Delaware State Employees' Pension Plan

Actuarial Valuation as of June 30, 2020

Produced by Cheiron

February 2021

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February 19, 2021

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, 2020. 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) 2022 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.

Sincerely,
Cheiron

Fiona E. Liston, FSA, MAAA, EA	Elizabeth Wiley, FSA, FCA, MAAA, EA
Principal Consulting Actuary	Consulting Actuary

FOREWORD

Cheiron has performed the annual actuarial valuation of the Delaware State Employees' Pension Plan (Plan) as of June 30, 2020. 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) 2022, 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 2022 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 increase from 12.33% for FY 2021 to 12.45% for FY 2022.

During the year ended June 30, 2020, the Plan's assets earned 9.7% 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 7.3%. 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 $28 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 $57 million, 0.5% 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, the calculation of the final average compensation used in developing benefits for actives and terminated vested members was updated to use an average from previous years newly provided in the data this year if this value is higher than the average projected based on the current year salary information. This assumption change increased the liabilities by $36 million.

This valuation report also contains certain information to be reported in the June 30, 2020 Comprehensive Annual Financial Report (CAFR) 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 2019 actuarial valuation liability results. The calculation of net pension liability in Section VI is shown as disclosed for the plan year ending June 30, 2020, based on the 2019 funding actuarial valuation liability results, updated by the roll forward and to reflect the plan changes cited above. We also present a projection of the June 30, 2021 disclosure in Section VI, assuming all actuarial assumptions are exactly met over the coming year, which is based on the 2020 funding actuarial valuation liability results. This projection also reflects the methodology change related to the final average compensation described above.

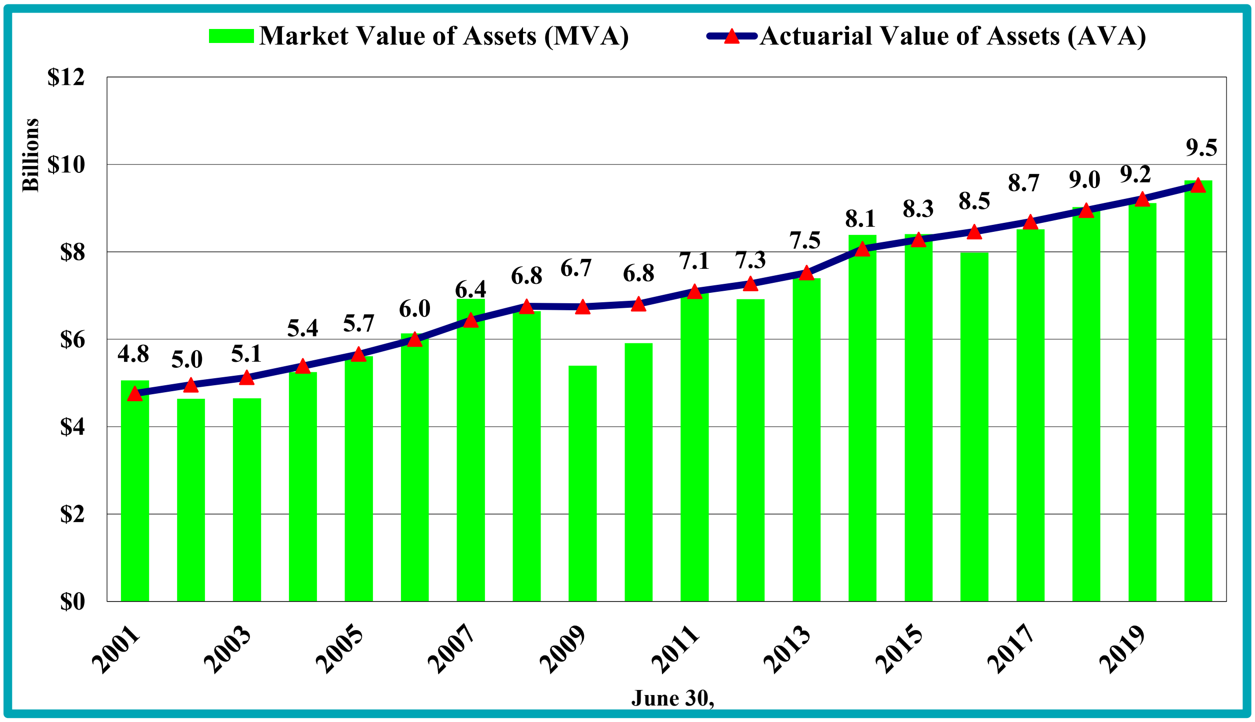
As of the June 30, 2020 funding actuarial valuation, the Plan's unfunded actuarial liability (UAL) was $1.610 billion. This is an increase from the $1.561 billion UAL in the funding valuation for the prior year.

Effective with the June 30, 2018 valuation, the UAL as of June 30, 2018 was amortized over a closed 20-year period (18 years remaining as of June 30, 2020). Effective with the June 30, 2019 valuation, any new sources of UAL are amortized annually over individual closed 15-year periods as a level percentage of payroll.

Trends

<u>Asset Returns</u>

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 9.7% 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 7.3% over FY 2020.

Over the period July 1, 2001 to June 30, 2020, the Plan's assets measured using the actuarial value of asset measurements returned a compound 7.1%, compared to the current valuation assumption of 7.0%. On a market value of assets basis, the Plan returned 6.9% over the same period.

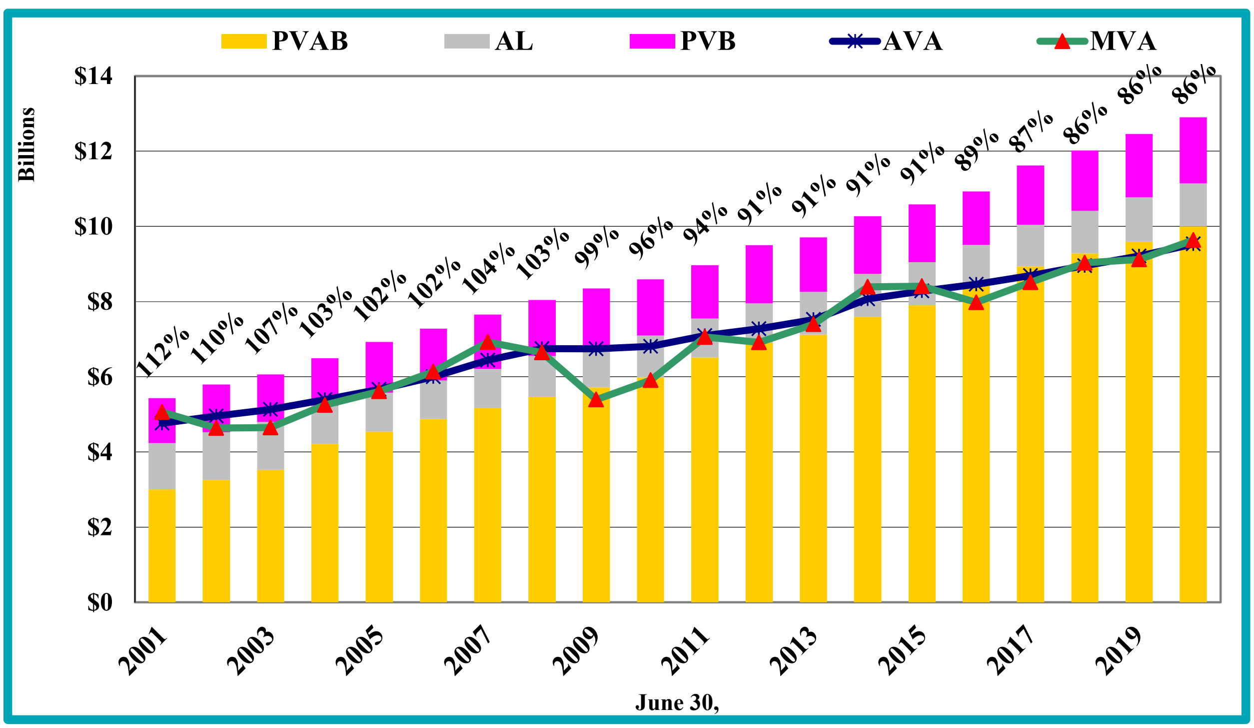
SECTION I – BOARD SUMMARY

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.

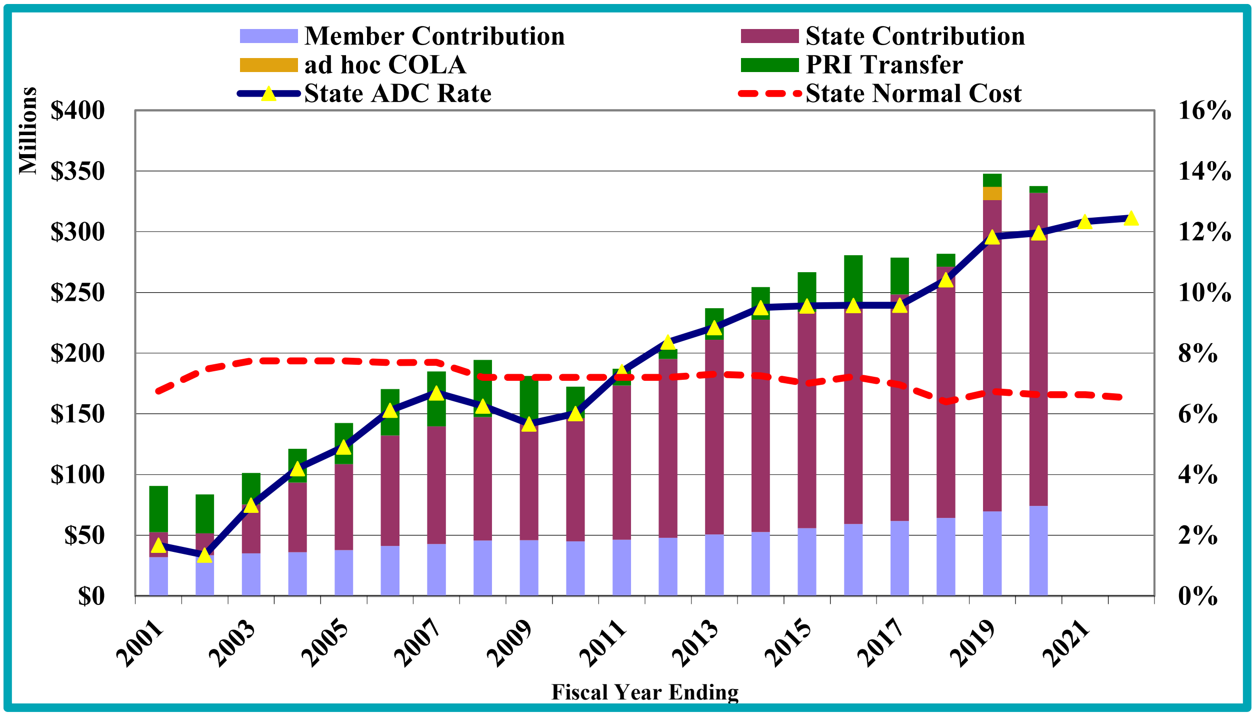
The second liability measure shown is the one currently used for the Plan's funding target, the actuarial liability (AL). These target amounts are represented by the top of the gray bars. This measurement is also the basis of the liability measure used in GASB 67. The funded ratios reported by the Plan 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.



