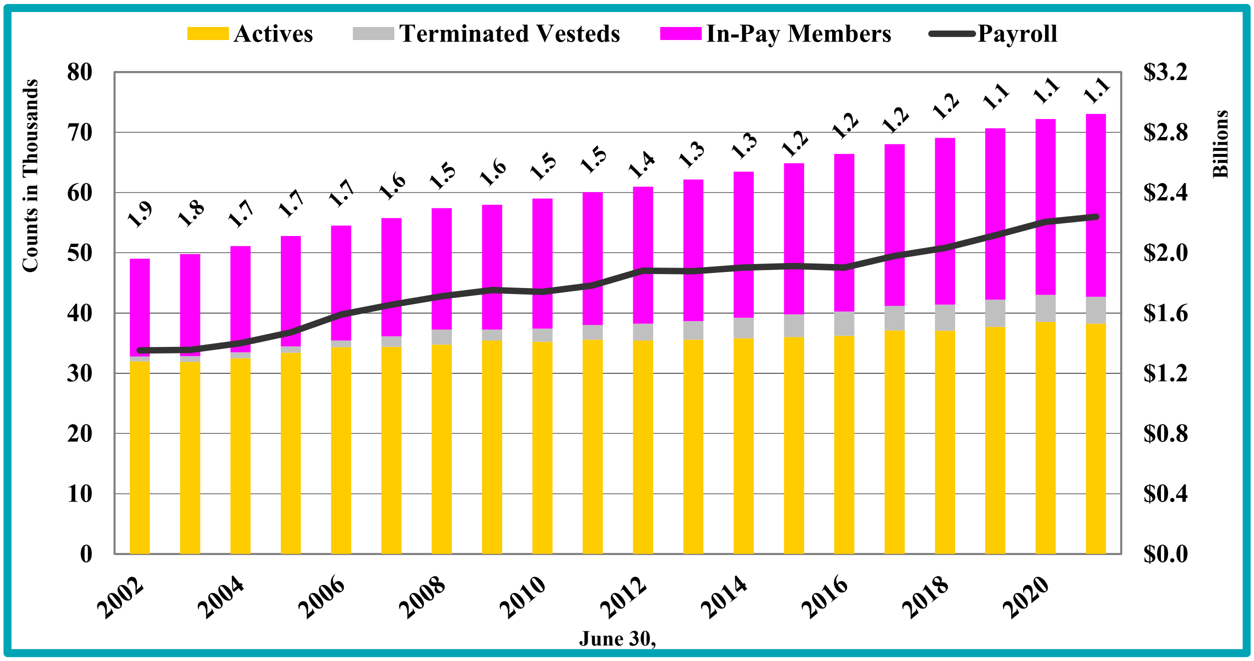
The member contribution rate is set by State law, based on the plan in which the member participates. The State contribution rate is set by the actuarial process, while the PRI transfer amounts depend on the increases granted by the State Legislature. Please note that there is a lag between the calculation of the State contribution rates shown and when they are payable. For example, the value shown for FY 2021 is the rate prepared by the June 30, 2019 valuation and implemented for the period July 1, 2020 to June 30, 2021. As such, there are two more years of rates shown beyond the years of actual contributions.

SECTION I – BOARD SUMMARY

Participant Trends

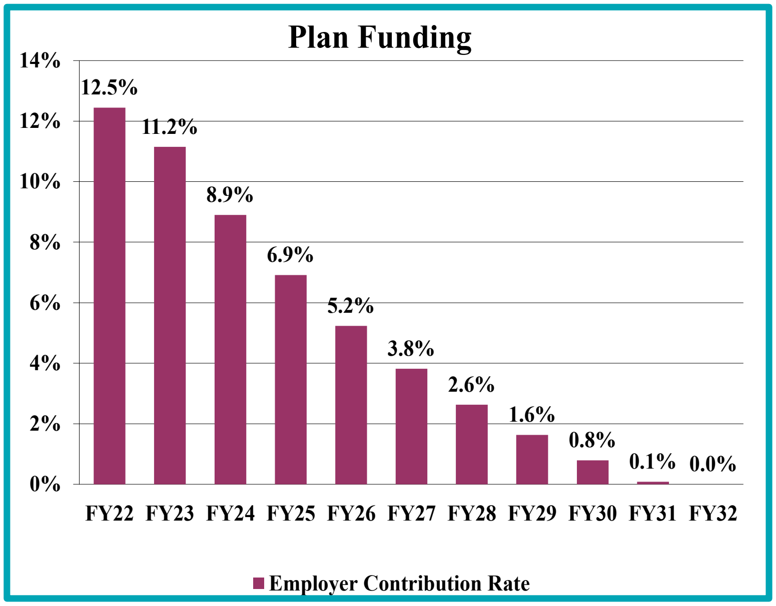
The bars below show the number of members as of each valuation date, divided between active members, terminated vested members, and retirees/beneficiaries. These bars are read using the left-hand scale. As with most maturing plans, this plan continues to show growth in the number of inactive members. 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 1.9 actives for each inactive in 2002 to 1.1 actives for each inactive in 2021.

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



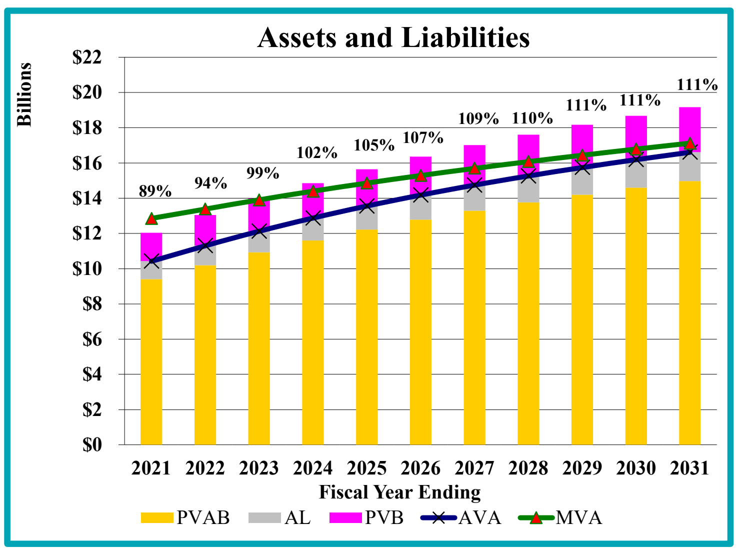
Future Outlook

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 a decrease in the projected State ADC rate from 12.5% for FY 2022 to 11.2% for FY 2023 and then a decline to 0.0% at the end of this 10-year period, absent further gains or losses.

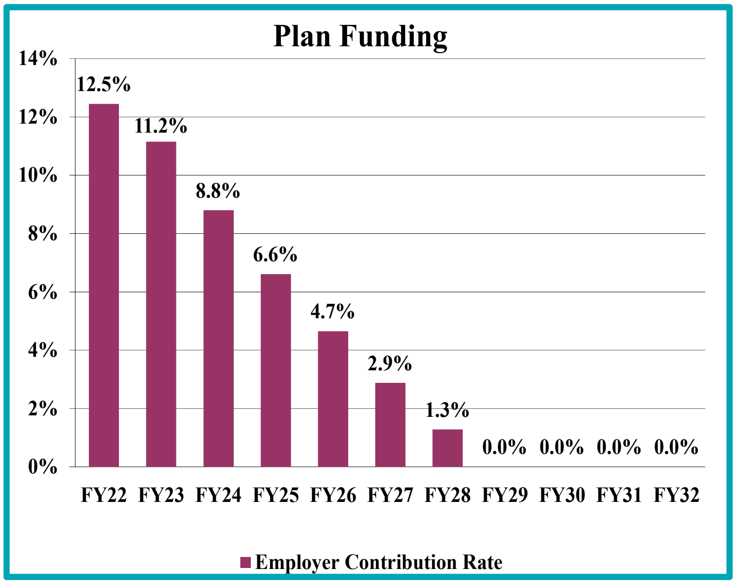
The "Assets and Liabilities" graph shows the projected funded ratios on an actuarial value of assets basis for the Plan over the 10-year projection period. The Plan's funded status is projected to increase from 89% to 111% over the 10-year projection period, assuming all assumptions are exactly met. Both the increase in the Plan's funded status and the sharp decrease in contribution rate are due to continued recognition of the FY 2021 investment performance.



Funded ratios are as a percentage of AVA, and values would be different if presented as percentage of MVA.

SECTION I – BOARD SUMMARY

Projections with Asset Returns of 8.0%

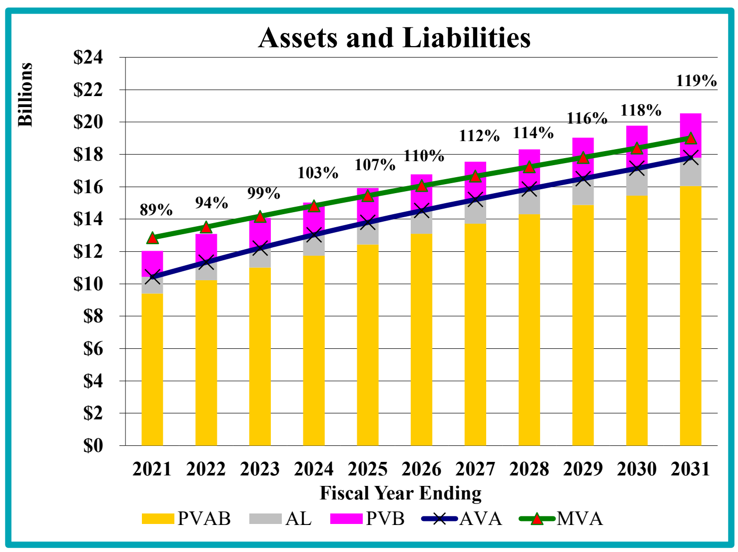


The Plan's investment earnings will affect the future funding status of the Plan. The two graphs on this page show what the next 10 years are expected to look like if the Plan's investment performance is 8.0% each year, 1.0% higher than the valuation investment rate of return assumption.

These two graphs assume all other assumptions are exactly met, including State contributions made equal to the full actuarially determined amounts.

The "Plan Funding" graph shows that under this scenario, the State ADC rate would decrease more rapidly than in the baseline case. The rate declines to 0.0% of payroll at the end of the 10-year projection period.

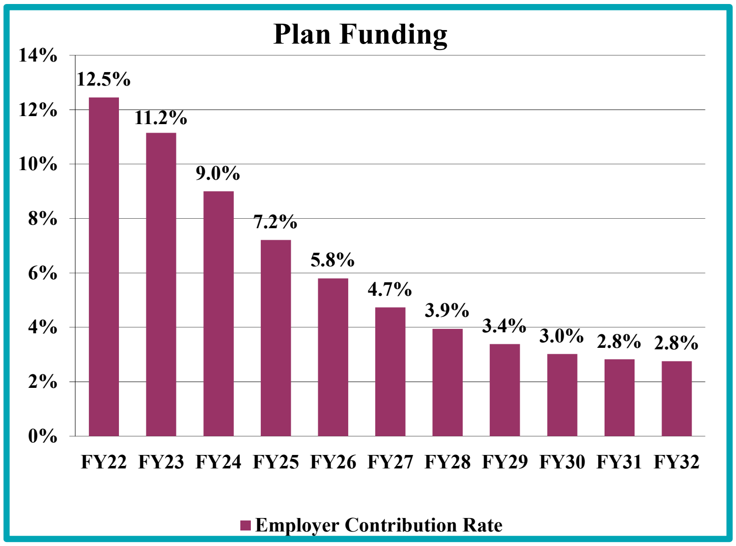
The "Assets and Liabilities" graph shows that under this scenario, the Plan would reach a 119% funded ratio by 2031, an improvement over the baseline scenario's ultimate rate of 111%. With on-going investment gains, the Market Value continues to be higher than the Actuarial Value of Assets.



