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Disability Income Plan of North Carolina Principal Actuarial Valuation Results as of December 31, 2019

October 29, 2020 Board of Trustees Meeting

Larry Langer, ASA, FCA, EA, MAAA

Wendy Ludbrook FSA, FCA, EA, MAAA



Disability Income Plan
Principal December 31, 2019
Actuarial Valuation Results



| Valuation Results as of | December 31, 2019 | December 31, 2018 |
|--|----------------------|----------------------|
| Active Members | | |
| Teachers' and State Employees' Retirement System (TSERS) | 305,962 | 304,575 |
| Optional Retirement Program (ORP) | <u>22,052</u> | <u>20,541</u> |
| Total | 328,014 | 325,116 |
| Reported Compensation | | |
| TSERS | \$ 14,886,467,797 | \$ 14,436,435,848 |
| ORP | <u>2,047,379,956</u> | <u>1,893,122,205</u> |
| Total | \$ 16,933,847,753 | \$ 16,329,558,053 |
| Valuation Compensation* | | |
| TSERS | \$ 16,105,740,207 | \$ 15,623,198,876 |
| ORP | <u>2,253,346,631</u> | <u>2,098,399,045</u> |
| Total | \$ 18,359,086,838 | \$ 17,721,597,921 |
| Number of beneficiaries receiving extended short-term or long-term disability benefits | 5,684 | 6,103 |
| Annual reported benefits | \$ 63,083,128 | \$ 70,143,160 |

* Reported compensation adjusted to reflect the assumed rate of pay increase prior to the valuation date.

Disability Income Plan
Principal December 31, 2019
Actuarial Valuation Results



| Asset and Liabilities as of | December 31, 2019 | December 31, 2018 |
|--|-------------------|-------------------|
| Assets | | |
| Actuarial Value | \$ 361,335,426 | \$ 389,599,221 |
| Market Value | \$ 363,446,509 | \$ 372,914,790 |
| Liability for currently disabled members | \$ 271,027,525 | \$ 291,049,647 |
| Deficit/(Surplus) versus Actuarial Value | \$ (90,307,901) | \$ (98,549,574) |
| ADC Rate for Fiscal Year Ending (FYE) | June 30, 2022 | June 30, 2021 |
| Preliminary Actuarially Determined Contribution (ADC) Rate | | |
| Normal Cost | 0.09% | 0.09% |
| Accrued Liability | <u>N/A</u> | <u>N/A</u> |
| Total | 0.09% | 0.09% |
| Impact of Legislative Changes | 0.00% | 0.00% |
| Final ADC Rate** | 0.09% | 0.09% |

** For FYE 2022, the final ADC Rate may be adjusted to reflect Plan changes that occur after the date of this report.

Disability Income Plan Employer Contribution Rate History



| Valuation Date | Fiscal Year Ending | Preliminary ADC Rate | Change Due to Legislation | Final ADC Rate | Appropriated Rate |
|----------------|--------------------|----------------------|---------------------------|--------------------|-------------------|
| 12/31/2019 | 6/30/2022 | 0.09% | 0.00% | 0.09% ¹ | TBD |
| 12/31/2018 | 6/30/2021 | 0.09% | 0.00% | 0.09% | 0.09% |
| 12/31/2017 | 6/30/2020 | 0.15% | (0.05%) | 0.10% | 0.10% |
| 12/31/2016 | 6/30/2019 | 0.13% | 0.00% | 0.13% | 0.14% |
| 12/31/2015 | 6/30/2018 | 0.14% | 0.00% | 0.14% | 0.14% |
| 12/31/2014 | 6/30/2017 | 0.38% | 0.00% | 0.38% | 0.38% |

¹ This ADC Rate is a preliminary rate that will become the final ADC Rate if no legislation is enacted after the date that this report is issued that would affect the determination of the ADC Rate for the fiscal year ending in 2022.



Certification

Cavanaugh Macdonald Consulting, LLC was retained as the actuary for the Disability Income Plan of North Carolina (the Plan) and has prepared this December 31, 2019 actuarial valuation report for the Plan. The information contained in this report is intended to be used by the Board of Trustees for the Teachers' and State Employees' Retirement System of North Carolina (System) for the purposes stated herein, and its use for other purposes may not be appropriate. Calculations for purposes other than those described in this report may produce significantly different results.

Additional information and disclosures related to the census and financial data, assumptions, methods, and Plan information provided by the System for valuation purposes can be found in the unabridged December 31, 2019 actuarial valuation report for the Plan. Results prior to December 31, 2017 were provided by the prior consulting actuary.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. Retiree group benefits models necessarily rely on the use of approximations and estimates, and small variations in these approximations and estimates may lead to significant changes in actuarial measurements. Because of limited scope, Cavanaugh Macdonald Consulting performed no analysis of the potential range of such future differences, except for some limited analysis in required disclosure information. **This report does not consider all possible scenarios.**



Certification

The funded status measurements included in this report are based on the assumptions and methods used as of the valuation and/or measurement date. These funded status measurements do not indicate whether or not the Plan would have sufficient assets if it were terminated, nor do they indicate what level of future contributions would be required. Funded status measurements would also be different if the market value of assets was used in these calculations instead of an actuarial value of assets.

Cavanaugh Macdonald Consulting does not provide legal, investment, or accounting advice. Thus, the information in this report is not intended to supersede or supplant the advice and interpretations of the System, OSC, or their legal, investing, or accounting partners.

The undersigned are familiar with the near-term and/or long-term aspects of other postemployment benefit plan valuations and collectively meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained in this report. All sections of this report, including any appendices and attachments, are considered an integral part of the actuarial opinions.



Certification

This report has been prepared in accordance with Actuarial Standard of Practice No. 6, as well as all other applicable Actuarial Standards of Practice, and we are available to answer questions about it.

Larry Langer, ASA, EA, FCA, MAAA
Principal and Consulting Actuary

Jonathan Craven, ASA, EA, FCA, MAAA
Consulting Actuary

Alisa Bennett, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

Wendy Ludbrook, FSA, EA, FCA, MAAA
Senior Actuary



Cavanaugh Macdonald
CONSULTING, LLC

The experience and dedication you deserve

Disability Income Plan of North Carolina

Report on the Annual Valuation
Prepared as of December 31, 2019

October 2020





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

October 8, 2020

Board of Trustees
Teachers' and State Employees' Retirement System of North Carolina
3200 Atlantic Avenue
Raleigh, NC 27604

Members of the Board:

This report presents the results of the actuarial valuation of the Disability Income Plan of North Carolina (referred to as "DIPNC", "Disability Income Plan", or "Plan"), prepared as of December 31, 2019.

The primary purpose of the valuation report is to provide the actuarially determined employer contribution rates for DIPNC during the fiscal year ending on June 30, 2022, to describe the current financial condition of DIPNC, to analyze changes in such condition, and to summarize the census data, financial information, assumptions, methods, and plan provisions used to prepare these results.

In addition, the report contains information that will be used by the Office of the State Controller (OSC) in its Comprehensive Annual Financial Report (CAFR), and provides the DIPNC information required under Governmental Accounting Standards Board (GASB) Statement No. 74 for the fiscal year ending on June 30, 2020 based on a valuation date of December 31, 2019.

Additional Information and Disclosures

The information contained in this report is intended to be used by the Board of Trustees for the Teachers' and State Employees' Retirement System of North Carolina (System) for Plan funding purposes for the fiscal year ending on June 30, 2022 and Plan accounting purposes for the fiscal year ending on June 30, 2020, and its use for other purposes may not be appropriate. Calculations for purposes other than funding the DIPNC benefits described in this report or reporting the Plan accounting information required under GASB 74, may produce significantly different results.

This report may also be used in conjunction with other materials for the purposes of auditing the Plan. However, the use of this report for any other purposes or by any parties other than the System, OSC, and its auditors may not be appropriate and may result in mistaken conclusions because of a failure to appreciate the limitations of census and financial data,



understand applicable assumptions and methods, or correctly identify situations that would render the report inappropriate for a given purpose. None of the attached pages should be provided to any other parties without a copy of this cover letter. Moreover, no person or entity may make any representations or warranties based on any statements or conclusions contained in this report without the express written consent of Cavanaugh Macdonald Consulting.

These results supersede all December 31, 2019 actuarial valuation results for DIPNC, including draft versions of this document, issued prior to the date of this report. The System should rely only on the December 31, 2019 actuarial valuation results and actuarially determined contribution (ADC) rates for the fiscal year ending on June 30, 2022 provided herein.

The results contained in this report were prepared by qualified actuaries according to generally accepted actuarial principles and practices, and in compliance with Actuarial Standards of Practice issued by the Actuarial Standards Board. Our understanding is that the System has made no changes to the Plan's funding policy since the prior valuation. Thus, ADC rates as of the valuation date were developed based on the contribution allocation procedure described in GASB Statement Nos. 43 and 45, as approved by the System during prior periods. The financial accounting information provided in this report reflects our current understanding of GASB 74, including any applicable guidance provided by the System, or its audit partners as of the date of this report.

The measurement of Plan obligations used as the basis for much of the information presented in this report was performed as of December 31, 2019 ("the valuation date") based on the following information provided by the System for valuation purposes:

- Census data for active and disabled members as of December 31, 2019;
- Current plan provisions, including changes since December 31, 2018;
- Pertinent financial information as of December 31, 2019; and,
- Unaudited financial information as of June 30, 2020.

This information is summarized throughout this report. We did not audit the supplied information, but it was reviewed for reasonableness and consistency. In certain situations, the supplied information was adjusted to account for normal differences in collection dates and/or methods. As a result, we have no reason to doubt the substantial accuracy or completeness of the information and believe that it is reliable for the purposes stated herein. The results and conclusions contained in this report depend on the integrity of this information, and if any of the supplied information or analyses change, our results and conclusions may be different, and this report may need to be revised. Likewise, this report may need to be revised to reflect any significant event that affects the Plan after the valuation date.

Valuation results as of December 31, 2019 are based on the assumptions and methods adopted by the Board on April 21, 2016 and prescribed for use in the Plan's December 31, 2019 annual actuarial valuation, which are summarized in various sections of this report. All GASB 74 assumptions—including, but not limited to, discount rates, expected rates of return on assets, long-term health care cost trend rates, and expected active employee health care coverage election assumptions—have been selected by the System's governing bodies for the measurement of the Plan's benefit obligations as of June 30, 2020



based on the December 31, 2019 valuation date, and should reflect best estimates of anticipated Plan experience. We have evaluated the assumptions and methods prescribed by the Board and believe that they are reasonable for the purposes of preparing the measurements described above. We will continue to monitor material assumptions.

The actuarial cost method and the asset valuation method used for funding purposes were selected by the System during prior periods and prescribed for use in the Plan's December 31, 2019 annual actuarial valuation. We believe that these methods are appropriate for funding purposes. Additionally, the actuarial cost method, the asset valuation method, and the amortization methods are prescribed under GASB rules for financial accounting purposes as of the June 30, 2019 and June 30, 2020 measurement dates. Actuarial methods such as the actuarial cost methods, asset valuation methods, and amortization methods used in the contribution allocation procedure (for funding purposes) and cost allocation procedure (for financial accounting purposes) are designed to recognize changes in an orderly fashion over a period of years. In certain situations, the actuarial methods used in an allocation procedure may have the effect of deferring changes in contributions or costs into later years. Likewise, the use of these methods could produce deferred gains or losses if any material underlying assumption is not met over a long period of time.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: retiree group benefits program experience differing from that anticipated by the assumptions; changes in assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in retiree group benefits program provisions or applicable law. Retiree group benefits models necessarily rely on the use of approximations and estimates and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, we have not performed an analysis of the potential range of such future differences other than the sensitivity to changes in the discount rate and healthcare cost trend rates required by GASB 74. **This report does not consider all possible scenarios.**

The funded status measurements included in this report are based on the assumptions and methods used to determine the Plan's obligations and asset values as of the valuation and/or measurement date. Funded status measurements for financial accounting purposes may not be appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations. Likewise, funded status measurements for financial accounting purposes may not be appropriate for assessing the need for or the amount of future actuarially determined contributions. Funded status measurements would also be different if the market value of assets was used in these calculations instead of an actuarial value of assets.

Cavanaugh Macdonald Consulting does not provide legal, investment, or accounting advice. Thus, the information in this report is not intended to supersede or supplant the advice and interpretations of the System, OSC, or their legal, investing, or accounting partners.



The undersigned are familiar with the near-term and/or long-term aspects of other postemployment benefit plan valuations and collectively meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained in this report. All sections of this report, including any appendices and attachments, are considered an integral part of the actuarial opinions.

We are available to answer questions about this report or the information provided herein.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'Alisa Bennett', with a stylized, cursive script.

Alisa Bennett, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in blue ink, appearing to read 'Larry Langer', with a stylized, cursive script.

Larry Langer, ASA, EA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in blue ink, appearing to read 'Wendy Ludbrook', with a stylized, cursive script.

Wendy Ludbrook, FSA, EA, FCA, MAAA
Senior Actuary



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Section 1: Introduction

This report presents the results of the actuarial valuation of the Disability Income Plan of North Carolina, prepared as of December 31, 2019. The purpose of the valuation is to determine the present value of future payments to disabled members as of December 31, 2019, to determine the expected cost of new claims for 2019, to provide the actuarially determined employer contribution (ADC) rate based on the System's funding policy, which is centered on the guidance provided in GASB Statements No. 43 and 45, and to provide the financial accounting information required under GASB Statement No. 74 for postemployment benefits.

Appendix A presents detailed tabulations of the active membership of the Plan as of the valuation date. Likewise, Appendix B presents detailed tabulations of the disabled membership of the Plan as of the valuation date.

Appendix C presents the development of the Actuarial Value of Assets.

Appendices D and E provide the full set of actuarial assumptions and methods employed for funding and financial accounting purposes, respectively.

The valuation was based on provisions of the Plan as amended through June 30, 2020. A summary of the main Plan provisions used for valuation purposes appears in Appendix F.

Appendices G and H of this report present the projection of the Plan's fiduciary net position and present value of benefits required under GASB 74.



Section 2: Summary of Principal Results

The principal results of the valuation and a comparison with the preceding year's results are provided in the table below:

Table 1: Summary of Principal Results

| Valuation Results as of | December 31, 2019 | December 31, 2018 |
|--|----------------------|----------------------|
| Active Members | | |
| Teachers' and State Employees' Retirement System (TSERS) | 305,962 | 304,575 |
| Optional Retirement Program (ORP) | <u>22,052</u> | <u>20,541</u> |
| Total | 328,014 | 325,116 |
| Reported Compensation | | |
| TSERS | \$ 14,886,467,797 | \$ 14,436,435,848 |
| ORP | <u>2,047,379,956</u> | <u>1,893,122,205</u> |
| Total | \$ 16,933,847,753 | \$ 16,329,558,053 |
| Valuation Compensation* | | |
| TSERS | \$ 16,105,740,207 | \$ 15,623,198,876 |
| ORP | <u>2,253,346,631</u> | <u>2,098,399,045</u> |
| Total | \$ 18,359,086,838 | \$ 17,721,597,921 |
| Number of beneficiaries receiving extended short-term or long-term disability benefits | 5,684 | 6,103 |
| Annual reported benefits | \$ 63,083,128 | \$ 70,143,160 |
| Asset and Liabilities as of | December 31, 2019 | December 31, 2018 |
| Assets | | |
| Actuarial Value | \$ 361,335,426 | \$ 389,599,221 |
| Market Value | \$ 363,446,509 | \$ 372,914,790 |
| Liability for currently disabled members | \$ 271,027,525 | \$ 291,049,647 |
| Deficit/(Surplus) versus Actuarial Value | \$ (90,307,901) | \$ (98,549,574) |
| ADC Rate for Fiscal Year Ending (FYE) | June 30, 2022 | June 30, 2021 |
| Preliminary Actuarially Determined Contribution (ADC) Rate | | |
| Normal Cost | 0.09% | 0.09% |
| Accrued Liability | <u>N/A</u> | <u>N/A</u> |
| Total | 0.09% | 0.09% |
| Impact of Legislative Changes | 0.00% | 0.00% |
| Final ADC Rate*** | 0.09% | 0.09% |

* Reported compensation adjusted to reflect the assumed rate of pay increase prior to the valuation date.