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.

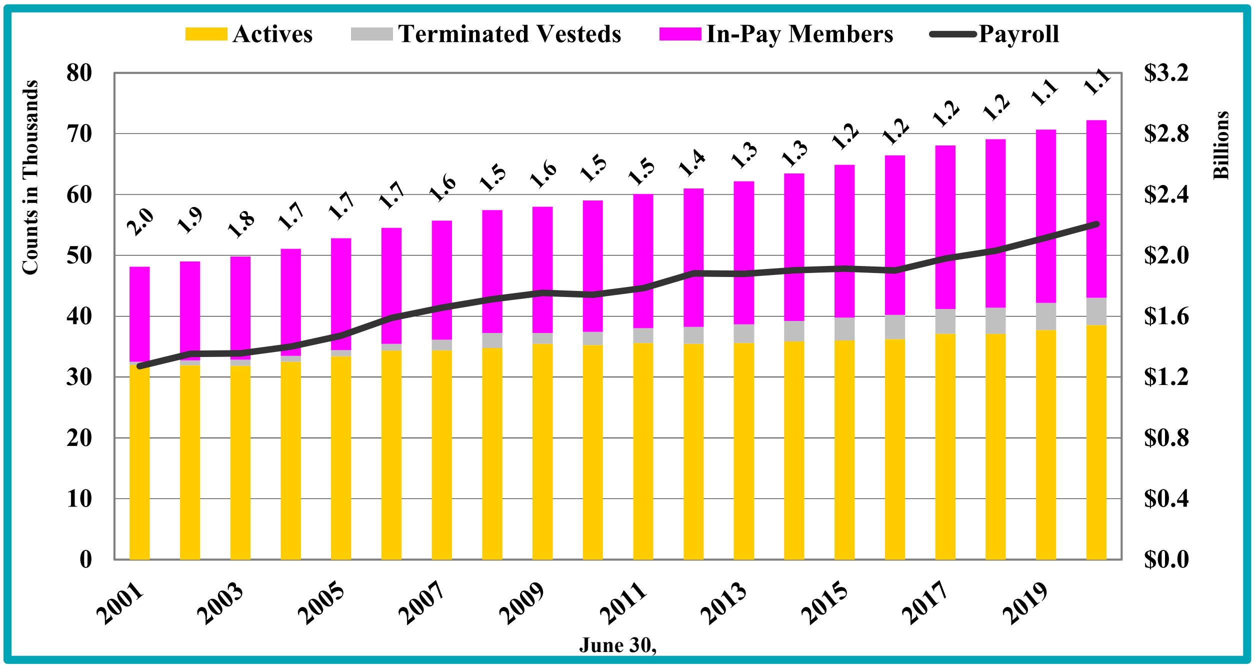
The member contribution rate is set by State law, based on the plan in which the member participates. The State contribution rate is set by the actuarial process, while the PRI transfer amounts depend on the increases granted by the State Legislature. Please note that there is a lag between the calculation of the State contribution rates shown and when they are payable. For example, the value shown for FY 2020 is the rate prepared by the June 30, 2018 valuation and implemented for the period July 1, 2019 to June 30, 2020. As such, there are two more years of rates shown beyond the years of actual contributions.

SECTION I – BOARD SUMMARY

Participant Trends

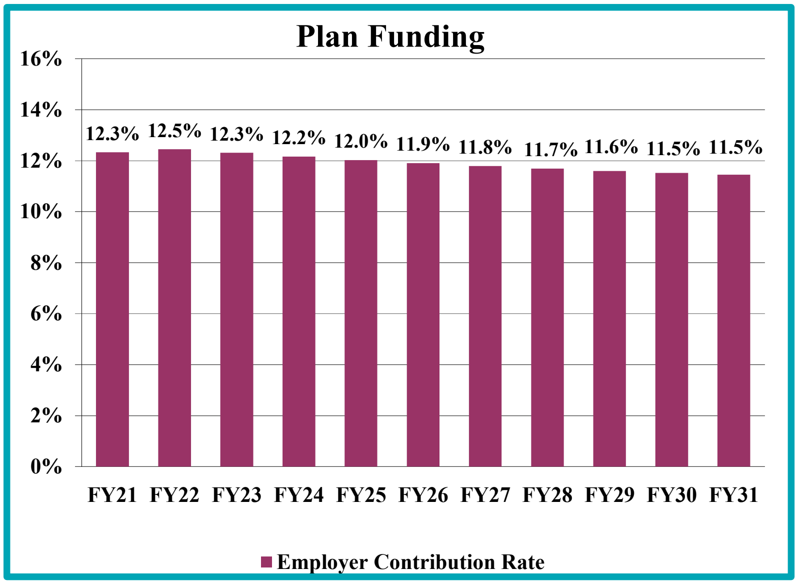
The bars below show the number of members as of each valuation date, divided between active members, terminated vested members, and retirees/beneficiaries. These bars are read using the left-hand scale. As with most maturing plans, this plan continues to show growth in the number of inactive members. 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 2.0 actives for each inactive in 2001 to 1.1 actives for each inactive in 2020.

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



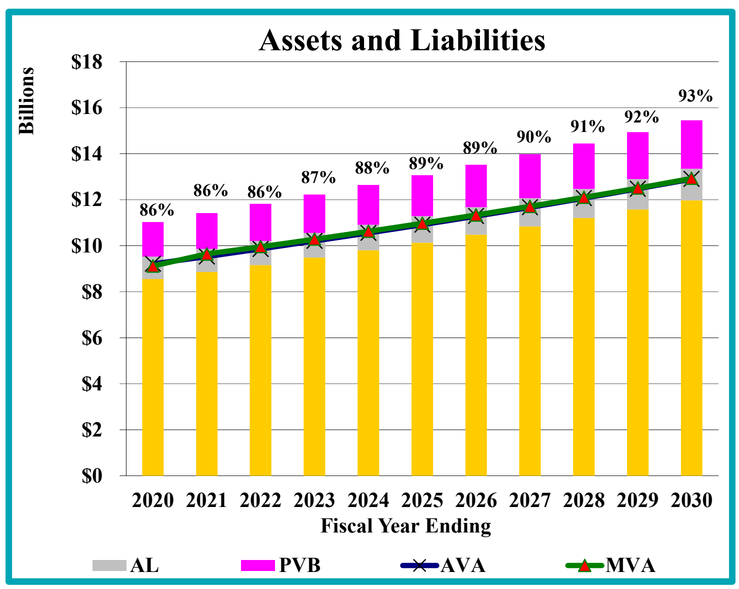
Future Outlook

Baseline Projections



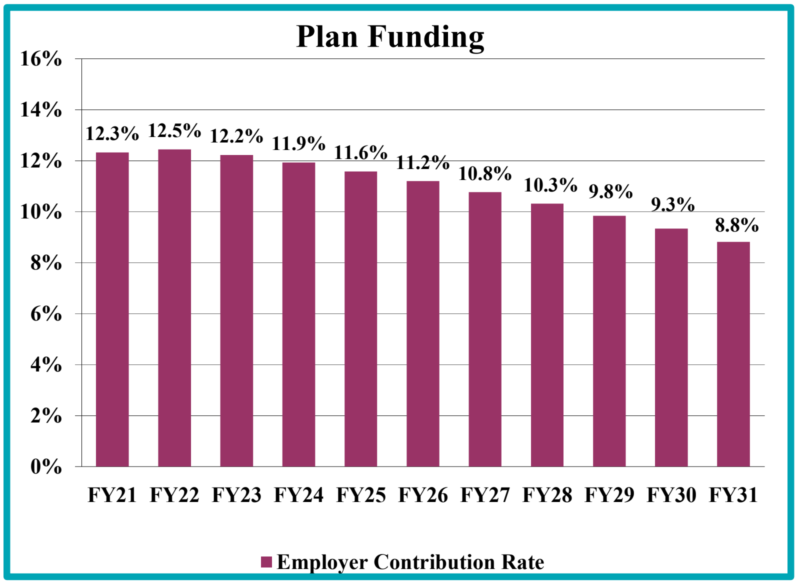
These graphs show the expected progress of the Plan over the next 10 years, assuming the Plan's assets earn 7.0% on a *market value* basis and assuming all other assumptions are exactly met, including that the actuarially determined contribution (ADC) amounts are made in full. The chart entitled "Plan Funding" shows an initial increase in the projected State ADC rate from 12.3% for FY 2021 to 12.5% for FY 2022 and then a decline to 11.5% at to 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 86% to 93% over the 10-year projection period, assuming all assumptions are exactly met.



SECTION I – BOARD SUMMARY

Projections with Asset Returns of 8.0%

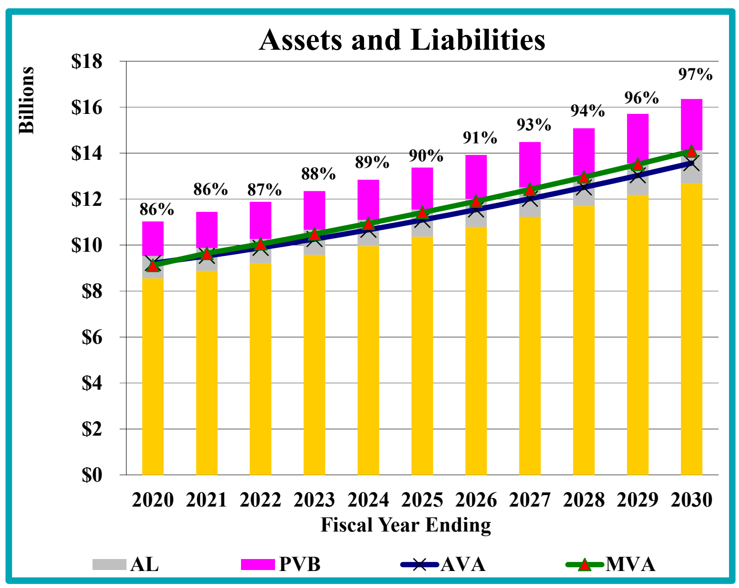


The Plan's investment earnings will affect the future funding status of the Plan. The two graphs on this page show what the next 10 years are expected to look like if the Plan's investment performance is 8.0% each year, 1.0% higher than the valuation investment rate of return assumption.

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

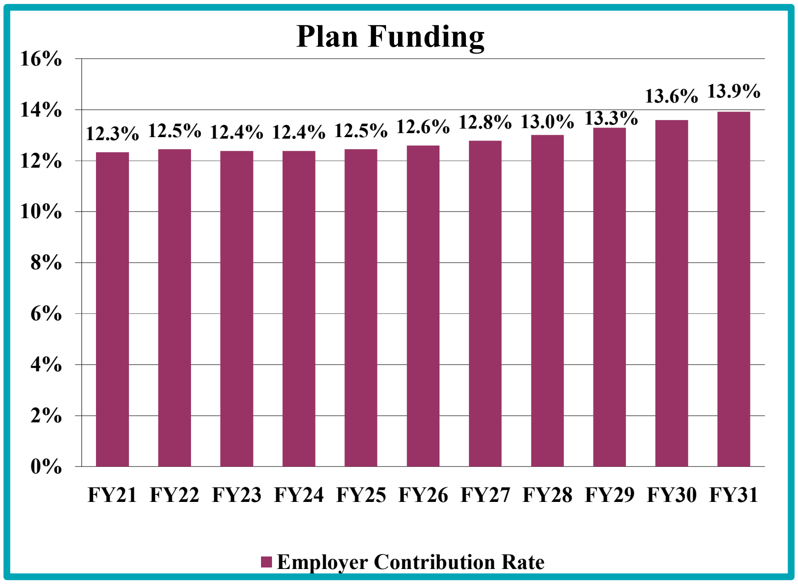
The "Plan Funding" graph shows that under this scenario, the State ADC rate would decrease more rapidly than in the baseline case. The rate declines to 8.8% of payroll at the end of the 10-year projection period.