Funded ratios are as a percentage of AVA, and values would be different if presented as percentage of MVA.

SECTION I – BOARD SUMMARY

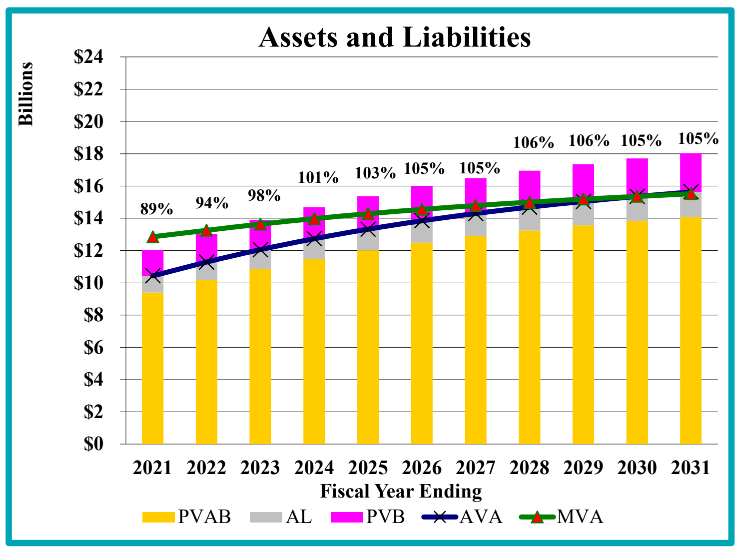
Projections with Asset Returns of 6.0%



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 declines to approximately 2.8% of payroll by the end of the 10-year projection period, still greater than the 0.0% ultimate rate in the baseline projection. Additionally, the funded ratio is projected to be lower in this scenario, reaching 105% at the end of the 10-year projection period, lower than the 111% ultimate ratio in the baseline scenario. By introducing investment losses, the two measures of asset value come together by 2030, and much of the untapped FY 2021 gains are offset by these projected losses.



Funded ratios are as a percentage of AVA, and values would be different if presented as percenaage of MVA.

SECTION I – BOARD SUMMARY

Table I-1
Summary of Principal Plan Results

Valuation as of:	June 30, 2020	June 30, 2021	% Change
Member Counts			
Active Members	38,518	38,206	(0.81)%
Disabled Members	1,384	1,304	(5.78)%
Retirees and Beneficiaries	27,768	28,564	2.87%
Terminated Vested Members	3,950	3,938	(0.30)%
Terminated Non-Vested Members	822	1,053	28.10%
Long-term Disability Members	563	524	(6.93)%
Total Member Counts	**73,005**	**73,589**	**0.80%**
Covered Payroll of Active Members*	$ 2,204,836,800	$ 2,238,615,700	1.53%
Annual Benefit Payments for Retirees, Disabled Members, and Beneficiaries	$ 667,146,100	$ 698,685,600	4.73%
Assets and Liabilities			
Actuarial Liability (AL)	$ 11,137,981,600	$ 11,700,492,200	5.05%
Actuarial Value of Assets (AVA)	9,528,170,100	10,428,560,900	9.45%
Unfunded AL (UAL)	$ 1,609,811,500	$ 1,271,931,300	(20.99)%
Funded Ratio AVA Basis (AVA/AL)	85.5%	89.1%	
Funded Ratio on MVA Basis (MVA/AL)	86.5%	109.8%	
Present Value of Accrued Benefits (PVAB)	$ 10,002,662,000	$ 10,549,103,500	5.46%
Market Value of Assets (MVA)	9,638,828,400	12,851,073,200	33.33%
Unfunded PVAB	$ 363,833,600	$ (2,301,969,700)	(732.70)%
Accrued Benefit Funded Ratio (MVA/PVAB)	96.4%	121.8%	
State Contribution Rate	**Fiscal Year 2022**	**Fiscal Year 2023**	
Entry Age Normal Cost	6.13%	6.27%	
UAL Amortization Payment	6.02%	4.58%	
Administrative Expense	0.30%	0.30%	
Actuarially Determined Contribution (ADC)	12.45%	11.15%	

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

SECTION II – RISK DISCLOSURE

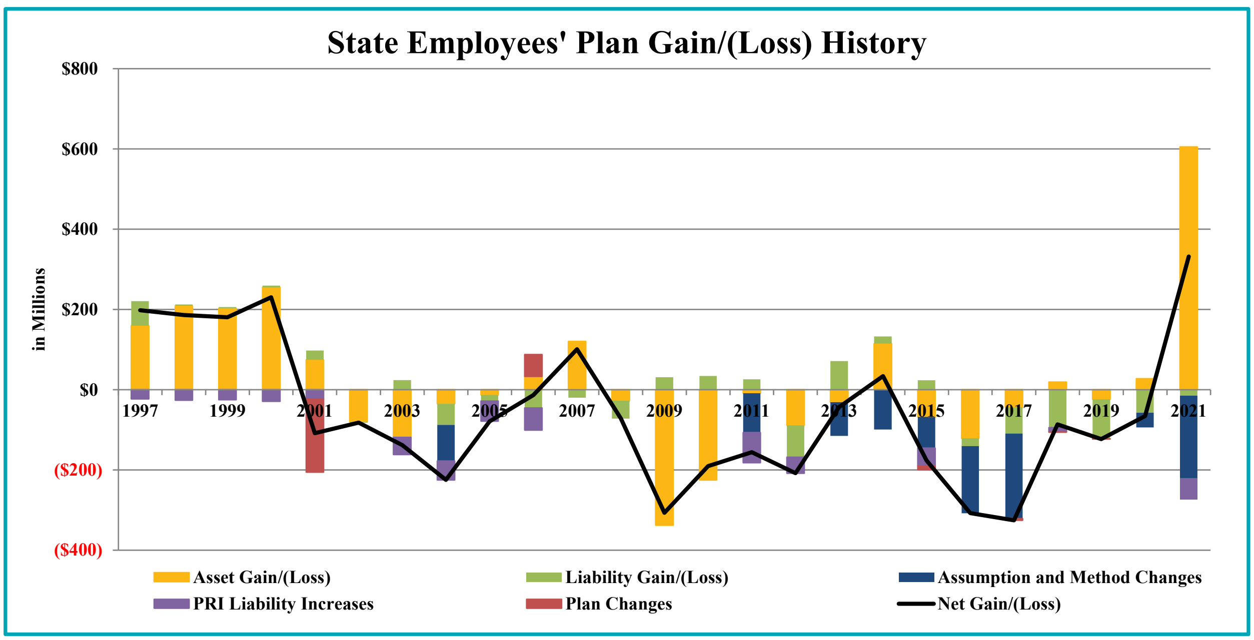
Introduction

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 in 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 which was predicted by the prior year's valuation. The following graph shows the gains/(losses) for each valuation date between the actual liability measurement and the expected liability broken down by cause.



This shows that the asset gain/(loss) has been the most significant risk for the Plan for any given year over this period in regard to the actual liability measurements deviating from the expected. After that, the next two most significant causes are the assumption and method changes and the liability gain/(loss). Additionally, this graph shows that over the whole period shown the asset gain/(loss) values have largely offset each other. Over the whole period, assumption changes and the the increased liability for PRIs granted have had the greatest cumulative impact on the liability.

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. The historical section showed that this has been true for this plan historically, with the magnitude of the gains and losses from investment experience generally significantly larger than the gains and losses from liability experience. However, during the period shown, 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 has been greater than the investment gains and losses.

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.

Plan Maturity Measures

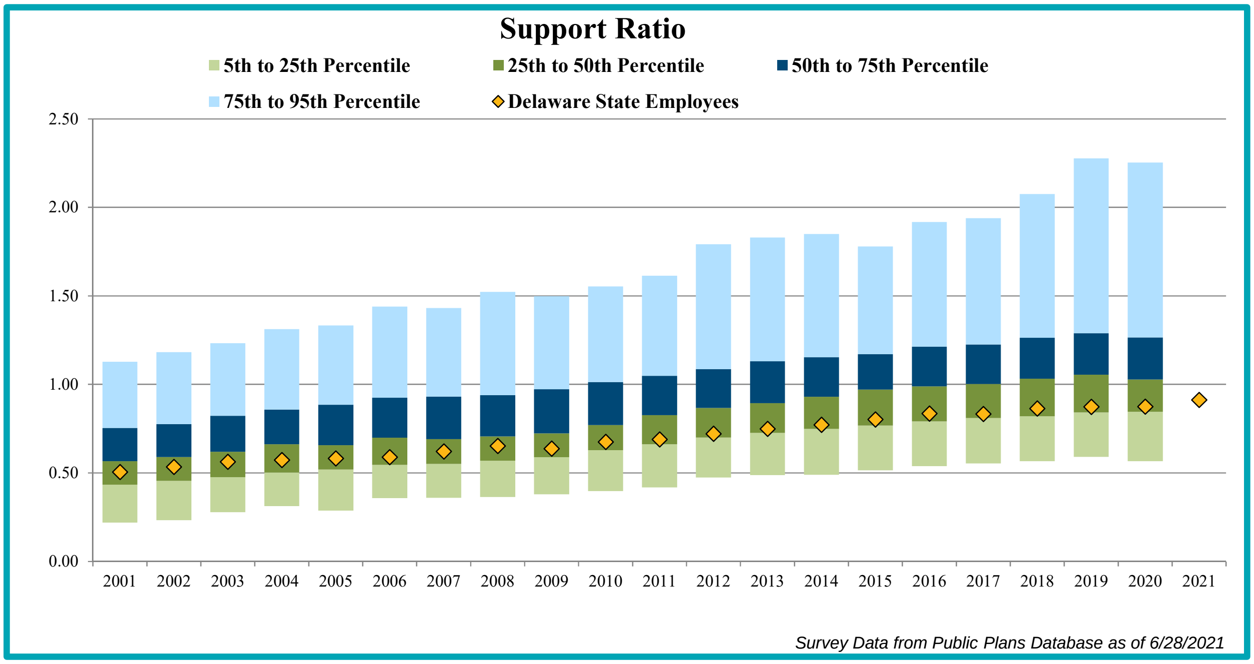
The future financial condition of a mature pension plan is more sensitive to each of the risks identified in the previous section than in a less mature plan. Before assessing the risks to the Plan from a forward-looking perspective, it is of value to understand the maturity of the Plan compared to other 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. There are 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 as a demonstration of this.

SECTION II – RISK DISCLOSURE

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

The most simplistic of the Plan maturity measures 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.



