BUCK

State of Alaska

Teachers' Retirement System

Actuarial Valuation Report
As of June 30, 2021

May 2022

May 12, 2022

State of Alaska
The Alaska Retirement Management Board
The Department of Revenue, Treasury Division
The Department of Administration, Division of Retirement and Benefits
P.O. Box 110203
Juneau, AK 99811-0203

Certification of Actuarial Valuation

Dear Members of The Alaska Retirement Management Board, The Department of Revenue and The Department of Administration:

This report summarizes the annual actuarial valuation results of the State of Alaska Teachers' Retirement System (TRS) as of June 30, 2021 performed by Buck Global, LLC (Buck).

The actuarial valuation is based on financial information provided in the financial statements audited by KPMG LLP, member data provided by the Division of Retirement and Benefits, and medical enrollment data provided by the healthcare claims administrator (Aetna), as summarized in this report. The benefits considered are those delineated in Alaska statutes effective June 30, 2021. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities, and other factors under TRS were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Buck is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of TRS as of June 30, 2021.

TRS is funded by Employer, State, and Member Contributions in accordance with the funding policy adopted by the Alaska Retirement Management Board (Board) and as required by Alaska state statutes. The funding objective for TRS is to pay required contributions that remain level as a percent of total TRS compensation. The Board has also established a funding policy objective that the required contributions be sufficient to pay the Normal Costs of active plan members, plan expenses, and amortize the Unfunded Actuarial Accrued Liability (UAAL) as a level percentage of total TRS compensation over a closed 25-year period as required by Alaska state statutes. The closed 25-year period was originally established effective June 30, 2014. Effective June 30, 2018, the Board adopted a 25-year layered UAAL amortization method as described in Section 5.2. The UAAL amortization continues to be on a level percent of pay basis. The compensation used to determine required contributions is the total compensation of all active members in TRS, including those hired after July 1, 2006 who are members of the Defined Contribution Retirement (DCR) Plan. This objective is currently being met and is projected to continue to be met. Absent future gains/losses, actuarially determined contributions are expected to remain level as a percent of pay and the overall funded status (on a combined pension/healthcare basis) is expected to increase to 100% in FY24 (the funded status of the pension trust is expected to increase to 100% in FY33).

The Board and staff of the State of Alaska may use this report for the review of the operations of TRS. Use of this report for any other purpose or by anyone other than the Board or staff of the State of Alaska may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, you should ask Buck to review any statement you wish to make on the results contained in this report. Buck will not accept any liability for any such statement made without the review by Buck.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the actuarial assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. In particular, 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. An analysis of the potential range of such future differences is beyond the scope of this valuation.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the plan. The actuary performs an analysis of plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The last full experience analysis was performed for the period July 1, 2013 to June 30, 2017. Based on that experience study, the Board adopted new assumptions effective beginning with the June 30, 2018 valuation to better reflect expected future experience. Based on our annual analysis of recent claims experience, changes were made to the per capita claim cost rates effective June 30, 2021 to better reflect expected future healthcare experience. A summary of the actuarial assumptions and methods used in this actuarial valuation is shown in Sections 5.2 and 5.3. We certify that the assumptions and methods described in Sections 5.2 and 5.3 of this report meet the requirements of all applicable Actuarial Standards of Practice.

Governmental Accounting Standards Board (GASB) Statement No. 67 (GASB 67) was effective for TRS beginning with fiscal year ending June 30, 2014, and Statement No. 74 (GASB 74) was effective for TRS beginning with fiscal year ending June 30, 2017. Separate GASB 67 and GASB 74 reports as of June 30, 2021 have been prepared. We have also prepared the member data tables shown in Section 4 of this report for the Statistical Section of the ACFR, as well as the summary of actuarial assumptions and analysis of financial experience for the Actuarial Section of the ACFR. Please see our separate GASB 67 and GASB 74 reports for other information needed for the ACFR.

Assessment of Risks

Actuarial Standard of Practice No. 51 (ASOP 51) applies to actuaries performing funding calculations related to a pension plan. ASOP 51 does not apply to actuaries performing services in connection with other post-employment benefits, such as medical benefits. Accordingly, ASOP 51 does not apply to the healthcare portion of TRS. See Section 6 of this report for further details regarding ASOP 51.

Use of Models

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses third-party software in the performance of annual actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of the plan using data and assumptions as of the measurement date under the funding methods specified in this report. The output from the third-party vendor software is used as input to internally developed models that apply applicable funding methods and policies to the derived liabilities and other inputs, such as plan assets and contributions, to generate many of the exhibits found in this report. Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal models are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal models, extra checking and review are completed. Significant changes to the internal models that are applicable to multiple clients are generally developed, checked, and reviewed by multiple experts within Buck who are familiar with the details of the required changes.

Additional models used in valuing health benefits are described later in the report.

COVID-19

The potential impact of the ongoing COVID-19 pandemic on costs and liabilities was considered and an adjustment was made in setting the medical per capita claims cost assumption. FY20 medical claims were adjusted for a COVID-19 related decline in claims during the last four months (March – June) of FY20. FY21 medical claims were adjusted for a COVID-19 related decline in those claims during the fiscal year. A more detailed explanation on these adjustments is shown in Section 5.2.

This report was prepared under my supervision and in accordance with all applicable Actuarial Standards of Practice. I am a Fellow of the Society of Actuaries, an Enrolled Actuary, a Fellow of the Conference of Consulting Actuaries, and a Member of the American Academy of Actuaries. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

I am available to discuss this report with you at your convenience. I can be reached at 602-803-6174.

Respectfully submitted,

David J. Kershner, FSA, EA, MAAA, FCA
Principal
Buck

The undersigned actuary is responsible for all assumptions related to the average annual per capita health claims cost and the health care cost trend rates, and hereby affirms his qualification to render opinions in such matters in accordance with the Qualification Standards of the American Academy of Actuaries.

Scott Young

Scott Young, FSA, EA, MAAA, FCA
Director
Buck

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Executive Summary

Overview

The State of Alaska Teachers' Retirement System (TRS) provides pension and postemployment healthcare benefits to teachers and other eligible participants. The Commissioner of the Department of Administration is responsible for administering the plan. The Alaska Retirement Management Board has fiduciary responsibility over the assets of the plan. This report presents the results of the actuarial valuation of TRS as of the valuation date of June 30, 2021.

Purpose

An actuarial valuation is performed on the plan annually as of the end of the fiscal year. The main purposes of the actuarial valuation detailed in this report are:

1. To determine the Employer/State contribution necessary to meet the Board's funding policy for the plan;
2. To disclose the funding assets and liability measures as of the valuation date;
3. To review the current funded status of the plan and assess the funded status as an appropriate measure for determining future actuarially determined contributions;
4. To compare actual and expected experience under the plan during the last fiscal year; and
5. To report trends in contributions, assets, liabilities, and funded status over the last several years.

The actuarial valuation provides a "snapshot" of the funded position of TRS based on the plan provisions, membership data, assets, and actuarial methods and assumptions as of the valuation date.

Actuarial projections are also performed to provide a long-term view of the expected future funded status and contribution patterns (see Section 3). The future funded status and contribution patterns would be different than those shown in Section 3 if future experience does not match the actuarial assumptions used in the projections.

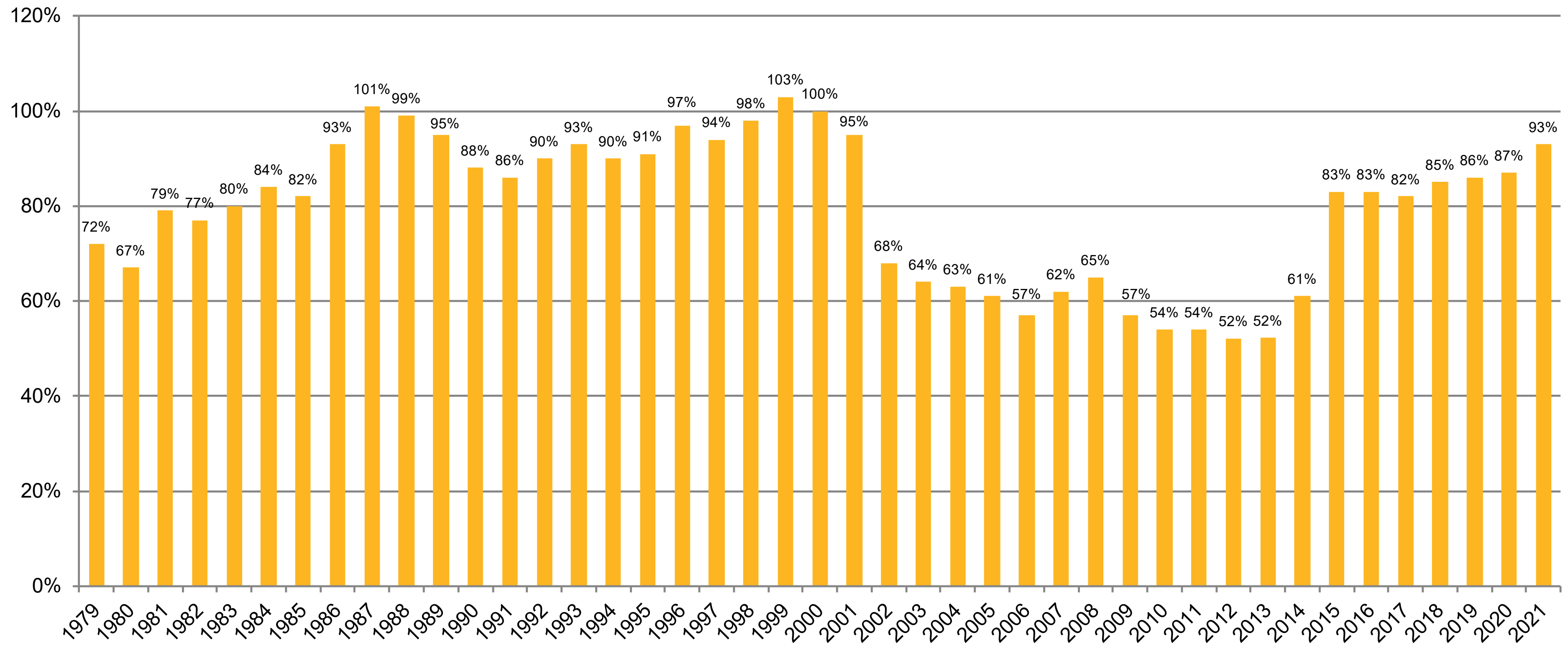
Retiree group benefits models necessarily rely on the use of approximations and estimates, and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements.

Funded Status

Where presented, references to "funded ratio" and "unfunded actuarial accrued liability" typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

Funded Status as of June 30 ($'s in 000's)	2020	2021
Pension		
a. Actuarial Accrued Liability	$ 7,447,036	$ 7,471,887
b. Valuation Assets	5,587,064	5,910,369
c. Unfunded Actuarial Accrued Liability, (a) - (b)	$ 1,859,972	$ 1,561,518
d. Funded Ratio based on Valuation Assets, (b) ÷ (a)	75.0%	79.1%
e. Fair Value of Assets	$ 5,444,799	$ 6,731,481
f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	73.1%	90.1%
Healthcare		
a. Actuarial Accrued Liability	$ 2,489,675	$ 2,439,603
b. Valuation Assets	3,021,283	3,267,737
c. Unfunded Actuarial Accrued Liability, (a) - (b)	$ (531,608)	$ (828,134)
d. Funded Ratio based on Valuation Assets, (b) ÷ (a)	121.4%	133.9%
e. Fair Value of Assets	$ 2,953,461	$ 3,723,031
f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	118.6%	152.6%
Total		
a. Actuarial Accrued Liability	$ 9,936,711	$ 9,911,490
b. Valuation Assets	8,608,347	9,178,106
c. Unfunded Actuarial Accrued Liability, (a) - (b)	$ 1,328,364	$ 733,384
d. Funded Ratio based on Valuation Assets, (b) ÷ (a)	86.6%	92.6%
e. Fair Value of Assets	$ 8,398,260	$ 10,454,512
f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	84.5%	105.5%

Funded Ratio History (Based on Valuation Assets)



The key reasons for the change in the funded status are explained below. The funded status for healthcare benefits is not necessarily an appropriate measure to confirm that assets are sufficient to settle health plan obligations as there are no available financial instruments for purchase. Future experience is likely to vary from assumptions so there is potential for actuarial gains or losses.

1. **Investment Experience**

   The actuarial asset value was reinitialized to equal fair value of assets as of June 30, 2014. Beginning in FY15, the asset valuation method recognizes 20% of the investment gain or loss each year, for a period of five years. The FY21 investment return based on fair value of assets was approximately 30.1% compared to the expected investment return of 7.38% (net of investment expenses). This resulted in a market asset gain of approximately $1,856 million. Due to the recognition of investment gains and losses over a 5-year period, the FY21 investment return based on actuarial value of assets was approximately 11.6%, which resulted in an actuarial asset gain of approximately $354 million.