The "Assets and Liabilities" graph shows that under this scenario, the Plan would reach a 97% funded ratio by 2030, an improvement over the baseline scenario's ultimate rate of 93%.



SECTION I – BOARD SUMMARY

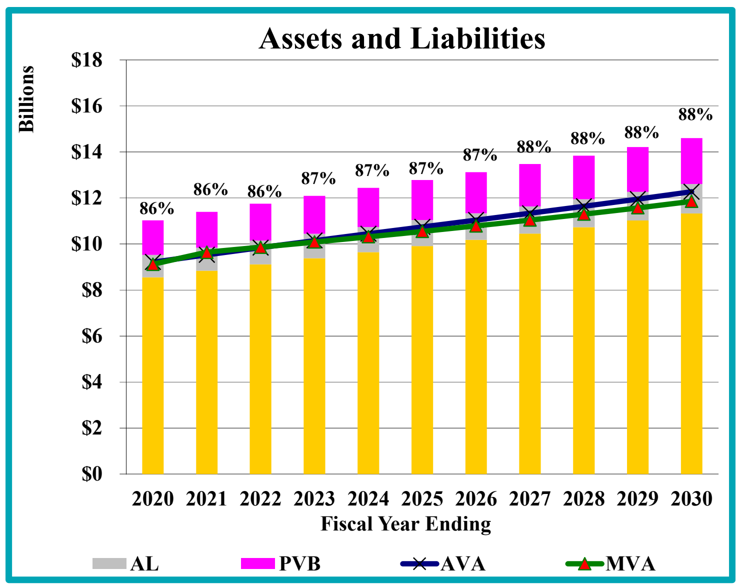
<u>Projections with Asset Returns of 6.0%</u>



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 approximately 13.9% of payroll by the end of the 10-year projection period, significantly greater than the 11.5% ultimate rate in the baseline projection. Additionally, the funded ratio is projected to be lower in this scenario, reaching 88% at the end of the 10-year projection period, lower than the 93% ultimate ratio in the baseline scenario.



SECTION I – BOARD SUMMARY

Table I-1 Summary of Principal Plan Results			
Valuation as of:	**June 30, 2019**	**June 30, 2020**	**% Change**
Member Counts			
Active Members	37,724	38,518	2.10%
Disabled Members	1,443	1,384	(4.09)%
Retirees and Beneficiaries	27,027	27,768	2.74%
Terminated Vested Members	3,896	3,950	1.39%
Terminated Non-Vested Members	968	822	(15.08)%
Long-term Disability Members	568	563	(0.88)%
Total Member Counts	**71,626**	**73,005**	**1.93%**
Covered Payroll of Active Members*	$ 2,116,353,600	$ 2,204,836,800	4.18%
Annual Benefit Payments for Retirees, Disabled Members, and Beneficiaries	$ 644,860,200	$ 667,146,100	3.46%
Assets and Liabilities			
Actuarial Liability (AL)	$ 10,772,258,000	$ 11,137,981,600	3.40%
Actuarial Value of Assets (AVA)	9,211,321,500	9,528,170,100	3.44%
Unfunded AL (UAL)	$ 1,560,936,500	$ 1,609,811,500	3.13%
Funded Ratio AVA Basis (AVA/AL)	85.5%	85.5%	
Funded Ratio on MVA Basis (MVA/AL)	84.6%	86.5%	
Present Value of Accrued Benefits (PVAB)	$ 9,594,834,600	$ 10,002,662,000	4.25%
Market Value of Assets (MVA)	9,116,517,300	9,638,828,400	5.73%
Unfunded PVAB	$ 478,317,300	$ 363,833,600	(23.93)%
Accrued Benefit Funded Ratio (MVA/PVAB)	95.0%	96.4%	
State Contribution Rate	**Fiscal Year 2021**	**Fiscal Year 2022**	
Entry Age Normal Cost	6.22%	6.13%	
UAL Amortization Payment	5.81%	6.02%	
Administrative Expense	0.30%	0.30%	
Actuarially Determined Contribution (ADC)	12.33%	12.45%	

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

SECTION II – RISK DISCLOSURES

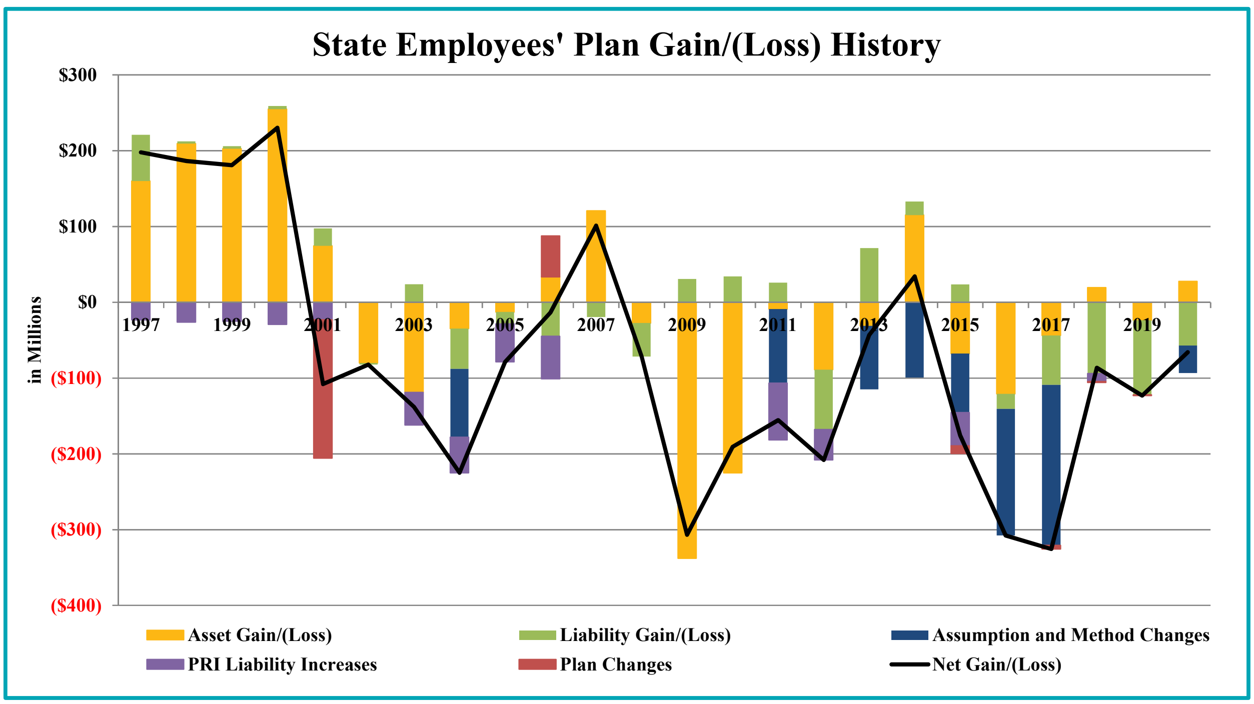
Introduction

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 regards 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 regards 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 assumption, 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

SECTION II – RISK DISCLOSURES

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. 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.

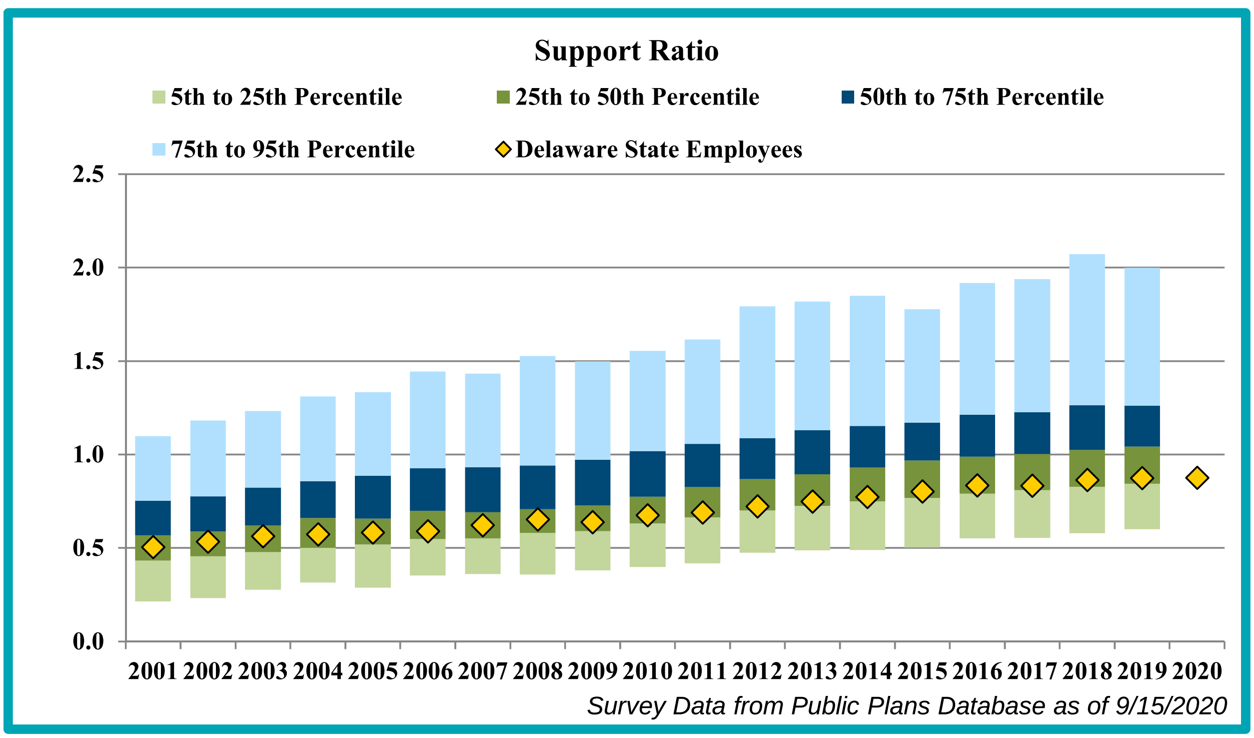
SECTION II – RISK DISCLOSURES

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.

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 slightly faster rate than 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 50th 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, 2019 and June 30, 2020,
- Statement of the **changes** in market values during FY 2020,
- 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, 2019 and June 30, 2020, along with the changes between the two.

Table III-1
Changes in Market Value of Assets

Market Value of Assets – June 30, 2019		**$ 9,116,517,300**
Additions		
Member Contributions	$ 74,166,700	
State Contributions	257,838,100	
PRI Transfers	5,650,100	
Investment Returns	866,090,800	
Total Additions	**$ 1,203,745,700**	
Deductions		
Benefit Payments	$ 675,380,100	
Administrative Expenses	6,054,500	
Total Deductions	**$ 681,434,600**	
Market Value of Assets – June 30, 2020		**$ 9,638,828,400**

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, 2020.