This graph shows the support ratio for the Plan as the diamonds for each year, showing the support ratio has generally increased over time. It also shows, in the bars, the central 90% of the support ratios for the plans in the Public Plans Database as of each year. This database is published by Boston College and contains the majority of state plans as well as many larger municipal plans. This graph shows that Delaware's support ratio is lower than a typical plan, indicating that the Plan is less mature based on this metric, and that over the recent history, the Plan's ratio has grown at a similar rate as typical plans in this universe. As of the most recent dates for which the full database is available, the Delaware support ratio has increased to approximately the 25th percentile among all plans in the database.

More Detailed Assessment

A more detailed assessment is always valuable to enhance the understanding of the risks identified above; however the value of this must be compared alongside the costs of such an exercise. The costs in this case are both measureable 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 principle 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, 2020 and June 30, 2021,
- Statement of the **changes** in market values during FY 2021,
- 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, 2020 and June 30, 2021, along with the changes between the two.

Table III-1
Changes in Market Value of Assets

Market Value of Assets – June 30, 2020		**$ 9,638,828,400**
Additions		
Member Contributions	$ 77,008,500	
State Contributions	269,466,500	
PRI Transfers	-	
Investment Returns	3,572,073,000	
Total Additions	**$ 3,918,548,000**	
Deductions		
Benefit Payments	$ 700,649,500	
Administrative Expenses	5,653,700	
Total Deductions	**$ 706,303,200**	
Market Value of Assets – June 30, 2021		**$ 12,851,073,200**

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, 2021.

Table III-2
Development of Actuarial Value of Assets

1.	Actuarial Value of Assets at June 30, 2020	$ 9,528,170,100
2.	Amount in (1) with interest to June 30, 2021 at 7.0% per year	10,195,142,000
3.	State, PRI, and member contributions for FY 2021	346,475,000
4.	Interest on contributions assuming payments made uniformly throughout the year to June 30, 2021 at 7.0% per year	11,921,500
5.	Disbursements from Trust except investment expenses, June 30, 2020 through June 30, 2021	706,303,200
6.	Interest on disbursements to June 30, 2021 at 7.0% per year	24,302,500
7.	Expected Actuarial Value of Assets at June 30, 2021 = (2) + (3) + (4) – (5) – (6)	$ 9,822,932,800
8.	Actual Market Value of Assets at June 30, 2021	$ 12,851,073,200
9.	Excess of (8) over (7)	$ 3,028,140,400
10.	Actuarial Value of Assets at June 30, 2021 = (7) + 20% of (9)	$ 10,428,560,900

SECTION III – ASSETS

Investment Performance

The market value of assets (MVA) returned 37.8% during 2021, which is more than the prior year's assumed 7.0% investment rate of return. The actuarial value of assets (AVA) returned 13.5% over this same year, reflecting the asset smoothing methodology being utilized by the Plan for the measurement of the actuarial value of assets. Since 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	Expected Contributions*
2021	$ 747,725,000	$ 392,792,000
2022	752,694,000	357,458,000
2023	774,922,000	366,395,000
2024	796,547,000	375,555,000
2025	818,341,000	384,943,000
2026	840,645,000	380,931,000
2027	862,859,000	390,455,000
2028	884,770,000	400,216,000
2029	906,915,000	410,221,000
2030	929,630,000	420,477,000

* Expected contributions include State contributions, member contributions, State reimbursement, and PRI transfers. For illustration purposes, we have assumed the State contribution rate will remain at 11.15% from FYE 2023 forward and that payroll will increase at the actuarially assumed rate of 2.50% per year. FYE 2022 amounts include the estimate of the HB251 $500 payment for an estimated 29,900 retirees.

Expected benefit payments are projected for the closed group valued at June 30, 2021. 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, 2020 and June 30, 2021, 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 they are 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 is 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, 2020	June 30, 2021
Present Value of Benefits		
Active Member Benefits	$ 6,059,221,900	$ 6,290,789,000
Retiree, Beneficiary, Disabled, and Terminated Member Benefits	6,839,922,700	7,211,529,600
Present Value of Benefits (PVB)	**$ 12,899,144,600**	**$ 13,502,318,600**
Market Value of Assets (MVA)	$ 9,638,828,400	$ 12,851,073,200
Future Member Contributions	691,049,300	706,601,300
Future State Contributions & PRI Fund Transfers	2,569,266,900	(55,355,900)
Total Resources	**$ 12,899,144,600**	**$ 13,502,318,600**
Actuarial Liability		
Present Value of Benefits (PVB)	$ 12,899,144,600	$ 13,502,318,600
Present Value of Future State Normal Costs (PVFNC)	1,070,113,700	1,095,225,100
Present Value of Future Member Contributions (PVFEEC)	691,049,300	706,601,300
Actuarial Liability (AL=PVB–PVFNC–PVFEEC)	**$ 11,137,981,600**	**$ 11,700,492,200**
Actuarial Value of Assets (AVA)	9,528,170,100	10,428,560,900
Net (Surplus)/Unfunded AL (AL – AVA)	**$ 1,609,811,500**	**$ 1,271,931,300**
Present Value of Accrued Benefits		
Present Value of Benefits (PVB)	$ 12,899,144,600	$ 13,502,318,600
Present Value of Future Benefit Accruals (PVFBA)	2,896,482,600	2,953,215,100
Present Value of Accrued Benefits (PVAB=PVB–PVFBA)	**$ 10,002,662,000**	**$ 10,549,103,500**
Market Value of Assets (MVA)	$ 9,638,828,400	$ 12,851,073,200
Net (Surplus)/Unfunded PVAB (PVAB – MVA)	**$ 363,833,600**	**$ (2,301,969,700)**

SECTION IV – LIABILITIES

Changes in Liabilities

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

- New 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

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 millions.

Table IV-2
Liability Changes

(In Millions)	Present Value of Benefits	Actuarial Liability	Present Value of Accrued Benefits
Liabilities June 30, 2020	$ 12,899	$ 11,138	$ 10,003
Liabilities June 30, 2021	13,502	11,700	10,549
Liability Increase/(Decrease)	603	562	546
Change Due to:			
PRI	53	53	53
Actuarial (Gain)/Loss	NC *	15	NC *
Benefit Changes	0	0	0
Assumption Changes	220	205	227
Benefits Accumulated and Other (Gain)/Loss	330	289	266

*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, 2020	June 30, 2021
1. Actuarial Liabilities		
Retiree, Beneficiary, Disabled, and Terminated Members	$ 6,839,922,700	$ 7,211,529,600
Active Members	4,298,058,900	4,488,962,600
Total Actuarial Liability (AL)	**$ 11,137,981,600**	**$ 11,700,492,200**
2. Actuarial Value of Assets (AVA)	$ 9,528,170,100	$ 10,428,560,900
3. Unfunded Actuarial Liability (UAL) [AL – AVA]	$ 1,609,811,500	$ 1,271,931,300
4. Present Value of Outstanding PRI Transfers	$ 0	$ 53,416,400
5. Outstanding Base for 20-Year UAL Amortization (17 Years Remaining as of June 30, 2021)	$ 1,408,951,600	$ 1,389,850,200
6. Outstanding Base for 15-Year 2019 UAL Amortization (13 Years Remaining as of June 30, 2021)	$ 128,031,200	$ 124,247,600
7. Outstanding Base for 15-Year 2020 UAL Amortization (14 Years Remaining as of June 30, 2021)	N/A	$ 71,028,100
8. Net Base for 15-Year 2021 UAL Amortization (3-4-5-6-7)	**$** 72,828,700	$ (366,611,000)

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 are 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, there are three components to the total contribution: 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, this individual total normal cost rate is reduced by the member's contribution 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 0.30% of payroll. This rate, when applied to payroll, 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 immediately prior one.

Table V-1
State Contribution Rate

Valuation Date	**June 30, 2020**	**June 30, 2021**
FY Contribution Rate Payable	**FY 2022**	**FY 2023**
State Entry Age Normal Cost Rate*	6.13%	6.27%
UAL Amortization Payment Rate*	6.02%	4.58%
Administrative Expense Rate	0.30%	0.30%
Actuarially Determined Contribution Rate	12.45%	11.15%

* *The State normal cost rate was lowered to account for new hires entering the post-2011 benefit tier, which provides a different benefit structure and requires higher employee contributions.*

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 2023.

Table V-2
Expected FY 2023
State Contributions

	In Dollars	As % of Payroll
1. Present Value of Projected Benefits Attributable to:		
a. Total Normal Cost	$ 227,443,400	10.16%
b. Expected Member Contributions	87,082,200	3.89%
c. State Normal Cost (a) – (b)	$ 140,361,200	6.27%
2. Amortization of Unfunded Liability		
a. 17-year Amortization of 2018 UAL	$ 116,657,300	5.21%
b. 13-year Amortization of 2019 Layer	12,629,800	0.56%
c. 14-year Amortization of 2020 Layer	6,835,800	0.31%
d. 15-year Amortization of 2021 Layer	(33,571,300)	(1.50)%
e. Total Amortization	$ 102,551,600	4.58%
3. Allowance for Administrative Expense	$ 6,715,800	0.30%
4. Total State Actuarially Determined Contribution (1c) + (2e) + (3)	$ 249,628,600	11.15%

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, 2020 and June 30, 2021 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, 2020, to the liabilities as of June 30, 2021. These values are based on the funding liability results.

This valuation contains information reported in the June 30, 2021 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 2020 funding valuation results. The calculation of Net Pension Liability in Table V-2 shows the amounts to be disclosed for FY 2021, based on the liabilities of the roll forward of the 2020 funding valuation, as well as a projection of the anticipated FY 2022 disclosures, based on liabilities from the 2021 funding valuation, assuming all actuarial assumptions are met over the coming year. The actual disclosures for FY 2022 will be developed once the asset measure for GASB as of June 30, 2022 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, and 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, 2020	June 30, 2021
FASB ASC Topic No. 960 Basis		
1. Present Value of Accrued Benefits (PVAB)		
a. Members Currently Receiving Payments	$ 6,548,190,100	$ 6,908,505,400
b. Former Vested Members (and LTDs)	291,732,600	303,024,200
c. Active Members	3,162,739,300	3,337,573,900
2. Total PVAB [1(a) + 1(b) + 1(c)]	$ 10,002,662,000	$10,549,103,500
3. Market Value of Assets (MVA)	9,638,828,400	12,851,073,200
4. Unfunded PVAB [2 – 3]	$ 363,833,600	$(2,301,969,700)
5. Ratio of MVA to PVAB [3 / 2]	96.4%	121.8%
Reconciliation of PVAB		
PVAB at June 30, 2020		$10,002,662,000
Increase/(Decrease) During Year Attributable to:		
Passage of Time		676,078,400
Benefits Paid – FY 2021		(700,649,500)
Benefit Change (PRI)		53,416,400
Assumption Changes		226,590,400
Benefits Accrued, Other Gains/Losses		291,005,800
Net Increase/(Decrease)		546,441,500
PVAB at June 30, 2021		$10,549,103,500

SECTION VI – ACCOUNTING STATEMENT INFORMATION

Table VI-2
GASB No. 67 Disclosures

	June 30, 2021	Estimated June 30, 2022
Total Pension Liability (TPL)		
Service cost	**$ 225,312,000**	**$ 227,452,000**
Interest	784,310,000	809,743,000
Changes in benefit terms	0	68,366,000
Differences between expected and actual experience	57,065,000	14,602,000
Changes in assumptions	221,865,000	0
Benefit payments, including refunds of member contributions	(700,650,000)	(747,725,000)
Net change in TPL	**$ 587,902,000**	**$ 372,436,000**
TPL - beginning	**$ 11,044,574,000**	**$ 11,632,476,000**
TPL - ending (a)	**$ 11,632,476,000**	**$ 12,004,912,000**
Fiduciary Net Position (FNP)		
Contributions – State	$ 269,467,000	$ 278,708,000
Contributions - Non-employer (PRI)	0	12,052,000
Contributons State – Ad Hoc	0	14,950,000
Contributions - Member	77,009,000	87,082,000
Net investment income	3,572,073,000	887,131,000
Benefit payments, including refunds of member contributions	(700,650,000)	(747,725,000)
Administrative expenses	(5,654,000)	(6,716,000)
Net change in FNP	**$ 3,212,245,000**	**$ 525,482,000**
FNP - beginning	**$ 9,638,828,000**	**$ 12,851,073,000**
FNP - ending (b)	**$ 12,851,073,000**	**$ 13,376,555,000**
Net Pension Liability/(Asset) - ending [(a)-(b)]	**$** (1,218,597,000)	**$ (1,371,643,000)**

Items printed in red will be replaced with actual amounts once known at the end of FY 2022.