** For FYE 2022, the ADC Rate may be adjusted to reflect Plan changes that occur after the date of this report.



Section 2: Summary of Principal Results

Table 2: Reconciliation of the Change in the Actuarially Determined Contribution (ADC) Rate

| | |
|---|---------------|
| Fiscal Year Ending June 30, 2021 Preliminary ADC Rate (Based on the December 31, 2018 Valuation) | 0.09% |
| Impact of Legislative Changes | <u>0.00%</u> |
| Fiscal Year Ending June 30, 2021 Final ADC Rate | 0.09% |
| Change Due to Demographic (Gain)/Loss | 0.01% |
| Change Due to Changes in Assumptions | 0.00% |
| Change Due to Investment (Gain)/Loss | 0.00% |
| Change Due to Contribution (Greater)/Less than ADC | <u>-0.01%</u> |
| Preliminary ADC Rate Before Legislative Changes | 0.09% |
| Impact of Legislative Changes | 0.00% |
| Fiscal Year Ending June 30, 2022 Final ADC Rate (Based on the December 31, 2019 Valuation) | 0.09% |

Table 3: History of Actuarially Determined Contribution (ADC) Rates and Appropriated Rates

| Valuation Date | Fiscal Year Ending | Preliminary ADC Rate | Change Due to Legislation | Final ADC Rate | Appropriated Rate |
|----------------|--------------------|----------------------|---------------------------|----------------|-------------------|
| 12/31/2019 | 6/30/2022 | 0.09% | 0.00% | 0.09% | TBD |
| 12/31/2018 | 6/30/2021 | 0.09% | 0.00% | 0.09% | 0.09% |
| 12/31/2017 | 6/30/2020 | 0.15% | (0.05%) | 0.10% | 0.10% |
| 12/31/2016 | 6/30/2019 | 0.13% | 0.00% | 0.13% | 0.14% |
| 12/31/2015 | 6/30/2018 | 0.14% | 0.00% | 0.14% | 0.14% |
| 12/31/2014 | 6/30/2017 | 0.38% | 0.00% | 0.38% | 0.38% |



Section 2: Summary of Principal Results

The table below provides the schedule of funding progress, which presents multi-year trend information about whether the actuarial value of plan assets is increasing or decreasing over time relative to the actuarial accrued liability for benefits.

The aggregate cost method used for Plan funding purposes does not identify or separately amortize unfunded liabilities. Thus, information about the Plan's funded status and funding progress have been prepared using the entry age normal (level percentage of pay) actuarial cost method as an approximation.

Table 4: Schedule of Funding Progress

| Actuarial Valuation Date | Actuarial Value of Assets (a) | Entry Age Actuarial Liability (AAL) (b) | Unfunded AAL (UAAL) (b) – (a) | Funded Ratio (a) / (b) | Covered Payroll (c) | UAAL as a Percentage of Covered Payroll [(b) – (a)] / (c) |
|--------------------------|-------------------------------|---|-------------------------------|------------------------|---------------------|---|
| 12/31/12 | 432,667,367 | 503,192,392 | 70,525,025 | 86.0% | 14,163,204,361 | 0.50% |
| 12/31/13 | 442,422,332 | 522,940,655 | 80,518,323 | 84.6% | 14,294,017,494 | 0.56% |
| 12/31/14 | 450,598,573 | 503,060,332 | 52,461,759 | 89.6% | 14,459,666,607 | 0.36% |
| 12/31/15 | 439,955,539 | 395,950,392 | (44,005,147) | 111.1% | 14,718,736,311 | (0.30%) |
| 12/31/16 | 442,086,171 | 392,674,478 | (49,411,693) | 112.6% | 15,178,136,876 | (0.33%) |
| 12/31/17 | 424,219,638 | 383,166,480 | (41,053,158) | 110.7% | 15,763,887,688 | (0.26%) |
| 12/31/18 | 389,599,221 | 345,399,709 | (44,199,512) | 112.8% | 16,329,558,053 | (0.27%) |
| 12/31/19 | 361,335,426 | 326,431,066 | (34,904,360) | 110.7% | 16,933,847,753 | (0.21%) |

Please note that the funded status measures shown above do not indicate whether or not the Plan would have sufficient assets if it were terminated, nor do they indicate what level of future contributions would be required.



Section 3: Membership Data

Data for 305,962 active members of the Teachers' and State Employees' Retirement System with reported compensation of \$14,886,467,797 and 22,052 members of the Optional Retirement Program with reported compensation of \$2,047,379,956 were furnished by the Retirement Systems Division as of December 31, 2019. The reported compensation includes annual longevity payments. The number and reported compensation of active members distributed by age and service as of December 31, 2019, are shown in Appendix A.

The contributory membership service requirement for short-term disability benefits under the Plan is one year and the contributory membership service requirement for long-term disability benefits under the Plan is five years.

The Retirement Systems Division also supplied data for 5,684 disabled employees in receipt of annual extended short-term and long-term disability benefits totaling \$63,083,128 as of the valuation date. Of this number, 65 disabled employees are grandfathered under all provisions of the prior Disability Salary Continuation Plan and 5,619 are receiving extended short-term and long-term disability benefits under the provisions of this Plan. Appendix B presents a comparison of the number and annual amount of benefits payable as of the current and previous valuation dates.



Section 4: Assets

Asset information taken into account in this valuation is based principally on information reported by the Retirement Systems Division. The market value of assets for the Plan is \$363,446,509 as of December 31, 2019.

The Actuarial Value of Assets for the Plan is \$361,311,927 as of the valuation date based on the “five-year smoothed value” asset valuation method selected by the System. Under this method, investment gains and losses are recognized in equal portions over a five-year period. The development of the Actuarial Value of Assets as of the valuation date is provided in Appendix C.

The following table shows an allocation of investments by category as of December 31, 2019.

**Table 5: Allocation of Investments by Category
as of December 31, 2019**

| Cash and Receivables | 7.4% |
|----------------------|--------|
| Fixed income (LTIF) | 92.6% |
| Public Equity | 0.0% |
| Other* | 0.0% |
| Total | 100.0% |

* Real Estate, Alternatives, Inflation and Credit.



Section 5: Condition of the Plan

The following table shows the assets and liabilities of the Plan as of the current valuation date of December 31, 2019. The items shown in the table, other than the Actuarial Value of Assets, are actuarially determined present values or contribution rates as of the valuation date.

Table 6: Statement of Condition of the Plan as of December 31, 2019

| | | |
|---|----|-----------------|
| Present value of prospective benefits payable to all disabled members as of the valuation date for: | | |
| Extended STD and LTD approved claims | \$ | 233,290,943 |
| LTD incurred but not reported claims | | 37,736,582 |
| STD incurred but not reported claims | | - |
| Total claim liability | \$ | 271,027,525 |
| Actuarial Valuation of Assets at end of year | \$ | 361,335,426 |
| Deficit/(Surplus) as of December 31, 2019 | \$ | (90,307,901) |
| Prospective present value of benefits for current active members | \$ | 238,388,589 |
| Present value of benefits not covered by Actuarial Value of Assets | \$ | 148,080,688 |
| Present value of future compensation for active members | \$ | 176,448,064,832 |
| Level contribution as a percentage of compensation to fund present value of benefits not covered by Actuarial Value of Assets | | 0.08% |
| Estimated administrative expenses | | 0.01% |
| Actuarially determined contribution rate as of December 31, 2019 | | 0.09% |

Claim liabilities are equal to the present value of future claim payments that the Plan is obligated to make to members who are disabled as of the valuation date. The claim liabilities are separated into two classifications, which reflect the status of each claim as of the valuation date.

- (a) Approved claim liabilities are for extended short-term and long-term disabilities which have occurred, have been approved, and are in payment status as of the valuation date.
- (b) LTD incurred but not reported liabilities are for disabilities which have occurred but are not in payment status as of the valuation date. These liabilities are estimated based on the one-year term cost for expected disablements during the year following the valuation date and a reserve of 14/12 of the term cost is added to account for the time after disability to receive LTD benefits.

The assumptions and methods used to determine claim liabilities are described in Appendix D.



Section 6: Experience

Section 5 shows that the surplus under the Plan has decreased by \$16,161,567 from \$98,549,574 to \$82,388,007 since the previous valuation date.

The following table shows a detailed reconciliation of the change in the Plan's Deficit / (Surplus)—the difference between the Total Claim Liability and the Actuarial Value of Assets—since the prior valuation.

Table 7: Reconciliation of Change in Deficit / (Surplus) Since the Prior Valuation

| | | |
|--|----|-------------------|
| Prior Year Deficit/ (Surplus) | \$ | (98,549,574) |
| Prior Year IBNR Claims | | (47,407,992) |
| Actual Contributions During the Period | | (20,111,589) |
| Receivable Contributions | | 0 |
| Interest Adjustment | | (5,847,031) |
| Aging of the In-Payment Population | | 6,426,710 |
| Extended STD Experience | | 1,187,633 |
| LTD Experience | | 32,150,064 |
| Asset Loss/ (Gain) ¹ | | 4,107,296 |
| Current Year IBNR Claims | | <u>37,736,582</u> |
| Current Year Deficit/(Surplus) | \$ | (90,307,901) |

¹The Plan's Actuarial Value of Assets is the basis for the asset (gain)/loss reported above.



Section 7: Accounting Information

This section contains the accounting information for GASB 74 for the fiscal year ending on June 30, 2020, based on a December 31, 2019 valuation date. The Plan is assumed to be a cost-sharing, other than insured, defined benefit OPEB plan without a special funding situation where assets are accumulated in a trust that meets the criteria outlined in paragraph 3 of GASB 74. Additionally, the System elected not to restate results for any period prior to the adoption of GASB 74.

The June 30, 2020 total OPEB liability presented in this section was determined by an actuarial valuation as of December 31, 2019, based on the assumptions, methods and plan provisions described in this report. The actuarial cost method used to develop the total pension liability is the Entry Age Normal Cost method, as required by GASB Statement No. 74.

GASB Statement No. 74 set forth certain items of information to be disclosed in the financial statements of the Plan. The tables below provide a distribution of the number of employees by type of membership.

**Table 8: Number of Active and Disabled Members
as of December 31, 2019**

| Membership Group | Number |
|--|----------------|
| Disabled members currently receiving extended short-term and long-term disability benefits | 5,684 |
| Inactive plan members entitled to, but not currently receiving benefits | - |
| Active members, including those in the waiting period or on short-term disability | <u>328,014</u> |
| Total membership | 333,698 |

A 3.75% discount rate was used to measure the Plan's Total OPEB Liability as of June 30, 2020. The projection of cash flows used to determine the discount rate assumed that System contributions will continue to follow the current funding policy (please see Appendix E for a description of the assumptions and methods used in this projection). Based on those assumptions, the Plan's fiduciary net position (PFNP) was projected to be available to make all projected future benefit payments to current Plan members. Please see Appendices G and H for additional details.



Section 7: Accounting Information

GASB Statement No. 74 set forth certain items of information to be disclosed in the financial statements of the Plan. The tables below provide the reconciliation of changes in the Net OPEB Liability / (Asset) (NOL).

Table 9: Reconciliation of Changes in Net OPEB Liability / (Asset)

| Fiscal Year Ending On | June 30, 2020 |
|--|------------------------|
| Total OPEB Liability | |
| Service Cost | \$ 22,708,000 |
| Interest | 11,424,000 |
| Changes in Benefit Terms | 0 |
| Difference Between Expected and Actual Experience | 5,137,000 |
| Changes of Assumptions or Other Inputs | 2,000 |
| Net Benefit Payments | (55,210,000) |
| Net Change in Total OPEB Liability | \$ (15,939,000) |
| Total OPEB Liability — Beginning of Year | \$ 331,978,000 |
| Total OPEB Liability — End of Year | \$ 316,039,000 |
| Plan Fiduciary Net Position | |
| Employer Contributions | \$ 17,848,000 |
| Member Contributions | N/A |
| Net Investment Income | 28,322,000 |
| Net Benefit Payments | (55,210,000) |
| Administrative Expenses | (835,000) |
| Other | (20,000) |
| Net Change in Plan Fiduciary Net Position | \$ (9,895,000) |
| Plan Fiduciary Net Position — Beginning of Year | \$ 375,128,000 |
| Plan Fiduciary Net Position — End of Year | \$ 365,233,000 |



Section 7: Accounting Information

Table 10: Schedule of the Net OPEB Liability / (Asset)

| Measurement Date as of | June 30, 2020 | June 30, 2019 |
|---|------------------|-------------------|
| Total OPEB Liability | \$ 316,039,000 | \$ 331,978,000 |
| Plan Fiduciary Net Position | 365,233,000 | 375,128,000 |
| Net OPEB Liability (Asset) | \$ (49,194,000) | \$ (43,150,000) |
| Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability (Asset) | 115.57% | 113.00% |
| Covered Payroll | \$16,933,847,753 | \$ 16,329,558,053 |
| Net OPEB Liability (Asset) as a Percentage of Covered Payroll | (0.29%) | (0.26%) |

The sensitivity of the NOL to changes in the discount rate must be disclosed under GASB 74. The table below provides the NOL of the Plan determined using the current discount rate of 3.75%, as well as what the Plan’s NOL would be if the discount rate was 1-percentage-point lower or 1-percentage-point higher than the current rate:

Table 11: Sensitivity of the Net OPEB Liability / (Asset) at June 30, 2020 to Changes in the Discount Rate

| | 1% Decrease | Current | 1% Increase |
|----------------------------|-----------------|-----------------|-----------------|
| Discount Rate | 2.75% | 3.75% | 4.75% |
| Net OPEB Liability (Asset) | \$ (42,486,000) | \$ (49,194,000) | \$ (55,707,000) |

A 3.75% discount rate was used to measure the Plan’s Total OPEB Liability as of June 30, 2020. The projection of cash flows used to determine the discount rate assumed that System contributions will continue to follow the current funding policy (please see Appendix E for a description of the assumptions and methods used in this projection). Based on those assumptions, the Plan’s fiduciary net position (PFNP) was projected to be available to make all projected future benefit payments to current Plan members. Please see Appendices G and H for additional details.



Section 7: Accounting Information

The sensitivity of the NOL to changes in health care cost trend rates must also be disclosed under GASB 74. The table below provides the NOL of the Plan determined using current health care cost trend rates, as well as what the Plan's NOL would be if health care cost trend rates were 1-percentage-point lower or 1-percentage-point higher than current health care cost trend rates:

Table 12: Sensitivity of the Net OPEB Liability / (Asset) at June 30, 2020 to Changes in Healthcare Cost Trend Rates

| | 1% Decrease | Current | 1% Increase |
|----------------------------|-----------------|-----------------|-----------------|
| Initial Trend Rate | 5.50%-8.50% | 6.50%-9.50% | 7.50%-10.50% |
| Ultimate Trend Rate | 4.00% | 5.00% | 6.00% |
| Net OPEB Liability (Asset) | \$ (49,275,000) | \$ (49,194,000) | \$ (49,123,000) |

The table below provides a reconciliation of the preliminary employer actuarially determined contribution rate to the final actuarially determined contribution amount for fiscal year ending on June 30, 2020. The preliminary actuarially determined contribution rate is based on the Plan's actuarial valuation as of December 31, 2017.