Table III-2
Development of Actuarial Value of Assets

1.	Actuarial Value of Assets at June 30, 2019	$ 9,211,321,500
2.	Amount in (1) with interest to June 30, 2020 at 7.0% per year	9,856,114,000
3.	State, PRI, and member contributions for FY 2020	337,654,900
4.	Interest on contributions assuming payments made uniformly throughout the year to June 30, 2020 at 7.0% per year	11,618,000
5.	Disbursements from Trust except investment expenses, June 30, 2019 through June 30, 2020	681,434,600
6.	Interest on disbursements to June 30, 2020 at 7.0% per year	23,446,800
7.	Expected Actuarial Value of Assets at June 30, 2020 = (2) + (3) + (4) – (5) – (6)	$ 9,500,505,500
8.	Actual Market Value of Assets at June 30, 2020	$ 9,638,828,400
9.	Excess of (8) over (7)	$ 138,322,900
10.	Actuarial Value of Assets at June 30, 2020 = (7) + 20% of (9)	$ 9,528,170,100

SECTION III – ASSETS

Investment Performance

The market value of assets (MVA) returned 9.7% during 2020, 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 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*
2020	$ 697,922,000	$ 355,640,000
2021	716,775,000	367,243,000
2022	736,276,000	376,424,000
2023	756,016,000	385,835,000
2024	775,483,000	395,481,000
2025	794,841,000	405,368,000
2026	815,193,000	415,502,000
2027	836,110,000	425,889,000
2028	857,154,000	436,537,000
2029	878,746,000	447,450,000

* 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 12.45% from FYE 2022 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, 2020. 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, 2019 and June 30, 2020, 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 and 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, 2019	June 30, 2020
Present Value of Benefits		
Active Member Benefits	$ 5,811,837,100	$ 6,059,221,900
Retiree, Beneficiary, Disabled, and Terminated Member Benefits	6,644,310,500	6,839,922,700
Present Value of Benefits (PVB)	**$ 12,456,147,600**	**$ 12,899,144,600**
Market Value of Assets (MVA)	$ 9,116,517,300	$ 9,638,828,400
Future Member Contributions	645,308,500	691,049,300
Future State Contributions & PRI Fund Transfers	2,694,321,800	2,569,266,900
Total Resources	**$ 12,456,147,600**	**$ 12,899,144,600**
Actuarial Liability		
Present Value of Benefits (PVB)	$ 12,456,147,600	$ 12,899,144,600
Present Value of Future State Normal Costs (PVFNC)	1,038,581,100	1,070,113,700
Present Value of Future Member Contributions (PVFEEC)	645,308,500	691,049,300
Actuarial Liability (AL=PVB–PVFNC–PVFEEC)	**$ 10,772,258,000**	**$ 11,137,981,600**
Actuarial Value of Assets (AVA)	9,211,321,500	9,528,170,100
Net (Surplus)/Unfunded AL (AL – AVA)	**$ 1,560,936,500**	**$ 1,609,811,500**
Present Value of Accrued Benefits		
Present Value of Benefits (PVB)	$ 12,456,147,600	$ 12,899,144,600
Present Value of Future Benefit Accruals (PVFBA)	2,861,313,000	2,896,482,600
Present Value of Accrued Benefits (PVAB=PVB–PVFBA)	**$ 9,594,834,600**	**$ 10,002,662,000**
Market Value of Assets (MVA)	$ 9,116,517,300	$ 9,638,828,400
Net (Surplus)/Unfunded PVAB (PVAB – MVA)	**$ 478,317,300**	**$ 363,833,600**

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, 2019	$ 12,456	$ 10,772	$ 9,595
Liabilities June 30, 2020	12,899	11,138	10,003
Liability Increase/(Decrease)	443	366	408
Change Due to:			
PRI	0	0	0
Actuarial (Gain)/Loss	NC*	57	NC*
Benefit Changes	0	0	0
Assumption Changes	39	36	123
Benefits Accumulated and Other (Gain)/Loss	404	273	285

*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, 2019	June 30, 2020
1. Actuarial Liabilities		
Retiree, Beneficiary, Disabled, and Terminated Members	$ 6,644,310,500	$ 6,839,922,700
Active Members	4,127,947,500	4,298,058,900
Total Actuarial Liability (AL)	**$ 10,772,258,000**	**$ 11,137,981,600**
2. Actuarial Value of Assets (AVA)	$ 9,211,321,500	$ 9,528,170,100
3. Unfunded Actuarial Liability (UAL) [AL – AVA]	$ 1,560,936,500	$ 1,609,811,500
4. Present Value of Outstanding PRI Transfers	$ 5,539,900	$ 0
5. Outstanding Base for 20-Year UAL Amortization (18 Years Remaining as of June 30, 2020)	$ 1,424,119,900	$ 1,408,951,600
6. Outstanding Base for 15-Year 2019 UAL Amortization (14 Years Remaining as of June 30, 2020)	N/A	$ 128,031,200
7. Net Base for 15-Year 2020 UAL Amortization (3-4-5-6)	**$ 131,276,700**	**$ 72,828,700**

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, 2019**	**June 30, 2020**
FY Contribution Rate Payable	**FY 2021**	**FY 2022**
State Entry Age Normal Cost Rate*	6.22%	6.13%
UAL Amortization Payment Rate*	5.81%	6.02%
Administrative Expense Rate	0.30%	0.30%
Actuarially Determined Contribution Rate	12.33%	12.45%

* *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 2022.

Table V-2
Expected FY 2022
State Contributions

	In Dollars	As % of Payroll
1. Present Value of Projected Benefits Attributable to:		
a. Total Normal Cost	$ 218,940,300	9.93%
b. Expected Member Contributions	83,783,800	3.80%
c. State Normal Cost (a) – (b)	$ 135,156,500	6.13%
2. Amortization of Unfunded Liability		
a. 18-year Amortization of 2018 UAL	$ 113,812,000	5.16%
b. 14-year Amortization of 2019 Layer	12,321,800	0.56%
c. 15-year Amortization of 2020 Layer	6,669,100	0.30%
d. Total Amortization	$ 132,802,900	6.02%
3. Allowance for Administrative Expense	$ 6,614,500	0.30%
4. Total State Actuarially Determined Contribution (1c) + (2d) + (3)	$ 274,573,900	12.45%

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, 2019 and June 30, 2020 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, 2019, to the liabilities as of June 30, 2020. These values are based on the funding liability results.

This valuation contains information reported in the June 30, 2020 Comprehensive Annual Financial Report (CAFR) of Delaware PERS under GASB Statement No. 67. Disclosures are based on the use of updated procedures to roll forward the 2019 funding valuation results. The calculation of Net Pension Liability in Table V-2 shows the amounts to be disclosed for FY 2020, based on the liabilities of the roll forward of the 2019 funding valuation, as well as a projection of the anticipated FY 2021 disclosures, based on liabilities from the 2020 funding valuation, assuming all actuarial assumptions are met over the coming year. The actual disclosures for FY 2021 will be developed once the asset measure for GASB as of June 30, 2021 is known.

Tables VI-3 through VI-5 are exhibits to be used for the State's CAFR. 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 CAFR.

SECTION VI – ACCOUNTING STATEMENT INFORMATION

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

	June 30, 2019	June 30, 2020
FASB ASC Topic No. 960 Basis		
1. Present Value of Accrued Benefits (PVAB)		
a. Members Currently Receiving Payments	$ 6,367,160,000	$ 6,548,190,100
b. Former Vested Members (and LTDs)	277,150,500	291,732,600
c. Active Members	2,950,524,100	3,162,739,300
2. Total PVAB [1(a) + 1(b) + 1(c)]	$ 9,594,834,600	$10,002,662,000
3. Market Value of Assets (MVA)	9,116,517,300	9,638,828,400
4. Unfunded PVAB [2 – 3]	$ 478,317,300	$ 363,833,600
5. Ratio of MVA to PVAB [3 / 2]	95.0%	96.4%
Reconciliation of PVAB		
PVAB at June 30, 2019		$ 9,594,834,600
Increase/(Decrease) During Year Attributable to:		
Passage of Time		648,399,900
Benefits Paid – FY 2020		(675,380,100)
Benefit Change		0
Assumption Changes		122,647,900
PRI		0
Benefits Accrued, Other Gains/Losses		312,159,700
Net Increase/(Decrease)		407,827,400
PVAB at June 30, 2020		$10,002,662,000

SECTION VI – ACCOUNTING STATEMENT INFORMATION

Table VI-2
GASB No. 67 Disclosures

	June 30, 2020	Estimated June 30, 2021
Total Pension Liability (TPL)		
Service cost	**$ 202,689,000**	**$ 218,898,000**
Interest	745,008,000	770,967,000
Changes in benefit terms	0	0
Differences between expected and actual experience	98,376,000	57,066,000
Changes in assumptions	0	36,342,000
Benefit payments, including refunds of member contributions	(675,380,000)	(697,922,000)
Net change in TPL	**$ 370,693,000**	**$ 385,351,000**
TPL - beginning	**$ 10,673,881,000**	**$ 11,044,574,000**
TPL - ending (a)	**$ 11,044,574,000**	**$ 11,429,925,000**
Fiduciary Net Position (FNP)		
Contributions - State	$ 257,838,000	$ 271,856,000
Contributions - Non-employer	5,650,000	0
Contributions - Member	74,167,000	83,784,000
Net investment income	866,091,000	662,713,000
Benefit payments, including refunds of member contributions	(675,380,000)	(697,922,000)
Administrative expenses	(6,055,000)	(6,615,000)
Net change in FNP	**$ 522,311,000**	**$ 313,816,000**
FNP - beginning	**$ 9,116,517,000**	**$ 9,638,828,000**
FNP - ending (b)	**$ 9,638,828,000**	**$ 9,952,644,000**
Net Pension Liability/(Asset) - ending [(a)-(b)]	**$ 1,405,746,000**	**$ 1,477,281,000**

Items printed in red will be replaced with actual amounts once known at the end of FY 2021.