2. **Salary Increases**

   Salary increases for continuing active members during FY21 were higher than expected based on the valuation assumptions, resulting in a liability loss of approximately $29 million.

3. **Demographic Experience**

   Section 4 provides statistics on active and inactive participants. The number of active participants decreased 10.4% from 3,789 at June 30, 2020 to 3,396 at June 30, 2021 due to active members exiting the plan during the year (due to retirement, termination, death, and disability) and the closure of the plan to new entrants as of July 1, 2006. The average age of active participants increased from 51.92 to 52.14 and average credited service increased from 19.76 to 20.31 years.

   The number of benefit recipients increased 2.1% from 13,689 to 13,972, and their average age increased from 71.85 to 72.26. The number of vested terminated participants decreased 4.8% from 764 to 727. Their average age increased from 52.37 to 52.68.

   The overall effect of the demographic experience during FY21 was a liability loss of approximately $7 million (pension) and a liability gain of approximately $3[1] million (healthcare).

4. **COLA / PRPA Experience**

   The cost-of-living increases (COLA) for benefit recipients during FY21 were less than expected based on the valuation assumptions, resulting in a liability gain of approximately $0.3 million. The postretirement pension adjustments (PRPA) were also less than expected, resulting in a liability gain of approximately $81 million.

5. **Retiree Medical Claims Experience**

   As described in Section 5.2, recent medical claims experience and changes in healthcare enrollment data provided to us for the June 30, 2021 valuation generated a liability gain of approximately $97 million. Reduced claims during FY21, largely attributable to medical claims impacted by COVID-19, generated a liability gain of approximately $11 million.

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[1] Includes the effects of changes in dependent coverage elections and Medicare Part B only experience.

6. Changes in Methods Since the Prior Valuation

There were no changes in actuarial methods since the prior valuation.

7. Changes in Assumptions Since the Prior Valuation

Healthcare claim costs are updated annually as described in Section 5.2. The amounts included in the Normal Cost for administrative expenses were updated based on the last two years of actual administrative expenses paid from plan assets. There were no other changes in actuarial assumptions since the prior valuation.

8. Changes in Benefit Provisions Since the Prior Valuation

Starting in 2022, prior authorization will be required for certain specialty medications for all participants, and certain preventive benefits for pre-Medicare participants will now be covered by the plan. These changes created an actuarial gain of approximately $22 million. There have been no other changes in benefit provisions valued since the prior valuation.

Projections

Absent future asset (and/or liability) losses, changes in plan provisions or actuarial assumptions, the $1,856 million FY21 market asset gain has a significant impact on the projections shown in Section 3. For example, the pension trust is currently projected to reach a funded status of 100% in FY33. Based on the 2020 valuation projections, the funded status of the pension trust was projected to be only 80% in FY33.

Once the pension trust is projected to reach a funded status of 100%, it may be reasonable to assume that all remaining pension unfunded liability layered amortization amounts should be reduced to zero. Since the healthcare trust is currently more than 100% funded, the healthcare unfunded liability amortization amounts would also be reduced to zero if the Board decides to implement this change (this does not impact the projections shown in Section 3.6 since the healthcare Normal Cost is assumed to be contributed as a minimum in all years after FY23 per Alaska state statutes).

We have shown the table of projected figures in Section 3.6 two ways:

a) Section 3.6A – No changes to the pension unfunded liability layered amortization amounts. In this case, Additional State Contributions totaling approximately $553 million are projected for FY33 through FY39, even though the pension trust is projected to be 100% funded by FY33.

b) Section 3.6B – Eliminate the pension unfunded liability layered amortization amounts when the pension trust is projected to be 100% funded. In this case, the Additional State Contributions are projected to be zero after FY32.

The pros and cons of these two methods can be discussed further upon request.

In both cases, the pension Normal Cost is assumed to be contributed as a minimum based on Alaska state statutes. (The healthcare trust is currently over 100% funded, so the healthcare Normal Cost is also assumed to be contributed as a minimum based on Alaska state statutes.)

Sections 3.3 through 3.5 are based on the projections shown in Section 3.6A.

Comparative Summary of Contribution Rates

Pension		**Actual FY 2023**	**Estimated FY 2024**
a.	Normal Cost Rate Net of Member Contributions	2.24%	2.05%
b.	Past Service Cost Rate	15.66%	12.90%
c.	Total Employer/State Contribution Rate, (a) + (b), not less than (a)[1]	17.90%	14.95%

Healthcare		**Actual FY 2023**	**Estimated FY 2024**
a.	Normal Cost Rate	2.72%	2.41%
b.	Past Service Cost Rate	(7.93)%	(11.03)%
c.	Total Employer/State Contribution Rate, (a) + (b), not less than (a)[1]	2.72%	2.41%

Total		**Actual FY 2023**	**Estimated FY 2024**
a.	Normal Cost Rate Net of Member Contributions	4.96%	4.46%
b.	Past Service Cost Rate	15.66%	12.90%
c.	Total Employer/State Contribution Rate, (a) + (b)[1]	20.62%	17.36%
d.	Board Adopted Total Employer/State Contribution Rate	17.90%[2]	TBD
e.	Defined Contribution Retirement (DCR) Rate Paid by Employers	6.72%	7.03%
f.	Board Adopted Total Rate, Including DCR Rate Paid by Employers, (d) + (e)	24.62%	TBD

Contribution rates are based on total (DB and DCR) payroll. The contribution rates shown above for FY24 are estimated assuming no actuarial gains/losses during FY22 and FY23. Actual FY24 contribution rates will be adopted by the Board in September 2022 reflecting FY22 asset experience.

Contribution rates include Employer contribution rates as limited by Alaska state statutes and the Additional State Contribution required under SB 125.

[1] Beginning with the June 30, 2014 valuation, contribution rates for FY17 and beyond are determined using new methodology in accordance with 2014 legislation under HB 385 and SB 119, 2014 Alaska Laws, which changed the amortization methodology to a closed 25-year period as a level percentage of pay, and eliminated the time lag on the contribution rate calculation by using a 2-year “roll-forward” approach assuming 0% population growth. Investment gains and losses are recognized over a 5-year period beginning in FY15. Beginning with the June 30, 2018 valuation, the UAAL amortization was changed as described in Section 5.2.

[2] The FY23 contribution rates adopted by the Board in October 2021 were 17.90% for Pension and 0.00% for Healthcare.

Summary of Actuarial Accrued Liability Gain/(Loss) and Other Changes During the Year

The following table summarizes the sources of change in the total Employer/State contribution rate as of June 30, 2020 and June 30, 2021 based on DB and DCR payroll combined:

	Pension	Healthcare	Total
1. Total Employer/State Contribution Rate as of June 30, 2020	21.73%	3.30%	25.03%
2. Change due to:			
a. Health Claims Experience	N/A	(0.11)%	(0.11)%
b. Salary Increases	0.25%	N/A	0.25%
c. Investment Experience	(1.95)%	0.00%	(1.95)%
d. Demographic Experience and Miscellaneous[1]	(0.68)%	(0.23)%	(0.91)%
e. Actual vs Expected Contributions	(0.03)%	0.00%	(0.03)%
f. Assumption/Method Changes	0.00%	0.00%	0.00%
g. Plan Changes	0.00%	(0.02)%	(0.02)%
h. Total Change, (a) + (b) + (c) + (d) + (e) + (f) + (g)	(2.41)%	(0.36)%	(2.77)%
3. Total Employer/State Contribution Rate as of June 30, 2021, (1) + (2)(h)	19.32%	2.94%	22.26%

The following table shows the FY21 gain/(loss) on actuarial accrued liability as of June 30, 2021 ($'s in 000's):

	Pension	Healthcare	Total
Retirement Experience	$ 4,502	$ (2,282)	$ 2,220
Termination Experience	(7,088)	(2,979)	(10,067)
Disability Experience	(103)	220	117
Active Mortality Experience	311	(2,709)	(2,398)
Inactive Mortality Experience	(5,089)	269	(4,820)
Salary Increases	(29,192)	N/A	(29,192)
Rehires (Net of Rehire Load)	3,085	3,476	6,561
COLA Increases	293	N/A	293
PRPA Increases	81,362	N/A	81,362
Benefit Payments Different than Expected	14,033	10,592	24,625
Per Capita Claims Cost	N/A	96,861	96,861
Medical and Prescription Drug Plan Changes	N/A	21,763	21,763
Medicare Part B Only Experience	N/A	1,278	1,278
Changes in Dependent Coverage Elections	N/A	9,126	9,126
Programming Changes[2]	(227)	N/A	(227)
Miscellaneous[3]	(6,320)	(4,278)	(10,598)
Total	$ 55,567	$ 131,337	$ 186,904

[1] Includes the effects of census data changes between the two valuations.
[2] Includes the adjustment to the COLA for Tier 2 disabilities to commence immediately.
[3] Includes the effects of various data changes that are typical when new census data is received for the annual valuation, as well as other items that do not fit neatly into any of the other categories.

The rehire gain/(loss) amount shown on the previous page is the difference between (i) the increase in Actuarial Accrued Liability at June 30, 2021 due to rehires during the most recent plan year, and (ii) the load that was added to the June 30, 2020 Normal Cost based on the rehire load assumption used in the June 30, 2020 valuation. The development of the FY21 rehire gain/(loss) amount is shown in the table below ($'s in 000's):

	Pension	Healthcare	Total
1. Increase/(Decrease) in Actuarial Accrued Liability at June 30, 2021 due to Rehires	$ 3,917	$ (817)	$ 3,100
2. June 30, 2020 Normal Cost Rehire Load, with interest to June 30, 2021	$ 7,002	$ 2,659	$ 9,661
3. Rehire Gain/(Loss), (2) - (1)	$ 3,085	$ 3,476	$ 6,561

Section 1: Actuarial Funding Results

Section 1.1: Actuarial Liabilities and Normal Cost ($'s in 000's)

As of June 30, 2021	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
Active Members		
Retirement Benefits	$ 1,842,511	$ 1,682,831
Termination Benefits	24,805	5,215
Disability Benefits	1,745	(1,845)
Death Benefits	12,117	10,274
Return of Contributions	2,130	(31,947)
Medical and Prescription Drug Benefits	863,878	743,380
Medicare Part D Subsidy	(95,180)	(82,422)
Indebtedness	(26,453)	(26,453)
Subtotal	$ 2,625,553	$ 2,299,033
Inactive Members		
Not Vested	$ 39,268	$ 39,268
Vested Terminations		
- Retirement Benefits	141,625	141,625
- Medical and Prescription Drug Benefits	261,528	261,528
- Medicare Part D Subsidy	(29,859)	(29,859)
- Indebtedness	(4,137)	(4,137)
Retirees & Beneficiaries		
- Retirement Benefits	5,657,056	5,657,056
- Medical and Prescription Drug Benefits	1,836,116	1,836,116
- Medicare Part D Subsidy	(289,140)	(289,140)
Subtotal	$ 7,612,457	$ 7,612,457
Total	**$ 10,238,010**	**$ 9,911,490**
Total Pension	**$ 7,690,667**	**$ 7,471,887**
Total Medical, Net of Part D Subsidy	**$ 2,547,343**	**$ 2,439,603**
Total Medical, Gross of Part D Subsidy	**$ 2,961,522**	**$ 2,841,024**

As of June 30, 2021	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
By Tier		
Tier 1		
- Pension	$ 4,372,747	$ 4,366,405
- Medical, Net of Part D Subsidy	1,077,186	1,074,462
Tier 2		
- Pension	3,317,920	3,105,482
- Medical, Net of Part D Subsidy	1,470,157	1,365,141
Total	**$ 10,238,010**	**$ 9,911,490**

As of June 30, 2021	Normal Cost
Active Members	
Retirement Benefits	$ 28,231
Termination Benefits	3,445
Disability Benefits	628
Death Benefits	344
Return of Contributions	6,053
Medical and Prescription Drug Benefits	20,441
Medicare Part D Subsidy	(2,209)
Rehire Assumption (Pension)	6,026
Rehire Assumption (Medical)	2,193
Administrative Expenses (Pension)	3,217
Administrative Expenses (Medical)	1,604
Total	**$ 69,973**
Total Pension	**$ 47,944**
Total Medical, Net of Part D Subsidy	**$ 22,029**
Total Medical, Gross of Part D Subsidy	**$ 24,238**
By Tier	
Tier 1	
- Pension	$ 2,260
- Medical, Net of Part D Subsidy	903
Tier 2	
- Pension	45,684
- Medical, Net of Part D Subsidy	21,126
Total	**$ 69,973**

Section 1.2: Actuarial Contributions as of June 30, 2021 ($'s in 000's)

Normal Cost Rate	Pension	Healthcare	Total
1. Total Normal Cost	$ 47,944	$ 22,029	$ 69,973
2. DB Rate Payroll Projected for FY22	326,551	326,551	326,551
3. DCR Rate Payroll Projected for FY22	423,783	423,783	423,783
4. Total Rate Payroll Projected for FY22	750,334	750,334	750,334
5. Normal Cost Rate			
a. Based on DB Rate Payroll, (1) ÷ (2)	14.68%	6.75%	21.43%
b. Based on Total Rate Payroll, (1) ÷ (4)	6.39%	2.94%	9.33%
6. Average Member Contribution Rate[1]	3.76%	0.00%	3.76%
7. Employer Normal Cost, (5)(b) - (6)	2.63%	2.94%	5.57%

Past Service Rate	Pension	Healthcare	Total
1. Actuarial Accrued Liability	$ 7,471,887	$ 2,439,603	$ 9,911,490
2. Valuation Assets	5,910,369	3,267,737	9,178,106
3. Unfunded Actuarial Accrued Liability, (1) - (2)	$ 1,561,518	$ (828,134)	$ 733,384
4. Funded Ratio, (2) ÷ (1)	79.1%	133.9%	92.6%
5. Past Service Cost Amortization Payment	125,231	(55,785)	69,446
6. Total Rate Payroll Projected for FY22	750,334	750,334	750,334
7. Past Service Rate, (5) ÷ (6)	16.69%	(7.43%)	9.26%
Total Employer / State Contribution Rate, not less than Normal Cost Rate	**19.32%**	**2.94%**	**22.26%**
Normal Cost Rate by Tier (Total Employer and Member)[2]			
Tier 1	15.35%	6.13%	21.49%
Tier 2	14.65%	6.77%	21.42%

[1] Assumes no member contributions from members in the DCR plan, 9.65% contributions for Tier 1 members who elected supplemental coverage, and 8.65% for the remaining members.