Table 13: Development of the Actuarially Determined Contribution Amount for the Fiscal Year Ending June 30, 2020

| Fiscal Year Ending | June 30, 2020 |
|--|----------------|
| Preliminary Actuarially Determined Contribution Rate | |
| Normal Cost | 0.15% |
| Accrued Liability | <u>N/A</u> |
| Total | 0.15% |
| Impact of Legislative Changes | <u>(0.05%)</u> |
| Final Actuarially Determined Contribution Rate | 0.10% |
| Actual Payroll for Year Ending June 30, 2020 | 17,848,000,000 |
| Actuarially Determined Contribution | 17,848,000 |



Section 7: Accounting Information

The tables below provide the actuarially determined contribution (ADC) rate for the employer as a percentage of payroll, determined in accordance with the Plan’s funding policy, and a summary of the key assumptions and methods used in the determination of the ADC rate.

Table 14: Fiscal Year 2020 / 2021 Actuarially Determined Contribution (ADC) Rate based on the Valuation as of December 31, 2019

| ADC Rate Component | Rate |
|-----------------------------|------------|
| Normal Cost | 0.10% |
| Actuarial Accrued Liability | <u>N/A</u> |
| Total | 0.10% |

Table 15: Additional Information About the Determination of the Fiscal Year 2021 / 2022 ADC Rate for GASB 74 Disclosures

| | |
|--|---|
| Valuation Date | December 31, 2019 |
| Actuarial Cost Method | Aggregate |
| Amortization Method | Level percentage of payroll |
| Amortization Period | The aggregate cost method does not identify or separately amortize unfunded liabilities |
| Asset Valuation Method | Asset returns in excess of or less than the expected return on market value of assets reflected over a five-year period (not greater than 120% of market value and not less than 80% of market value) |
| Actuarial Assumptions: | |
| Investment Rate of Return* | 3.75% |
| Projected Salary Increases** | 3.50% – 8.10% |
| * Includes Inflation of | 3.00% |
| ** Includes Inflation and Productivity of | 3.50% |
| Cost-of-living Adjustments | 3.50% for gross long-term disability benefits |
| State Health Plan | |
| Active Subscriber Premiums | |
| 2019 70 / 30 Plan | \$0 per month on or after July 1, 2019 |
| Healthcare Cost Trend Rates | From 6.50% in 2020 grading down to 5.00% in 2024 for pre-65 medical From 9.50% in 2020 grading down to 5.00% in 2029 for prescription drugs |
| Future State Health Plan Enrollment | 100% of active employees will elect to enroll in the 70 / 30 Plan option |
| Expected Administrative Expenses Included in Normal Cost | 0.01% of payroll |



Appendix A — Detailed Tabulations of Active Member Data

Table A-1: The Number and Average Reported Compensation of Active Members Distributed by Age and Service as of December 31, 2019

| Age | Years of Service | | | | | | | | | | Total |
|----------|------------------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|----------|
| | 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 | |
| Under 25 | 5,119 | 4,986 | 20 | | | | | | | | 10,125 |
| | \$15,927 | \$37,436 | \$39,802 | | | | | | | | \$26,566 |
| 25 to 29 | 5,407 | 18,337 | 5,409 | 6 | | | | | | | 29,159 |
| | \$17,586 | \$40,680 | \$45,211 | * | | | | | | | \$37,239 |
| 30 to 34 | 3,847 | 13,253 | 13,707 | 3,625 | 19 | | | | | | 34,451 |
| | \$20,138 | \$45,869 | \$49,227 | \$52,897 | * | | | | | | \$45,071 |
| 35 to 39 | 3,355 | 10,794 | 9,508 | 11,291 | 3,922 | 63 | | | | | 38,933 |
| | \$21,292 | \$50,789 | \$54,804 | \$57,170 | \$59,960 | \$50,122 | | | | | \$52,001 |
| 40 to 44 | 2,700 | 9,112 | 8,432 | 8,557 | 9,823 | 3,394 | 21 | | | | 42,039 |
| | \$20,159 | \$48,527 | \$56,714 | \$60,788 | \$62,374 | \$62,845 | \$55,557 | | | | \$55,238 |
| 45 to 49 | 2,360 | 8,717 | 8,219 | 8,783 | 8,360 | 9,721 | 2,901 | 23 | | | 49,084 |
| | \$20,013 | \$47,214 | \$52,959 | \$58,838 | \$61,267 | \$64,619 | \$66,034 | \$64,946 | | | \$55,909 |
| 50 to 54 | 1,927 | 7,089 | 7,127 | 8,331 | 7,915 | 6,633 | 6,117 | 890 | 3 | | 46,032 |
| | \$21,215 | \$46,367 | \$50,177 | \$55,433 | \$59,222 | \$62,354 | \$68,638 | \$68,856 | * | | \$55,454 |
| 55 to 59 | 1,610 | 5,799 | 5,982 | 7,286 | 7,500 | 6,220 | 4,110 | 1,654 | 289 | 6 | 40,456 |
| | \$20,773 | \$45,944 | \$49,972 | \$52,123 | \$54,905 | \$58,841 | \$66,772 | \$70,609 | \$72,663 | * | \$53,612 |
| 60 to 64 | 730 | 3,474 | 4,163 | 4,933 | 4,779 | 4,135 | 2,298 | 1,184 | 458 | 144 | 26,298 |
| | \$22,479 | \$48,420 | \$50,122 | \$52,813 | \$55,502 | \$59,954 | \$72,619 | \$83,380 | \$81,826 | \$69,881 | \$56,282 |
| 65 to 69 | 267 | 1,035 | 1,525 | 1,681 | 1,327 | 955 | 686 | 485 | 276 | 185 | 8,422 |
| | \$19,415 | \$47,685 | \$53,205 | \$57,116 | \$62,658 | \$68,940 | \$86,200 | \$100,497 | \$119,259 | \$93,934 | \$63,980 |
| 70 & Up | 114 | 401 | 436 | 569 | 492 | 312 | 219 | 162 | 128 | 182 | 3,015 |
| | \$22,114 | \$40,535 | \$50,967 | \$51,298 | \$59,899 | \$65,112 | \$91,526 | \$102,993 | \$130,391 | \$117,812 | \$64,621 |
| Total | 27,436 | 82,997 | 64,528 | 55,062 | 44,137 | 31,433 | 16,352 | 4,398 | 1,154 | 517 | 328,014 |
| | \$19,158 | \$45,440 | \$51,500 | \$56,333 | \$59,345 | \$62,300 | \$69,293 | \$78,152 | \$93,803 | \$95,210 | \$51,625 |

* Average reported compensation is not shown for age / service groups with fewer than 20 individuals.



Appendix A — Detailed Tabulations of Active Member Data

Table A-2: The Number and Reported Compensation of Active Members Distributed by Age and Gender as of December 31, 2019

| Age | Male | | Female | |
|----------|--------|--------------|--------|--------------|
| | Number | Compensation | Number | Compensation |
| Under 19 | 13 | * | 10 | * |
| 19 | 58 | 1,042,686 | 48 | 671,748 |
| 20 | 141 | 2,954,802 | 134 | 2,034,614 |
| 21 | 242 | 5,747,802 | 324 | 5,797,023 |
| 22 | 499 | 11,677,323 | 1,331 | 24,721,753 |
| 23 | 885 | 25,344,447 | 2,416 | 63,277,761 |
| 24 | 1,107 | 35,843,663 | 2,917 | 89,662,379 |
| 25 | 1,408 | 48,905,781 | 3,404 | 112,237,033 |
| 26 | 1,548 | 56,286,418 | 3,903 | 135,772,585 |
| 27 | 1,629 | 62,915,157 | 4,235 | 155,941,579 |
| 28 | 1,859 | 74,018,281 | 4,358 | 166,886,186 |
| 29 | 1,973 | 81,607,552 | 4,842 | 191,281,572 |
| 30 | 2,083 | 90,922,407 | 4,755 | 195,359,510 |
| 31 | 2,028 | 93,353,994 | 4,833 | 203,074,468 |
| 32 | 2,058 | 99,604,231 | 4,667 | 203,209,088 |
| 33 | 2,190 | 109,689,247 | 4,724 | 212,984,466 |
| 34 | 2,198 | 114,352,036 | 4,915 | 230,184,757 |
| 35 | 2,293 | 122,901,954 | 5,072 | 240,257,327 |
| 36 | 2,389 | 135,997,770 | 5,092 | 251,223,870 |
| 37 | 2,470 | 138,111,689 | 5,450 | 270,148,463 |
| 38 | 2,386 | 141,049,333 | 5,531 | 280,637,457 |
| 39 | 2,587 | 154,477,315 | 5,663 | 289,755,572 |
| 40 | 2,472 | 151,377,061 | 5,776 | 298,667,211 |
| 41 | 2,530 | 155,320,213 | 5,687 | 299,108,548 |
| 42 | 2,547 | 157,901,678 | 6,019 | 313,047,925 |
| 43 | 2,605 | 165,863,626 | 5,877 | 306,862,588 |
| 44 | 2,562 | 162,342,684 | 5,964 | 311,654,932 |
| 45 | 2,746 | 173,262,387 | 6,208 | 328,594,616 |
| 46 | 2,834 | 178,110,364 | 6,293 | 330,011,258 |
| 47 | 2,985 | 190,698,614 | 6,637 | 348,139,342 |
| 48 | 3,187 | 201,240,272 | 7,271 | 378,686,073 |
| 49 | 3,303 | 214,073,681 | 7,620 | 401,435,903 |
| 50 | 3,146 | 207,220,162 | 7,141 | 378,075,524 |
| 51 | 2,888 | 189,830,314 | 6,645 | 345,462,668 |
| 52 | 2,729 | 174,772,043 | 6,352 | 325,188,405 |
| 53 | 2,683 | 171,424,321 | 5,951 | 297,944,979 |
| 54 | 2,711 | 173,373,214 | 5,786 | 289,351,447 |
| 55 | 2,620 | 163,573,630 | 5,874 | 292,095,261 |
| 56 | 2,629 | 167,334,868 | 5,643 | 276,354,332 |
| 57 | 2,576 | 160,732,372 | 5,588 | 277,160,031 |

* Total reported compensation is not shown for groups with fewer than 20 individuals.



Appendix A — Detailed Tabulations of Active Member Data

Table A-2: The Number and Reported Compensation of Active Members Distributed by Age and Gender as of December 31, 2019 (continued)

| Age | Male | | Female | |
|---------|---------|---------------|---------|----------------|
| | Number | Compensation | Number | Compensation |
| 58 | 2,444 | 146,777,779 | 5,499 | 270,974,082 |
| 59 | 2,407 | 153,634,381 | 5,176 | 260,273,620 |
| 60 | 2,242 | 141,752,710 | 4,621 | 231,482,164 |
| 61 | 2,068 | 131,671,492 | 4,147 | 207,905,042 |
| 62 | 1,836 | 121,766,733 | 3,416 | 176,425,133 |
| 63 | 1,507 | 101,179,606 | 2,839 | 151,027,422 |
| 64 | 1,311 | 91,421,475 | 2,311 | 125,464,241 |
| 65 | 1,117 | 79,867,767 | 1,659 | 89,504,661 |
| 66 | 831 | 62,886,491 | 1,177 | 65,032,802 |
| 67 | 654 | 49,575,758 | 854 | 48,531,919 |
| 68 | 541 | 43,452,074 | 655 | 36,599,465 |
| 69 | 438 | 36,544,540 | 496 | 26,844,203 |
| 70 | 364 | 26,403,214 | 351 | 16,962,238 |
| 71 | 296 | 24,244,215 | 270 | 12,830,094 |
| 72 | 251 | 19,878,943 | 217 | 11,939,831 |
| 73 | 182 | 13,561,407 | 154 | 8,311,751 |
| 74 | 134 | 11,745,360 | 112 | 5,632,981 |
| 75 | 99 | 7,089,459 | 78 | 3,574,158 |
| 76 | 83 | 5,981,624 | 66 | 3,074,142 |
| 77 | 64 | 5,006,145 | 47 | 2,003,295 |
| 78 | 40 | 3,831,634 | 32 | 1,383,251 |
| 79 | 24 | 2,011,041 | 18 | * |
| 80 | 25 | 1,640,551 | 19 | * |
| 81 | 15 | * | 6 | * |
| 82 | 17 | * | 6 | * |
| 83 | 8 | * | 3 | * |
| 84 | 6 | * | 4 | * |
| 85 | 4 | * | 1 | * |
| 86 | 5 | * | 2 | * |
| 87 | 1 | * | 4 | * |
| 88 | | | 1 | * |
| 89 | 2 | * | | |
| 90 | 2 | * | | |
| 91 | | | | |
| 92 | | | | |
| 93 | | | 1 | * |
| 94 | | | | |
| 95 | | | 1 | * |
| Over 95 | | | | |
| Total | 102,815 | 6,052,217,243 | 225,199 | 10,881,630,510 |

* Total reported compensation is not shown for groups with fewer than 20 individuals.



Appendix A — Detailed Tabulations of Active Member Data

Table A-3: The Number and Reported Compensation of Active Members Distributed by Service and Gender as of December 31, 2019

| Service | Male | | Female | |
|---------|--------|--------------|--------|--------------|
| | Number | Compensation | Number | Compensation |
| 0 | 8,381 | 187,608,574 | 19,055 | 338,013,857 |
| 1 | 7,889 | 387,465,137 | 17,168 | 686,684,756 |
| 2 | 6,735 | 339,833,455 | 14,469 | 613,444,858 |
| 3 | 6,248 | 329,621,744 | 13,448 | 588,180,196 |
| 4 | 5,535 | 301,874,228 | 11,505 | 524,290,758 |
| 5 | 4,903 | 270,177,735 | 10,539 | 489,140,219 |
| 6 | 4,632 | 261,934,125 | 9,582 | 460,707,997 |
| 7 | 4,415 | 249,786,507 | 9,388 | 453,411,884 |
| 8 | 3,388 | 202,162,797 | 6,973 | 356,485,369 |
| 9 | 3,612 | 213,895,352 | 7,096 | 365,512,004 |
| 10 | 2,274 | 141,271,755 | 5,476 | 288,465,019 |
| 11 | 3,628 | 230,770,212 | 7,827 | 410,228,665 |
| 12 | 3,830 | 239,121,225 | 8,694 | 457,761,643 |
| 13 | 3,720 | 239,339,590 | 8,488 | 456,836,395 |
| 14 | 3,307 | 213,512,280 | 7,818 | 424,473,185 |
| 15 | 3,084 | 200,811,563 | 7,335 | 401,443,833 |
| 16 | 2,859 | 191,655,622 | 6,416 | 358,887,591 |
| 17 | 2,274 | 155,549,702 | 5,546 | 318,206,748 |
| 18 | 2,377 | 168,092,954 | 5,806 | 323,860,738 |
| 19 | 2,389 | 164,041,676 | 6,051 | 336,764,343 |
| 20 | 2,266 | 163,591,088 | 5,564 | 315,906,705 |
| 21 | 2,007 | 145,263,311 | 4,928 | 281,602,997 |
| 22 | 1,885 | 134,768,324 | 4,198 | 245,342,869 |
| 23 | 1,639 | 119,438,553 | 3,981 | 233,986,938 |
| 24 | 1,570 | 114,650,016 | 3,395 | 203,712,949 |
| 25 | 1,456 | 108,982,553 | 2,964 | 182,135,364 |
| 26 | 1,447 | 113,838,444 | 2,557 | 160,672,520 |
| 27 | 1,210 | 97,986,589 | 2,283 | 147,256,243 |
| 28 | 828 | 69,344,504 | 1,624 | 106,759,669 |
| 29 | 714 | 61,017,785 | 1,269 | 85,081,773 |
| 30 | 551 | 50,216,200 | 977 | 65,369,444 |
| 31 | 368 | 34,290,933 | 713 | 48,270,016 |
| 32 | 283 | 26,397,051 | 510 | 35,037,412 |
| 33 | 204 | 20,238,436 | 326 | 24,582,562 |
| 34 | 181 | 17,878,202 | 285 | 21,430,351 |
| 35 | 140 | 15,416,653 | 234 | 17,737,948 |
| 36 | 132 | 15,307,432 | 167 | 12,234,703 |
| 37 | 92 | 11,846,116 | 112 | 10,124,745 |
| 38 | 58 | 6,643,004 | 83 | 6,565,434 |
| 39 | 72 | 8,276,642 | 64 | 4,095,608 |
| 40 | 47 | 4,929,386 | 73 | 4,699,569 |

* Total reported compensation is not shown for groups with fewer than 20 individuals.