SECTION VI – ACCOUNTING STATEMENT INFORMATION

Table VI-3
Note to Required Supplementary Information

The June 30, 2021 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, 2021
Valuation date:	July 1, 2020
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 2023 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, 2021
Valuation date:	July 1, 2021
Actuarial cost method:	Entry age normal
Amortization method:	Percentage of pay – closed Pay increases at 2.5% per year
Amortization period:	Separate periods for the UAL as of June 30, 2018 (17 years remaining as of 6/30/2021), and 15-year layers for unexpected changes in UAL after 6/30/2018
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 of 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	2016	2017	2018	2019	2020	2021
Investment Income on Actuarial Assets	$ (120,768)	$ (43,703)	$ 19,372	$ (23,701)	$ (23,701)	$ 605,628
Combined Liability Experience	(20,308)	(64,746)	(93,205)	(98,377)	(57,066)	(14,600)
(Loss)/Gain during Year from Financial Experience	$ (141,076)	$ (108,449)	$ (73,833)	$ (122,078)	$ (29,401)	$ 591,028
Non-Recurring Items	(167,455)	(211,698)	(11)	(874)	(36,342)	(258,789)
Composite Gain (or Loss) during Year	$ (308,531)	$ (320,147)	$ (73,844)	$ (122,952)	$ (65,743)	$ 332,239

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 Reported Assets	Portion of Accrued Liabilities Covered by Reported Assets (1)	(2)	(3)
2021	$ 854,430	$ 6,908,505	$ 3,937,557	$ 10,428,561	100%	100%	68%
2020	814,818	6,548,190	3,774,974	9,528,170	100	100	57
2019	769,584	6,367,160	3,635,514	9,211,322	100	100	57
2018	731,356	6,178,277	3,503,484	8,950,958	100	100	58
2017	704,684	5,932,584	3,407,315	8,688,641	100	100	60
2016	666,617	5,172,570	3,196,831	8,460,614	100	100	67

APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Employees' Pension Plan
Data Reconciliation

	A	P-TDV	P-SUPP	P-RET	PRET25	P-DIS	P-LTD	P-SURV	PSUR25	Total
1. June 30, 2020 valuation	**38,518**	**3,047**	**903**	**23,792**	**122**	**1,384**	**563**	**3,848**	**6**	**72,183**
2. Additions										
(a) New entrants	2,848	38	1	90		1	3			2,981
(b) New Beneficiary/QDRO								331		331
(c) Total	2,848	38	1	90		1	3	331		3,312
3. Reductions										
(a) Terminated - not vested	(1,723)									(1,723)
(b) Paid Out/Expired/Death		(59)	(10)	(749)	(1)	(85)	(35)	(296)	(1)	(1,236)
(c) Total	(1,723)	(59)	(10)	(749)	(1)	(85)	(35)	(296)	(1)	(2,959)
4. Changes in status										
(a) P-TDV	(257)	325		(1)			(67)			
(b) P-SUPP		6	(6)							
(c) Returned to work	116	(83)	(12)	(10)			(11)			
(d) P-RET	(1,117)	(181)	(24)	1,377			(55)			
(e) PRET25	(53)	(1)		(10)	66		(2)			
(f) P-DIS	(4)					4				
(g) P-LTD	(122)	(6)					128			
(h) P-SURV										
(i) PSUR25										
(j) P-SR										
(k) Data corrections										
(l) Total	(1,437)	60	(42)	1,356	66	4	(7)			
5. June 30, 2021 valuation	**38,206**	**3,086**	**852**	**24,489**	**187**	**1,304**	**524**	**3,883**	**5**	**72,536**

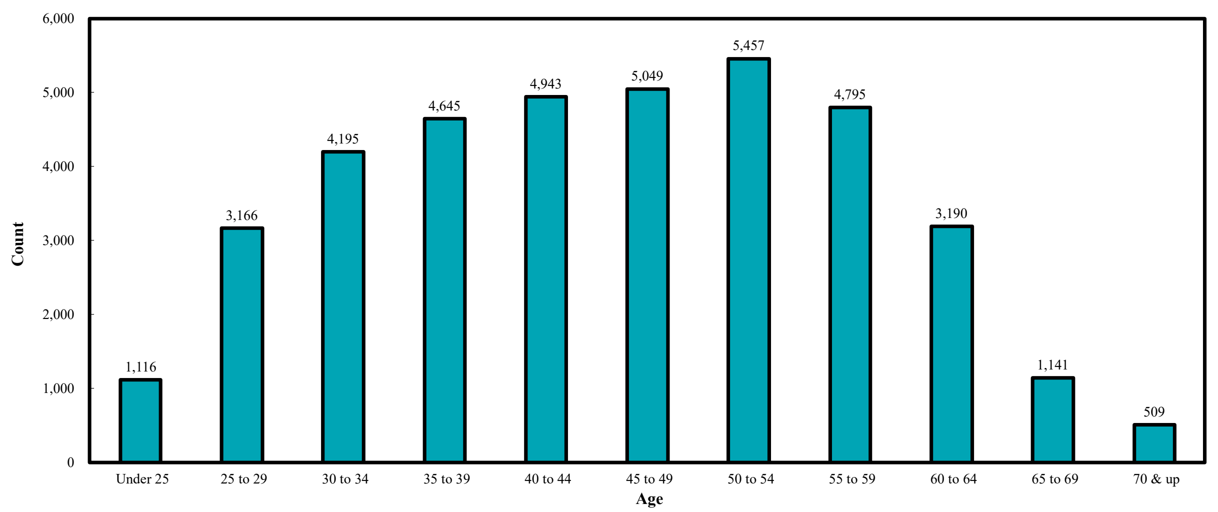
A=Active, P-TDV=Terminated Deferred Vested, P-SUPP=Terminated Deferred Vested, P-RET=Retired, PRET25=Retired, P-DIS=Disabled, P-LTD=Long-Term Disabled, P-SURV=Surviving Beneficiary, PSUR25=Surviving Beneficiary, P-SR=Disabled

APPENDIX A – MEMBERSHIP INFORMATION

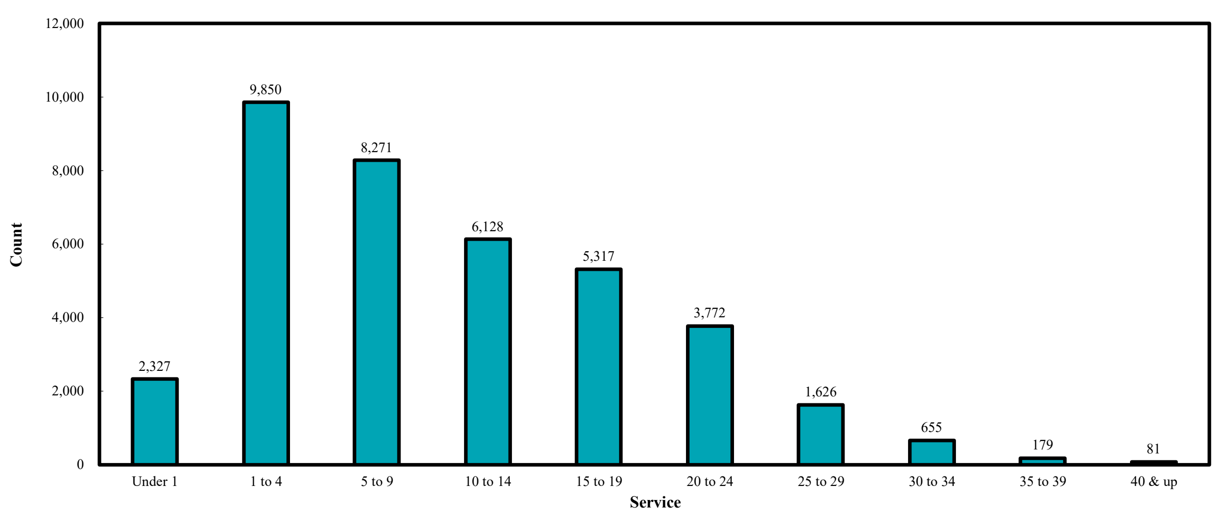
Delaware State Employees' Pension Plan Population Distribution of Active Members by Age and Service as of June 30, 2021											
Counts By Age/Service											
	Service										
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	**Total**
Under 25	436	672	8	0	0	0	0	0	0	0	1,116
25 to 29	463	2,098	603	2	0	0	0	0	0	0	3,166
30 to 34	296	1,587	1,801	505	6	0	0	0	0	0	4,195
35 to 39	288	1,219	1,263	1,366	502	7	0	0	0	0	4,645
40 to 44	226	1,051	1,041	955	1,260	407	3	0	0	0	4,943
45 to 49	187	948	918	817	879	1,085	210	5	0	0	5,049
50 to 54	150	896	938	848	919	875	655	172	4	0	5,457
55 to 59	150	702	818	780	864	717	430	269	63	2	4,795
60 to 64	79	430	557	560	598	499	224	139	76	28	3,190
65 to 69	35	158	225	210	204	131	70	55	27	26	1,141
70 & up	17	89	99	85	85	51	34	15	9	25	509
Total	2,327	9,850	8,271	6,128	5,317	3,772	1,626	655	179	81	38,206

APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Employees' Pension Plan Population Distribution of Active Members by Age as of June 30, 2021



Delaware State Employees' Pension Plan Population Distribution of Active Members by Service as of June 30, 2021