SECTION VI – ACCOUNTING STATEMENT INFORMATION

Table VI-3
Note to Required Supplementary Information

The June 30, 2020 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, 2020
Valuation date:	July 1, 2019
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 2022 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, 2020
Valuation date:	July 1, 2020
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 (18 years remaining as of 6/30/2020), 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 2016. 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	2015	2016	2017	2018	2019	2020
Investment Income on Actuarial Assets	$ 10,364	$ (120,768)	$ (43,703)	$ 19,372	$ (23,701)	$ 27,665
Combined Liability Experience	23,571	(20,308)	(64,746)	(93,205)	(98,377)	(57,066)
(Loss)/Gain during Year from Financial Experience	$ 33,935	$ (141,076)	$ (108,449)	$ (73,833)	$ (122,078)	$ (29,401)
Non-Recurring Items	(132,191)	(167,455)	(211,698)	(11)	(874)	(36,342)
Composite Gain (or Loss) during Year	$ (98,256)	$ (308,531)	$ (320,147)	$ (73,844)	$ (122,952)	$ (65,743)

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)
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	5,641,344	3,196,831	8,460,614	100	100	67
2015	657,050	5,172,570	3,221,414	8,289,879	100	100	76

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, 2019 valuation	**37,724**	**2,834**	**1,062**	**23,145**	**99**	**1,445**	**568**	**3,778**	**5**	**70,660**
2. Additions										
(a) New entrants	3,708	87	2	70		2	3			3,872
(b) New Beneficiary/QDRO								315	1	316
(c) Total	3,708	87	2	70		2	3	315	1	4,188
3. Reductions										
(a) Terminated - not vested	(1,571)									(1,571)
(b) Paid Out/Expired/Death		(80)	(9)	(653)	(1)	(74)	(34)	(243)		(1,094)
(c) Total	(1,571)	(80)	(9)	(653)	(1)	(74)	(34)	(243)		(2,665)
4. Changes in status										
(a) P-TDV	(322)	378					(53)	(3)		
(b) P-SUPP		95	(95)							
(c) Returned to work	168	(122)	(22)	(9)			(15)			
(d) P-RET	(1,017)	(138)	(35)	1,241			(51)			
(e) PRET25	(24)				24					
(f) P-DIS	(8)	(2)				11	(1)			
(g) P-LTD	(140)	(5)		(1)			146			
(h) P-SURV				(1)				1		
(i) PSUR25										
(j) P-SR										
(k) Data corrections										
(l) Total	(1,343)	206	(152)	1,230	24	11	26	(2)		
5. June 30, 2020 valuation	**38,518**	**3,047**	**903**	**23,792**	**122**	**1,384**	**563**	**3,848**	**6**	**72,183**

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

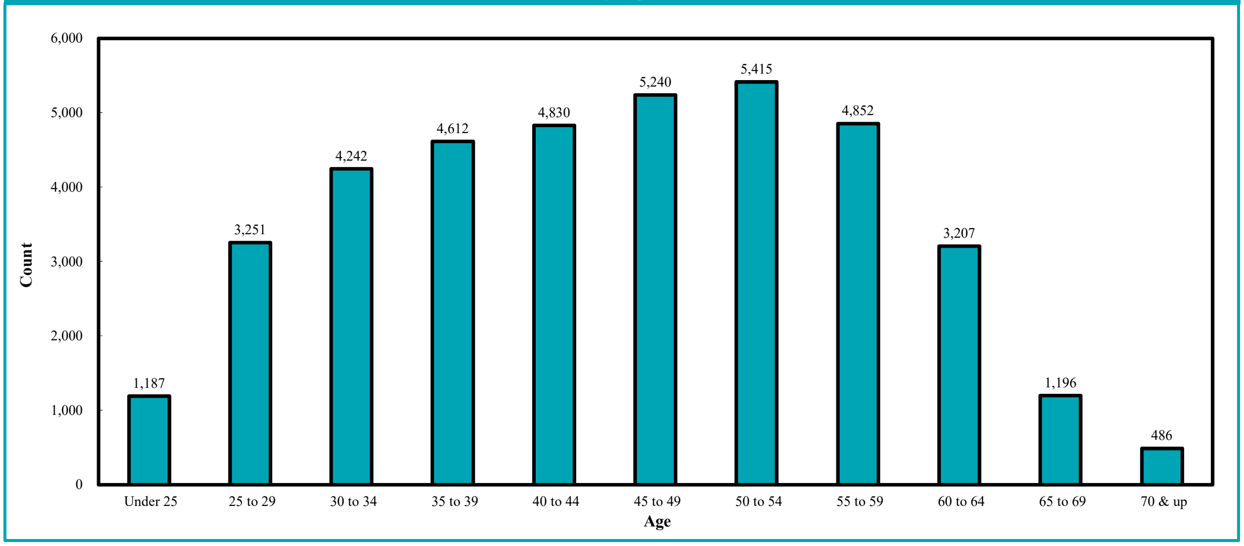
Delaware State Employees' Pension Plan Population Distribution of Active Members by Age and Service as of June 30, 2020

Counts By Age/Service

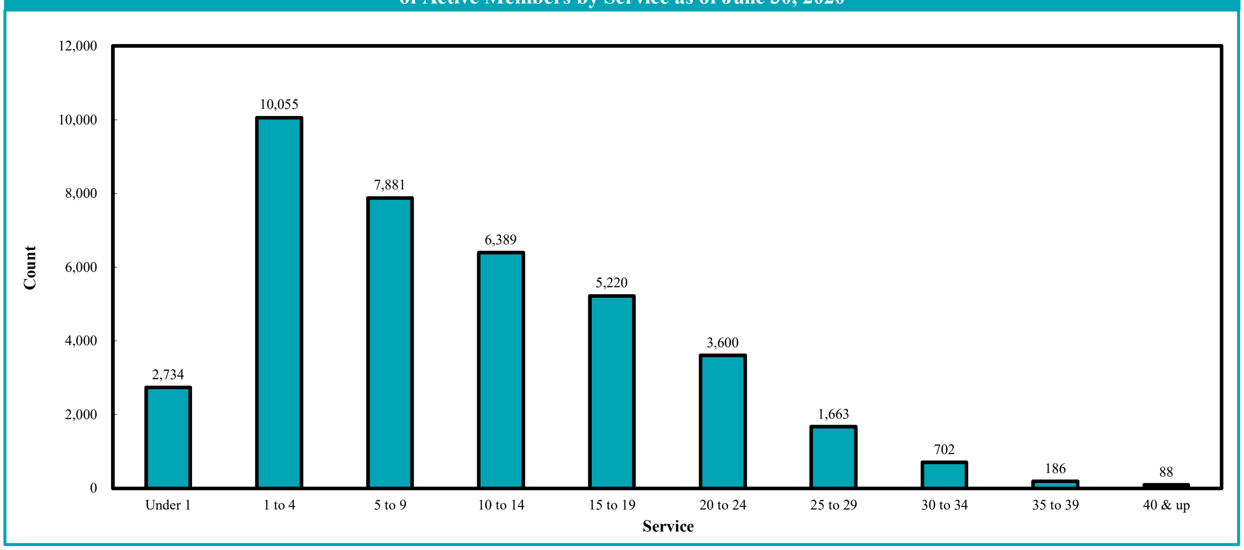
	Service										
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	**Total**
Under 25	463	717	7	0	0	0	0	0	0	0	1,187
25 to 29	519	2,135	596	1	0	0	0	0	0	0	3,251
30 to 34	365	1,660	1,684	522	11	0	0	0	0	0	4,242
35 to 39	313	1,199	1,178	1,409	502	11	0	0	0	0	4,612
40 to 44	286	1,074	965	966	1,144	387	8	0	0	0	4,830
45 to 49	240	1,016	874	890	924	1,038	249	9	0	0	5,240
50 to 54	212	879	949	900	877	805	615	173	5	0	5,415
55 to 59	178	682	807	805	898	691	425	298	65	3	4,852
60 to 64	93	446	523	591	580	473	246	144	86	25	3,207
65 to 69	47	163	213	217	196	149	86	64	25	36	1,196
70 & up	18	84	85	88	88	46	34	14	5	24	486
Total	2,734	10,055	7,881	6,389	5,220	3,600	1,663	702	186	88	38,518

APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Employees' Pension Plan Population Distribution of Active Members by Age as of June 30, 2020



Delaware State Employees' Pension Plan Population Distribution of Active Members by Service as of June 30, 2020