Appendix A — Detailed Tabulations of Active Member Data

Table A-3: The Number and Reported Compensation of Active Members Distributed by Service and Gender as of December 31, 2019 (continued)

| Service | Male | | Female | |
|---------|---------|---------------|---------|----------------|
| | Number | Compensation | Number | Compensation |
| 41 | 45 | 6,295,588 | 55 | 4,378,394 |
| 42 | 35 | 4,830,215 | 53 | 3,838,248 |
| 43 | 20 | 2,669,602 | 25 | 2,075,258 |
| 44 | 19 | * | 16 | * |
| 45 | 16 | * | 17 | * |
| 46 | 8 | * | 14 | * |
| 47 | 12 | * | 5 | * |
| 48 | 10 | * | 7 | * |
| 49 | 7 | * | 10 | * |
| 50 | 4 | * | 3 | * |
| 51 | 3 | * | 2 | * |
| 52 | 4 | * | | |
| 53 | 1 | * | | |
| 54 | | | | |
| 55 | | | | |
| 56 | | | | |
| 57 | | | 2 | * |
| 58 | | | 1 | * |
| 59 | 1 | * | 1 | * |
| 60 | | | | |
| Over 60 | | | 1 | * |
| Total | 102,815 | 6,052,217,243 | 225,199 | 10,881,630,510 |

* Total reported compensation is not shown for groups with fewer than 20 individuals.



Appendix B — Detailed Tabulations of Disabled Member Data

Table B-1: The Number and Annual Amount of Disability Benefits Reported for Each Disability Group

| Disability Group | As of December 31, 2019 | | As of December 31, 2018 | |
|-----------------------------------|-------------------------|--------------------------|-------------------------|--------------------------|
| | Number | Annual Reported benefits | Number | Annual Reported Benefits |
| Disabled Prior to January 1, 1988 | 65 | \$ 146,468 | 72 | \$ 142,336 |
| Disabled after December 31, 1987 | 5,619 | \$ 62,936,660 | 6,031 | \$ 70,000,824 |
| Total | 5,684 | \$ 77,899,175 | 6,103 | \$ 70,143,160 |



Appendix B — Detailed Tabulations of Disabled Member Data

Table B-2: The Number and Annual Long-Term Disability Benefits of Members Disabled Prior to January 1, 1988 by Age and Gender as of December 31, 2019

| Age | Male | | Female | |
|---------|--------|------------|--------|------------|
| | Number | Allowances | Number | Allowances |
| 57 | | | | |
| 58 | | | | |
| 59 | | | 1 | * |
| 60 | | | | |
| 61 | | | | |
| 62 | | | | |
| 63 | | | 2 | * |
| 64 | | | 5 | * |
| 65 | 1 | * | 2 | * |
| 66 | | | 2 | * |
| 67 | 2 | * | 3 | * |
| 68 | | | | |
| 69 | 2 | * | 1 | * |
| 70 | | | 1 | * |
| 71 | | | 2 | * |
| 72 | | | 5 | * |
| 73 | 1 | * | 2 | * |
| 74 | 1 | * | | |
| 75 | | | 1 | * |
| 76 | 2 | * | | |
| 77 | | | 2 | * |
| 78 | 2 | * | 4 | * |
| 79 | 1 | * | 2 | * |
| 80 | | | | |
| 81 | | | 1 | * |
| 82 | 1 | * | 1 | * |
| 83 | | | | |
| 84 | | | 1 | * |
| 85 | | | | |
| 86 | | | | |
| 87 | | | | |
| 88 | | | 1 | * |
| 89 | | | 1 | * |
| 90 | | | 3 | * |
| 91 | | | 1 | * |
| 92 | | | 1 | * |
| 93 | | | | |
| 94 | | | 2 | * |
| 95 | | | 2 | * |
| Over 95 | | | 3 | * |
| Total | 13 | * | 52 | * |

* To protect the privacy of beneficiary information, total allowances are not shown for groups with fewer than 20 individuals.



Appendix B — Detailed Tabulations of Disabled Member Data

Table B-3: The Number and Annual Disability Benefits of Members Disabled After December 31, 1987 by Age and Gender as of December 31, 2019

| Age | Male | | Female | |
|----------|--------|------------|--------|------------|
| | Number | Allowances | Number | Allowances |
| Under 26 | | | | |
| 26 | 1 | * | | |
| 27 | | | 1 | * |
| 28 | 1 | * | | |
| 29 | | | | |
| 30 | | | 1 | * |
| 31 | 1 | * | 1 | * |
| 32 | | | 4 | * |
| 33 | 1 | * | 3 | * |
| 34 | 1 | * | 6 | * |
| 35 | 2 | * | 9 | * |
| 36 | 1 | * | 8 | * |
| 37 | 5 | * | 10 | * |
| 38 | 7 | * | 13 | * |
| 39 | 6 | * | 17 | * |
| 40 | 6 | * | 19 | * |
| 41 | 7 | * | 35 | 500,943 |
| 42 | 16 | * | 35 | 598,626 |
| 43 | 13 | * | 51 | 847,503 |
| 44 | 23 | 274,406 | 53 | 871,636 |
| 45 | 29 | 350,943 | 59 | 967,942 |
| 46 | 29 | 326,036 | 69 | 1,200,231 |
| 47 | 37 | 645,788 | 91 | 1,056,470 |
| 48 | 38 | 516,041 | 106 | 1,686,997 |
| 49 | 51 | 712,960 | 106 | 1,445,814 |
| 50 | 50 | 556,846 | 138 | 1,999,665 |
| 51 | 62 | 847,350 | 154 | 2,353,906 |
| 52 | 75 | 952,069 | 147 | 2,109,285 |
| 53 | 65 | 702,703 | 178 | 2,216,314 |
| 54 | 75 | 724,556 | 206 | 2,308,578 |
| 55 | 86 | 866,089 | 230 | 2,885,464 |
| 56 | 82 | 754,562 | 220 | 2,324,594 |
| 57 | 114 | 1,131,405 | 231 | 2,555,450 |
| 58 | 119 | 1,103,424 | 290 | 2,612,602 |
| 59 | 98 | 889,842 | 326 | 3,301,508 |
| 60 | 111 | 984,093 | 207 | 2,056,312 |
| 61 | 118 | 1,034,438 | 234 | 2,237,397 |

* To protect the privacy of beneficiary information, total allowances are not shown for groups with fewer than 20 individuals.



Appendix B — Detailed Tabulations of Disabled Member Data

Table B-3: The Number and Annual Disability Benefits of Members Disabled After December 31, 1987 by Age and Gender as of December 31, 2019 (continued)

| Age | Male | | Female | |
|---------|--------|------------|--------|------------|
| | Number | Allowances | Number | Allowances |
| 62 | 107 | 990,138 | 229 | 2,095,925 |
| 63 | 118 | 966,605 | 222 | 2,043,231 |
| 64 | 101 | 813,871 | 198 | 1,639,088 |
| 65 | 9 | * | 11 | * |
| 66 | 1 | * | 2 | * |
| 67 | | | 1 | * |
| 68 | 1 | * | 3 | * |
| 69 | 1 | * | 2 | * |
| 70 | 1 | * | 2 | * |
| 71 | | | 2 | * |
| 72 | | | 4 | * |
| 73 | | | | |
| 74 | 1 | * | 1 | * |
| 75 | | | 1 | * |
| 76 | | | 1 | * |
| 77 | 1 | * | 2 | * |
| 78 | | | | |
| 79 | | | | |
| 80 | | | 1 | * |
| 81 | 2 | * | | |
| 82 | | | 3 | * |
| 83 | | | | |
| 84 | | | | |
| 85 | | | 1 | * |
| 86 | | | | |
| 87 | | | | |
| 88 | | | | |
| 89 | | | | |
| 90 | | | | |
| 91 | | | 1 | * |
| 92 | | | 1 | * |
| 93 | | | | |
| 94 | | | | |
| 95 | | | | |
| Over 95 | | | | |
| Total | 1,673 | 17,173,421 | 3,946 | 45,763,239 |

* To protect the privacy of beneficiary information, total allowances are not shown for groups with fewer than 20 individuals.



Appendix C — Development of the Actuarial Value of Assets

The Actuarial Value of Assets is determined using a method that attempts to “flatten” the peaks and valleys inherent in market values of assets. Under the “five-year smoothed value” asset valuation method selected by the System, investment gains and losses are recognized in equal portions over a five-year period. The calculation of the Actuarial Value of Assets is based on a formula that is mathematically equivalent to the process described above:

$$MV - [80\% \times G/(L)_1] - [60\% \times G/(L)_2] - [40\% \times G/(L)_3] - [20\% \times G/(L)_4]$$

where,

MV is the market value of assets as of the valuation date; and,
G/(L)_i is the asset gain or (loss) for the i-th year preceding the valuation date.

However, the resulting Actuarial Value of Assets cannot be less than 80% or more than 120% of the market value of assets as of the measurement date. The development of the Actuarial Value of Assets as of December 31, 2019 is shown in the table below:

| Development of the Actuarial Value of Assets for the Year Ending | December 31, 2019 |
|--|---------------------|
| Market Value of Assets, Beginning of Year | \$ 372,914,790 |
| Employer Contributions | \$ 20,111,589 |
| Employer Contributions Receivable | 0 |
| Benefit Payments | <u>(58,171,011)</u> |
| Net Cash Flow | \$ (38,059,422) |
| Expected Investment Return | \$ 13,277,258 |
| Expected Market Value of Assets, End of Year | \$ 348,132,626 |
| Market Value of Assets, End of Year | \$ 363,446,509 |
| Excess Market Value over Expected Market Value of Assets | \$ 15,313,883 |
| 80% of 2019 Asset Gain/(Loss) | \$ 12,251,107 |
| 60% of 2018 Asset Gain/(Loss) | (9,308,228) |
| 40% of 2017 Asset Gain/(Loss) | (1,206,922) |
| 20% of 2016 Asset Gain/(Loss) | <u>375,126</u> |
| Total Deferred Asset Gain/(Loss) | \$ 2,111,083 |
| Preliminary Actuarial Value of Assets, End of Year | \$ 361,335,426 |
| Final End of Year Actuarial Value of Assets (not less than 80% and not greater than 120% of Market Value) | \$ 361,335,426 |
| Estimated Net Investment Return on Actuarial Value | 2.64% |



Appendix D — Summary of Actuarial Assumptions and Methods for Funding Purposes

Unless otherwise indicated below, the following assumptions and methods were developed based on an investigation of demographic and economic experience over the five-year period from January 1, 2010 to December 31, 2014 prepared by the prior actuary, adopted by the Board of Trustees on April 21, 2016, and prescribed for use in the Plan's December 31, 2019 annual actuarial valuation.

ECONOMIC ASSUMPTIONS

Discount Rate

3.75% per year, compounded annually.

Expected Rate of Return on Assets

3.75% per year, net of investment expenses.

Expected Long-term Rates of Inflation

Both general and wage inflation are assumed to be 3.00% per year.

Expected Long-term Real Wage Growth

0.50% per year.

Expected Across-the-Board Salary Increases

For disability events that first occur on or after January 1, 1988, extended STD and LTD benefits (before reductions) are assumed to increase 3.50% per year. Otherwise, no increases have been assumed.

Expected Long-term National Average Wage Growth

3.50% per year for the purposes of calculating Social Security benefits.

Expected Future Increases in Social Security Benefits

For disability events that first occur on or after January 1, 1988, Social Security disability benefits are assumed to increase by 3.00% per year. Otherwise, no increases have been assumed.

Expected Administrative Expenses Included in Normal Cost

Estimated administrative expenses equal to 0.01% of payroll were included in the normal cost rate (adopted December 31, 2017).

Expected Claims Administration Expenses

None. Our understanding is that approximately \$65,000 is budgeted for annual expenses related to claims administration during the fiscal year ending June 30, 2021. As a result, budgeted claims administration expenses are immaterial to the Plan's actuarially determined contribution rate calculations as of December 31, 2019.



Appendix D — Summary of Actuarial Assumptions and Methods for Funding Purposes

ECONOMIC ASSUMPTIONS

Employers' Share of State Health Plan

Monthly Active Subscriber Premiums (adopted December 31, 2019)

| Calendar Year | Monthly Premium Per Active Subscriber |
|---------------|---------------------------------------|
| 2020 | \$0 ¹ |

Long-term Health Care Cost Trend Rates

Annual health care premium rates are expected to increase in future years as a result of medical inflation, utilization, leverage in the plan design, and improvements in technology adjusted for any implicit and/or explicit cost containment features. The assumed rates of increases in expected active (non-Medicare primary) subscriber 70 / 30 plan health care premium rates vary by year, as shown in the table below (adopted December 31, 2019):

| Year Ending June 30 | Medical Non-Medicare | Prescription Drug |
|---------------------|----------------------|-------------------|
| 2020 ² | 6.50% | 9.50% |
| 2021 | 6.00% | 9.00% |
| 2022 | 6.00% | 8.50% |
| 2023 | 5.50% | 8.00% |
| 2024 | 5.00% | 7.50% |
| 2025 | 5.00% | 7.00% |
| 2026 | 5.00% | 6.50% |
| 2027 | 5.00% | 6.00% |
| 2028 | 5.00% | 5.50% |
| 2029+ | 5.00% | 5.00% |

¹ The Financial Accountability, Integrity, and Recovery (FAIR) Act of 2018 amended the Plan's eligibility criteria for STD benefits to eliminate employer reimbursements for the "second six months" of short-term disability benefits that begin on or after July 1, 2019.

² Initial trend rates (for the year ending June 30, 2020) were used to project premium rates backward from 2020 to entry year in measurements of benefit obligations based on the Entry Age Normal actuarial cost method.



Appendix D — Summary of Actuarial Assumptions and Methods for Funding Purposes

DEMOGRAPHIC ASSUMPTIONS

Mortality and Mortality Improvement Rates

Pre-Retirement RP-2014 total dataset mortality with fully generational projected mortality improvements using MP-2015 for general employees and law enforcement officers. RP-2014 white collar employee mortality with fully generational projected mortality improvements using MP-2015 for teachers, librarians, counselors and other education employees.