APPENDIX A – MEMBERSHIP INFORMATION

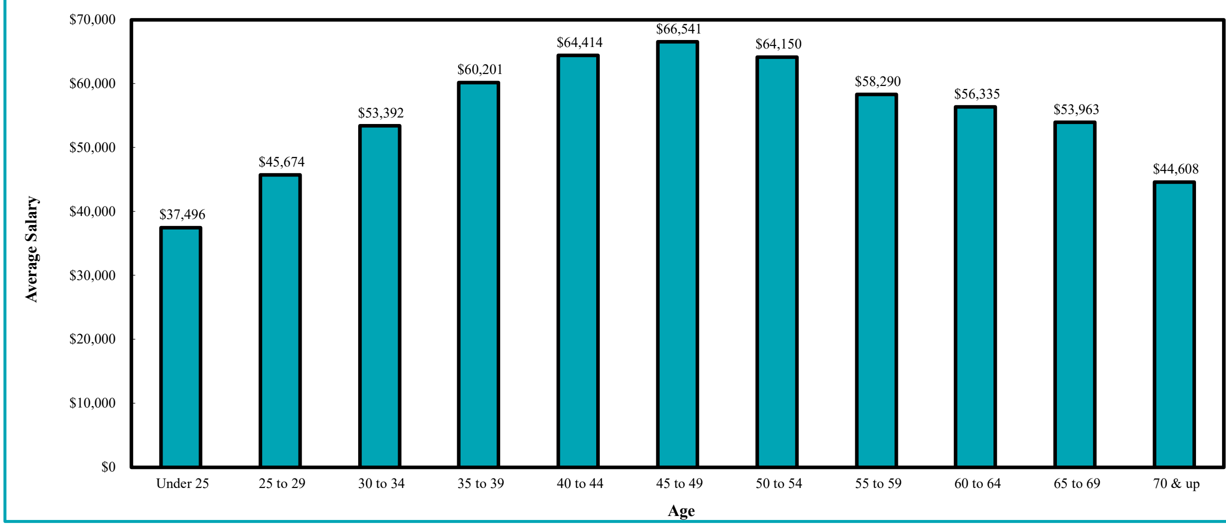
Delaware State Employees' Pension Plan Salary Distribution of Active Members by Age and Service as of June 30, 2021

Average Salary by Age/Service

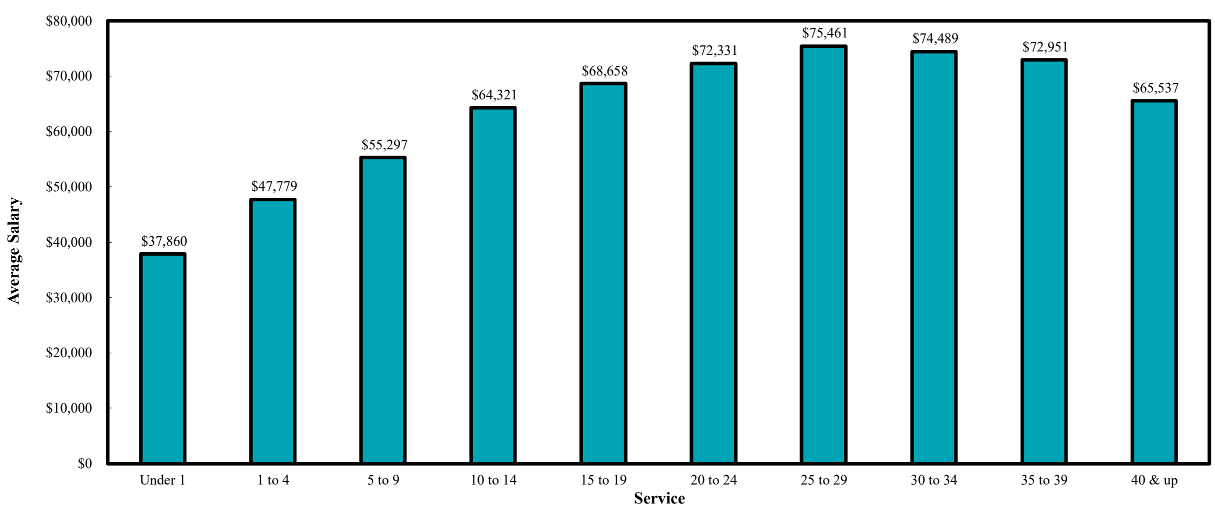
Age	Service: Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	Total
Under 25	$ 32,779	$ 40,607	$ 33,311	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 37,496
25 to 29	36,051	45,952	52,094	46,555	0	0	0	0	0	0	45,674
30 to 34	40,236	48,249	56,514	66,295	39,631	0	0	0	0	0	53,392
35 to 39	39,864	49,821	59,285	69,793	73,365	54,277	0	0	0	0	60,201
40 to 44	40,588	51,309	58,540	69,331	77,004	76,058	55,950	0	0	0	64,414
45 to 49	43,360	52,001	59,401	68,817	72,413	80,680	77,690	60,762	0	0	66,541
50 to 54	40,795	50,655	55,726	62,235	67,325	73,744	81,662	77,607	69,409	0	64,150
55 to 59	39,070	47,474	50,160	57,141	61,876	64,352	71,665	73,490	70,399	45,798	58,290
60 to 64	37,011	42,416	48,343	54,639	60,261	63,312	68,151	76,626	74,670	64,241	56,335
65 to 69	35,274	39,822	44,976	53,236	57,772	68,553	63,334	68,229	75,446	67,584	53,963
70 & up	18,105	35,450	32,358	43,417	48,902	53,320	65,069	64,385	70,386	66,439	44,608
Total	$ 37,860	$ 47,779	$ 55,297	$ 64,321	$ 68,658	$ 72,331	$ 75,461	$ 74,489	$ 72,951	$ 65,537	$ 58,577

APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Employees' Pension Plan Salary Distribution of Active Members by Age as of June 30, 2021



Delaware State Employees' Pension Plan Salary Distribution of Active Members by Service as of June 30, 2021



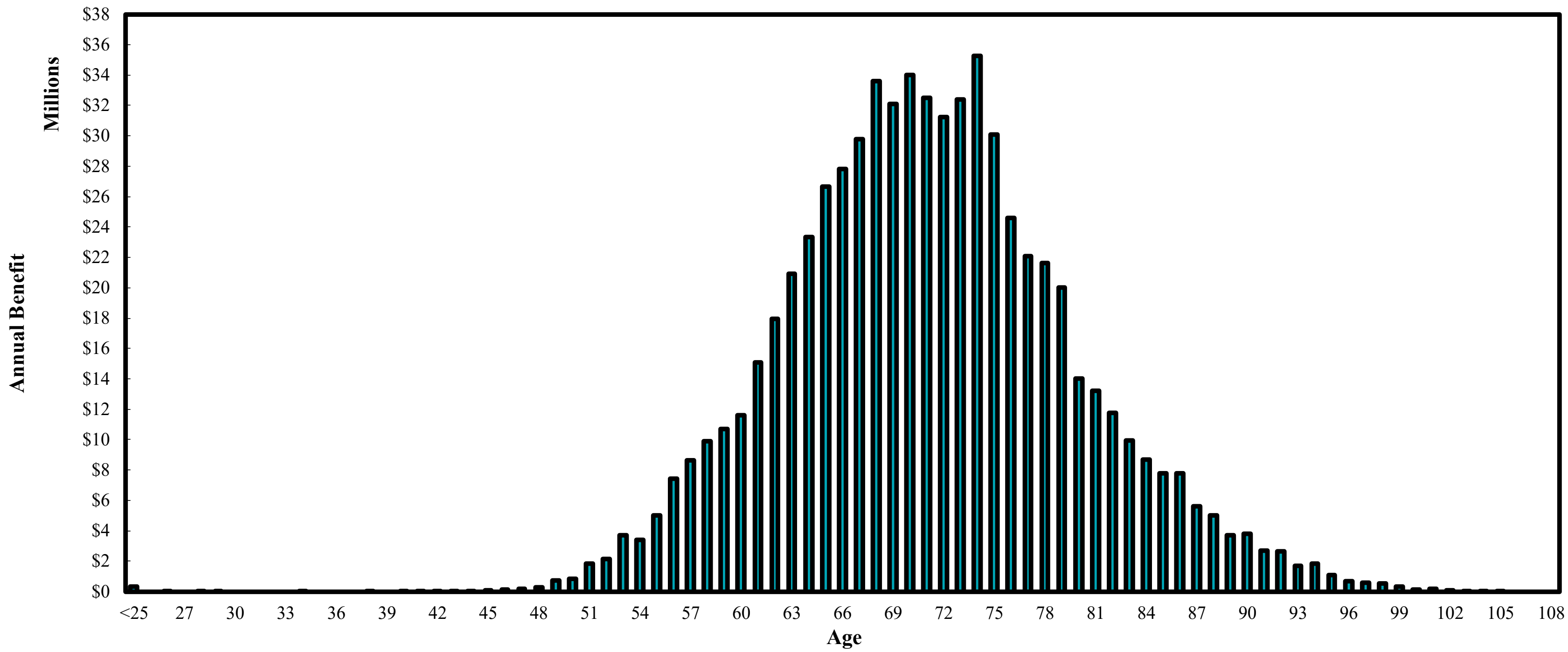
APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Employees' Pension Plan Annual Benefit Distribution by Age of Retired Members and Beneficiaries as of June 30, 2021

Age	Count	Annual Benefit
<25	51	$ 322,195
25	0	-
26	1	14,472
27	0	-
28	2	30,750
29	1	37,053
30	0	-
31	0	-
32	0	-
33	0	-
34	1	5,435
35	0	-
36	0	-
37	0	-
38	1	18,284
39	0	-
40	3	34,768
41	1	23,619
42	3	22,072
43	7	36,759
44	4	12,702
45	6	85,408
46	5	115,714
47	9	158,595
48	16	304,057
49	28	729,515
50	39	845,229
51	69	1,828,530
52	88	2,140,195
53	120	3,681,732
54	118	3,416,521
55	155	4,990,572
56	244	7,416,410
57	280	8,656,287
58	336	9,885,651
59	362	10,695,818
60	398	11,628,229
61	512	15,101,600
62	669	17,942,713
63	845	20,914,336
64	943	23,344,485
65	1,073	26,651,485
66	1,099	27,833,218
67	1,186	29,770,511
68	1,252	33,587,371
69	1,262	32,078,188
70	1,280	33,985,453
71	1,296	32,514,116
72	1,242	31,237,385
73	1,262	$ 32,413,133
74	1,408	35,263,875
75	1,183	30,093,868
76	940	24,588,168
77	869	22,086,993
78	929	21,609,129
79	878	19,995,782
80	675	14,026,482
81	657	13,227,218
82	595	11,736,076
83	524	9,937,689
84	476	8,694,522
85	422	7,802,290
86	454	7,793,302
87	371	5,628,387
88	338	5,031,165
89	292	3,692,418
90	274	3,813,937
91	211	2,691,029
92	183	2,624,388
93	150	1,673,584
94	141	1,847,252
95	95	1,072,032
96	66	696,482
97	46	576,877
98	36	512,075
99	37	330,411
100	14	146,647
101	14	185,240
102	7	69,310
103	6	43,077
104	3	28,313
105	1	5,576
106	0	-
107	0	-
108	0	-
109	0	-
110	0	-
111	0	-
112	0	-
113	0	-
114	0	-
115	0	-
116	0	-
117	0	-
118	0	-
119	0	-
120	0	-
Totals	28,564	$682,034,156

APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Employees' Pension Plan Annual Benefit Distribution by Age of Retired Members and Beneficiaries as of June 30, 2021



APPENDIX A – MEMBERSHIP INFORMATION

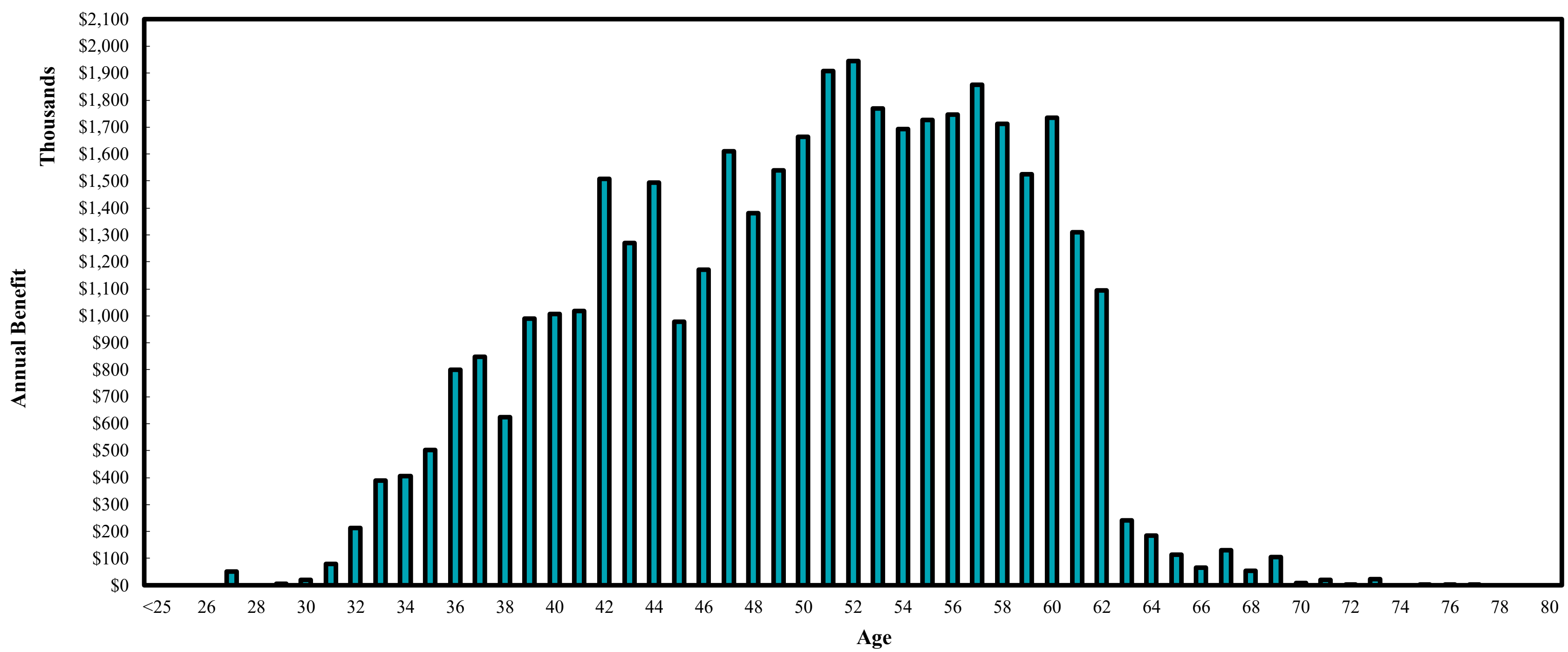
Delaware State Employees' Pension Plan Annual Benefit Distribution by Age of Vested Members as of June 30, 2021

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	0	$ -	73	4	$ 22,992
25	0	-	74	0	-
26	0	-	75	2	595
27	1	50,294	76	1	2,735
28	0	-	77	1	1,645
29	1	6,316	78	0	-
30	2	20,828	79	0	-
31	10	79,845	80	0	-
32	25	212,471	81	3	12,238
33	46	388,412	82	0	-
34	59	406,342	83	0	-
35	74	503,261	84	0	-
36	95	798,883	85	0	-
37	93	848,225	86	0	-
38	85	624,778	87	0	-
39	108	989,835	88	1	954
40	111	1,007,325	89	0	-
41	116	1,016,941	90	0	-
42	140	1,507,015	91	0	-
43	128	1,269,580	92	0	-
44	133	1,493,199	93	0	-
45	93	977,477	94	0	-
46	109	1,172,166	95	0	-
47	135	1,610,511	96	0	-
48	137	1,380,524	97	0	-
49	143	1,540,360	98	0	-
50	143	1,663,994	99	0	-
51	144	1,907,069	100	0	-
52	162	1,944,986	101	0	-
53	157	1,769,514	102	0	-
54	150	1,692,172	103	0	-
55	163	1,727,415	104	0	-
56	165	1,746,389	105	0	-
57	159	1,857,210	106	0	-
58	150	1,713,494	107	0	-
59	165	1,525,084	108	0	-
60	171	1,734,438	109	0	-
61	144	1,309,314	110	0	-
62	99	1,093,915	111	0	-
63	29	241,739	112	0	-
64	23	185,609	113	0	-
65	17	114,967	114	0	-
66	9	66,474	115	0	-
67	10	132,033	116	0	-
68	9	54,163	117	0	-
69	5	104,191	118	0	-
70	3	7,947	119	0	-
71	4	20,180	120	0	-
72	1	650			
			Totals	3,938	$ 40,558,699

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

APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Employees' Pension Plan Annual Benefit Distribution by Age of Vested Members as of June 30, 2021



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

APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Employees' Pension Plan Annual Benefit Distribution by Age of Disabled Members as of June 30, 2021

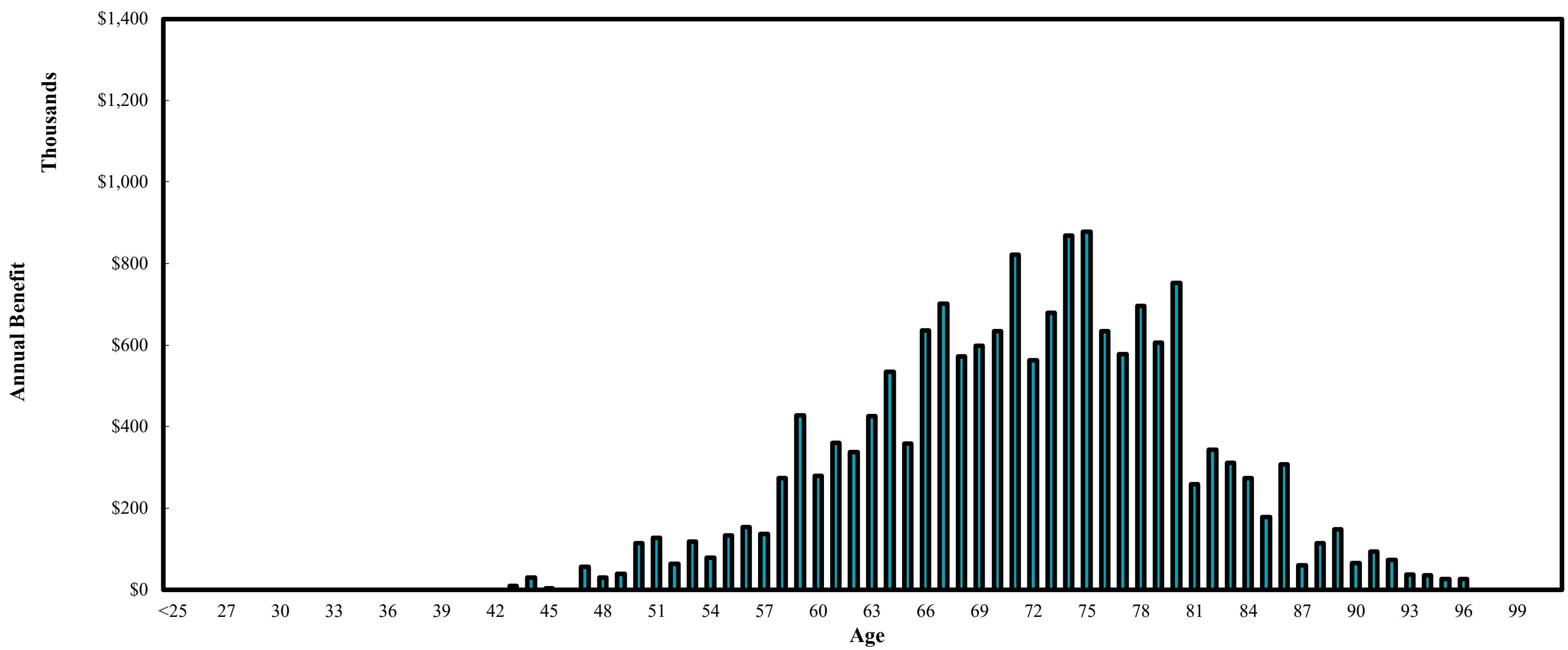
Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	0	$ -	73	56	$ 679,108
25	0	-	74	61	869,060
26	0	-	75	60	878,468
27	0	-	76	46	633,894
28	0	-	77	41	577,760
29	0	-	78	52	695,216
30	0	-	79	45	606,117
31	0	-	80	51	752,106
32	0	-	81	19	258,015
33	0	-	82	28	342,249
34	0	-	83	25	310,671
35	0	-	84	21	273,909
36	0	-	85	16	177,908
37	0	-	86	25	307,095
38	0	-	87	9	59,768
39	0	-	88	9	114,686
40	0	-	89	12	148,742
41	0	-	90	4	66,352
42	0	-	91	9	93,064
43	1	8,401	92	11	73,080
44	3	30,519	93	3	36,541
45	1	4,221	94	2	35,161
46	0	-	95	1	25,357
47	4	55,849	96	1	26,259
48	3	29,871	97	0	-
49	4	39,133	98	0	-
50	9	113,336	99	0	-
51	11	126,674	100	0	-
52	3	62,780	101	0	-
53	9	117,134	102	0	-
54	9	79,407	103	0	-
55	13	132,832	104	0	-
56	16	152,913	105	0	-
57	16	136,460	106	0	-
58	20	272,918	107	0	-
59	26	428,145	108	0	-
60	24	278,795	109	0	-
61	31	360,749	110	0	-
62	32	337,064	111	0	-
63	32	425,381	112	0	-
64	36	534,562	113	0	-
65	39	358,889	114	0	-
66	53	635,537	115	0	-
67	49	700,611	116	0	-
68	49	572,763	117	0	-
69	52	598,271	118	0	-
70	47	633,234	119	0	-
71	55	821,058	120	0	-
72	50	563,365			
			Totals	1,304	$ 16,651,457

Individuals shown on this page are those currently receiving disability benefit from the Plan.

APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Employees' Pension Plan Annual Benefit

Distribution by Age of Disabled Members as of June 30, 2021



APPENDIX A – MEMBERSHIP INFORMATION

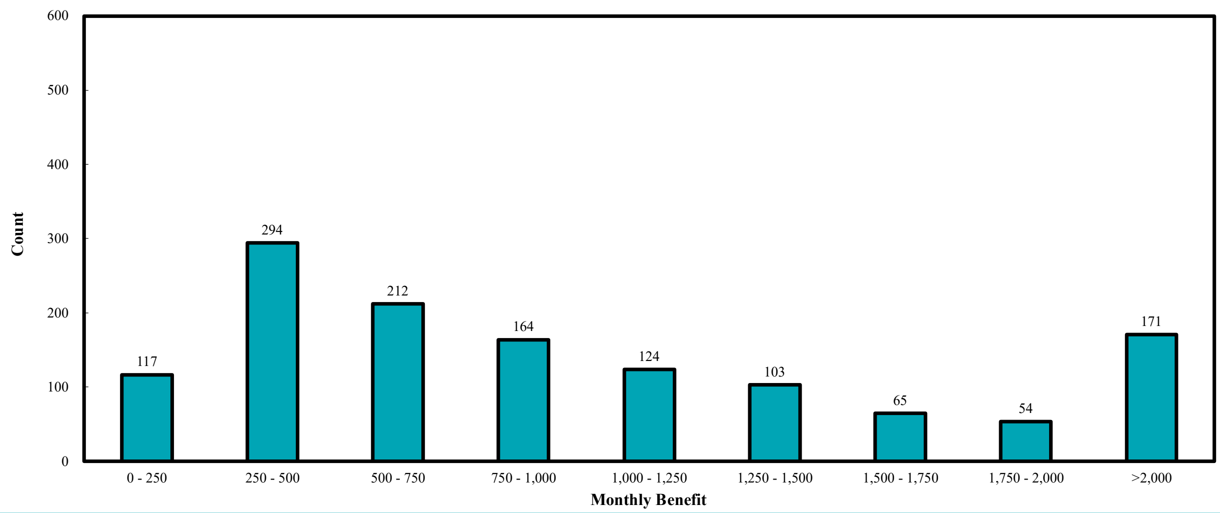
Delaware State Employees' Pension Plan Annual Benefit Distribution by Service of Disabled Members as of June 30, 2021

Counts By Benefit/Service

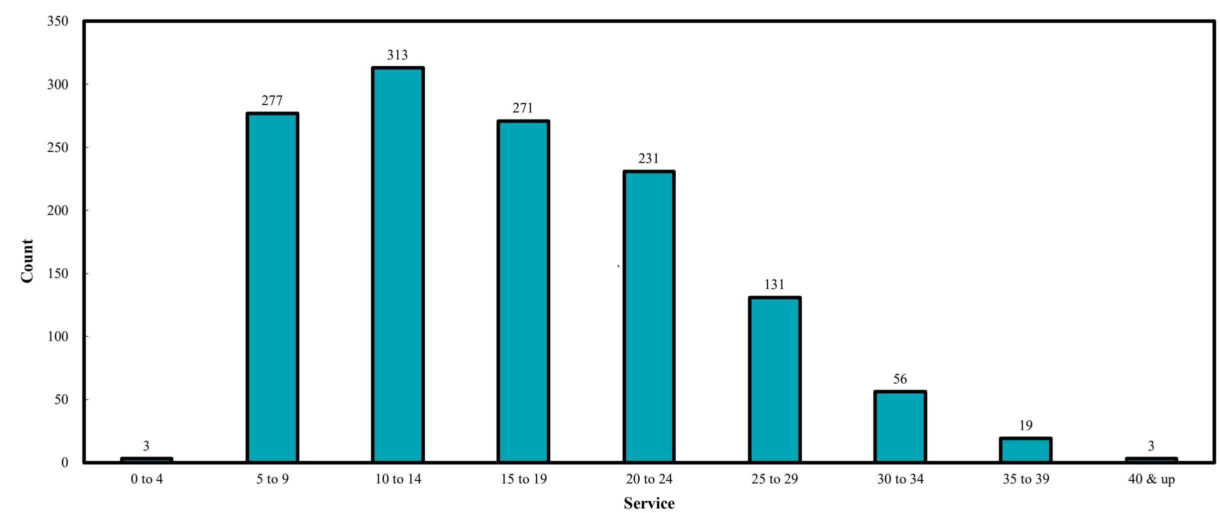
Monthly Benefit	Service 0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	Total
0 - 250	0	106	11	0	0	0	0	0	0	117
250 - 500	2	136	119	29	7	1	0	0	0	294
500 - 750	1	23	105	56	23	4	0	0	0	212
750 - 1,000	0	8	37	76	32	7	4	0	0	164
1,000 - 1,250	0	2	21	42	46	10	3	0	0	124
1,250 - 1,500	0	1	11	30	41	16	3	1	0	103
1,500 - 1,750	0	1	5	15	23	17	4	0	0	65
1,750 - 2,000	0	0	1	10	22	14	4	3	0	54
>2,000	0	0	3	13	37	62	38	15	3	171
Total	3	277	313	271	231	131	56	19	3	1,304

APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Employees' Pension Plan Annual Benefit Distribution of Disabled Members as of June 30, 2021



Delaware State Employees' Pension Plan Annual Benefit Distribution by Service of Disabled Members as of June 30, 2021



APPENDIX A – MEMBERSHIP INFORMATION

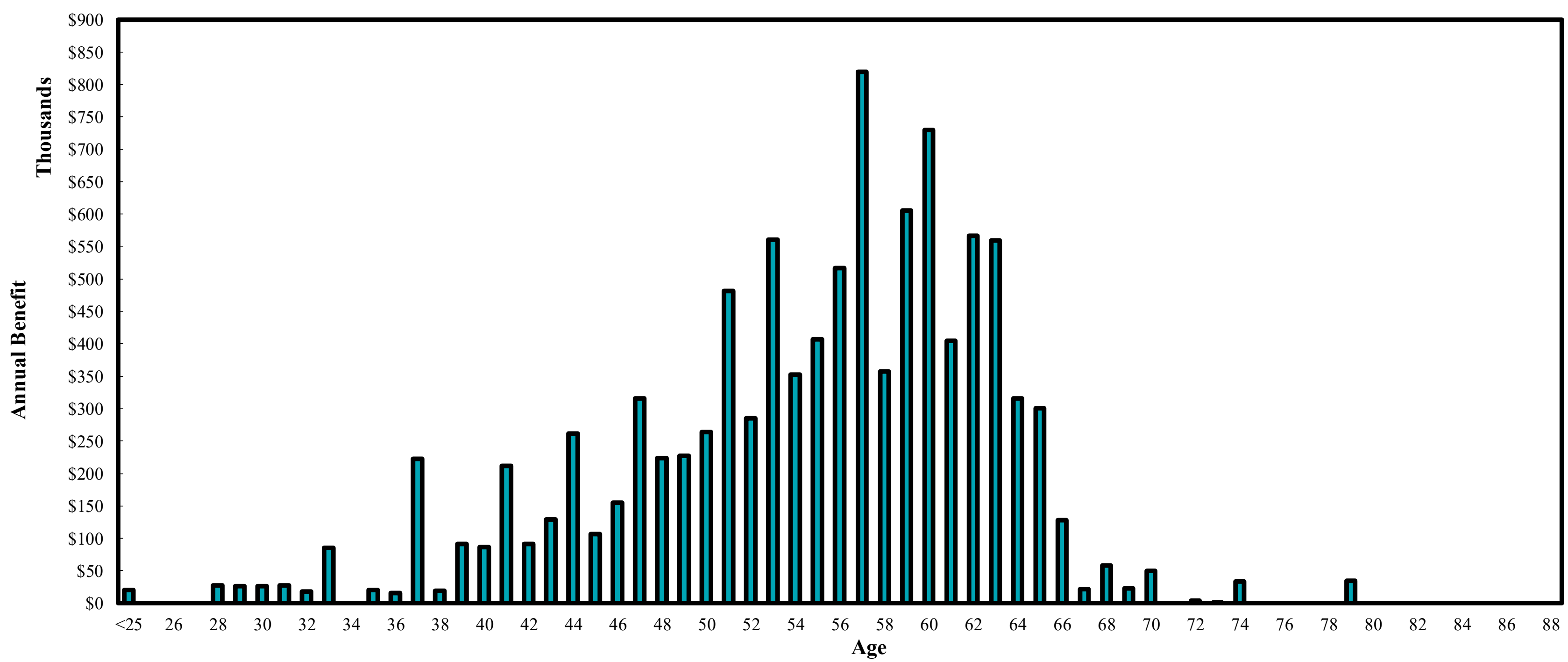
Delaware State Employees' Pension Plan Annual Benefit Distribution by Age of Long-Term Disability Members as of June 30, 2021

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	1	$ 19,838	73	1	$ 761
25	0	-	74	2	33,576
26	0	-	75	0	-
27	0	-	76	0	-
28	1	27,233	77	0	-
29	2	26,223	78	0	-
30	1	26,791	79	1	35,132
31	1	27,298	80	0	-
32	1	18,462	81	0	-
33	3	85,037	82	0	-
34	0	-	83	0	-
35	1	20,125	84	0	-
36	1	15,381	85	0	-
37	10	222,465	86	0	-
38	1	19,048	87	0	-
39	3	91,217	88	0	-
40	4	87,138	89	0	-
41	10	212,329	90	0	-
42	3	91,124	91	0	-
43	4	128,551	92	0	-
44	10	261,909	93	0	-
45	4	107,052	94	0	-
46	8	155,361	95	0	-
47	12	315,465	96	0	-
48	12	223,220	97	0	-
49	9	227,585	98	0	-
50	9	264,430	99	0	-
51	20	481,386	100	0	-
52	12	285,596	101	0	-
53	23	560,444	102	0	-
54	18	352,293	103	0	-
55	21	406,437	104	0	-
56	30	516,369	105	0	-
57	34	819,360	106	0	-
58	24	357,632	107	0	-
59	34	605,822	108	0	-
60	39	729,136	109	0	-
61	28	404,425	110	0	-
62	31	566,356	111	0	-
63	34	559,513	112	0	-
64	20	316,150	113	0	-
65	19	300,065	114	0	-
66	11	127,908	115	0	-
67	2	21,764	116	0	-
68	4	57,942	117	0	-
69	2	22,907	118	0	-
70	2	50,314	119	0	-
71	0	-	120	0	-
72	1	3,934			
			Totals	524	$ 10,288,503

These individuals are currently receiving benefits from the Disability Insurance Program. The amounts shown here are those payable once these participants reach retirement eligibility.

APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Employees' Pension Plan Annual Benefit Distribution by Age of Long Term Disability Members as of June 30, 2021



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 Liabilitiesr

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):

(2021 Values Shown)		
Age	Male	Female
25	3	1
30	5	2
35	7	3
40	8	4
45	10	5
50	14	8
55	21	13
60	33	20
65	47	28
70	66	44
75	99	73
80	158	125

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.