[2] Rates determined considering the payroll for members in each tier. DCR payroll is excluded from these calculations.

Schedule of Past Service Cost Amortizations - Pension ($'s in 000's)

	Amortization Period		Balances		
Layer	Date Created	Years Remaining	Initial	Outstanding	Beginning-of-Year Payment
Initial Amount	6/30/2018	18	$ 1,720,344	$ 1,693,026	$ 133,291
Change in Assumptions	6/30/2018	22	14,346	14,467	1,005
FY19 Loss	6/30/2019	23	94,314	95,008	6,430
FY20 Loss	6/30/2020	24	44,395	44,593	2,945
FY21 Gain	6/30/2021	25	(285,576)	(285,576)	(18,440)
Total				**$ 1,561,518**	**$ 125,231**

Schedule of Past Service Cost Amortizations - Healthcare ($'s in 000's)

	Amortization Period		Balances		
Layer	Date Created	Years Remaining	Initial	Outstanding	Beginning-of-Year Payment
Initial Amount	6/30/2018	18	$ (48,285)	$ (47,519)	$ (3,741)
Change in Assumptions/Methods/EGWP	6/30/2018	22	(166,274)	(167,686)	(11,647)
FY19 Gain	6/30/2019	23	(213,757)	(215,328)	(14,572)
FY20 Gain	6/30/2020	24	(101,507)	(101,961)	(6,735)
Medical/Prescription Drug Plan Changes	6/30/2021	25	(21,763)	(21,763)	(1,405)
FY21 Gain	6/30/2021	25	(273,877)	(273,877)	(17,685)
Total				**$ (828,134)**	**$ (55,785)**

Schedule of Past Service Cost Amortizations - Total ($'s in 000's)

	Amortization Period		Balances		
Layer	Date Created	Years Remaining	Initial	Outstanding	Beginning-of-Year Payment
Initial Amount	6/30/2018	18	$ 1,672,059	$ 1,645,507	$ 129,550
Change in Assumptions/Methods/EGWP	6/30/2018	22	(151,928)	(153,219)	(10,642)
FY19 Gain	6/30/2019	23	(119,443)	(120,320)	(8,142)
FY20 Gain	6/30/2020	24	(57,112)	(57,368)	(3,790)
Medical/Prescription Drug Plan Changes	6/30/2021	25	(21,763)	(21,763)	(1,405)
FY21 Gain	6/30/2021	25	(559,453)	(559,453)	(36,125)
Total				**$ 733,384**	**$ 69,446**

Section 1.3: Roll-Forward Contribution Rate Calculation for FY24 ($'s in 000's)

	Pension	Healthcare	Total
1. Liability Roll Forward			
a. Actuarial Accrued Liability as of June 30, 2021	**$ 7,471,887**	**$ 2,439,603**	**$ 9,911,490**
b. Normal Cost	44,727	20,425	65,152
c. Interest on (a) and (b) at 7.38%	554,726	181,550	736,276
d. Estimated Benefit Payments	(523,901)	(134,643)	(658,544)
e. Interest on (d) at 7.38%, adjusted for timing	(20,601)	(4,880)	(25,481)
f. Expected Actuarial Accrued Liability as of June 30, 2022	**$ 7,526,838**	**$ 2,502,055**	**$ 10,028,893**
g. Projected Normal Cost	40,486	18,726	59,212
h. Interest on (f) and (g) at 7.38%	558,469	186,034	744,503
i. Estimated Benefit Payments	(541,571)	(140,701)	(682,272)
j. Interest on (i) at 7.38%, adjusted for timing	(21,296)	(5,099)	(26,395)
k. Expected Actuarial Accrued Liability as of June 30, 2023	**$ 7,562,926**	**$ 2,561,015**	**$ 10,123,941**
2. Asset Roll Forward			
a. Actuarial Value of Assets as of June 30, 2021	**$ 5,910,369**	**$ 3,267,737**	**$ 9,178,106**
b. Interest on (a) at 7.38%	436,185	241,159	677,344
c. Employee Contributions	31,383	0	31,383
d. Employer Contributions	24,161	22,360	46,521
e. State Assistance Contributions	142,665	0	142,665
f. Interest on (c) thru (e) at 7.38%, adjusted for timing*	12,542	810	13,352
g. Estimated Benefit Payments	(523,901)	(134,643)	(658,544)
h. Administrative Expenses	(3,217)	(1,604)	(4,821)
i. Interest on (g) and (h) at 7.38%, adjusted for timing	(20,717)	(4,938)	(25,655)
j. AVA Adjustments	250,511	140,417	390,928
k. Expected Actuarial Value of Assets as of June 30, 2022	**$ 6,259,981**	**$ 3,531,298**	**$ 9,791,279**
l. Interest on (k) at 7.38%	461,987	260,610	722,597
m. Employee Contributions	29,220	0	29,220
n. Employer Contributions	44,104	0	44,104
o. State Assistance Contributions**	91,029	0	91,029
p. Interest on (m) thru (o) at 7.38%, adjusted for timing*	9,375	0	9,375
q. Estimated Benefit Payments	(541,571)	(140,701)	(682,272)
r. Administrative Expenses	(2,932)	(1,478)	(4,410)
s. Interest on (q) and (r) at 7.38%, adjusted for timing	(21,402)	(5,153)	(26,555)
t. AVA Adjustments	233,895	130,611	364,506
u. Expected Actuarial Value of Assets as of June 30, 2023	**$ 6,563,686**	**$ 3,775,187**	**$ 10,338,873**
3. Expected Unfunded Actuarial Accrued Liability as of June 30, 2023, 1(k) - 2(u)	**$ 999,240**	**$ (1,214,172)**	**$ (214,932)**

* Employee and Employer Contributions are paid throughout the year. State Assistance Contributions are assumed to be paid on July 1, 2021 for FY22, and July 1, 2022 for FY23.

** The FY23 State Assistance Contribution is expected to be contributed 100% to pension.

	Pension		Healthcare		Total
4. Expected Annual Rate Payroll for FY24					
a. Defined Benefit Members				$	270,617
b. Defined Contribution Retirement Members					491,467
c. Total Rate Payroll				**$**	**762,084**
5. Expected FY24 Contribution Rate Calculation					
a. Projected Normal Cost for FY24	$ 39,024	$	18,394	$	57,418
b. Projected Normal Cost Rate for FY24	5.12%		2.41%		7.53%
c. Expected Member Contribution Rate for FY24	(3.07%)		0.00%		(3.07%)
d. Expected Employer Normal Cost Rate for FY24	**2.05%**		**2.41%**		**4.46%**
e. Expected Unfunded Liability as of June 30, 2023	$ 999,240	$	(1,214,172)	$	(214,932)
f. FY24 Layered Amortization of Expected Unfunded Liability	98,310		(84,064)		14,246
g. Expected Past Service Cost Contribution Rate for FY24	**12.90%**		**(11.03%)**		**12.90%**
h. Expected Total Contribution Rate for FY24, not less than Normal Cost Rate	**14.95%**		**2.41%**		**17.36%**

The components of the expected FY24 amortization amounts are shown below (totals may not add due to rounding):

Expected FY24 Schedule of Past Service Cost Amortizations - Pension ($'s in 000's)

Layer	Amortization Period: Date Created	Amortization Period: Years Remaining at 6/30/23	Balances: Initial	Balances: Outstanding at 6/30/23	Beginning-of-Year Payment for FY24
Initial Amount	6/30/2018	16	$ 1,720,344	$ 1,651,383	$ 140,722
Change in Assumptions	6/30/2018	20	14,346	14,414	1,061
FY19 Loss	6/30/2019	21	94,314	95,041	6,788
FY20 Loss	6/30/2020	22	44,395	44,772	3,110
FY21 Gain	6/30/2021	23	(285,576)	(287,675)	(19,468)
Expected FY22 Gain	6/30/2022	24	(275,429)	(276,658)	(18,274)
Expected FY23 Gain	6/30/2023	25	(242,037)	(242,037)	(15,629)
Total				**$ 999,240**	**$ 98,310**

Expected FY24 Schedule of Past Service Cost Amortizations - Healthcare ($'s in 000's)

Layer	Amortization Period: Date Created	Amortization Period: Years Remaining at 6/30/23	Balances: Initial	Balances: Outstanding at 6/30/23	Beginning-of-Year Payment for FY24
Initial Amount	6/30/2018	16	$ (48,285)	$ (46,351)	$ (3,950)
Change in Assumptions/Methods/EGWP	6/30/2018	20	(166,274)	(167,070)	(12,296)
FY19 Gain	6/30/2019	21	(213,757)	(215,403)	(15,385)
FY20 Gain	6/30/2020	22	(101,507)	(102,370)	(7,110)
Medical/Prescription Drug Plan Changes	6/30/2021	23	(21,763)	(21,923)	(1,484)
FY21 Gain	6/30/2021	23	(273,877)	(275,889)	(18,671)
Expected FY22 Gain	6/30/2022	24	(199,895)	(200,787)	(13,262)
Expected FY23 Gain	6/30/2023	25	(184,379)	(184,379)	(11,906)
Total				**$ (1,214,172)**	**$ (84,064)**

The components of the expected FY24 amortization amounts are shown below (totals may not add due to rounding):

Expected FY24 Schedule of Past Service Cost Amortizations - Total ($'s in 000's)

	Amortization Period		Balances		
Layer	Date Created	Years Remaining at 6/30/23	Initial	Outstanding at 6/30/23	Beginning-of-Year Payment for FY24
Initial Amount	6/30/2018	16	$ 1,672,059	$ 1,605,032	$ 136,772
Change in Assumptions/Methods/EGWP	6/30/2018	20	(151,928)	(152,656)	(11,235)
FY19 Gain	6/30/2019	21	(119,443)	(120,362)	(8,597)
FY20 Gain	6/30/2020	22	(57,112)	(57,598)	(4,000)
Medical/Prescription Drug Plan Changes	6/30/2021	23	(21,763)	(21,923)	(1,484)
FY21 Gain	6/30/2021	23	(559,453)	(563,564)	(38,139)
Expected FY22 Gain	6/30/2022	24	(475,324)	(477,445)	(31,536)
Expected FY23 Gain	6/30/2023	25	(426,416)	(426,416)	(27,535)
Total				**$ (214,932)**	**$ 14,246**

Section 1.4: Actuarial Gain/(Loss) for FY21 ($'s in 000's)