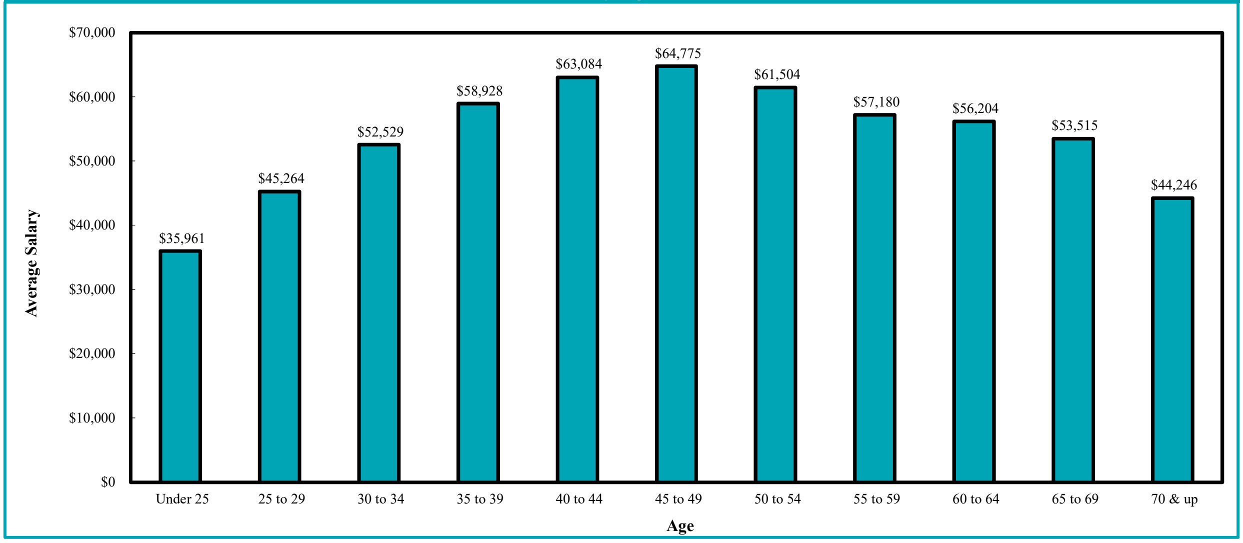


APPENDIX A – MEMBERSHIP INFORMATION

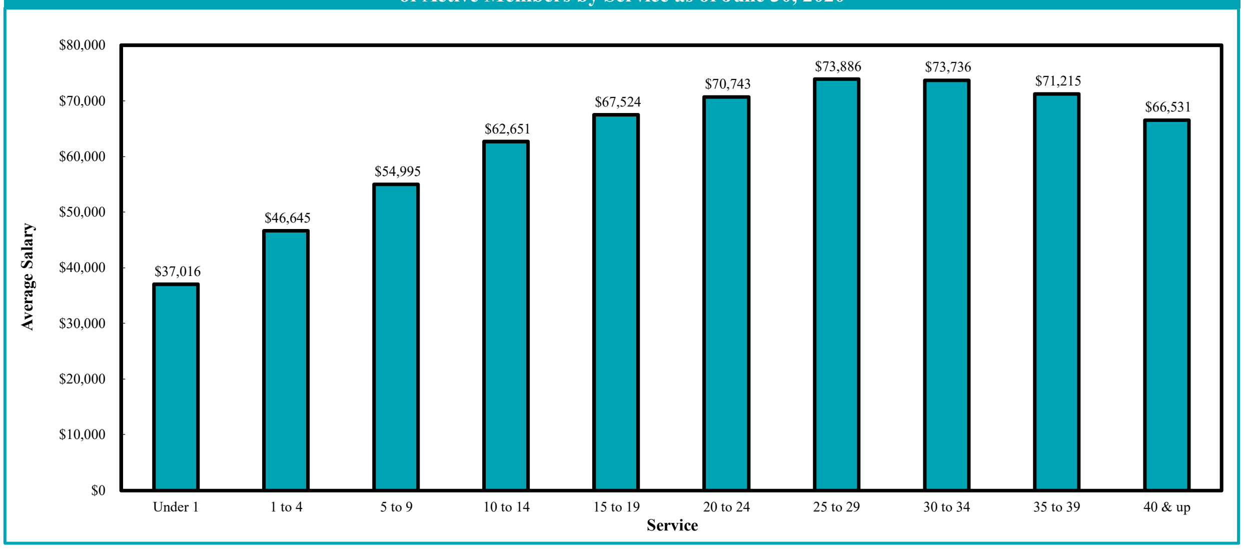
Delaware State Employees' Pension Plan Salary Distribution of Active Members by Age and Service as of June 30, 2020											
Average Salary by Age/Service											
	Service										
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	**Total**
Under 25	$ 31,825	$ 38,670	$ 31,955	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 35,961
25 to 29	36,833	45,469	51,870	44,647	0	0	0	0	0	0	45,264
30 to 34	36,547	48,105	56,732	64,436	42,225	0	0	0	0	0	52,529
35 to 39	38,411	48,553	58,965	68,075	70,896	51,861	0	0	0	0	58,928
40 to 44	41,742	49,563	58,602	69,029	75,996	74,594	60,375	0	0	0	63,084
45 to 49	39,796	51,431	58,628	65,175	72,234	79,270	75,778	52,513	0	0	64,775
50 to 54	38,798	48,494	53,513	59,967	65,848	71,432	79,365	75,327	68,941	0	61,504
55 to 59	39,645	45,142	50,013	55,881	60,665	62,512	69,840	74,795	68,193	57,782	57,180
60 to 64	32,120	41,623	49,583	53,889	60,373	63,580	69,752	73,247	75,166	66,222	56,204
65 to 69	37,305	38,897	44,640	53,055	56,005	65,006	65,068	71,641	67,567	65,452	53,515
70 & up	26,503	27,889	34,125	41,729	51,334	54,292	66,892	59,773	63,070	69,564	44,246
Total	$ 37,016	$ 46,645	$ 54,995	$ 62,651	$ 67,524	$ 70,743	$ 73,886	$ 73,736	$ 71,215	$ 66,531	$ 57,241

APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Employees' Pension Plan Salary Distribution of Active Members by Age as of June 30, 2020



Delaware State Employees' Pension Plan Salary Distribution of Active Members by Service as of June 30, 2020



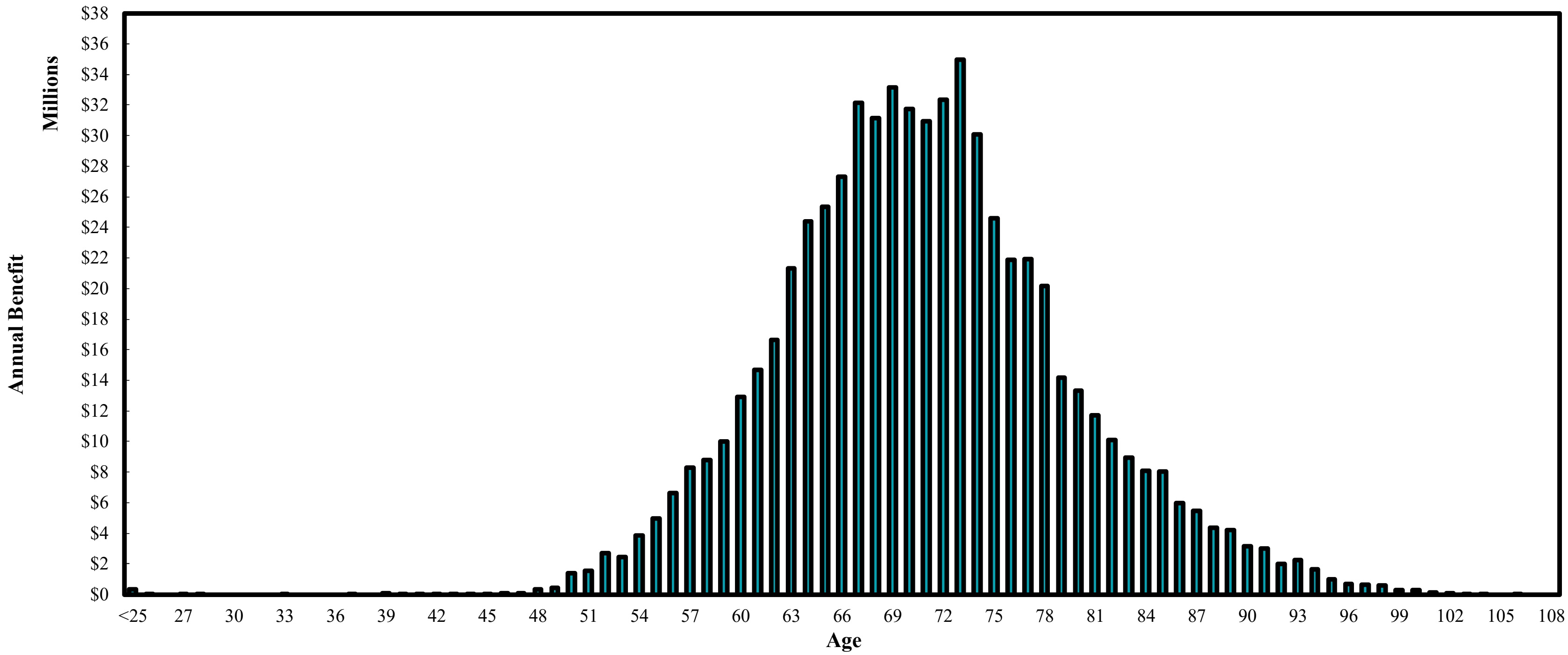
APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Employees' Pension Plan Annual Benefit Distribution by Age of Retired Members and Beneficiaries as of June 30, 2020

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	52	$ 347,623	73	1,399	$ 34,969,543
25	1	14,472	74	1,189	30,077,331
26	0	-	75	953	24,573,179
27	1	14,233	76	865	21,882,306
28	1	37,053	77	950	21,922,331
29	0	-	78	898	20,169,222
30	0	-	79	688	14,169,705
31	0	-	80	674	13,306,744
32	0	-	81	602	11,686,187
33	1	5,381	82	549	10,118,311
34	0	-	83	500	8,950,116
35	0	-	84	449	8,059,775
36	0	-	85	478	8,041,817
37	1	18,284	86	402	5,960,224
38	0	-	87	380	5,444,621
39	4	72,821	88	339	4,353,823
40	1	23,619	89	305	4,202,966
41	3	21,952	90	250	3,132,481
42	6	30,730	91	213	2,985,897
43	4	12,643	92	178	1,975,702
44	5	47,912	93	177	2,225,143
45	2	53,201	94	130	1,623,229
46	6	85,661	95	97	969,414
47	9	93,832	96	62	699,113
48	17	325,642	97	50	631,193
49	27	448,415	98	57	584,560
50	53	1,376,268	99	22	257,845
51	70	1,540,641	100	18	265,404
52	90	2,683,767	101	14	131,852
53	95	2,460,343	102	10	68,080
54	128	3,876,366	103	4	28,808
55	166	4,941,705	104	2	12,947
56	216	6,618,606	105	0	-
57	286	8,304,958	106	2	49,560
58	299	8,783,498	107	0	-
59	345	9,983,245	108	0	-
60	440	12,910,208	109	0	-
61	507	14,686,954	110	0	-
62	608	16,648,162	111	0	-
63	848	21,338,863	112	0	-
64	978	24,396,142	113	0	-
65	1,000	25,369,595	114	0	-
66	1,113	27,302,022	115	0	-
67	1,196	32,145,831	116	0	-
68	1,235	31,131,698	117	0	-
69	1,262	33,167,134	118	0	-
70	1,278	31,733,139	119	0	-
71	1,240	30,949,470	120	0	-
72	1,268	32,358,820			
			Totals	27,768	$649,890,338

APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Employees' Pension Plan Annual Benefit Distribution by Age of Retired Members and Beneficiaries as of June 30, 2020



APPENDIX A – MEMBERSHIP INFORMATION

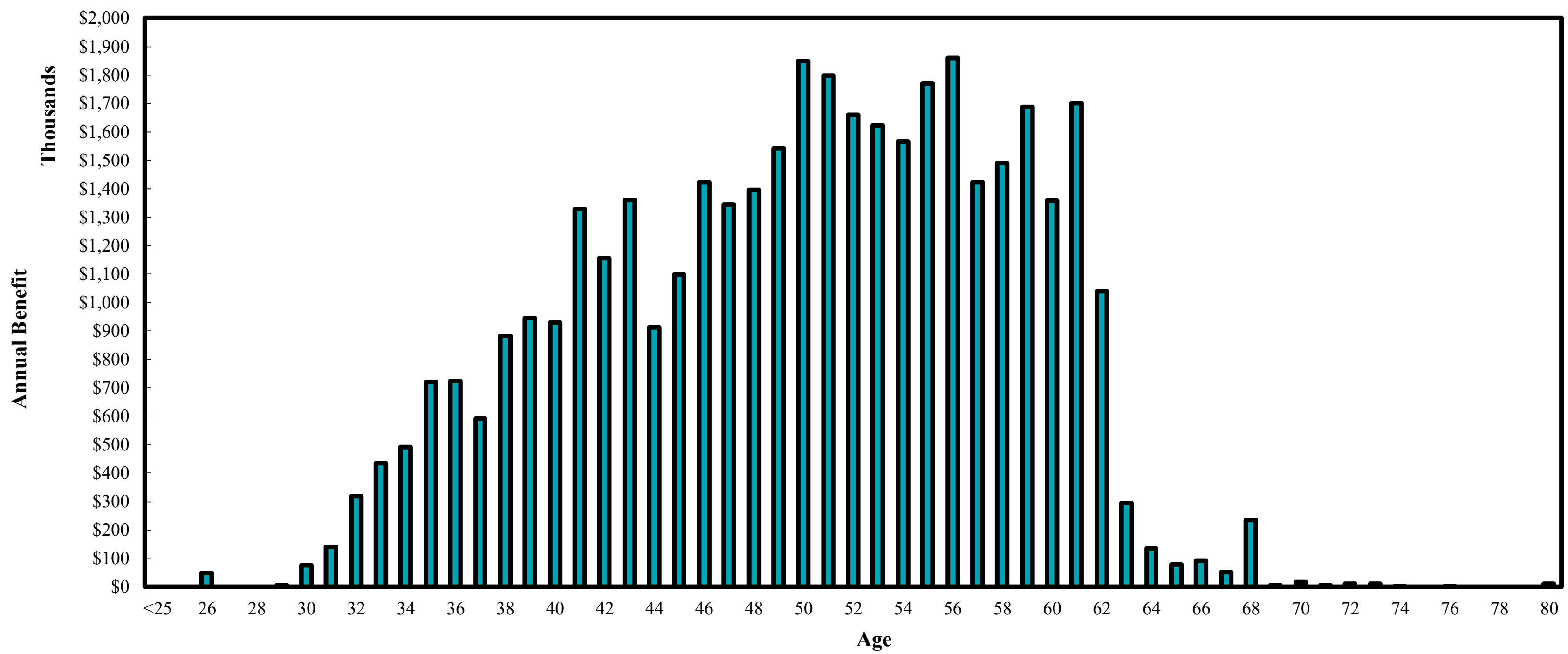
Delaware State Employees' Pension Plan Annual Benefit Distribution by Age of Vested Members as of June 30, 2020