Post Retirement RP-2014 total dataset mortality prior to age 50, and RP-2014 healthy annuitant mortality after age 49 with fully generational projected mortality improvements using MP-2015 for general employees and law enforcement officers. RP-2014 white collar total dataset mortality prior to age 50, and RP-2014 white collar healthy annuitant mortality after age 49 with fully generational projected mortality improvements using MP-2015 for teachers, librarians, counselors and other education employees. Generationally projected healthy annuitant mortality rates for males and females in certain employee groups were further adjusted by the factors in the following tables:

| Employee Group | Male Retiree Adjustment Factors | |
|--|---------------------------------|----------|
| | Ages 50 – 78 | Ages 79+ |
| General Employees | 108% | 124% |
| Teachers, Librarians, Counselors and Other Education Employees | 92% | 120% |

| Employee Group | Female Retiree Adjustment Factors | |
|--|-----------------------------------|----------|
| | Ages 50 – 78 | Ages 79+ |
| General Employees | 81% | 113% |
| Teachers, Librarians Counselors, and Other Education Employees | 78% | 108% |

Post-Disablement RP-2014 disabled retiree mortality with no projection of mortality improvements. RP-2014 disabled retiree mortality rates for males and females have been adjusted to reflect 103% and 99%, respectively, of gender-specific table rates at each age.



Appendix D — Summary of Actuarial Assumptions and Methods for Funding Purposes

DEMOGRAPHIC ASSUMPTIONS

Mortality and Mortality Improvement Rates (continued)

The table below provides pre-retirement base mortality rates (as of 2014) for males and females in each employee group at sample ages:

| Age | General Employees | | Teachers, Librarians and Counselors | | Law Enforcement Officers | | Other Education Employees | |
|-----|-------------------|--------|-------------------------------------|--------|--------------------------|--------|---------------------------|--------|
| | Male | Female | Male | Female | Male | Female | Male | Female |
| 25 | 0.0005 | 0.0002 | 0.0003 | 0.0001 | 0.0005 | 0.0002 | 0.0003 | 0.0001 |
| 30 | 0.0005 | 0.0002 | 0.0003 | 0.0002 | 0.0005 | 0.0002 | 0.0003 | 0.0002 |
| 35 | 0.0005 | 0.0003 | 0.0004 | 0.0002 | 0.0005 | 0.0003 | 0.0004 | 0.0002 |
| 40 | 0.0006 | 0.0004 | 0.0004 | 0.0003 | 0.0006 | 0.0004 | 0.0004 | 0.0003 |
| 45 | 0.0010 | 0.0007 | 0.0007 | 0.0006 | 0.0010 | 0.0007 | 0.0007 | 0.0006 |
| 50 | 0.0017 | 0.0011 | 0.0012 | 0.0009 | 0.0017 | 0.0011 | 0.0012 | 0.0009 |
| 55 | 0.0028 | 0.0017 | 0.0020 | 0.0014 | 0.0028 | 0.0017 | 0.0020 | 0.0014 |
| 60 | 0.0047 | 0.0024 | 0.0033 | 0.0021 | 0.0047 | 0.0024 | 0.0033 | 0.0021 |
| 65 | 0.0083 | 0.0037 | 0.0058 | 0.0031 | 0.0083 | 0.0037 | 0.0058 | 0.0031 |
| 69 | 0.0125 | 0.0057 | 0.0092 | 0.0049 | 0.0125 | 0.0057 | 0.0092 | 0.0049 |

Withdrawal Rates

The following tables contain age, service, and gender based annual rates of separation from active service (for causes other than death, disability or retirement) for the employee groups listed below. For rates that vary based on age, sample ages have been provided.

| Service | General Employees | | Teachers, Librarians and Counselors | | Law Enforcement Officers | | Other Education Employees | |
|---------|-------------------|--------|-------------------------------------|--------|--------------------------|--------|---------------------------|--------|
| | Male | Female | Male | Female | Male | Female | Male | Female |
| 0 | 0.1800 | 0.1950 | 0.1900 | 0.1700 | 0.1300 | 0.1300 | 0.1900 | 0.1650 |
| 1 | 0.1550 | 0.1700 | 0.1600 | 0.1450 | 0.1000 | 0.1000 | 0.1600 | 0.1350 |
| 2 | 0.1300 | 0.1450 | 0.1400 | 0.1350 | 0.0900 | 0.0900 | 0.1300 | 0.1200 |
| 3 | 0.1100 | 0.1150 | 0.1200 | 0.1200 | 0.0600 | 0.0600 | 0.1150 | 0.1000 |
| 4 | 0.0900 | 0.1000 | 0.0950 | 0.1000 | 0.0600 | 0.0600 | 0.1000 | 0.0850 |



Appendix D — Summary of Actuarial Assumptions and Methods for Funding Purposes

DEMOGRAPHIC ASSUMPTIONS

Withdrawal Rates (continued)

| <u>Age</u> | <u>General Employees*</u> | | <u>Teachers, Librarians and Counselors*</u> | | <u>Law Enforcement Officers*</u> | | <u>Other Education Employees*</u> | |
|------------|---------------------------|---------------|---|---------------|----------------------------------|---------------|-----------------------------------|---------------|
| | <u>Male</u> | <u>Female</u> | <u>Male</u> | <u>Female</u> | <u>Male</u> | <u>Female</u> | <u>Male</u> | <u>Female</u> |
| 25 | 0.0800 | 0.1100 | 0.0800 | 0.0900 | 0.0400 | 0.0400 | 0.0800 | 0.1200 |
| 30 | 0.0700 | 0.0850 | 0.0700 | 0.0750 | 0.0350 | 0.0350 | 0.0600 | 0.0700 |
| 35 | 0.0525 | 0.0600 | 0.0450 | 0.0450 | 0.0300 | 0.0300 | 0.0450 | 0.0450 |
| 40 | 0.0400 | 0.0450 | 0.0350 | 0.0340 | 0.0300 | 0.0300 | 0.0400 | 0.0400 |
| 45 | 0.0350 | 0.0375 | 0.0325 | 0.0325 | 0.0400 | 0.0400 | 0.0400 | 0.0375 |
| 50 | 0.0350 | 0.0375 | 0.0325 | 0.0325 | 0.0400 | 0.0400 | 0.0400 | 0.0375 |
| 55 | 0.0350 | 0.0375 | 0.0325 | 0.0325 | 0.0400 | 0.0400 | 0.0400 | 0.0375 |
| 60 | 0.0350 | 0.0375 | 0.0325 | 0.0325 | 0.0400 | 0.0400 | 0.0400 | 0.0375 |

* These rates apply only after five years of membership in the system.

Retirement Rates

The following tables contain age, service, and gender based annual rates of retirement at sample ages for the employee groups listed below:

| <u>Age</u> | <u>General Employees—Male</u> | | | | | | |
|------------|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| | <u>Years of Service</u> | | | | | | |
| | <u>5</u> | <u>10</u> | <u>15</u> | <u>20</u> | <u>25</u> | <u>30</u> | <u>35</u> |
| 50 | | | | 0.0350 | 0.0800 | 0.3500 | 0.2000 |
| 55 | | | | 0.0500 | 0.1000 | 0.3500 | 0.2000 |
| 60 | 0.0850 | 0.0850 | 0.0850 | 0.0850 | 0.2750 | 0.3000 | 0.2250 |
| 65 | 0.2500 | 0.2750 | 0.2750 | 0.2750 | 0.2750 | 0.2750 | 0.2750 |
| 70 | 0.3250 | 0.2250 | 0.2250 | 0.2250 | 0.2250 | 0.2250 | 0.2250 |
| 75 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |



Appendix D — Summary of Actuarial Assumptions and Methods for Funding Purposes

DEMOGRAPHIC ASSUMPTIONS

Retirement Rates (continued)

| General Employees—Female | | | | | | | |
|--------------------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Years of Service | | | | | | | |
| <u>Age</u> | <u>5</u> | <u>10</u> | <u>15</u> | <u>20</u> | <u>25</u> | <u>30</u> | <u>35</u> |
| 50 | | | | 0.0350 | 0.0600 | 0.4000 | 0.3000 |
| 55 | | | | 0.0500 | 0.0800 | 0.3250 | 0.2250 |
| 60 | 0.0950 | 0.0950 | 0.0950 | 0.0950 | 0.2500 | 0.3000 | 0.2000 |
| 65 | 0.4000 | 0.3000 | 0.3000 | 0.3000 | 0.3000 | 0.3000 | 0.3000 |
| 70 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 |
| 75 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

| Teachers, Librarians and Counselors—Male | | | | | | | |
|--|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Years of Service | | | | | | | |
| <u>Age</u> | <u>5</u> | <u>10</u> | <u>15</u> | <u>20</u> | <u>25</u> | <u>30</u> | <u>35</u> |
| 50 | | | | 0.0250 | 0.0650 | 0.3000 | 0.3000 |
| 55 | | | | 0.0450 | 0.0900 | 0.3250 | 0.2500 |
| 60 | 0.1200 | 0.1200 | 0.1200 | 0.1200 | 0.3000 | 0.2500 | 0.2500 |
| 65 | 0.3000 | 0.3250 | 0.3250 | 0.3250 | 0.2000 | 0.2000 | 0.2000 |
| 70 | 0.2250 | 0.2250 | 0.2250 | 0.2250 | 0.2250 | 0.2250 | 0.2250 |
| 75 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

| Teachers, Librarians and Counselors—Female | | | | | | | |
|--|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Years of Service | | | | | | | |
| <u>Age</u> | <u>5</u> | <u>10</u> | <u>15</u> | <u>20</u> | <u>25</u> | <u>30</u> | <u>35</u> |
| 50 | | | | 0.0350 | 0.0550 | 0.2750 | 0.2750 |
| 55 | | | | 0.0600 | 0.0950 | 0.4000 | 0.3000 |
| 60 | 0.1350 | 0.1350 | 0.1350 | 0.1350 | 0.4500 | 0.5000 | 0.3250 |
| 65 | 0.3500 | 0.3750 | 0.3750 | 0.3750 | 0.3500 | 0.3500 | 0.3500 |
| 70 | 0.3000 | 0.3000 | 0.3000 | 0.3000 | 0.3000 | 0.3000 | 0.3000 |
| 75 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |



Appendix D — Summary of Actuarial Assumptions and Methods for Funding Purposes

DEMOGRAPHIC ASSUMPTIONS

Retirement Rates (continued)

| Other Education Employees—Male | | | | | | | |
|--------------------------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Years of Service | | | | | | | |
| <u>Age</u> | <u>5</u> | <u>10</u> | <u>15</u> | <u>20</u> | <u>25</u> | <u>30</u> | <u>35</u> |
| 50 | | | | 0.0350 | 0.0800 | 0.3000 | 0.1500 |
| 55 | | | | 0.0400 | 0.1000 | 0.2500 | 0.2000 |
| 60 | 0.0900 | 0.0900 | 0.0900 | 0.0900 | 0.2250 | 0.2500 | 0.2500 |
| 65 | 0.2750 | 0.3000 | 0.3000 | 0.3000 | 0.2750 | 0.2750 | 0.2750 |
| 70 | 0.2250 | 0.2250 | 0.2250 | 0.2250 | 0.2250 | 0.2250 | 0.2250 |
| 75 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

| Other Education Employees—Female | | | | | | | |
|----------------------------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Years of Service | | | | | | | |
| <u>Age</u> | <u>5</u> | <u>10</u> | <u>15</u> | <u>20</u> | <u>25</u> | <u>30</u> | <u>35</u> |
| 50 | | | | 0.0400 | 0.0550 | 0.3250 | 0.2250 |
| 55 | | | | 0.0500 | 0.0900 | 0.2250 | 0.2250 |
| 60 | 0.1100 | 0.1100 | 0.1100 | 0.1100 | 0.2500 | 0.2500 | 0.2500 |
| 65 | 0.2500 | 0.2750 | 0.2750 | 0.2750 | 0.3500 | 0.3500 | 0.3500 |
| 70 | 0.2500 | 0.2500 | 0.2500 | 0.2500 | 0.2500 | 0.2500 | 0.2500 |
| 75 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

| Law Enforcement Officers | | | | | | | |
|--------------------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Years of Service | | | | | | | |
| <u>Age</u> | <u>5</u> | <u>10</u> | <u>15</u> | <u>20</u> | <u>25</u> | <u>30</u> | <u>35</u> |
| 50 | | | 0.0900 | 0.0900 | 0.0900 | 0.6000 | 0.6000 |
| 55 | 0.5000 | 0.5000 | 0.5000 | 0.5000 | 0.5000 | 0.5000 | 0.5000 |
| 60 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.2000 | 0.5000 | 0.5000 |
| 65 | 0.2500 | 0.2500 | 0.2500 | 0.2500 | 0.2500 | 0.2500 | 0.2500 |
| 70 | 0.3000 | 0.3000 | 0.3000 | 0.3000 | 0.3000 | 0.3000 | 0.3000 |
| 75 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |



Appendix D — Summary of Actuarial Assumptions and Methods for Funding Purposes

DEMOGRAPHIC ASSUMPTIONS

Salary Increase Rates

Rates of salary increases for each employee group are constructed geometrically based on the expected long-term rate of inflation plus the expected productivity component (currently, 3.50%), and a variable expected merit component that is dependent on years of service. The following table provides a sample of the service-based rates of salary increases that are used to project a member's total salary as of the valuation date to future years. Salary increases are assumed to occur on July 1 of each year.

| <u>Service</u> | Total Annual Salary Increase Rates | | | |
|----------------|---|--|---------------------------------|----------------------------------|
| | <u>General Employees</u> | <u>Teachers, Librarians and Counselors</u> | <u>Law Enforcement Officers</u> | <u>Other Education Employees</u> |
| 0 | 5.50% | 7.55% | 8.10% | 7.00% |
| 5 | 4.50% | 6.05% | 6.10% | 6.25% |
| 10 | 4.00% | 5.10% | 4.40% | 5.50% |
| 15 | 3.50% | 4.35% | 3.95% | 4.75% |
| 20 | 3.50% | 3.65% | 3.65% | 4.00% |
| 25 | 3.50% | 3.50% | 3.50% | 3.50% |
| 30 | 3.50% | 3.50% | 3.50% | 3.50% |
| 35 | 3.50% | 3.50% | 3.50% | 3.50% |
| 40 | 3.50% | 3.50% | 3.50% | 3.50% |
| 45 | 3.50% | 3.50% | 3.50% | 3.50% |
| 50 | 3.50% | 3.50% | 3.50% | 3.50% |

Disability Rates

The table below provides age and gender based annual rates of disability per 1,000 lives exposed at sample ages:

| <u>Age</u> | <u>Male</u> | <u>Female</u> |
|------------|-------------|---------------|
| 20–24 | 0.621 | 0.779 |
| 25–29 | 0.684 | 0.889 |
| 30–34 | 0.802 | 1.186 |
| 35–39 | 1.045 | 1.766 |
| 40–44 | 1.529 | 2.309 |
| 45–49 | 2.649 | 3.444 |
| 50–54 | 4.826 | 5.307 |
| 55–59 | 8.551 | 7.696 |
| 60–64 | 12.054 | 9.040 |



Appendix D — Summary of Actuarial Assumptions and Methods for Funding Purposes

DEMOGRAPHIC ASSUMPTIONS

Decrement Timing and Adjustment

Decrements—retirement, withdrawal, death, and disability—are assumed to occur at the middle of the year, except that 100% retirement is assumed to occur at the beginning of the year. Decrement rates (or “probabilities”) are assumed to be uniformly distributed throughout the year, and reflect multiple decrement effects.