	Pension	Healthcare	Total
1. Expected Actuarial Accrued Liability			
a. Actuarial Accrued Liability as of June 30, 2020	$ 7,447,036	$ 2,489,675	$ 9,936,711
b. Normal Cost	48,401	23,057	71,458
c. Interest on (a) and (b) at 7.38%	553,163	185,440	738,603
d. Employer Group Waiver Plan	0	18,355	18,355
e. Benefit Payments	(499,942)	(141,137)	(641,079)
f. Refund of Contributions	(1,487)	0	(1,487)
g. Interest on (d) thru (f) at 7.38%, adjusted for timing	(19,717)	(4,450)	(24,167)
h. Assumptions/Methods Changes	0	0	0
i. Expected Actuarial Accrued Liability as of June 30, 2021 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h)	$ 7,527,454	$ 2,570,940	$ 10,098,394
2. Actual Actuarial Accrued Liability as of June 30, 2021	7,471,887	2,439,603	9,911,490
3. Liability Gain/(Loss), (1)(i) - (2)	**$ 55,567**	**$ 131,337**	**$ 186,904**
4. Expected Actuarial Asset Value			
a. Actuarial Value of Assets as of June 30, 2020	$ 5,587,064	$ 3,021,283	$ 8,608,347
b. Interest on (a) at 7.38%	412,325	222,971	635,296
c. Employee Contributions	33,342	0	33,342
d. Employer Contributions	28,430	24,700	53,130
e. State Assistance Contributions	134,976	0	134,976
f. Employer Group Waiver Plan	0	18,355	18,355
g. Interest on (c) thru (f) at 7.38%, adjusted for timing	12,200	1,560	13,760
h. Benefit Payments	(499,942)	(141,137)	(641,079)
i. Refund of Contributions	(1,487)	0	(1,487)
j. Administrative Expenses	(3,446)	(1,836)	(5,282)
k. Interest on (h) thru (j) at 7.38%, adjusted for timing	(19,842)	(5,182)	(25,024)
l. Expected Actuarial Asset Value as of June 30, 2021 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h) + (i) + (j) + (k)	$ 5,683,620	$ 3,140,714	$ 8,824,334
5. Actual Actuarial Asset Value as of June 30, 2021	5,910,369	3,267,737	9,178,106
6. Actuarial Asset Value Gain/(Loss), (5) - (4)(l)	**$ 226,749**	**$ 127,023**	**$ 353,772**
7. Total Actuarial Gain/(Loss), (3) + (6)	**$ 282,316**	**$ 258,360**	**$ 540,676**
8. Contribution Gain/(Loss)	**$ 3,606**	**$ 37,720**	**$ 41,326**
9. Administrative Expense Gain/(Loss)	**$ (346)**	**$ (440)**	**$ (786)**
10. FY21 Gain/(Loss), (7) + (8) + (9)	**$ 285,576**	**$ 295,640**	**$ 581,216**

Section 1.5: Development of Change in Unfunded Liability During FY21 ($'s in 000's)

	Pension	Healthcare	Total
1. 2020 Unfunded Liability	$ 1,859,972	$ (531,608)	$ 1,328,364
a. Interest on Unfunded Liability at 7.38%	$ 137,266	$ (39,233)	$ 98,033
b. Normal Cost	48,401	23,057	71,458
c. Employee Contributions	(33,342)	0	(33,342)
d. Employer Contributions	(28,430)	(24,700)	(53,130)
e. State Assistance Contributions	(134,976)	0	(134,976)
f. Administrative Expenses	3,446	1,836	5,282
g. Interest on (b) thru (f) at 7.38%, adjusted for timing	(8,503)	874	(7,629)
h. Assumptions/Methods Changes	0	0	0
i. Expected Change in Unfunded Liability During FY21 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h)	$ (16,138)	$ (38,166)	$ (54,304)
2. Expected 2021 Unfunded Liability, (1) + (1)(i)	$ 1,843,834	$ (569,774)	$ 1,274,060
a. Liability (Gain)/Loss During FY21	$ (55,567)	$ (131,337)	$ (186,904)
b. Actuarial Assets (Gain)/Loss During FY21	(226,749)	(127,023)	(353,772)
c. Total Actuarial (Gain)/Loss During FY21	$ (282,316)	$ (258,360)	$ (540,676)
3. Actual 2021 Unfunded Liability, (2) + (2)(c)	$ 1,561,518	$ (828,134)	$ 733,384

Section 1.6: Analysis of Financial Experience

Pension
Change in Employer / State Contribution Rate as of Valuation Date
Due to (Gains) and Losses in Actuarial Accrued Liabilities During the Last Five Fiscal Years
Resulting from Differences Between Assumed Experience and Actual Experience

	Change in Employer / State Contribution Rate During Fiscal Year				
	Pension				
Type of (Gain) or Loss	**2017**	**2018**	**2019**	**2020**	**2021**
1. Health Claims	N/A	N/A	N/A	N/A	N/A
2. Salary Experience	(0.34%)	(0.39%)	(0.06%)	(0.06%)	0.25%
3. Investment Experience	1.12%	0.91%	0.93%	0.83%	(1.95%)
4. Demographic Experience and Miscellaneous	(0.47%)	0.37%	0.75%	(0.28%)	(0.68%)
5. Actual vs Expected Contributions	(0.07%)	(0.03%)	(0.15%)	(0.17%)	(0.03%)
6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5)	0.24%	0.86%	1.47%	0.32%	(2.41%)
7. Assumptions / Method Changes	0.00%	(0.32%)	0.00%	0.00%	0.00%
8. Plan Changes	0.00%	0.00%	0.00%	0.00%	0.00%
9. Composite (Gain) or Loss During Year, (6) + (7) + (8)	0.24%	0.54%	1.47%	0.32%	(2.41%)
10. Beginning Total Employer / State Contribution Rate	19.16%	19.40%	19.94%	21.41%	21.73%
11. Ending Valuation Year Employer / State Contribution Rate, (9) + (10)	19.40%	19.94%	21.41%	21.73%	19.32%
12. Fiscal Year Rates Adopted by ARMB					
a. Fiscal Year Employer / State Contribution Rate	20.71%	20.94%	22.51%	17.90%	14.95% *
b. Fiscal Year for which Rate Applies	FY20	FY21	FY22	FY23	FY24

* Expected rate. Actual rate to be determined

Healthcare
Change in Employer / State Contribution Rate as of Valuation Date
Due to (Gains) and Losses in Actuarial Accrued Liabilities During the Last Five Fiscal Years
Resulting from Differences Between Assumed Experience and Actual Experience

	Change in Employer / State Contribution Rate During Fiscal Year				
	Healthcare				
Type of (Gain) or Loss	**2017**	**2018**	**2019**	**2020**	**2021**
1. Health Claims	(2.32%)	(1.58%)	(2.51%)	(0.95%)	(0.11%)
2. Salary Experience	N/A	N/A	N/A	N/A	N/A
3. Investment Experience	0.56%	0.45%	0.45%	0.38%	0.00%
4. Demographic Experience and Miscellaneous	(0.71%)	1.49%	1.60%	0.49%	(0.23%)
5. Actual vs Expected Contributions	(0.11%)	0.05%	(0.02%)	(0.19%)	0.00%
6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5)	(2.58%)	0.41%	(0.48%)	(0.27%)	(0.34%)
7. Assumptions / Method Changes	3.41%	0.24%	0.00%	0.00%	0.00%
8. Plan Changes	0.00%	0.00%	0.00%	0.00%	(0.02%)
9. Composite (Gain) or Loss During Year, (6) + (7) + (8)	0.83%	0.65%	(0.48%)	(0.27%)	(0.36%)
10. Beginning Total Employer / State Contribution Rate	2.57%	3.40%	4.05%	3.57%	3.30%
11. Ending Valuation Year Employer / State Contribution Rate, (9) + (10)	3.40%	4.05%	3.57%	3.30%	2.94%
12. Fiscal Year Rates Adopted by ARMB					
a. Fiscal Year Employer / State Contribution Rate	3.91%	3.40%	2.98%	0.00%	2.41% *
b. Fiscal Year for which Rate Applies	FY20	FY21	FY22	FY23	FY24

* Expected rate. Actual rate to be determined

Total
Change in Employer / State Contribution Rate as of Valuation Date
Due to (Gains) and Losses in Actuarial Accrued Liabilities During the Last Five Fiscal Years
Resulting from Differences Between Assumed Experience and Actual Experience

	Change in Employer / State Contribution Rate During Fiscal Year				
	Total				
Type of (Gain) or Loss	**2017**	**2018**	**2019**	**2020**	**2021**
1. Health Claims	(2.32%)	(1.58%)	(2.51%)	(0.95%)	(0.11%)
2. Salary Experience	(0.34%)	(0.39%)	(0.06%)	(0.06%)	0.25%
3. Investment Experience	1.68%	1.36%	1.38%	1.21%	(1.95%)
4. Demographic Experience and Miscellaneous	(1.18%)	1.86%	2.35%	0.21%	(0.91%)
5. Actual vs Expected Contributions	(0.18%)	0.02%	(0.17%)	(0.36%)	(0.03%)
6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5)	(2.34%)	1.27%	0.99%	0.05%	(2.75%)
7. Assumptions / Method Changes	3.41%	(0.08%)	0.00%	0.00%	0.00%
8. Plan Changes	0.00%	0.00%	0.00%	0.00%	(0.02%)
9. Composite (Gain) or Loss During Year, (6) + (7) + (8)	1.07%	1.19%	0.99%	0.05%	(2.77%)
10. Beginning Total Employer / State Contribution Rate	21.73%	22.80%	23.99%	24.98%	25.03%
11. Ending Valuation Year Employer / State Contribution Rate, (9) + (10)	22.80%	23.99%	24.98%	25.03%	22.26%
12. Fiscal Year Rates Adopted by ARMB					
a. Fiscal Year Employer / State Contribution Rate	24.62%	24.34%	25.49%	17.90%	17.36% *
b. Fiscal Year for which Rate Applies	FY20	FY21	FY22	FY23	FY24

* Expected rate. Actual rate to be determined

Section 1.7: History of Unfunded Liability and Funded Ratio ($'s in 000's)

Valuation Date	Total Actuarial Accrued Liability	Valuation Assets	Assets as a Percent of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)
June 30, 2003	$ 5,835,609	$ 3,752,285	64.3%	$ 2,083,324
June 30, 2004	6,123,600	3,845,370	62.8%	2,278,230
June 30, 2005	6,498,556	3,958,939	60.9%	2,539,617
June 30, 2006	7,229,851	4,141,700	57.3%	3,088,151
June 30, 2007	7,189,403	4,424,399	61.5%	2,765,004
June 30, 2008	7,619,178	4,936,976	64.8%	2,682,202
June 30, 2009	7,847,514	4,472,958	57.0%	3,374,556
June 30, 2010	8,847,788	4,739,128	53.6%	4,108,660
June 30, 2011	9,128,795	4,937,937	54.1%	4,190,858
June 30, 2012	9,346,444	4,869,154	52.1%	4,477,290
June 30, 2013	9,592,107	4,974,076	51.9%	4,618,031
June 30, 2014	9,841,032	6,019,274	61.2%	3,821,758
June 30, 2015	9,729,117	8,108,923	83.3%	1,620,194
June 30, 2016	9,907,624	8,200,391	82.8%	1,707,233
June 30, 2017	10,144,618	8,313,637	82.0%	1,830,981
June 30, 2018	9,960,440	8,440,309	84.7%	1,520,131
June 30, 2019	9,906,664	8,511,493	85.9%	1,395,171
June 30, 2020	9,936,711	8,608,347	86.6%	1,328,364
June 30, 2021	9,911,490	9,178,106	92.6%	733,384

Section 2: Plan Assets

Section 2.1: Summary of Fair Value of Assets ($'s in 000's)

As of June 30, 2021	Pension	Healthcare	Total	Allocation Percent
Cash and Short-Term Investments				
- Cash and Cash Equivalents	$ 72,735	$ 38,232	$ 110,967	1.1%
- Subtotal	$ 72,735	$ 38,232	$ 110,967	1.1%
Fixed Income Investments				
- Domestic Fixed Income Pool	$ 1,365,542	$ 758,389	$ 2,123,931	20.3%
- International Fixed Income Pool	0	0	0	0.0%
- Tactical Fixed Income Pool	0	0	0	0.0%
- High Yield Pool	0	0	0	0.0%
- Treasury Inflation Protection Pool	0	0	0	0.0%
- Emerging Debt Pool	0	0	0	0.0%
- Subtotal	$ 1,365,542	$ 758,389	$ 2,123,931	20.3%
Equity Investments				
- Domestic Equity Pool	$ 1,847,616	$ 1,026,121	$ 2,873,737	27.4%
- International Equity Pool	1,018,255	565,514	1,583,769	15.1%
- Private Equity Pool	1,001,964	556,466	1,558,430	14.9%
- Emerging Markets Equity Pool	216,313	120,135	336,448	3.2%
- Alternative Equity Strategies	393,518	218,551	612,069	5.8%
- Subtotal	$ 4,477,666	$ 2,486,787	$ 6,964,453	66.4%
Other Investments				
- Real Estate Pool	$ 414,283	$ 230,449	$ 644,732	6.1%
- Other Investments Pool	414,089	229,975	644,064	6.1%
- Absolute Return Pool	0	0	0	0.0%
- Other Assets	0	318	318	0.0%
- Subtotal	$ 828,372	$ 460,742	$ 1,289,114	12.2%
Total Cash and Investments	$ 6,744,315	$ 3,744,150	$ 10,488,465	100.0%
Net Accrued Receivables	(12,834)	(21,119)	(33,953)	
Net Assets	$ 6,731,481	$ 3,723,031	$ 10,454,512	