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	0	$ -	73	1	$ 10,356
25	0	-	74	1	214
26	1	50,294	75	0	-
27	0	-	76	2	3,002
28	0	-	77	0	-
29	1	4,828	78	0	-
30	9	76,204	79	0	-
31	21	140,547	80	3	12,238
32	42	319,750	81	0	-
33	63	435,975	82	0	-
34	74	492,913	83	1	5,069
35	89	720,451	84	0	-
36	83	724,082	85	0	-
37	84	590,527	86	0	-
38	101	882,351	87	0	-
39	106	944,615	88	0	-
40	116	929,126	89	0	-
41	131	1,329,107	90	0	-
42	120	1,155,954	91	0	-
43	129	1,359,611	92	0	-
44	91	914,136	93	0	-
45	102	1,098,754	94	0	-
46	126	1,422,286	95	0	-
47	134	1,344,851	96	0	-
48	137	1,396,427	97	0	-
49	137	1,543,106	98	0	-
50	146	1,850,847	99	0	-
51	157	1,798,926	100	0	-
52	150	1,660,900	101	0	-
53	149	1,622,325	102	0	-
54	152	1,567,201	103	0	-
55	163	1,771,679	104	0	-
56	160	1,860,240	105	0	-
57	138	1,423,425	106	0	-
58	164	1,490,628	107	0	-
59	168	1,687,644	108	0	-
60	144	1,357,216	109	0	-
61	166	1,700,643	110	0	-
62	108	1,040,883	111	0	-
63	19	295,774	112	0	-
64	22	135,282	113	0	-
65	10	78,112	114	0	-
66	7	93,535	115	0	-
67	7	51,569	116	0	-
68	8	235,209	117	0	-
69	2	6,073	118	0	-
70	2	16,258	119	0	-
71	2	4,669	120	0	-
72	1	10,733			
			Totals	3,950	$ 39,666,545

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, 2020



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

APPENDIX A – MEMBERSHIP INFORMATION

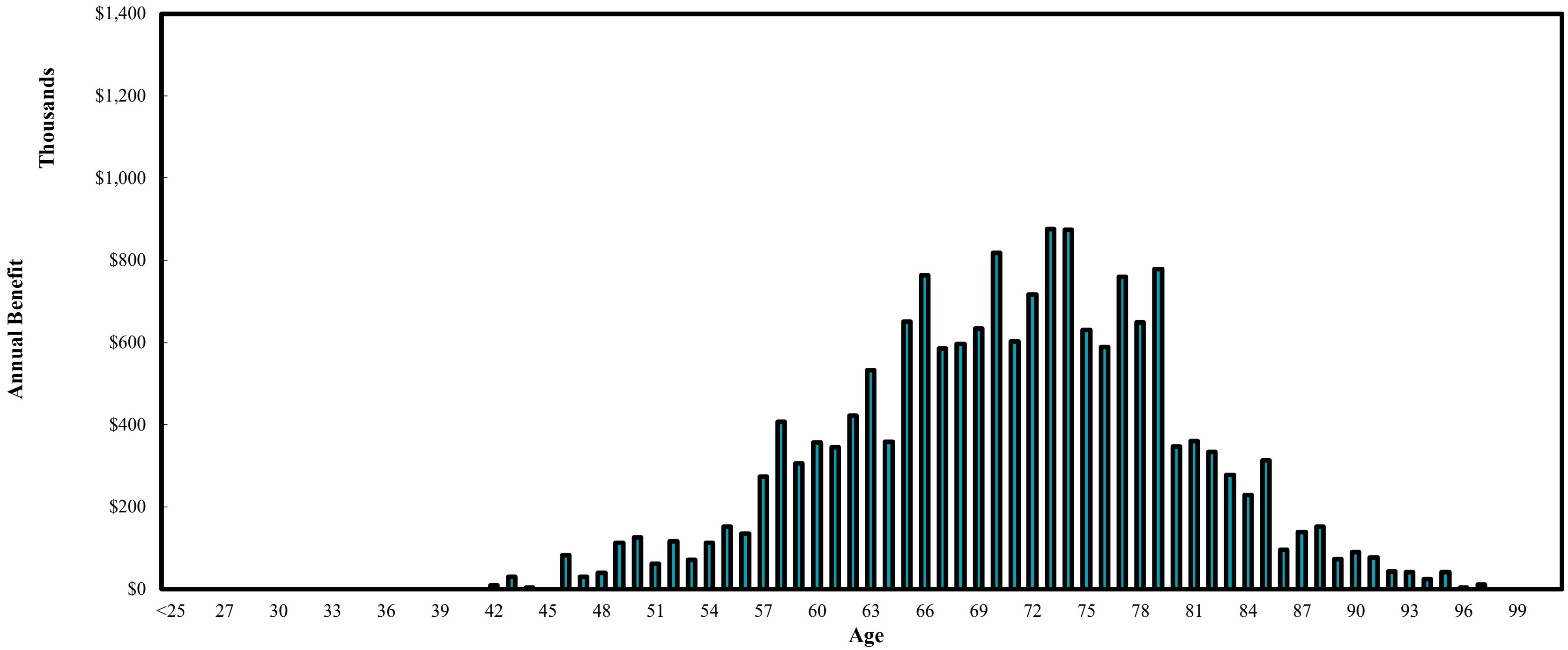
Delaware State Employees' Pension Plan Annual Benefit Distribution by Age of Disabled Members as of June 30, 2020

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	0	$ -	73	63	$ 875,470
25	0	-	74	62	874,300
26	0	-	75	48	630,515
27	0	-	76	43	588,294
28	0	-	77	56	759,398
29	0	-	78	49	649,364
30	0	-	79	53	778,261
31	0	-	80	22	346,466
32	0	-	81	33	359,414
33	0	-	82	29	334,054
34	0	-	83	23	278,060
35	0	-	84	18	228,859
36	0	-	85	26	312,718
37	0	-	86	12	95,472
38	0	-	87	12	138,931
39	0	-	88	14	151,814
40	0	-	89	5	73,570
41	0	-	90	9	90,503
42	1	8,318	91	12	77,191
43	3	30,418	92	5	43,860
44	1	4,179	93	3	41,020
45	0	-	94	1	24,618
46	5	83,286	95	2	40,546
47	3	29,576	96	1	3,960
48	4	38,745	97	1	11,954
49	9	112,483	98	0	-
50	11	125,829	99	0	-
51	3	62,365	100	0	-
52	9	116,247	101	0	-
53	9	70,598	102	0	-
54	13	112,960	103	0	-
55	16	151,432	104	0	-
56	16	134,912	105	0	-
57	21	274,328	106	0	-
58	26	406,728	107	0	-
59	25	306,128	108	0	-
60	31	356,707	109	0	-
61	33	344,616	110	0	-
62	32	421,315	111	0	-
63	37	532,891	112	0	-
64	40	357,876	113	0	-
65	55	650,872	114	0	-
66	54	762,993	115	0	-
67	50	584,517	116	0	-
68	53	596,167	117	0	-
69	49	633,385	118	0	-
70	56	818,302	119	0	-
71	56	602,388	120	0	-
72	61	716,541			
			Totals	1,384	$ 17,255,713

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, 2020

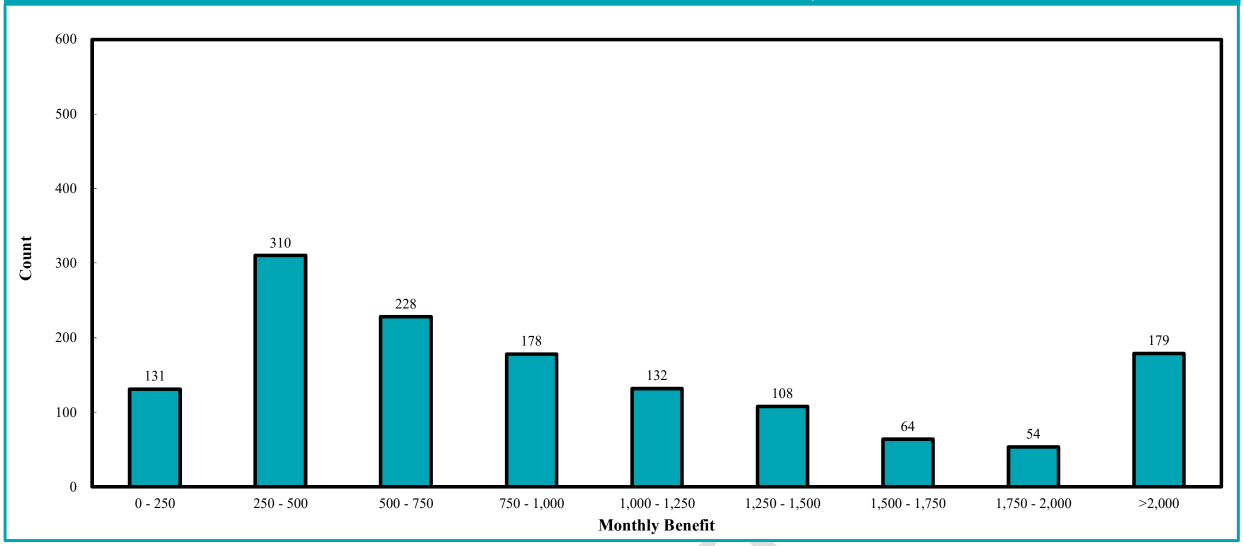


APPENDIX A – MEMBERSHIP INFORMATION

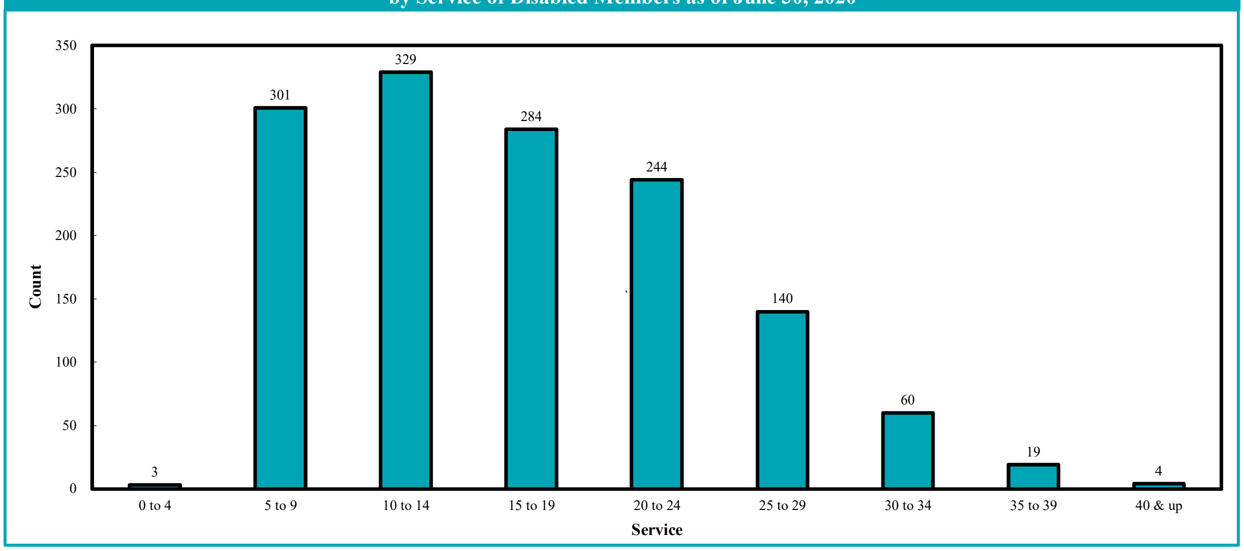
Delaware State Employees' Pension Plan Annual Benefit Distribution by Service of Disabled Members as of June 30, 2020										
Counts By Benefit/Service										
Monthly	**Service**									
Benefit	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	**Total**
0 - 250	0	119	12	0	0	0	0	0	0	131
250 - 500	2	145	123	32	7	1	0	0	0	310
500 - 750	1	24	112	59	28	4	0	0	0	228
750 - 1,000	0	9	40	79	37	9	4	0	0	178
1,000 - 1,250	0	2	21	44	49	13	3	0	0	132
1,250 - 1,500	0	1	12	32	41	17	4	1	0	108
1,500 - 1,750	0	1	5	14	22	18	4	0	0	64
1,750 - 2,000	0	0	1	10	22	14	4	3	0	54
>2,000	0	0	3	14	38	64	41	15	4	179
Total	3	301	329	284	244	140	60	19	4	1,384