Disability Claim Termination Rates

Monthly select disability claim termination rates were used for the first 24 months of disability. The following tables contain age-at-disability and gender based rates of disability claim termination per 1,000 lives for sample durations of disability:

| Duration of Disability (Months) | Male | | | | | | | | |
|---------------------------------|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | Age-at-Disability | | | | | | | | |
| | <u>20–24</u> | <u>25–29</u> | <u>30–34</u> | <u>35–39</u> | <u>40–44</u> | <u>45–49</u> | <u>50–54</u> | <u>55–59</u> | <u>60–64</u> |
| 5 | 187.7 | 166.3 | 150.7 | 135.4 | 121.8 | 108.3 | 94.4 | 83.9 | 75.6 |
| 10 | 51.5 | 44.4 | 38.3 | 33.3 | 29.5 | 26.6 | 23.1 | 21.2 | 19.8 |
| 15 | 32.7 | 27.9 | 23.7 | 20.2 | 17.8 | 16.1 | 13.8 | 12.6 | 12.0 |
| 20 | 23.0 | 20.1 | 17.1 | 14.7 | 12.8 | 11.6 | 9.6 | 9.0 | 8.6 |
| 24 | 20.6 | 18.1 | 15.4 | 13.3 | 11.4 | 10.2 | 8.3 | 7.7 | 7.3 |

| Duration of Disability (Months) | Female | | | | | | | | |
|---------------------------------|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | Age-at-Disability | | | | | | | | |
| | <u>20–24</u> | <u>25–29</u> | <u>30–34</u> | <u>35–39</u> | <u>40–44</u> | <u>45–49</u> | <u>50–54</u> | <u>55–59</u> | <u>60–64</u> |
| 5 | 177.5 | 157.7 | 139.5 | 126.0 | 115.0 | 106.0 | 96.0 | 88.7 | 81.3 |
| 10 | 46.5 | 40.8 | 36.5 | 33.2 | 31.0 | 29.1 | 26.3 | 24.6 | 22.6 |
| 15 | 29.7 | 25.8 | 22.6 | 20.2 | 18.4 | 17.1 | 15.2 | 14.1 | 13.0 |
| 20 | 21.8 | 18.7 | 16.3 | 14.3 | 12.8 | 11.8 | 10.2 | 9.5 | 8.9 |
| 24 | 19.8 | 16.8 | 14.6 | 12.7 | 11.2 | 10.3 | 8.6 | 8.1 | 7.5 |

Annual select and ultimate disability claim termination rates were used after the first 24 months of disability, with select rates effective from 5 to 25 years. The following tables contain age-at-disability and gender based rates of disability claim termination per 1,000 lives for sample durations of disability:



Appendix D — Summary of Actuarial Assumptions and Methods for Funding Purposes

DEMOGRAPHIC ASSUMPTIONS

Disability Claim Termination Rates (continued)

| Duration of Disability (Years) | Male | | | | | | | | |
|--------------------------------------|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | Age-at-Disability | | | | | | | | |
| | <u>20-24</u> | <u>25-29</u> | <u>30-34</u> | <u>35-39</u> | <u>40-44</u> | <u>45-49</u> | <u>50-54</u> | <u>55-59</u> | <u>60-64</u> |
| 5 | 94.7 | 83.8 | 72.9 | 63.5 | 56.3 | 51.2 | 42.3 | 43.8 | 43.2 |
| 10 | 42.0 | 40.3 | 36.3 | 32.2 | 30.0 | 31.2 | 34.3 | 38.0 | 40.9 |
| 15 | 29.2 | 28.3 | 28.4 | 27.3 | 28.3 | 32.2 | 35.9 | 40.8 | 47.2 |
| 20 | 25.2 | 26.3 | 29.3 | 31.4 | 36.1 | 42.2 | 47.8 | 58.5 | 68.4 |
| 25 | 28.3 | 28.5 | 33.6 | 36.2 | 38.1 | 53.1 | 59.6 | 88.8 | 129.4 |

| Duration of Disability (Years) | Female | | | | | | | | |
|--------------------------------------|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | Age-at-Disability | | | | | | | | |
| | <u>20-24</u> | <u>25-29</u> | <u>30-34</u> | <u>35-39</u> | <u>40-44</u> | <u>45-49</u> | <u>50-54</u> | <u>55-59</u> | <u>60-64</u> |
| 5 | 90.9 | 76.3 | 64.7 | 55.4 | 48.5 | 44.4 | 37.2 | 38.5 | 37.1 |
| 10 | 40.0 | 35.6 | 29.3 | 25.4 | 23.0 | 23.0 | 24.5 | 27.9 | 29.5 |
| 15 | 28.5 | 26.5 | 22.4 | 20.6 | 20.5 | 22.2 | 25.1 | 26.2 | 37.5 |
| 20 | 26.8 | 23.8 | 21.8 | 21.5 | 24.2 | 27.7 | 31.9 | 39.8 | 55.7 |
| 25 | 27.6 | 25.5 | 25.1 | 24.2 | 27.1 | 41.7 | 41.5 | 76.6 | 130.2 |

Dates of Disability

The date of disability is the calendar month, day, and year on which a claimant meets the definition of disability under Plan. This date is used to estimate the member’s age-at-disability and the duration of the member’s disability, which are used in the determination of the applicable monthly select, and annual select and ultimate, disability claim termination rates described above.

The Retirement Systems Division (RSD) did not provide date of disability or age-at-disability for members who are receiving extended short-term and long-term disability benefits under the Plan as of December 31, 2019. As instructed by RSD, we assumed that dates of disability for these members occurred twelve months before their benefit start dates. We note that benefit start dates could be deferred as a result of member decisions, any delay in the disability application and/or certification process(es), or any change in the applicable disability program (for example, if a new benefit start date would be generated for members who begin receiving long-term disability benefits after having exhausted extended short-term disability benefits). Nevertheless, we believe that the prescribed method is a reasonable approach because, generally speaking, members must have been enrolled for twelve months under the short-term disability program before extended short-term or long-term disability benefits can be paid, and the number of members whose estimated dates of disability reflect more recent event dates than actual experience would support is likely not significant.



Appendix D — Summary of Actuarial Assumptions and Methods for Funding Purposes

DEMOGRAPHIC ASSUMPTIONS

Assumed Social Security Disability Benefit Approval Rates

Future Disabled Members 50% of members who had less than five years of service as of July 31, 2007 are assumed to receive approval for Social Security disability benefits from the conclusion of the waiting period and prior to the completion of four years of disability. All other members are assumed to receive approval for Social Security disability benefits.

Current Disabled Members Actual Social Security disability benefit approval information is used where available. If actual Social Security disability decisions are not available, 50% of currently disabled members who had less than five years of service as of July 31, 2007 are assumed to receive approval for Social Security disability benefits. Otherwise, all other currently disabled members are assumed to receive approval for Social Security disability benefits.

Our understanding is that the Retirement Systems Division (RSD) has implemented a number of changes to the disability application process since the prior valuation, including the addition of a case manager to the operations team staff and reviews to ensure that applications contain all of the required provider documentation prior to Medical Review Board consideration. Since the new application process would likely generate better, and timelier, documentation of members' disabilities than the old process, actual Social Security disability benefit approval rates could be higher than expected in the future. As such, we will be reviewing this assumption as part of the upcoming experience study to determine how the rates should be refined prior to the next actuarial valuation of the Plan, and the results provided in this report should be viewed as having a likely range of variability.

Future State Health Plan Enrollment

100% of active employees will elect to enroll in the 70 / 30 Plan option prior to July 1, 2019. Otherwise, no active employees are assumed to participate in the State Health Plan on or after July 1, 2019¹.

¹ The Financial Accountability, Integrity, and Recovery (FAIR) Act of 2018 amended the Plan's eligibility criteria for STD benefits to eliminate employer reimbursements for the "second six months" of short-term disability benefits that begin on or after July 1, 2019.



Appendix D — Summary of Actuarial Assumptions and Methods for Funding Purposes

OTHER ASSUMPTIONS AND METHODS

Gross Benefit Adjustments

Our understanding is that the gross benefit amounts provided by the Retirement Systems Division (RSD) as of December 31, 2019 reflect the multipliers and/or limits applicable to the disability program in which the claimant is enrolled, as reported on the census data. For the purposes of estimating incurred but not reported (IBNR) liabilities, gross benefit amounts payable to members who are currently receiving extended short-term disability benefits were adjusted to reflect the multipliers used under the long-term disability program. However, if “unlimited” gross benefits were not provided on the census data, we assumed that claimants would have the highest allowable gross benefit under the Plan’s long-term disability provisions if the highest allowable extended short-term gross benefit was provided on the census data.

Social Security Benefit Offsets

Future Disabled Members

Estimated projected Social Security benefits for future disabled members are based on expected long-term National Average Wage growth assumptions, assumptions about future increases in Social Security benefits, valuation salaries from age at entry to future decrement dates, and the Social Security benefit determination rules applicable to the law year in effect on future decrement dates. Estimated projected Social Security retirement benefits were adjusted to reflect reductions / increases for early / late commencement.

Current Disabled Members

Social Security benefit offsets were not provided for some claimants—for example, members who are currently receiving extended short-term disability benefits—as of December 31, 2019. We estimated Social Security benefits for affected claimants based on the relevant assumptions listed above, wages at termination projected backward reflecting relative changes in National Average Wages to member age 20, and the Social Security benefit determination rules applicable to the 2019 law year.

Other Offsets

No additional offsets—including but not limited to Worker’s Compensation, VA benefits, and Outside Earnings—other than those reported, have been assumed.

Reported Compensation

Calendar year compensation provided by the System’s office.

Valuation Compensation

Reported compensation adjusted based on the assumed annual rates of salary increase to reflect the assumed rate of pay as of the valuation date.



Appendix D — Summary of Actuarial Assumptions and Methods for Funding Purposes

OTHER ASSUMPTIONS AND METHODS

Valuation Date

December 31, 2019

Benefits Not Valued

None.

Actuarial Cost Method

The valuation is prepared on the projected benefit basis, under which the present value, at the interest rate assumed to be earned in the future (currently 3.75%), of each member's expected benefits at future disability events is determined, based upon age, service, and gender. The calculations take into account the probability of a member's disability, recovery from disability, death, retirement, or termination of employment prior to receiving benefits under the Plan. The present value of the expected benefits payable on account of active members is added to the present value of the expected future payments to currently disabled members to obtain the present value of all expected benefits payable by the Plan.

The actuarial cost method is a procedure for allocating the actuarial present value of postemployment benefits and expenses to time periods. The method used for funding purposes is known as the Aggregate actuarial cost method, and has the following characteristics:

- (i) The annual normal cost is determined for the entire group active participants rather than individually for each participant.
- (ii) This cost method does not identify or separately amortize unfunded actuarial liabilities. Thus, actuarial gains (losses), as they occur, reduce (increase) future normal costs.

The Aggregate actuarial cost method allocates the actuarial present value of postemployment benefits for all active participants and currently disabled members in excess of the Actuarial Value of Assets on a level basis over the present value of projected compensation for all active participants between the valuation date and the date that the last employee retires (collectively).

The portion of the actuarial present value allocated to the valuation year is called the normal cost. Under the Aggregate actuarial cost method, the annual normal cost is a percentage of the year-by-year projected total covered compensation for all employees. This actuarial cost method does not produce an Actuarial Accrued Liability, so the Actuarial Accrued Liability based on the Entry Age Normal (Level Percentage of Pay) actuarial cost method is often reported in connection with results based on the Aggregate actuarial cost method.

The actuarial cost method was prescribed by the System for the purposes of preparing the actuarially determined employer contribution rate for the Plan as of December 31, 2019.



Appendix D — Summary of Actuarial Assumptions and Methods for Funding Purposes

OTHER ASSUMPTIONS AND METHODS

Asset Valuation Method

The Actuarial Value of Assets for this purpose is determined using the “five-year smoothed value” asset valuation method, which attempts to “flatten” the peaks and valleys inherent in market values of assets. Under this method, investment gains and losses are recognized in equal portions over a five-year period. Investment gains and losses are determined by comparing the actual return on market value for a given period to the anticipated earnings over the same period if the market value of assets at the beginning of the period, contributions, benefit payments, and administrative expenses during the period earned the expected rate of return for the portion of the period that each was expected to be including in, or excluded from, plan assets. The expected rate of return for this purpose is equal to the expected long-term rate of return assumption selected at the beginning of the experience period (in this case, 3.75% as of January 1, 2018). The resulting Actuarial Value of Assets cannot be less than 80% or more than 120% of the market value of assets. Please see Appendix C for the development of the Actuarial Value of Assets as of the valuation date.

The asset valuation method was prescribed by the System for the purposes of preparing the actuarially determined employer contribution rate for the Plan as of December 31, 2019.

Incurred But Not Reported Claims (IBNR)

IBNR claims are based on the one-year term cost for expected disablements during the year. For long-term disability, a reserve of 14/12 of the term cost is added to account for the waiting time after disability to receive LTD benefits.

Funding Policy

The actuarial cost method, asset valuation method, and other components of the contribution allocation procedure were considered and approved by the Board during the most recent experience study. ADC rates as of the valuation date were developed based on the Plan’s Normal Cost as a percent of pay plus an allowance for administrative expenses, as approved by the System.



Appendix D — Summary of Actuarial Assumptions and Methods for Funding Purposes

OTHER ASSUMPTIONS AND METHODS

Other Assumptions and Methods

Unless otherwise stated above, all other actuarial assumptions and methods are the same as those used for the purpose of determining periodic funding contributions as of December 31, 2018.

Please see the December 31, 2018 actuarial valuation report for additional information about the data, assumptions, methods, and plan provisions used to prepare results as of the December 31, 2018 measurement date. Likewise, additional information concerning historical results can be found in the relevant actuarial valuation report for each valuation date. Please keep in mind that any information that may be included in this report for periods prior to December 31, 2017 was produced by other actuarial consulting firms.

Changes in Funding Assumptions and Methods Since the Prior Valuation

The December 31, 2019 measurements used in the development of actuarially determined contribution rates reflect the following changes in assumptions and methods:

Prescribed Changes

- Long-term health care cost trend rates were updated to better reflect the anticipated impact, as of June 30, 2020, of changes in medical inflation, utilization, leverage in the plan design, and improvements in technology on expected active (non-Medicare primary) subscriber 70 / 30 plan health care premium rates in future periods.

The aggregate effect of the changes described above was an increase in the Plan's actuarial present value of projected benefits and the normal cost rate measured as of December 31, 2019.



Appendix E — Summary of Actuarial Assumptions and Methods for Financial Accounting Purposes

ECONOMIC AND OTHER ASSUMPTIONS AND METHODS

Discount Rate

3.75% per year, compounded annually (adopted June 30, 2019).