Section 2.2: Changes in Fair Value of Assets During FY21 ($'s in 000's)

Fiscal Year 2021	Pension	Healthcare	Total
1. Fair Value of Assets as of June 30, 2020	$ 5,444,799	$ 2,953,461	$ 8,398,260
2. Additions:			
a. Employee Contributions	$ 33,342	$ 0	$ 33,342
b. Employer Contributions	28,430	24,700	53,130
c. State Assistance Contributions	134,976	0	134,976
d. Interest and Dividend Income	75,824	41,567	117,391
e. Net Appreciation / Depreciation in Fair Value of Investments	1,534,132	835,912	2,370,044
f. Employer Group Waiver Plan	0	18,355	18,355
g. Other	273	247	520
h. Total Additions	$ 1,806,977	$ 920,781	$ 2,727,758
3. Deductions:			
a. Medical Benefits	$ 0	$ 141,137	$ 141,137
b. Retirement Benefits	499,942	0	499,942
c. Refund of Contributions	1,487	0	1,487
d. Investment Expenses	15,420	8,238	23,658
e. Administrative Expenses	3,446	1,836	5,282
f. Total Deductions	$ 520,295	$ 151,211	$ 671,506
4. Fair Value of Assets as of June 30, 2021	$ 6,731,481	$ 3,723,031	$ 10,454,512
5. Approximate Fair Value Investment Return Rate during FY21 Net of Investment Expenses	30.1%	29.9%	30.1%

Section 2.3: Development of Actuarial Value of Assets ($'s in 000's)

The actuarial value of asset was set equal to the fair value as of June 30, 2014 and the 20% corridor was eliminated. Investment gains and losses after June 30, 2014 are recognized 20% per year over 5 years.

	Pension	Healthcare	Total
1. Deferral of Investment Gain / (Loss) for FY21			
a. Fair Value of Assets as of June 30, 2020	$ 5,444,799	$ 2,953,461	$ 8,398,260
b. Contributions	196,748	24,700	221,448
c. Employer Group Waiver Plan	0	18,355	18,355
d. Benefit Payments	501,429	141,137	642,566
e. Administrative Expenses	3,446	1,836	5,282
f. Actual Investment Return (net of investment expenses)	1,594,809	869,488	2,464,297
g. Expected Return Rate (net of investment expenses)	7.38%	7.38%	7.38%
h. Expected Return, Weighted for Timing	394,184	214,344	608,528
i. Investment Gain / (Loss) for the Year, (f) - (h)	1,200,625	655,144	1,855,769
2. Actuarial Value as of June 30, 2021			
a. Fair Value as of June 30, 2021	$ 6,731,481	$ 3,723,031	$ 10,454,512
b. Deferred Investment Gain / (Loss)	821,112	455,294	1,276,406
c. Actuarial Value as of June 30, 2021, (a) - (b)	5,910,369	3,267,737	9,178,106
3. Ratio of Actuarial Value of Assets to Fair Value of Assets	87.8%	87.8%	87.8%
4. Approximate Actuarial Value Investment Return Rate during FY21 Net of Investment Expenses	11.6%	11.7%	11.6%

The tables below show the development of the gains/(losses) to be recognized in the current year ($'s in 000's):

Pension				
Fiscal Year Ending	**Asset Gain / (Loss)**	**Gain / (Loss) Recognized in Prior Years**	**Gain / (Loss) Recognized This Year**	**Gain / (Loss) Deferred to Future Years**
June 30, 2017	$ 236,679	$ 189,344	$ 47,335	$ 0
June 30, 2018	13,001	7,800	2,600	2,601
June 30, 2019	(82,246)	(32,898)	(16,449)	(32,899)
June 30, 2020	(181,816)	(36,363)	(36,363)	(109,090)
June 30, 2021	1,200,625	0	240,125	960,500
Total	**$ 1,186,243**	**$ 127,883**	**$ 237,248**	**$ 821,112**

Healthcare				
Fiscal Year Ending	**Asset Gain / (Loss)**	**Gain / (Loss) Recognized in Prior Years**	**Gain / (Loss) Recognized This Year**	**Gain / (Loss) Deferred to Future Years**
June 30, 2017	$ 126,053	$ 100,843	$ 25,210	$ 0
June 30, 2018	9,619	5,772	1,924	1,923
June 30, 2019	(38,309)	(15,324)	(7,662)	(15,323)
June 30, 2020	(92,367)	(18,473)	(18,473)	(55,421)
June 30, 2021	655,144	0	131,029	524,115
Total	**$ 660,140**	**$ 72,818**	**$ 132,028**	**$ 455,294**

Total				
Fiscal Year Ending	**Asset Gain / (Loss)**	**Gain / (Loss) Recognized in Prior Years**	**Gain / (Loss) Recognized This Year**	**Gain / (Loss) Deferred to Future Years**
June 30, 2017	$ 362,732	$ 290,187	$ 72,545	$ 0
June 30, 2018	22,620	13,572	4,524	4,524
June 30, 2019	(120,555)	(48,222)	(24,111)	(48,222)
June 30, 2020	(274,183)	(54,836)	(54,836)	(164,511)
June 30, 2021	1,855,769	0	371,154	1,484,615
Total	**$ 1,846,383**	**$ 200,701**	**$ 369,276**	**$ 1,276,406**

Section 2.4: Historical Asset Rates of Return

	Actuarial Value		Fair Value	
Year Ending	**Annual**	**Cumulative***	**Annual**	**Cumulative***
June 30, 2005	9.1%	9.1%	8.5%	8.5%
June 30, 2006	9.6%	9.3%	11.4%	9.9%
June 30, 2007	11.9%	10.2%	18.5%	12.7%
June 30, 2008	10.2%	10.2%	(3.0%)	8.6%
June 30, 2009	(7.9%)	6.3%	(21.0%)	1.9%
June 30, 2010	8.1%	6.6%	10.6%	3.3%
June 30, 2011	6.9%	6.6%	20.5%	5.6%
June 30, 2012	0.7%	5.9%	0.2%	4.9%
June 30, 2013	3.7%	5.6%	12.2%	5.7%
June 30, 2014	22.7%	7.2%	18.2%	6.9%
June 30, 2015	7.2%	7.2%	3.2%	6.5%
June 30, 2016	5.1%	7.1%	(0.7%)	5.9%
June 30, 2017	5.6%	6.9%	12.9%	6.4%
June 30, 2018	6.2%	6.9%	8.2%	6.6%
June 30, 2019	5.5%	6.8%	5.9%	6.5%
June 30, 2020	5.8%	6.7%	4.1%	6.4%
June 30, 2021	11.6%	7.0%	30.1%	7.6%

* Cumulative since fiscal year ending June 30, 2005

Section 3: Projections

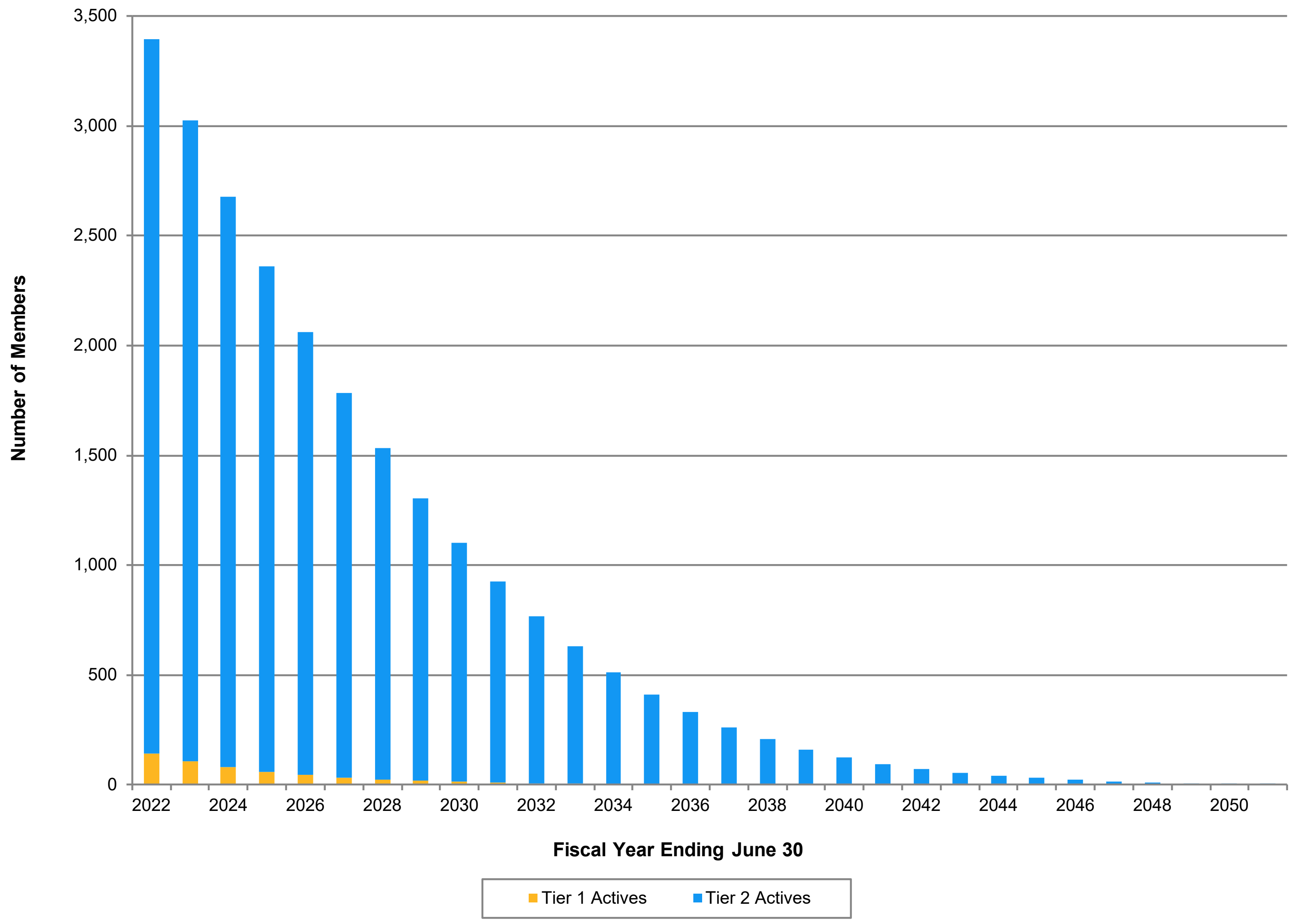
Section 3.1: Projection Assumptions and Methods