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):

(2021 Values Shown)		
Age	Male	Female
50	30	21
55	45	30
60	69	41
65	99	59
70	153	95
75	259	170
80	467	315
85	859	596
90	1,490	1,111
95	2,322	1,811
100	3,341	2,729

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):

(2021 Values Shown)		
Age	Male	Female
25	36	22
30	53	38
35	72	58
40	89	78
45	112	102
50	161	148
55	220	190
60	279	220
65	330	230
70	390	271
75	503	384
80	719	597
85	1,081	949
90	1,650	1,401
95	2,396	1,968
100	3,341	2,893

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	**Rates**
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

Rates of Active Disability for those who opted into the Disability Insurance Program*	
Age	**Rates**
65	1.000%
70	1.500
75	1.500
80	1.500

* For those who remained in the Pension Plan for disability purposes, the assumption stops at age 64.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

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

Rates of Termination*	
Service	**Rates**
0	17.2%
1	15.2
2	11.4
3	9.9
4	7.7
5	6.5
6	5.9
7	5.0
8	4.7
9	4.0
10	3.4
11	3.1
12	2.6
13	2.3
14	2.1
15-16	1.8
17	1.3
18-19	1.2
20-21	1.1
22	0.9
23	0.6
24	0.3
25+	0.0

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

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

d. Rates of Retirement

Retirement Rates*					
General Employees (including Elected Officals)			Correctional Officers/ Specified Peace Officers		
Service	Early*	Normal	Service	Early*	Normal
5	0.0%	18.0%	5	0.0%	18.0%
6	0.0	12.0	6	0.0	12.0
7	0.0	12.0	7	0.0	12.0
8	0.0	16.0	8	0.0	16.0
9	0.0	16.0	9	0.0	16.0
10	0.0	22.0	10	0.0	22.0
11	0.0	15.0	11	0.0	15.0
12	0.0	15.0	12	0.0	15.0
13	0.0	15.0	13	0.0	15.0
14	0.0	15.0	14	0.0	15.0
15	7.0	22.0	15	8.5	22.0
16	4.0	18.0	16	8.3	19.9
17	4.0	12.5	17	7.4	17.8
18	4.0	12.5	18	5.9	12.5
19	4.0	12.5	19	8.1	13.2
20	10.0	31.2	20	10.1	31.2
21	10.0	23.8	21	8.4	32.5
22	10.0	21.6	22	8.4	35.0
23	7.5	21.2	23	15.8	35.0
24	7.5	18.6	24	8.9	35.0
25	10.0	28.4	25	N/A	35.0
26	7.5	23.2	26	N/A	23.2
27	5.5	24.1	27	N/A	24.1
28	10.0	23.5	28	N/A	23.5
29	14.0	25.1	29	N/A	25.1
30	N/A	25.5	30	N/A	26.7
31	N/A	21.7	31	N/A	26.7
32	N/A	22.2	32	N/A	26.7
33	N/A	20.2	33	N/A	26.7
34	N/A	20.2	34	N/A	26.7
35+	N/A	22.8	35+	N/A	26.7

* Rates only applicable if a member meets eligibility.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

e. Salary Increase Rates

Service-based table includes an annual inflation rate of 2.50%.

Service	Increase
0	13.26%
1	9.57
2	6.50
3	6.09
4	5.58
5	5.37
6	5.06
7	4.96
8	4.55
9	4.35
10	4.04
11	3.83
12	3.73
13	3.53
14	3.42
15	3.27
16	2.91
17	2.81
18	2.71
19	2.60
20	2.50
21+	2.29

f. Family Composition

Female spouses are assumed to be three years younger than males. 70% are assumed married for both male and female employees. Actual marital characteristics are used for pensioners.

2. Economic Assumptions

a.	Investment Rate of Return:	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:	0.30%

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

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.

d. Employee contribution adjustment: Proportion of employees under post-2011 benefits adjusted to reflect anticipated proportion in year contribution rate will be paid in developing state normal cost rate.

e. Disability retirement age: Members are assumed to defer receipt of their disability pension benefits until their maximum duration of LTD benefits is complete.

Age at Disability	Benefit Duration (Months)
Before 60	To age 65
60	60
61	48
62	42
63	36
64	30
65	24
66	21
67	18
68	15
69	12

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.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

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, 2021 as disclosed in this actuarial valuation. The projections assume continuation of the Plan provisions and actuarial assumptions in effect as of June 30, 2021 and do not reflect the impact of any changes in benefits or actuarial assumptions that may be adopted after June 30, 2021.

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.

6. Changes and Rationale Since Last Valuation

The following assumptions were changed to better reflect the experience observed during the experience study covering the period July 1, 2015 through June 30, 2020. The Board of Trustees adopted the experience study at the September 24, 2021 meeting.

- Healthy Inactive, Active, and Disabled Mortality
- Rates of Active Disability
- Retirement
- Termination
- Salary Increase

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 determ ined 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 UAL as of July 1, 2018 uses a 20-year period as a level percentage of payroll. PRI transfers are made to pay for each PRI as granted over a five-year period. These transfers are treated as a receivable for purposes of developing the State rate. UAL layers arising in future valuations will be amortized over their own 15-year periods. 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 payment 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 and regular part-time employees of the State of Delaware, which includes:

- State Department of Public Education,
- School Districts' part of the State School System (the membership includes 19 school districts),
- Delaware Department of Finance, State Lottery Office,
- Delaware Department of Transportation,
- Delaware Solid Waste Authority (1986),
- Delaware State University,
- Delaware Technical & Community College,
- University of Delaware (excluding most faculty and designated professional staff), and
- State Agencies supported wholly or in part by federal funds granted to the State.

There are two groups that have slightly different benefit structures within the Plan: Elected Officials (EO) and Correctional Officers/Specified Peace Officers (CO/SPD). Where the benefits for these groups vary from the remainder of the members covered in this plan, this is noted in the remainder of this summary.

2. Member Contributions

Pre-2012 hires: 3% of compensation in excess of $6,000 per annum
Post-2011 hires: 5% of compensation in excess of $6,000 per annum

Interest is credited at the rate of 5% per year. Member contributions are made through an "employer pick-up" arrangement that results in deferral of taxes on the contributions.

CO/SPO members pay an additional 2% of compensation in excess of $6,000 per annum. (For members covered under HB179, this additional amount is first effective as of January 1, 2019. For members under these provisions by the other bills, the increase is already in effect as of the June 30, 2018 valuation date.)

3. Credited Service

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

APPENDIX C – SUMMARY OF PLAN PROVISIONS

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, wages and fees, plus overtime payments and special payments for extra duty. Overtime payments are excluded for Post-2011 hires.

5. Normal Retirement

Eligibility: Pre-2012 hires: (i) age 62 with five years of credited service, or (ii) age 60 with 15 years of credited service, or (iii) any age with 30 years of credited service

Post-2011 hires: (i) age 65 with 10 years of credited service, or (ii) age 60 with 20 years of credited service, or (iii) any age with 30 years of credited service

EO Pre-2012 hires: (i) age 60 with five years of credited service or (ii) age 55 with 10 years of credited service

EO Post-2011 hires: (i) age 65 with 10 years of credited service, or (ii) age 60 with 20 years of credited service, or (iii) any age with 30 years of credited service

CO/SPD Pre-2012 hires: (i) age 62 with five years of credited service, or (ii) age 60 with 15 years of credited service, or (iii) any age with 25 years of credited service

CO/SPD Post-2011 hires: (i) age 65 with 10 years of credited service, or (ii) age 60 with 20 years of credited service, or (iii) any age with 25 years of credited service

Benefit: 2.0% of final average compensation multiplied by years of service prior to January 1, 1997 plus 1.85% of final average compensation multiplied by years of service after January 1, 1997.

CO/SPD members covered by HB207 and SB50 receive a benefit of 2.45% of final average compensation in lieu of the 1.85% multiplier for years of service greater than 25.

CO/SPD members covered by HB363, HA1, HB41, HB43, and HB179 receive a benefit of 2.45% of final average compensation in lieu of the 1.85% multiplier for years of service greater than 25 for retirements on or after January 1, 2019.

EO members elected before February 1, 1997 additionally have a minimum benefit equal to the member's years of service as an elected member of the General Assembly times the highest rate of payment being paid to any retired

APPENDIX C – SUMMARY OF PLAN PROVISIONS

member of the General Assembly, with that rate computed by dividing the retired member's monthly pension by the member's years of service as an elected member of the General Assembly.

6. Early Retirement

Eligibility: (i) age 55 with 15 years of credited service or (ii) any age with 25 years of credited service

Benefit: Normal retirement benefit calculated using final average compensation and service at early retirement, and reduced by 0.2% (by 0.4% if post-2011 hire) for each month which retirement age precedes the earlier of age 60 or the attainment of 30 years of service.

CO/SPO members covered by HB207 and SB50 receive an early retirement benefit with no reduction if they have at least 25 years of State service, including at least 20 years as a Correctional Officer.

CO/SPO members covered by HB363, HA1, HB41, HB43, and HB179 receive an early retirement benefit with no reduction for retirements on or after January 1, 2019 if they have at least 25 years of State service, including at least 20 years as a Correctional Officer.

CO/SPO members covered by HB179 receive an early retirement benefit with no reduction for retirements on or after January 1, 2019 if they have at least 25 years of service as a 9-1-1 operator.

7. Disability Benefit

Eligibility: Pre-2012 hires: five years of credited service and eligible disability
Post-2011 hires: 10 years of credited service and eligible disability

Benefit: Normal retirement benefit calculated using service and salary at disability date

A member who opted into the Disability Insurance Program will not receive a benefit from this plan until they reach normal retirement eligibility. All members hired on or after January 1, 2006 are covered by the Disability Insurance Program and thus will not receive a benefit from this plan until they reach normal retirement eligibility.

For EO members, the minimum benefit described in the normal retirement section also applies.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

8. Survivor's Benefit

Eligibility: Five years of consecutive credited service.

Benefit: For eligible survivors of employees who die in active service: 75% of service pension the employee would have been eligible to receive at age 62, calculated using final average compensation and credited service accrued to the date of death and reduced by 3% for the form of payment. If the surviving spouse has not yet attained age 50, the benefit will be actuarially reduced for each month he or she is under 50. However, this actuarial reduction will not apply for any period in which the survivor has a dependent child.

Eligible survivors include: (1) spouse (legally married/civil union), or (2) child or children under 18, 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 no eligible survivors, accumulated contributions with interest over aggregate pension payments are payable to the beneficiary.

9. Burial Benefit

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

10. Vesting

Eligibility: Pre-2012 hires: Employees who separate from service with at least five years of service

Post-2011 hires: Employees who separate from service with at least 10 years of service

Benefit: Accrued normal retirement benefit, payable at age 62 for Pre-2012 hires and age 65 for Post-2011 hires. 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 of Employee Contributions

Eligibility: Terminated service

Benefit: Accumulated employee contributions with interest

APPENDIX C – SUMMARY OF PLAN PROVISIONS

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

House Bill 250 included a Post-Retirement Increase starting on July 30, 2021 based on retiree's effective date of retirement of the following percentages:

- 3%, effective date of retirement prior to July 1, 1991
- 2%, effective date of retirement from July 1, 1991 to June 30, 2001
- 1%, effective date of retirement from July 1, 2001 to June 30, 2016

House Bill 252 provided for a one-time payment of $500.00 included in the pensioner's November 30, 2021 monthly pension payment to all who retired as of July 1, 2021. The cost of this supplemental payment will be reimbursed by the State.