The projection of cash flows used to determine the discount rate was performed in accordance with the procedures described in GASB 74. The basis for this projection is the Plan's actuarial valuation performed as of December 31, 2019 (Valuation Date). In addition to the actuarial methods and assumptions used for funding purposes as of December 31, 2019, the following actuarial methods and assumptions were used in the projection of cash flows for the purpose of determining the discount rate under GASB 74 as of June 30, 2020 (Measurement Date):

- The System selected a 3.50% Municipal Bond Index Rate and prescribed it for use in determining the Plan's discount rate under GASB 74 as of the Measurement Date.
- Total payroll for the initial projection year consists of the payroll of the active membership present on the Valuation Date. In subsequent projection years, total payroll was assumed to increase annually at a rate of 3.50%.
- Employers are assumed to make projected contributions in the middle of each calendar year equal to the projected covered payroll for the period multiplied by the average actuarially determined contribution (ADC) rate expected to be in effect during that period. Projected employer contributions for future employees were first applied to reduce applicable service costs for these members.
- ADC rates were projected from June 30, 2022 using the greater of the ADC rate for the fiscal year ending on June 30, 2022 and the rate determined based on projected liabilities, actuarial values of assets, and other inputs attributable to current employees and disabled members that were used in the funding method selected by the System as of December 31, 2019. Projected ADC rates were not permitted to exceed the most recent five year average ADC rate as of the Valuation Date.
- Administrative expenses were projected from calendar 2019 using a 3.00% assumed annual rate of increase. Projected administrative expenses were allocated to current and future employees based on the change in the percentage of total payroll attributable to each group during each future period, and are assumed to be paid in the middle of each calendar year.
- Projected benefit payments for current employees and disabled members are assumed to be paid in the middle of each calendar year.

Based on these assumptions, the Plan's PFNP was not projected to be depleted. As a result, the Municipal Bond Index Rate was not used in the determination of the discount rate, and the 3.75% long-term expected rate of return selected by the System was used, as prescribed, in the measurement of the Plan's Total OPEB Liability (TOL) as of the Measurement Date under GASB 74.

Municipal Bond Index Rate

2.21% per year, compounded annually (adopted June 30, 2020).



Appendix E — Summary of Actuarial Assumptions and Methods for Financial Accounting Purposes

ECONOMIC AND OTHER ASSUMPTIONS AND METHODS

Expected Rate of Return on Assets

3.75% per year, net of investment expenses.

Expected Administrative Expenses Included in Service Cost

None.

Measurement Date

June 30, 2020

Measurement Period

July 1, 2019 to June 30, 2020

Actuarial Cost Method

The valuation is prepared on the projected benefit basis, under which the present value, at the interest rate assumed to be earned in the future (currently 3.75%), of each member's expected benefits at future disability events is determined, based upon age, service, and gender. The calculations take into account the probability of a member's disability, recovery from disability, death, retirement, or termination of employment prior to receiving benefits under the Plan. The present value of the expected benefits payable on account of active members is added to the present value of the expected future payments to currently disabled members to obtain the present value of all expected benefits payable by the Plan.

The actuarial cost method is a procedure for allocating the actuarial present value of postemployment benefits and expenses to time periods. The method used for financial accounting purposes is known as the Entry Age Normal (Level Percentage of Pay) actuarial cost method, and has the following characteristics:

- (i) The annual service costs for each individual active participant are sufficient to accumulate the value of the participant's postemployment benefits at time of retirement.
- (ii) Each annual service cost is a constant percentage of the participant's year-by-year projected covered compensation.

The Entry Age Normal (Level Percentage of Pay) actuarial cost method allocates the actuarial present value of each participant's projected benefits on a level basis over the participant's assumed compensation rates between the entry age of the participant and the assumed ages at which the participant will leave active service.

The portion of the actuarial present value allocated to the valuation year is called the service cost (SC). The portion of the actuarial present value of expected benefits not provided for by the actuarial present value of future service costs is called the Total OPEB Liability (TOL). The difference between the TOL and the Actuarial Asset Value is the Net OPEB Liability (NOL).

The actuarial cost method is prescribed by GASB 74 and 75 for financial accounting purposes.



Appendix E — Summary of Actuarial Assumptions and Methods for Financial Accounting Purposes

ECONOMIC AND OTHER ASSUMPTIONS AND METHODS

Asset Valuation Method

The Actuarial Value of Assets for financial accounting purposes is equal to the Plan Fiduciary Net Position (PFNP)—the market value of the financial accounting asset—on the measurement date.

The asset valuation method is prescribed by GASB 74 and 75 for financial accounting purposes.

Applicable Accounting Standards

Our understanding is that the State has determined that the Plan's liability for short-term disability benefits associated with currently active employees is not measurable. As a result, the System accounts for all Plan benefits under Governmental Accounting Standards Board Statement No. 74 (GASB 74), "Financial Reporting For Postemployment Benefit Plans Other Than Pension Plans", and Statement No. 75 (GASB 75), "Accounting and Financial Reporting For Postemployment Benefits Other Than Pensions".

For plan and financial accounting purposes, the Plan is assumed to be a cost-sharing, other than insured, defined benefit OPEB plan without a special funding situation where assets are accumulated in a trust that meets the criteria outlined in paragraph 3 of GASB 74 and paragraph 4 of GASB 75, respectively. The System elected not to restate results for any period prior to the adoption of GASB 74/75.

Other Assumptions and Methods

Unless otherwise stated above, all other actuarial assumptions and methods are the same as those used for the purpose of determining periodic funding contributions as of December 31, 2019.

Please see the December 31, 2018 actuarial valuation report for additional information about the data, assumptions, methods, and plan provisions used to prepare financial accounting results as of the June 30, 2019 measurement date. Please keep in mind that any information that may be included in this report for periods prior to December 31, 2017 was produced by other actuarial consulting firms.



Appendix E — Summary of Actuarial Assumptions and Methods for Financial Accounting Purposes

ECONOMIC AND OTHER ASSUMPTIONS AND METHODS

Changes in Financial Accounting Assumptions and Methods Since the Prior Valuation

The December 31, 2019 measurements used in the development of June 30, 2020 financial accounting results for the Plan reflect the following changes in assumptions and methods:

Prescribed Changes

- As required under GASB rules, the yield on 20-year tax-exempt municipal bonds rated AA/Aa or higher was updated to equal the Municipal Bond Index Rate as of June 30, 2020. The System selected the 2.21% Municipal Bond Index Rate as of the June 30, 2020 measurement date. However, the Municipal Bond Index Rate was not used in the determination of the discount rate based on the procedure described in GASB 74;
- Long-term health care cost trend rates were updated to better reflect the anticipated impact, as of June 30, 2020, of changes in medical inflation, utilization, leverage in the plan design, and improvements in technology on expected active (non-Medicare primary) subscriber 70 / 30 plan health care premium rates in future periods;

The aggregate effect of the changes described above was an increase in the Plan's Total OPEB Liability and service cost measured as of December 31, 2019.



Appendix F — Summary of Main Benefit Provisions as Interpreted for Valuation Purposes

This summary of main benefit provisions is intended to describe only the principal features of the Disability Income Plan of North Carolina (DIPNC, or the Plan), a cost-sharing, multiple employer defined benefit OPEB plan sponsored by the Teachers' and State Employees' Retirement System of North Carolina (the System) as interpreted for valuation purposes. All actual eligibility requirements and benefit amounts will be determined in accordance with the Plan document and any System practices, processes, and procedures.

Overview of the Plan

The Disability Income Plan of North Carolina became effective January 1, 1988. The Plan replaced the Disability Salary Continuation Plan for Teachers and State Employees of North Carolina (DSC Plan). Those beneficiaries disabled prior to January 1, 1988 continue to be covered under the provisions of the DSC Plan as in effect December 31, 1987. Beneficiaries disabled on or after January 1, 1988 are covered under the provisions of the Disability Income Plan.

Membership in the Plan

All teachers and other employees who are in active service and are members of the Teachers' and State Employees' Retirement System (TSERS) or the UNC Optional Retirement Program (ORP) on or after January 1, 1988 are eligible to participate in the Plan.

Definition of Disability

The mental or physical incapacity for the further performance of duty of a beneficiary; provided that such incapacity was not the result of terrorist activity, of active participation in a riot, of the commission or attempt to commit a felony, or of the intentional self-infliction of an injury.

Definition of Base Rate of Compensation

The regular monthly rate of compensation not including pay for shift premiums, overtime, or other types of extraordinary pay as determined by the Board of Trustees.

Definition of Annual Longevity Payment

Full-time and part-time (20 hours or more) permanent, probationary, and time-limited employees are eligible for annual longevity payments; whereas, part-time (less than 20 hours) and temporary employees are not eligible for these payments.

Annual longevity pay amounts are based on the length of total State service and a percentage of the eligible employee's annual base rate of compensation on the date of eligibility. Longevity pay amounts are determined by multiplying the eligible employee's annual base rate of compensation by the appropriate percentage from the following table:

| Years of Total State Service | Longevity Pay Percentage |
|------------------------------|--------------------------|
| Under 10 years | 0.00% |
| 10 but less than 15 years | 1.50% |
| 15 but less than 20 years | 2.25% |
| 20 but less than 25 years | 3.25% |
| 25 or more years | 4.50% |



Appendix F — Summary of Main Benefit Provisions as Interpreted for Valuation Purposes

SHORT-TERM DISABILITY BENEFITS

Eligibility for Short-Term Disability Benefits

Prior to June 25, 2018, any participant who becomes disabled and is no longer able to perform his usual occupation after at least 365 calendar days succeeding his date of initial employment and at least one year of contributing membership service in the System may be eligible for STD benefits.

Effective June 25, 2018, any participant who becomes disabled and is no longer able to perform his or her usual occupation may be eligible for STD benefits provided all of the following conditions are met:

- (1) Application for the benefit occurs at least 365 calendar days succeeding the participant's date of initial employment as a teacher or employee;
- (2) The participant has at least one year of contributing membership service earned within 36 calendar months immediately preceding the date of disability. Salary continuation (see below) used during the period shall count toward this one-year requirement;
- (3) The member applies for short-term disability within one year of the end of the waiting period;
- (4) The participant's employer and attending physician certify that the participant is mentally or physically incapacitated for the further performance of duty; and,
- (5) The participant's incapacity was incurred at the time of active employment and has been continuous thereafter.

Waiting Period

A beneficiary shall receive no benefits from the Plan for a period of 60 continuous calendar days from the onset of disability determined as the last actual day of service, the day that the physician certified the disability, or the day succeeding at least 365 calendar days after the commencement of service as a teacher or employee, whichever is later.

Salary Continuation Benefits

During the waiting period, a beneficiary may be paid such salary continuation as provided by an employer through the use of sick leave, vacation leave or any other salary continuation.

A disabled beneficiary may elect to receive any such salary continuation in lieu of STD benefits provided such election shall not extend the 365 days duration of the STD period.

Commencement of STD Benefits

The STD benefit commences on the first day succeeding the waiting period.



Appendix F — Summary of Main Benefit Provisions as Interpreted for Valuation Purposes

SHORT-TERM DISABILITY BENEFITS

Monthly STD Benefit Amounts

50% of 1/12th of the annual base rate of compensation last payable to the beneficiary prior to the beginning of the STD period plus 50% of 1/12th of the annual longevity payment to which the beneficiary would be eligible, to a maximum of \$3,000 per month, reduced by any other benefits that are payable to the beneficiary including but not limited to:

- (1) Monthly temporary total Workers' Compensation payments by any employer¹;
- (2) Monthly Veterans Administration (VA) disability payments for the same (or for a related) disability;
- (3) Monthly benefits payable under other Federal or certain statutory disability plans;
- (4) Monthly wages or other income paid by public or private employers in excess of the participant's earnable allowance. If a beneficiary has earnings in excess of the STD benefit, the STD benefit shall be also reduced on a dollar-for-dollar basis by the amount that exceeds the STD benefit; and,
- (5) Monthly severance pay as a result of a reduction-in-force from the State.

State Health Plan Coverage Benefit

The employer's-share of the premium for State Health Plan coverage under the 70 / 30 Plan option will continue to be paid by the employer on behalf of beneficiaries who have five or more years of contributing membership service on the date that STD payments begin. Beneficiaries who do not meet this requirement are permitted to enroll in a State Health Plan option while they are receiving STD benefits, but they must pay the associated premium for the coverage option that they elect.

Post Disability Benefit Adjustments

The compensation upon which the STD benefit is calculated may be increased by any percentage across-the-board salary increases granted by the General Assembly.

Duration of STD Benefits

STD benefits are payable for up to 365 days following the waiting period. The first six months of benefits are payable by the employer outside of the trust. The remaining six months are also paid by the employer outside of the trust. However, the employer may request reimbursement from the trust for short-term disability benefits and State Health Plan premiums paid during this "second six month" period.

Effective July 1, 2019, the Plan will no longer reimburse employers for short-term disability or State Health Plan premiums paid during the "second six month" period for disabilities occurring on or after that date.

¹ However, STD benefits are not offset by permanent, partial Workers' Compensation benefits.



Appendix F — Summary of Main Benefit Provisions as Interpreted for Valuation Purposes

EXTENDED SHORT-TERM DISABILITY BENEFITS

Eligibility for Extended Short-Term Disability Benefits

Any beneficiary who completes 365 days of short-term disability benefits may be eligible to receive extended STD benefits if the disability is expected to end during the extended period, and the extension is approved by the Medical Board.

Waiting Period

There is no waiting period for extended STD benefits. However, a member must exhaust STD benefits before extended STD benefits can be paid.

Salary Continuation Benefits

Same as for STD benefits.

Commencement of Extended STD Benefits

The extended STD benefit commences on the first day succeeding the conclusion of the short-term disability period.

Monthly Extended STD Benefit Amounts

Same as STD benefit amounts.

State Health Plan Coverage Benefit

The State Health Plan trust pays the employer's share of the premium for beneficiaries who are receiving extended STD benefits.

Post Disability Benefit Adjustments

Same as for STD benefits.

Duration of Extended STD Benefits

Extended STD benefits are payable for up to an additional 365 days beyond the initial 365 day short-term period. During this extended period, STD benefits are paid directly from the trust.



Appendix F — Summary of Main Benefit Provisions as Interpreted for Valuation Purposes

LONG-TERM DISABILITY BENEFITS

Eligibility for Long-Term Disability Benefits

Any beneficiary who has five or more years of contributing membership service in the System, earned within the 96 calendar months prior to the conclusion of the short-term disability period or the conclusion of salary continuation, whichever is later, may be eligible to receive LTD benefits from the Plan upon approval by the Board of Trustees provided that the disability is likely to be permanent, and the beneficiary or participant withdraws from active service by terminating employment as a teacher or State employee.

Waiting Period

There is no waiting period for LTD benefits. However, a member must exhaust STD benefits before LTD benefits can be paid.

Salary Continuation Benefits

A disabled beneficiary may elect to receive any such salary continuation in lieu of LTD benefits provided such election shall not extend the first 36 consecutive calendar months of the LTD period.

Commencement of LTD Benefits

Benefits commence on the first day succeeding the conclusion of the short-term disability period provided the beneficiary makes application for such benefits within 180 days after the short-term disability period ceases or after salary continuation payments cease, whichever is later.

Monthly LTD Benefit Amounts

65% of 1/12th of the annual base rate of compensation last payable to the beneficiary prior to the beginning of the STD benefit period plus 65% of 1/12th of the annual longevity payment to which the beneficiary would be eligible, to a maximum of \$3,900 per month, reduced by any other benefits that are payable to the beneficiary including but not limited to:

- (1) Monthly primary Social Security disability benefits¹;
- (2) Monthly temporary total or partial Workers' Compensation payments by any employer;
- (3) Monthly Veterans Administration (VA) disability payments for the same (or for a related) disability;
- (4) Monthly benefits payable under other Federal or certain statutory disability plans;
- (5) Monthly benefits payable from TSERS, or other retirement systems supported by the State;
- (6) Monthly benefits payable through other insurance plans to which the State contributes;
- (7) Monthly wages or other income paid by public or private employers in excess of the participant's earnable allowance; and,
- (8) Monthly severance pay as a result of a reduction-in-force from the State.