Key Assumptions

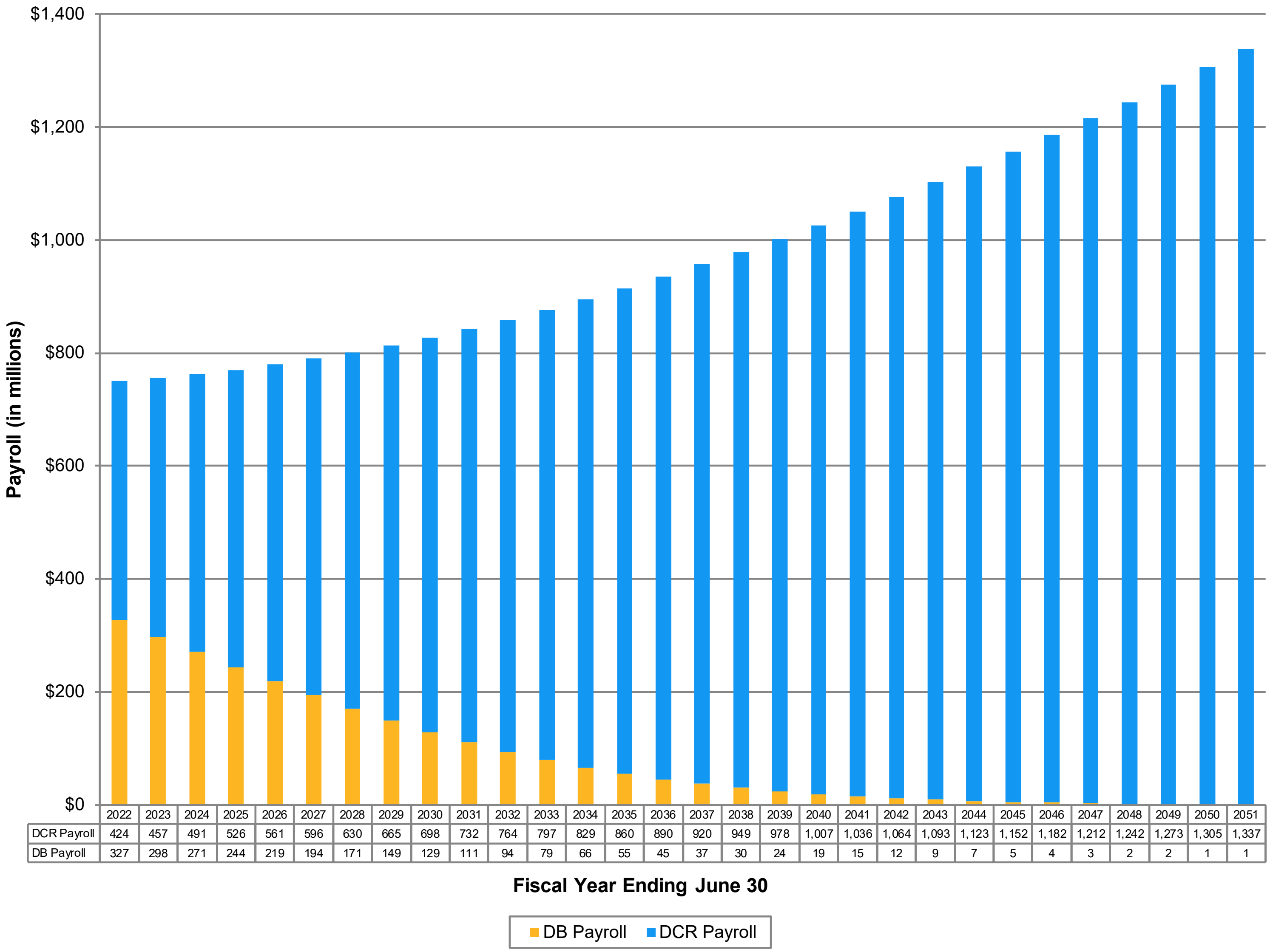
- 7.38% investment return (net of investment expenses) on the Fair Value of Assets in all future years.
- The Actuarial Value of Assets was re-initialized to Fair Value as of June 30, 2014. The Actuarial Value of Assets after June 30, 2014 reflects the deferred gains and losses generated by the smoothing method. The current deferred amount is recognized in the first four years of the projections.
- Actuarial assumptions and methods as described in Section 5. No actuarial gains/losses are assumed after June 30, 2021.
- The actuarially calculated contribution rate using a two-year roll-forward approach is adopted each year.
- Projections assume a 0% increase in the total active member population. All new members are expected to enter the DCR plan.
- Contribution rates are determined as a percent of total DB and DCR payroll.
- The DCR contribution rate determined as of June 30, 2021 is assumed to remain constant in all future years.
- The active rehire assumption shown in Section 5 is assumed to grade to zero on a uniform basis over 20 years.
- The Normal Cost is increased by the administrative expenses shown in Section 5. For future years, the percent increase is assumed to remain constant.
- In Section 3.6B, we assumed all remaining pension unfunded liability layered amortization amounts would be zero after the pension trust is projected to reach a funded status of 100%.

Section 3.2: Membership Projection

Projected Active Member Count



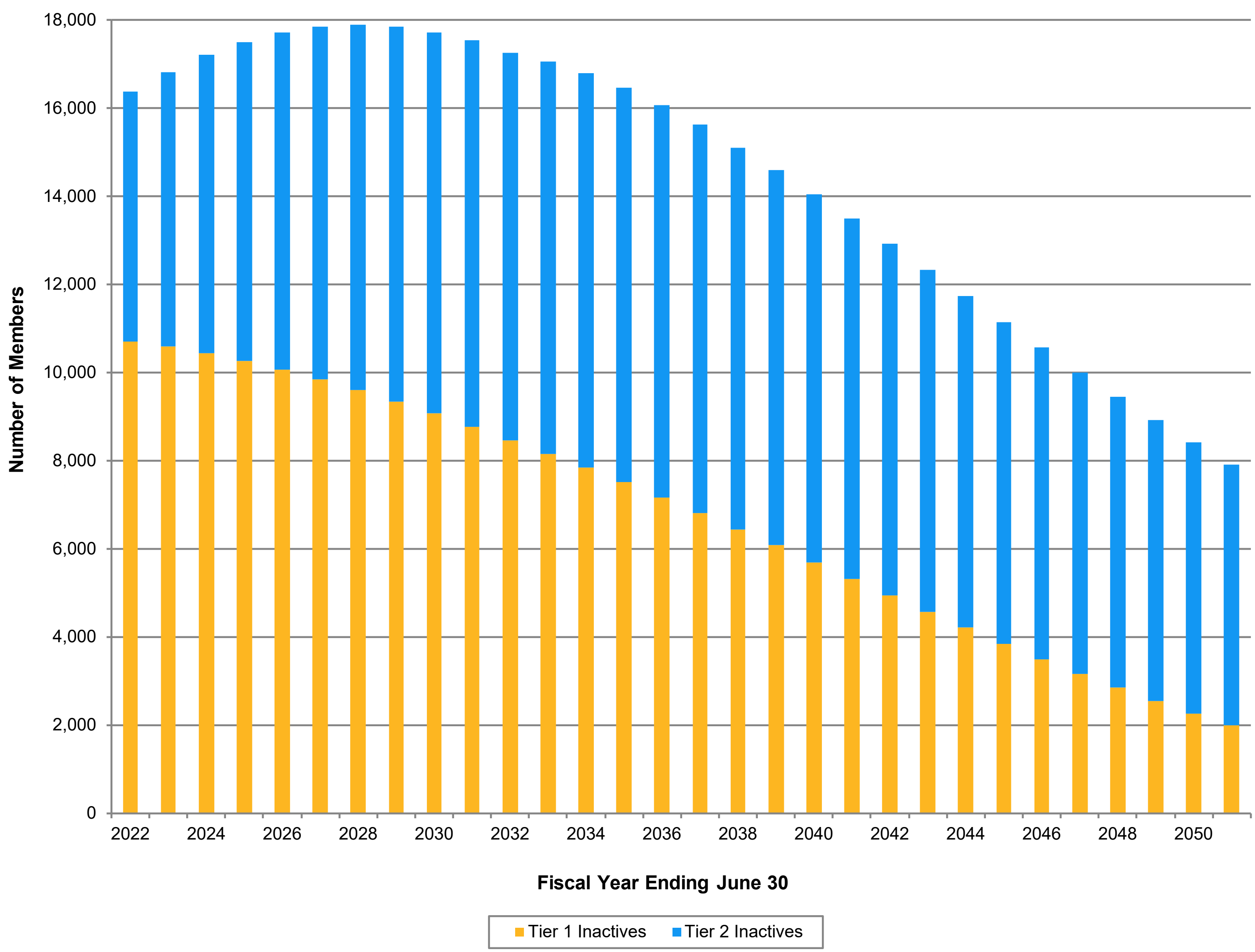
Projected DB and DCR Payroll



	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
DCR Payroll	424	457	491	526	561	596	630	665	698	732	764	797	829	860	890
DB Payroll	327	298	271	244	219	194	171	149	129	111	94	79	66	55	45

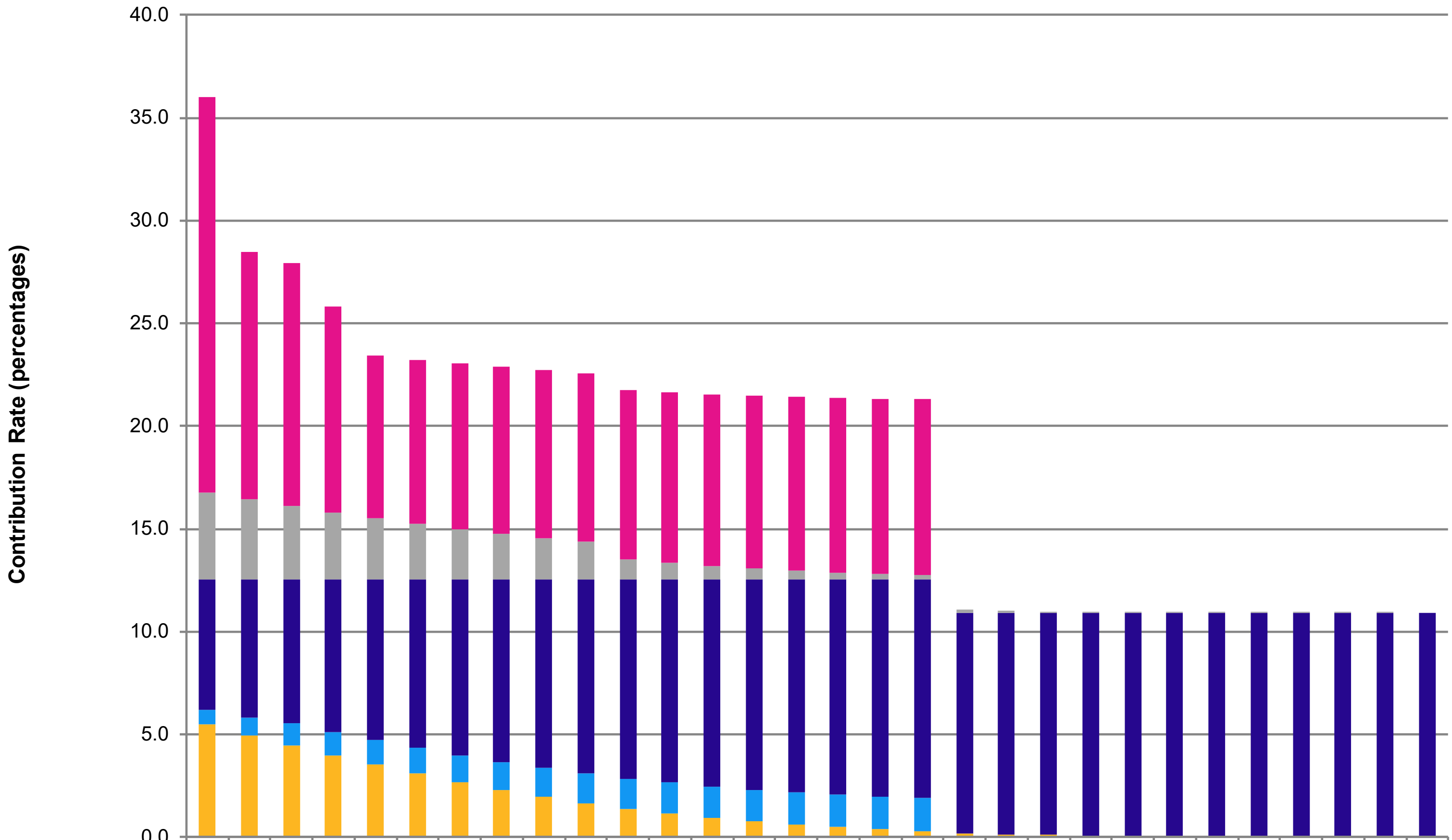
	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
DCR Payroll	920	949	978	1,007	1,036	1,064	1,093	1,123	1,152	1,182	1,212	1,242	1,273	1,305	1,337
DB Payroll	37	30	24	19	15	12	9	7	5	4	3	2	2	1	1