APPENDIX A – MEMBERSHIP INFORMATION

Delaware State Employees' Pension Plan Annual Benefit Distribution of Disabled Members as of June 30, 2020



Delaware State Employees' Pension Plan Annual Benefit Distribution by Service of Disabled Members as of June 30, 2020



APPENDIX A – MEMBERSHIP INFORMATION

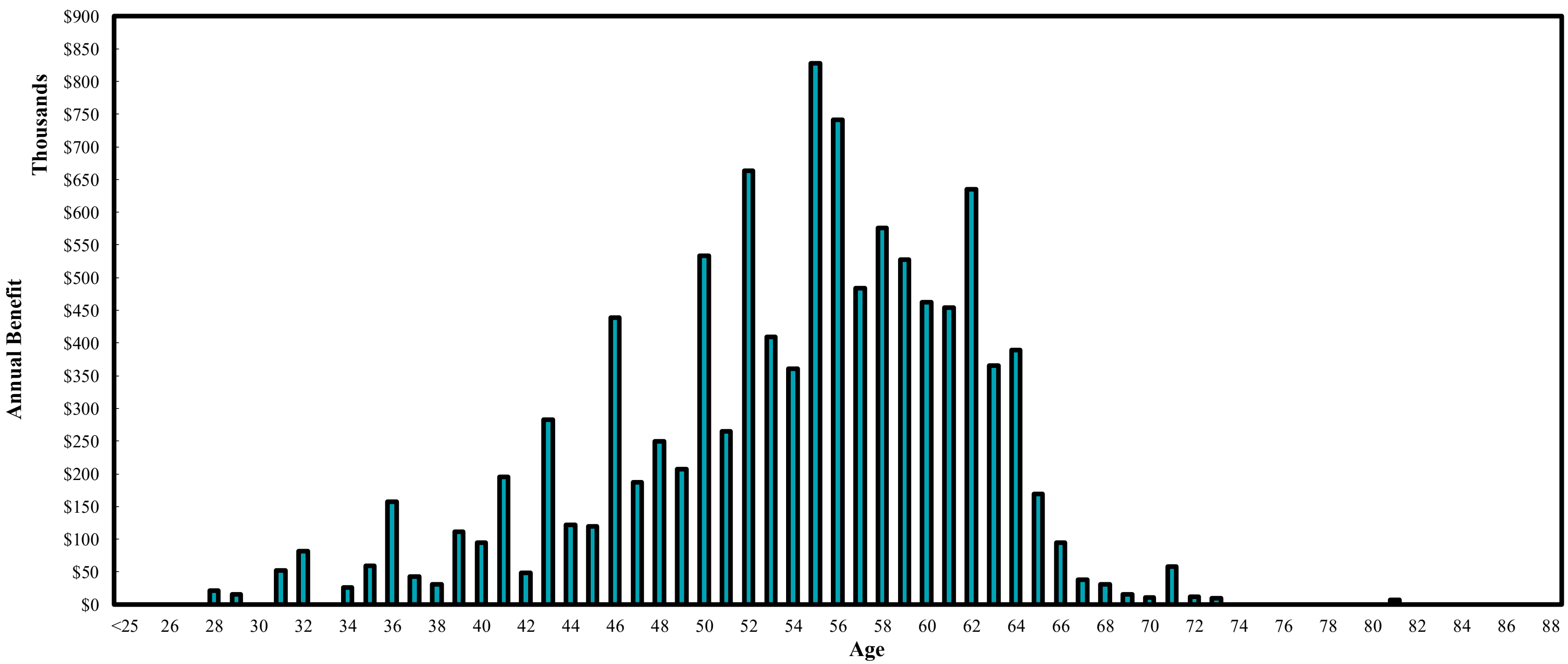
Delaware State Employees' Pension Plan Annual Benefit Distribution by Age of Long-Term Disability Members as of June 30, 2020

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	0	$ -	73	1	$ 9,434.61
25	0	-	74	0	-
26	0	-	75	0	-
27	0	-	76	0	-
28	1	21,342	77	0	-
29	1	16,000	78	0	-
30	0	-	79	0	-
31	2	51,916	80	0	-
32	3	81,659	81	1	7,319
33	0	-	82	0	-
34	1	26,341	83	0	-
35	3	58,998	84	0	-
36	8	157,182	85	0	-
37	2	42,548	86	0	-
38	2	30,489	87	0	-
39	5	111,405	88	0	-
40	4	95,390	89	0	-
41	8	195,635	90	0	-
42	2	48,181	91	0	-
43	11	282,813	92	0	-
44	5	121,698	93	0	-
45	8	119,612	94	0	-
46	17	439,248	95	0	-
47	9	187,533	96	0	-
48	11	249,534	97	0	-
49	8	207,433	98	0	-
50	21	533,139	99	0	-
51	13	265,048	100	0	-
52	26	663,237	101	0	-
53	21	408,910	102	0	-
54	22	360,639	103	0	-
55	37	827,142	104	0	-
56	34	741,188	105	0	-
57	28	483,343	106	0	-
58	31	575,945	107	0	-
59	31	528,031	108	0	-
60	27	462,351	109	0	-
61	29	453,975	110	0	-
62	38	635,317	111	0	-
63	25	365,920	112	0	-
64	29	389,162	113	0	-
65	17	169,276	114	0	-
66	6	94,341	115	0	-
67	3	37,672	116	0	-
68	3	30,433	117	0	-
69	1	16,219	118	0	-
70	3	10,796	119	0	-
71	2	58,382	120	0	-
72	3	12,026			
			Totals	563	$ 10,684,201

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, 2020



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

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):

(2020 Values Shown)		
Age	Male	Female
25	5	2
30	4	2
35	5	3
40	6	4
45	10	6
50	17	10
55	29	16
60	49	24
65	87	36
70	148	61
75	251	106
80	425	183

Rates are based on 110% and 100% of the RP-2014 Total Dataset Employee Mortality Table, respectively, for males and females, using the RP-2014 Total Dataset Healthy Annuitant Mortality Table rates after the end of the Employee Mortality Table, both projected from the 2006 base rates using the RPEC-2015 model, with an ultimate rate of 0.85% for ages 20-85, grading down to an ultimate rate of 0% for ages 115-120, and convergence to the ultimate rate in the year 2020. The valuation uses fully generational projection of mortality improvements. Sample rates shown are those projected through the valuation date.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

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

(2020 Values Shown)		
Age	Male	Female
50	42	26
55	60	35
60	81	51
65	115	78
70	179	125
75	291	206
80	490	348
85	855	617
90	1,524	1,116
95	2,431	1,856
100	3,482	2,782

Rates are based on 110% and 100% of the RP-2014 Total Dataset Healthy Annuitant Mortality Table, respectively, for males and females, using the RP-2014 Total Dataset Employee Mortality Table for ages prior to start of the Healthy Annuitant Mortality Table, both projected from the 2006 base rates using the RPEC-2015 model, with an ultimate rate of 0.85% for ages 20-85, grading down to an ultimate rate of 0% for ages 115-120, and convergence to the ultimate rate in the year 2020. The valuation uses fully generational projection of mortality improvements. Sample rates shown are those projected through the valuation date.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

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

(2020 Values Shown)		
Age	Male	Female
25	89	27
30	86	34
35	101	47
40	121	65
45	188	102
50	231	133
55	266	168
60	303	200
65	362	243
70	469	330
75	642	484
80	915	730
85	1,364	1,107
90	2,116	1,658
95	2,999	2,437
100	3,953	3,429

Rates are based on 120% of the RP-2014 Total Dataset Disabled Annuitant Mortality Table, projected from the 2006 base rates using the RPEC-2015 model, with an ultimate rate of 0.85% for ages 20-85, grading down to an ultimate rate of 0% for ages 115-120, and convergence to the ultimate rate in the year 2020. The valuation uses fully generational projection of mortality improvements. Sample rates shown are those projected through the valuation date.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

b. Sample Rates of Active Disability

Rates of Active Disability	
Age	Rates
20	0.0522%
25	0.0522
30	0.1831
35	0.2694
40	0.3821
45	0.4643
50	0.6214
55	0.8579
60	1.0699

Rates of Active Disability for those who opted into the Disability Insurance Program*	
Age	Rates
65	1.3018%
70	1.3464
75	1.7914
80	1.0234

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

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

Rates of Termination*	
Service	Rates
0	16.5%
1	15.5
2	11.0
3	9.0
4	7.5
5	6.5
6	5.0
7	4.5
8	4.0
9	3.5
10-11	3.0
12-13	2.5
14-15	2.0
16-18	1.5
19-24	1.0
25+	0.0

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

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

d. Rates of Retirement

Employees (including Elected Officials and Correctional Officers/Specified Peace Officers):

	Retirement Rates*	
Service	Early**	Normal
5-14	0.00%	15.00%
15	7.50%	20.00%
16	5.00%	17.50%
17	5.00%	15.00%
18	5.00%	12.50%
19	5.00%	15.00%
20	7.50%	30.00%
21	7.50%	27.50%
22-23	7.50%	20.00%
24	7.50%	17.50%
25	10.00%	27.50%
26	5.00%	20.00%
27-28	5.00%	25.00%
29	12.50%	25.00%
30	N/A	25.00%
>=31	N/A	20.00%

* Rates only applicable if member meets eligibility.

** Early retirement is increased by 5% for Correctional Officers (HB207, SB50, HB363, HB41, HB43, HB179, and HA1 Employees) where their early retirement is unreduced.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

e. Salary Increase Rates

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

Service	Increase
0	11.50%
1	7.50
2	6.25
3	5.75
4	5.50
5	5.15
6	4.80
7	4.60
8	4.20
9	4.00
10	3.80
11	3.70
12	3.50
13	3.35
14	3.20
15	3.10
16	3.00
17	2.90
18	2.80
19	2.70
20	2.60
21+	2.50

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. Salary adjustment: Salaries for FY 2019 reduced by $500 to reflect effect of SB 236 for actives who joined the Plan by July 8, 2018

f. 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. 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 2016 and covering the period July 1, 2010 through June 30, 2015. 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.

5. Changes and Rationale Since Last Valuation

None

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 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 and Rationale 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.

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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 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: ten 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.

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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

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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

None