¹ For members with less than five years of service as of July 31, 2007, LTD benefits terminate after 36 months if the member has not been approved for Social Security disability benefits. Otherwise, the beneficiary's benefit shall be reduced by an amount—as determined by the Board of Trustees—equal to the primary Social Security disability benefit to which the beneficiary might have been entitled had the beneficiary been awarded Social Security disability benefits.



Appendix F — Summary of Main Benefit Provisions as Interpreted for Valuation Purposes

LONG-TERM DISABILITY BENEFITS

Monthly LTD Benefit Amounts (continued)

However, in any event, the monthly LTD benefit payable after all offsets have been deducted cannot be less than \$10 per month.

State Health Plan Coverage Benefit

The State Health Plan trust pays the employer's share of the premium for beneficiaries who are receiving LTD benefits.

Post Disability Benefit Adjustments

The compensation upon which the long-term disability benefit is calculated may be increased by any percentage across-the-board salary increases granted by the General Assembly. Benefits shall be reduced by future increases granted by the Social Security Administration.

Duration of LTD Benefits

Under N.C. G.S. § 135-112, some participants who were actively employed on January 1, 1988 and started receiving LTD benefits before completing 5 years of contributory membership service will receive lifetime benefits in lieu of service accruals under the System.

For all other participants, the LTD benefit is payable until the earliest date at which the beneficiary is eligible for an unreduced service retirement allowance from TSERS, or the termination of disability, whichever occurs first.

Please see the December 31, 2019 actuarial valuation report for TSERS for a complete description of the eligibility requirements related to TSERS unreduced service retirement allowances for various employee groups.



Appendix F — Summary of Main Benefit Provisions as Interpreted for Valuation Purposes

DSC PLAN LONG-TERM DISABILITY BENEFITS

Eligibility for DSC Plan Long-Term Disability Benefits

Only participants who were first disabled prior to January 1, 1988 and are currently receiving LTD payments are eligible for LTD benefits under the predecessor Disability Salary Continuation Plan (DSC Plan).

Monthly DSC Plan LTD Benefit Amounts

60% of monthly salary to a maximum of \$1,000 per month reduced by benefits payable from other plans including but not limited to:

- (1) Social Security benefits payable:
 - Before July 1, 1974—full family benefits.
 - On or after July 1, 1974—primary benefits only;
- (2) Workers' Compensation, and other Federal and certain statutory disability benefits;
- (3) Benefits payable from TSERS, or other retirement systems supported by the State;
- (4) Benefits payable through other insurance plans to which the State contributes; and,
- (5) Wages or other income paid by public or private employers in excess of the participant's earnable allowance.

Post Disability Benefit Adjustments

DSC Plan LTD benefits shall not be increased by future across-the-board salary increases granted by the General Assembly nor decreased by any future increases granted by the Social Security Administration.

Duration of DSC Plan LTD Benefits

The LTD benefit under the DSC Plan is payable until the termination of disability.



Appendix F — Summary of Main Benefit Provisions as Interpreted for Valuation Purposes

Termination of Disability Benefits

Disability benefits will end—and all future disability benefits will be forfeited—if a beneficiary receives a refund of his or her contributions or, in the case of STD benefits, starts receiving a retirement benefit from the System. Disability benefits can also be terminated by member request.

Plan benefits may be terminated by the System for reasons including but not limited to:

- (1) The beneficiary returns to a contributing membership position with TSERS or ORP;
- (2) Beneficiary earnings consistently exceed his or her earnable allowance;
- (3) A medical professional does not continue to certify the beneficiary's disability when a reexamination is requested by the Medical Board;
- (4) The Medical Board certifies that the beneficiary is no longer disabled;
- (5) The beneficiary did not have 5 years of service as of July 31, 2007 and was denied or did not receive approval for Social Security disability benefits after receiving 36 months of LTD payments;
- (6) The beneficiary becomes eligible (or would have become eligible) for a TSERS unreduced service retirement benefit while he or she is receiving LTD benefits; or
- (7) The beneficiary dies.

Contributions

The Plan is funded solely through contributions made by the State and/or employing units. Participants do not contribute.

Changes in Benefit Provisions Since the Prior Valuation

There were no changes in the Plan's benefit provisions as of June 30, 2020 since the prior valuation.



Appendix G — GASB 74 Fiduciary Net Position Projection

Table G-1: Projection of Fiduciary Net Position (\$ in Thousands)

| Calendar Year | Beginning Fiduciary Net Position | Member Contributions | Employer Contributions | Benefit Payments | Administrative Expenses | Investment Earnings | Ending Fiduciary Net Position |
|---------------|----------------------------------|----------------------|------------------------|------------------|-------------------------|---------------------|-------------------------------|
| 2020 | \$ 363,447 | \$ 0 | \$ 17,414 | \$ 61,520 | \$ 923 | \$ 12,793 | \$ 331,210 |
| 2021 | 331,210 | 0 | 15,679 | 69,054 | 901 | 11,412 | 288,345 |
| 2022 | 288,345 | 0 | 15,705 | 52,943 | 884 | 10,105 | 260,328 |
| 2023 | 260,328 | 0 | 14,981 | 50,147 | 868 | 9,093 | 233,386 |
| 2024 | 233,386 | 0 | 14,307 | 45,083 | 854 | 8,164 | 209,921 |
| 2025 | 209,921 | 0 | 13,661 | 41,038 | 840 | 7,348 | 189,053 |
| 2026 | 189,053 | 0 | 13,023 | 37,297 | 825 | 6,623 | 170,577 |
| 2027 | 170,577 | 0 | 12,388 | 34,258 | 808 | 5,975 | 153,875 |
| 2028 | 153,875 | 0 | 11,757 | 30,986 | 790 | 5,398 | 139,254 |
| 2029 | 139,254 | 0 | 11,123 | 28,063 | 770 | 4,893 | 126,438 |
| 2030 | 126,438 | 0 | 10,488 | 25,266 | 747 | 4,453 | 115,365 |
| 2031 | 115,365 | 0 | 9,854 | 22,657 | 723 | 4,075 | 105,914 |
| 2032 | 105,914 | 0 | 9,222 | 20,186 | 697 | 3,755 | 98,008 |
| 2033 | 98,008 | 0 | 8,597 | 18,115 | 669 | 3,486 | 91,307 |
| 2034 | 91,307 | 0 | 7,979 | 16,149 | 640 | 3,260 | 85,757 |
| 2035 | 85,757 | 0 | 7,372 | 14,425 | 609 | 3,074 | 81,169 |
| 2036 | 81,169 | 0 | 6,777 | 12,875 | 577 | 2,920 | 77,414 |
| 2037 | 77,414 | 0 | 6,195 | 11,457 | 543 | 2,795 | 74,404 |
| 2038 | 74,404 | 0 | 5,633 | 10,117 | 509 | 2,697 | 72,109 |
| 2039 | 72,109 | 0 | 5,095 | 8,916 | 474 | 2,624 | 70,438 |
| 2040 | 70,438 | 0 | 4,574 | 7,842 | 438 | 2,573 | 69,304 |
| 2041 | 69,304 | 0 | 4,062 | 6,833 | 401 | 2,540 | 68,673 |
| 2042 | 68,673 | 0 | 3,558 | 5,821 | 362 | 2,526 | 68,574 |
| 2043 | 68,574 | 0 | 3,064 | 4,832 | 321 | 2,533 | 69,018 |
| 2044 | 69,018 | 0 | 2,589 | 3,900 | 279 | 2,559 | 69,986 |
| 2045 | 69,986 | 0 | 2,147 | 3,036 | 238 | 2,604 | 71,462 |
| 2046 | 71,462 | 0 | 1,741 | 2,421 | 199 | 2,663 | 73,246 |
| 2047 | 73,246 | 0 | 1,375 | 1,900 | 162 | 2,734 | 75,293 |
| 2048 | 75,293 | 0 | 1,044 | 1,425 | 127 | 2,814 | 77,599 |
| 2049 | 77,599 | 0 | 764 | 992 | 95 | 2,904 | 80,178 |
| 2050 | 80,178 | 0 | 555 | 621 | 71 | 3,004 | 83,045 |
| 2051 | 83,045 | 0 | 409 | 438 | 54 | 3,113 | 86,074 |
| 2052 | 86,074 | 0 | 302 | 331 | 41 | 3,226 | 89,230 |
| 2053 | 89,230 | 0 | 222 | 252 | 31 | 3,345 | 92,514 |
| 2054 | 92,514 | 0 | 163 | 191 | 24 | 3,468 | 95,931 |
| 2055 | 95,931 | 0 | 119 | 143 | 18 | 3,597 | 99,485 |
| 2056 | 99,485 | 0 | 86 | 107 | 13 | 3,730 | 103,181 |
| 2057 | 103,181 | 0 | 62 | 80 | 10 | 3,869 | 107,022 |
| 2058 | 107,022 | 0 | 44 | 59 | 10 | 4,013 | 111,011 |
| 2059 | 111,011 | 0 | 32 | 43 | 10 | 4,163 | 115,152 |
| 2060 | 115,152 | 0 | 22 | 31 | 10 | 4,318 | 119,451 |
| 2061 | 119,451 | 0 | 16 | 22 | 10 | 4,479 | 123,914 |
| 2062 | 123,914 | 0 | 11 | 16 | 10 | 4,647 | 128,546 |
| 2063 | 128,546 | 0 | 8 | 11 | 10 | 4,820 | 133,353 |
| 2064 | 133,353 | 0 | 5 | 8 | 10 | 5,000 | 138,341 |
| 2065 | 138,341 | 0 | 3 | 5 | 10 | 5,188 | 143,516 |
| 2066 | 143,516 | 0 | 2 | 4 | 10 | 5,382 | 148,887 |
| 2067 | 148,887 | 0 | 1 | 2 | 10 | 5,583 | 154,459 |
| 2068 | 154,459 | 0 | 1 | 1 | 10 | 5,792 | 160,240 |
| 2069 | 160,240 | 0 | 0 | 1 | 10 | 6,009 | 166,238 |



Appendix H — GASB 74 Present Value of Projected Benefits

Table H-1: Present Value of Projected Benefit Payments (\$ in Thousands)

| Calendar Year | Beginning Fiduciary Net Position | Benefit Payments | Funded Benefit Payments | Unfunded Benefit Payments | Present Value of Projected Benefit Payments | | |
|---------------|----------------------------------|------------------|-------------------------|---------------------------|---|----------------------------|---|
| | | | | | Funded Payments at 3.75% | Unfunded Payments at 2.21% | Using Single Discount Rate Equal to 3.75% |
| 2020 | \$ 363,447 | \$ 61,520 | \$ 61,520 | \$ - | \$ 60,398 | \$ - | \$ 60,398 |
| 2021 | 331,210 | 69,054 | 69,054 | 0 | 65,345 | 0 | 65,345 |
| 2022 | 288,345 | 52,943 | 52,943 | 0 | 48,288 | 0 | 48,288 |
| 2023 | 260,328 | 50,147 | 50,147 | 0 | 44,085 | 0 | 44,085 |
| 2024 | 233,386 | 45,083 | 45,083 | 0 | 38,200 | 0 | 38,200 |
| 2025 | 209,921 | 41,038 | 41,038 | 0 | 33,516 | 0 | 33,516 |
| 2026 | 189,053 | 37,297 | 37,297 | 0 | 29,360 | 0 | 29,360 |
| 2027 | 170,577 | 34,258 | 34,258 | 0 | 25,993 | 0 | 25,993 |
| 2028 | 153,875 | 30,986 | 30,986 | 0 | 22,661 | 0 | 22,661 |
| 2029 | 139,254 | 28,063 | 28,063 | 0 | 19,781 | 0 | 19,781 |
| 2030 | 126,438 | 25,266 | 25,266 | 0 | 17,165 | 0 | 17,165 |
| 2031 | 115,365 | 22,657 | 22,657 | 0 | 14,837 | 0 | 14,837 |
| 2032 | 105,914 | 20,186 | 20,186 | 0 | 12,741 | 0 | 12,741 |
| 2033 | 98,008 | 18,115 | 18,115 | 0 | 11,020 | 0 | 11,020 |
| 2034 | 91,307 | 16,149 | 16,149 | 0 | 9,469 | 0 | 9,469 |
| 2035 | 85,757 | 14,425 | 14,425 | 0 | 8,153 | 0 | 8,153 |
| 2036 | 81,169 | 12,875 | 12,875 | 0 | 7,014 | 0 | 7,014 |
| 2037 | 77,414 | 11,457 | 11,457 | 0 | 6,015 | 0 | 6,015 |
| 2038 | 74,404 | 10,117 | 10,117 | 0 | 5,120 | 0 | 5,120 |
| 2039 | 72,109 | 8,916 | 8,916 | 0 | 4,349 | 0 | 4,349 |
| 2040 | 70,438 | 7,842 | 7,842 | 0 | 3,687 | 0 | 3,687 |
| 2041 | 69,304 | 6,833 | 6,833 | 0 | 3,096 | 0 | 3,096 |
| 2042 | 68,673 | 5,821 | 5,821 | 0 | 2,543 | 0 | 2,543 |
| 2043 | 68,574 | 4,832 | 4,832 | 0 | 2,034 | 0 | 2,034 |
| 2044 | 69,018 | 3,900 | 3,900 | 0 | 1,583 | 0 | 1,583 |
| 2045 | 69,986 | 3,036 | 3,036 | 0 | 1,188 | 0 | 1,188 |
| 2046 | 71,462 | 2,421 | 2,421 | 0 | 913 | 0 | 913 |
| 2047 | 73,246 | 1,900 | 1,900 | 0 | 690 | 0 | 690 |
| 2048 | 75,293 | 1,425 | 1,425 | 0 | 499 | 0 | 499 |
| 2049 | 77,599 | 992 | 992 | 0 | 335 | 0 | 335 |
| 2050 | 80,178 | 621 | 621 | 0 | 202 | 0 | 202 |
| 2051 | 83,045 | 438 | 438 | 0 | 137 | 0 | 137 |
| 2052 | 86,074 | 331 | 331 | 0 | 100 | 0 | 100 |
| 2053 | 89,230 | 252 | 252 | 0 | 73 | 0 | 73 |
| 2054 | 92,514 | 191 | 191 | 0 | 54 | 0 | 54 |
| 2055 | 95,931 | 143 | 143 | 0 | 39 | 0 | 39 |
| 2056 | 99,485 | 107 | 107 | 0 | 28 | 0 | 28 |
| 2057 | 103,181 | 80 | 80 | 0 | 20 | 0 | 20 |
| 2058 | 107,022 | 59 | 59 | 0 | 14 | 0 | 14 |
| 2059 | 111,011 | 43 | 43 | 0 | 10 | 0 | 10 |
| 2060 | 115,152 | 31 | 31 | 0 | 7 | 0 | 7 |
| 2061 | 119,451 | 22 | 22 | 0 | 5 | 0 | 5 |
| 2062 | 123,914 | 16 | 16 | 0 | 3 | 0 | 3 |
| 2063 | 128,546 | 11 | 11 | 0 | 2 | 0 | 2 |
| 2064 | 133,353 | 8 | 8 | 0 | 1 | 0 | 1 |
| 2065 | 138,341 | 5 | 5 | 0 | 1 | 0 | 1 |
| 2066 | 143,516 | 4 | 4 | 0 | 1 | 0 | 1 |
| 2067 | 148,887 | 2 | 2 | 0 | 0 | 0 | 0 |
| 2068 | 154,459 | 1 | 1 | 0 | 0 | 0 | 0 |
| 2069 | 160,240 | 1 | 1 | 0 | 0 | 0 | 0 |