Projected Inactive Member Count



Section 3.3: Projected Employer/State Contribution Rates

Based on Total DB and DCR Payroll

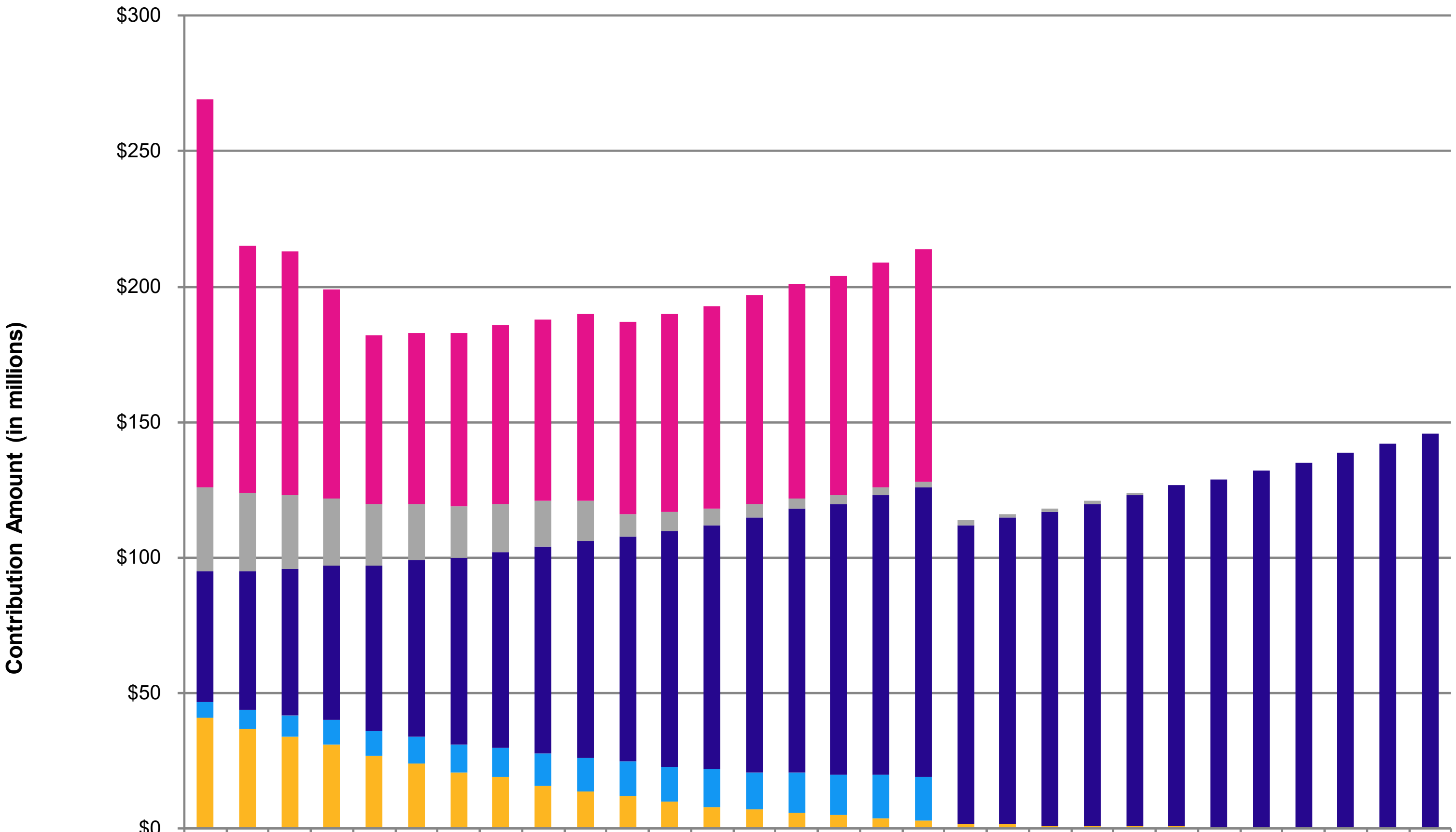


	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
State Assistance	19.29	12.06	11.83	9.99	7.92	7.98	8.05	8.10	8.15	8.20	8.25	8.30	8.33	8.39	8.43
DB EE Contributions	4.18	3.87	3.55	3.24	2.96	2.68	2.43	2.21	2.01	1.83	0.95	0.78	0.64	0.52	0.42
DCR ER Contributions	6.36	6.72	7.03	7.45	7.84	8.23	8.58	8.91	9.20	9.47	9.71	9.91	10.09	10.25	10.38
DB ER Contributions on DCR Pay	0.73	0.88	1.07	1.13	1.20	1.25	1.31	1.35	1.40	1.44	1.47	1.51	1.54	1.56	1.58
DB ER Contributions on DB Pay	5.47	4.96	4.46	3.98	3.52	3.08	2.67	2.30	1.96	1.65	1.38	1.14	0.93	0.75	0.60

	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
State Assistance	8.47	8.51	8.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DB EE Contributions	0.33	0.26	0.20	0.16	0.12	0.09	0.07	0.05	0.04	0.03	0.02	0.01	0.01	0.01	0.00
DCR ER Contributions	10.48	10.57	10.64	10.70	10.75	10.78	10.81	10.83	10.85	10.86	10.87	10.88	10.89	10.89	10.89
DB ER Contributions on DCR Pay	1.60	1.61	1.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DB ER Contributions on DB Pay	0.48	0.38	0.30	0.20	0.15	0.11	0.09	0.06	0.05	0.03	0.03	0.02	0.01	0.01	0.01

Fiscal Year Ending June 30

Section 3.4: Projected Employer/State Contribution Amounts

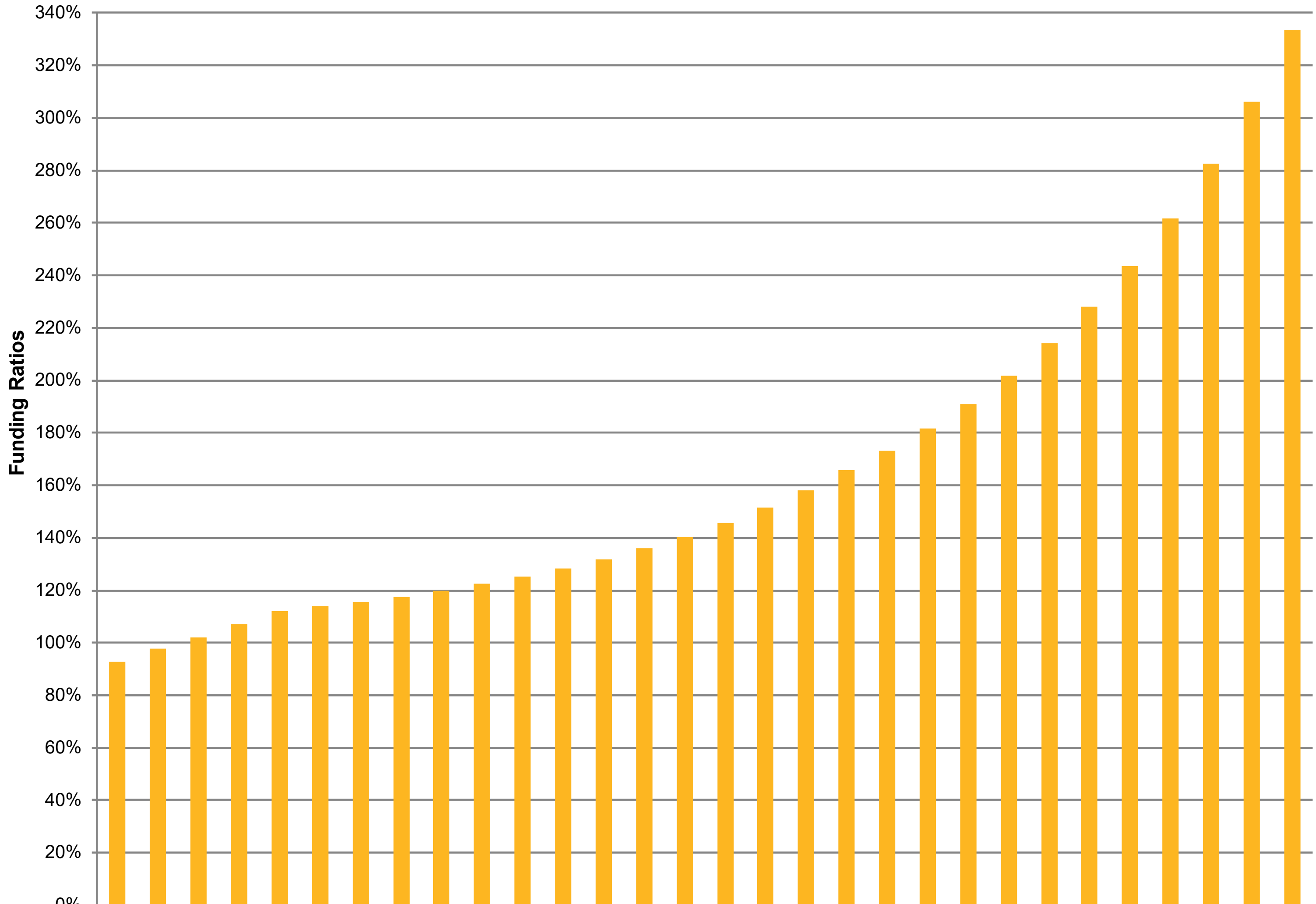


	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
State Assistance	143	91	90	77	62	63	64	66	67	69	71	73	75	77	79	81	83	86	0	0	0	0	0	0	0	0	0	0	0	0
DB EE Contributions	31	29	27	25	23	21	19	18	17	15	8	7	6	5	4	3	3	2	2	1	1	1	1	0	0	0	0	0	0	0
DCR ER Contributions	48	51	54	57	61	65	69	72	76	80	83	87	90	94	97	100	103	107	110	113	116	119	122	126	129	132	135	139	142	146
DB ER Contributions on DCR Pay	6	7	8	9	9	10	10	11	12	12	13	13	14	14	15	15	16	16	0	0	0	0	0	0	0	0	0	0	0	0
DB ER Contributions on DB Pay	41	37	34	31	27	24	21	19	16	14	12	10	8	7	6	5	4	3	2	2	1	1	1	1	0	0	0	0	0	0

Fiscal Year Ending June 30

DB ER Contributions on DB Pay | DB ER Contributions on DCR Pay | DCR ER Contributions | DB EE Contributions | State Assistance

Section 3.5: Projection of Funded Ratios



	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Funding Ratios	93%	98%	102%	107%	112%	114%	116%	118%	120%	122%	125%	128%	132%	136%	140%

	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
Funding Ratios	146%	152%	158%	166%	173%	182%	191%	202%	214%	228%	244%	262%	282%	306%	333%

Fiscal Year Ending June 30

Section 3.6A: Table of Projected Actuarial Results ($'s in 000's)

	Valuation Amounts on July 1 (Beginning of FY)				Cash Flow Amounts during Following 12 Months									
						Actuarial Contrib. Rates			DB Contributions					
Fiscal Year End	Actuarial Assets	Accrued Liability	Funding Ratio	Unfunded Liability / (Surplus)	Total Salaries	DB	DCR	Total	Employer	State Assistance	Employee	Total	Benefit Payments	Deferred Asset Gain / (Loss)
2022	$ 9,178,106	$ 9,911,490	92.6%	$ 733,384	$ 750,334	25.49%	6.36%	31.85%	$ 46,521	$ 142,665	$ 31,383	$ 220,569	$ 658,544	$ 979,677
2023	9,791,279	10,028,893	97.6%	237,614	755,203	17.90%	6.72%	24.62%	44,104	91,029	29,220	164,353	682,272	687,471
2024	10,338,873	10,123,941	102.1%	(214,932)	762,084	17.36%	7.03%	24.39%	42,143	90,155	27,025	159,323	706,663	371,154
2025	10,899,272	10,193,784	106.9%	(705,488)	770,330	15.10%	7.45%	22.55%	39,364	76,956	24,990	141,310	730,156	0
2026	11,489,368	10,240,200	112.2%	(1,249,168)	779,629	12.64%	7.84%	20.48%	36,799	61,747	23,100	121,646	753,067	0
2027	11,680,120	10,261,023	113.8%	(1,419,097)	789,757	12.31%	8.23%	20.54%	34,197	63,023	21,189	118,409	774,027	0
2028	11,860,260	10,256,329	115.6%	(1,603,931)	801,009	12.03%	8.58%	20.61%	31,880	64,481	19,496	115,857	795,147	0
2029	12,029,532	10,225,194	117.6%	(1,804,338)	813,553	11.75%	8.91%	20.66%	29,695	65,898	17,944	113,537	815,453	0
2030	12,188,201	10,166,564	119.9%	(2,021,637)	827,298	11.51%	9.20%	20.71%	27,797	67,425	16,615	111,837	833,857	0
2031	12,338,080	10,080,920	122.4%	(2,257,160)	842,250	11.29%	9.47%	20.76%	26,025	69,065	15,430	110,520	850,139	0
2032	12,481,100	9,969,584	125.2%	(2,511,516)	858,486	11.10%	9.71%	20.81%	24,466	70,825	8,156	103,447	858,425	0
2033	12,619,080	9,832,428	128.3%	(2,786,652)	876,187	10.95%	9.91%	20.86%	23,219	72,724	6,834	102,777	870,267	0
2034	12,754,565	9,669,875	131.9%	(3,084,690)	894,739	10.80%	10.09%	20.89%	22,100	74,532	5,726	102,358	878,203	0
2035	12,891,657	9,484,401	135.9%	(3,407,256)	914,255	10.70%	10.25%	20.95%	21,119	76,706	4,754	102,579	882,220	0
2036	13,035,192	9,278,669	140.5%	(3,756,523)	934,724	10.61%	10.38%	20.99%	20,377	78,797	3,926	103,100	883,293	0
2037	13,188,986	9,054,611	145.7%	(4,134,375)	956,215	10.55%	10.48%	21.03%	19,889	80,991	3,156	104,036	881,551	0
2038	13,357,129	8,814,138	151.5%	(4,542,991)	978,629	10.50%	10.57%	21.07%	19,475	83,281	2,544	105,300	876,734	0
2039	13,544,196	8,559,463	158.2%	(4,984,733)	1,001,616	10.47%	10.64%	21.11%	19,231	85,638	2,003	106,872	870,111	0
2040	13,753,765	8,291,660	165.9%	(5,462,105)	1,025,544	0.20%	10.70%	10.90%	2,051	0	1,641	3,692	861,473	0
2041	13,877,722	8,012,059	173.2%	(5,865,663)	1,050,331	0.15%	10.75%	10.90%	1,575	0	1,260	2,835	848,623	0
2042	14,023,350	7,724,346	181.5%	(6,299,004)	1,075,968	0.11%	10.78%	10.89%	1,183	0	968	2,151	832,948	0
2043	14,195,351	7,431,010	191.0%	(6,764,341)	1,102,329	0.09%	10.81%	10.90%	992	0	772	1,764	813,044	0
2044	14,400,354	7,136,152	201.8%	(7,264,202)	1,129,431	0.06%	10.83%	10.89%	678	0	565	1,243	791,506	0
2045	14,642,346	6,841,474	214.0%	(7,800,872)	1,157,134	0.05%	10.85%	10.90%	578	0	463	1,041	767,682	0
2046	14,926,751	6,549,448	227.9%	(8,377,303)	1,185,529	0.03%	10.86%	10.89%	356	0	356	712	744,305	0
2047	15,256,103	6,259,887	243.7%	(8,996,216)	1,214,554	0.03%	10.87%	10.90%	364	0	243	607	720,850	0
2048	15,634,029	5,973,113	261.7%	(9,660,916)	1,244,336	0.02%	10.88%	10.90%	248	0	124	372	698,677	0
2049	16,062,648	5,688,055	282.4%	(10,374,593)	1,274,685	0.01%	10.89%	10.90%	127	0	127	254	676,267	0
2050	16,546,068	5,405,124	306.1%	(11,140,944)	1,305,812	0.01%	10.89%	10.90%	131	0	131	262	654,115	0
2051	17,088,195	5,124,249	333.5%	(11,963,946)	1,337,788	0.01%	10.89%	10.90%	134	0	0	134	631,192	0
								Total	$ 536,818	$ 1,415,938	$ 270,141	$ 2,222,897		

Pension unfunded liability layered amortization amounts are maintained after the pension trust is projected to be 100% funded.

Section 3.6A: Table of Projected Actuarial Results ($'s in 000's) (continued)

Fiscal Year End	Valuation Amounts on July 1 (Beginning of FY)					
	Funding Ratio			Unfunded Liability / (Surplus)		
	Pension	Healthcare	Total	Pension	Healthcare	Total
2022	79.1%	133.9%	92.6%	$ 1,561,518	$ (828,134)	$ 733,384
2023	83.2%	141.1%	97.6%	1,266,857	(1,029,243)	237,614
2024	86.8%	147.4%	102.1%	999,240	(1,214,172)	(214,932)
2025	90.3%	155.1%	106.9%	733,329	(1,438,817)	(705,488)
2026	94.2%	163.5%	112.2%	437,124	(1,686,292)	(1,249,168)
2027	94.8%	167.2%	113.8%	392,379	(1,811,476)	(1,419,097)
2028	95.5%	171.2%	115.6%	342,345	(1,946,276)	(1,603,931)
2029	96.2%	175.8%	117.6%	286,499	(2,090,837)	(1,804,338)
2030	97.0%	180.9%	119.9%	224,495	(2,246,132)	(2,021,637)
2031	97.9%	186.6%	122.4%	155,794	(2,412,954)	(2,257,160)
2032	98.9%	192.9%	125.2%	79,928	(2,591,444)	(2,511,516)
2033	100.1%	200.1%	128.3%	(3,860)	(2,782,792)	(2,786,652)
2034	101.4%	208.2%	131.9%	(96,549)	(2,988,141)	(3,084,690)
2035	102.9%	217.3%	135.9%	(198,734)	(3,208,522)	(3,407,256)
2036	104.7%	227.5%	140.5%	(311,256)	(3,445,267)	(3,756,523)
2037	106.8%	239.0%	145.7%	(434,961)	(3,699,414)	(4,134,375)
2038	109.2%	251.9%	151.5%	(570,605)	(3,972,386)	(4,542,991)
2039	112.0%	266.4%	158.2%	(719,254)	(4,265,479)	(4,984,733)
2040	115.2%	282.9%	165.9%	(881,936)	(4,580,169)	(5,462,105)
2041	117.0%	301.5%	173.2%	(947,493)	(4,918,170)	(5,865,663)
2042	119.0%	322.4%	181.5%	(1,017,888)	(5,281,116)	(6,299,004)
2043	121.3%	346.1%	191.0%	(1,093,557)	(5,670,784)	(6,764,341)
2044	124.0%	372.4%	201.8%	(1,174,895)	(6,089,307)	(7,264,202)
2045	127.0%	401.6%	214.0%	(1,262,219)	(6,538,653)	(7,800,872)
2046	130.5%	434.0%	227.9%	(1,356,129)	(7,021,174)	(8,377,303)
2047	134.5%	470.0%	243.7%	(1,456,929)	(7,539,287)	(8,996,216)
2048	139.1%	510.1%	261.7%	(1,565,199)	(8,095,717)	(9,660,916)
2049	144.5%	555.4%	282.4%	(1,681,447)	(8,693,146)	(10,374,593)
2050	150.7%	606.6%	306.1%	(1,806,230)	(9,334,714)	(11,140,944)
2051	157.9%	665.0%	333.5%	(1,940,279)	(10,023,667)	(11,963,946)

Pension unfunded liability layered amortization amounts are maintained after the pension trust is projected to be 100% funded.

Section 3.6B: Table of Projected Actuarial Results ($'s in 000's)

Fiscal Year End	Valuation Amounts on July 1 (Beginning of FY)				Cash Flow Amounts during Following 12 Months									Deferred Asset Gain / (Loss)
						Actuarial Contrib. Rates			DB Contributions					
	Actuarial Assets	Accrued Liability	Funding Ratio	Unfunded Liability / (Surplus)	Total Salaries	DB	DCR	Total	Employer	State Assistance	Employee	Total	Benefit Payments	
2022	$ 9,178,106	$ 9,911,490	92.6%	$ 733,384	$ 750,334	25.49%	6.36%	31.85%	$ 46,521	$ 142,665	$ 31,383	$ 220,569	$ 658,544	$ 979,677
2023	9,791,279	10,028,893	97.6%	237,614	755,203	17.90%	6.72%	24.62%	44,104	91,029	29,220	164,353	682,272	687,471
2024	10,338,873	10,123,941	102.1%	(214,932)	762,084	17.36%	7.03%	24.39%	42,143	90,155	27,025	159,323	706,663	371,154
2025	10,899,272	10,193,784	106.9%	(705,488)	770,330	15.10%	7.45%	22.55%	39,364	76,956	24,990	141,310	730,156	0
2026	11,489,368	10,240,200	112.2%	(1,249,168)	779,629	12.64%	7.84%	20.48%	36,799	61,747	23,100	121,646	753,067	0
2027	11,680,120	10,261,023	113.8%	(1,419,097)	789,757	12.31%	8.23%	20.54%	34,197	63,023	21,189	118,409	774,027	0
2028	11,860,260	10,256,329	115.6%	(1,603,931)	801,009	12.03%	8.58%	20.61%	31,880	64,481	19,496	115,857	795,147	0
2029	12,029,532	10,225,194	117.6%	(1,804,338)	813,553	11.75%	8.91%	20.66%	29,695	65,898	17,944	113,537	815,453	0
2030	12,188,201	10,166,564	119.9%	(2,021,637)	827,298	11.51%	9.20%	20.71%	27,797	67,425	16,615	111,837	833,857	0
2031	12,338,080	10,080,920	122.4%	(2,257,160)	842,250	11.29%	9.47%	20.76%	26,025	69,065	15,430	110,520	850,139	0
2032	12,481,100	9,969,584	125.2%	(2,511,516)	858,486	11.10%	9.71%	20.81%	24,466	70,825	8,156	103,447	858,425	0
2033	12,619,080	9,832,428	128.3%	(2,786,652)	876,187	1.05%	9.91%	10.96%	9,200	0	6,834	16,034	870,267	0
2034	12,661,947	9,669,875	130.9%	(2,992,072)	894,739	0.84%	10.09%	10.93%	7,516	0	5,726	13,242	878,203	0
2035	12,697,059	9,484,401	133.9%	(3,212,658)	914,255	0.68%	10.25%	10.93%	6,217	0	4,754	10,971	882,220	0
2036	12,728,424	9,278,669	137.2%	(3,449,755)	934,724	0.53%	10.38%	10.91%	4,954	0	3,926	8,880	883,293	0
2037	12,758,984	9,054,611	140.9%	(3,704,373)	956,215	0.43%	10.48%	10.91%	4,112	0	3,156	7,268	881,551	0
2038	12,792,076	8,814,138	145.1%	(3,977,938)	978,629	0.33%	10.57%	10.90%	3,229	0	2,544	5,773	876,734	0
2039	12,831,180	8,559,463	149.9%	(4,271,717)	1,001,616	0.26%	10.64%	10.90%	2,605	0	2,003	4,608	870,111	0
2040	12,878,942	8,291,660	155.3%	(4,587,282)	1,025,544	0.20%	10.70%	10.90%	2,051	0	1,641	3,692	861,473	0
2041	12,938,337	8,012,059	161.5%	(4,926,278)	1,050,331	0.15%	10.75%	10.90%	1,575	0	1,260	2,835	848,623	0
2042	13,014,639	7,724,346	168.5%	(5,290,293)	1,075,968	0.11%	10.78%	10.89%	1,183	0	968	2,151	832,948	0
2043	13,112,197	7,431,010	176.5%	(5,681,187)	1,102,329	0.09%	10.81%	10.90%	992	0	772	1,764	813,044	0
2044	13,237,264	7,136,152	185.5%	(6,101,112)	1,129,431	0.06%	10.83%	10.89%	678	0	565	1,243	791,506	0
2045	13,393,420	6,841,474	195.8%	(6,551,946)	1,157,134	0.05%	10.85%	10.90%	578	0	463	1,041	767,682	0
2046	13,585,654	6,549,448	207.4%	(7,036,206)	1,185,529	0.03%	10.86%	10.89%	356	0	356	712	744,305	0
2047	13,816,033	6,259,887	220.7%	(7,556,146)	1,214,554	0.03%	10.87%	10.90%	364	0	243	607	720,850	0
2048	14,087,681	5,973,113	235.9%	(8,114,568)	1,244,336	0.02%	10.88%	10.90%	248	0	124	372	698,677	0
2049	14,402,180	5,688,055	253.2%	(8,714,125)	1,274,685	0.01%	10.89%	10.90%	127	0	127	254	676,267	0
2050	14,763,057	5,405,124	273.1%	(9,357,933)	1,305,812	0.01%	10.89%	10.90%	131	0	131	262	654,115	0
2051	15,173,598	5,124,249	296.1%	(10,049,349)	1,337,788	0.01%	10.89%	10.90%	134	0	0	134	631,192	0
								Total	**$ 429,241**	**$ 863,269**	**$ 270,141**	**$ 1,562,651**		

Pension unfunded liability layered amortization amounts are reduced to zero when the pension trust is projected to be 100% funded. The healthcare unfunded liability amortization amounts would also be reduced to zero since the healthcare trust is currently more than 100% funded.

Section 3.6B: Table of Projected Actuarial Results ($'s in 000's) (continued)

Fiscal Year End	Valuation Amounts on July 1 (Beginning of FY)					
	Funding Ratio			Unfunded Liability / (Surplus)		
	Pension	Healthcare	Total	Pension	Healthcare	Total
2022	79.1%	133.9%	92.6%	$ 1,561,518	$ (828,134)	$ 733,384
2023	83.2%	141.1%	97.6%	1,266,857	(1,029,243)	237,614
2024	86.8%	147.4%	102.1%	999,240	(1,214,172)	(214,932)
2025	90.3%	155.1%	106.9%	733,329	(1,438,817)	(705,488)
2026	94.2%	163.5%	112.2%	437,124	(1,686,292)	(1,249,168)
2027	94.8%	167.2%	113.8%	392,379	(1,811,476)	(1,419,097)
2028	95.5%	171.2%	115.6%	342,345	(1,946,276)	(1,603,931)
2029	96.2%	175.8%	117.6%	286,499	(2,090,837)	(1,804,338)
2030	97.0%	180.9%	119.9%	224,495	(2,246,132)	(2,021,637)
2031	97.9%	186.6%	122.4%	155,794	(2,412,954)	(2,257,160)
2032	98.9%	192.9%	125.2%	79,928	(2,591,444)	(2,511,516)
2033	100.1%	200.1%	128.3%	(3,860)	(2,782,792)	(2,786,652)
2034	100.1%	208.2%	130.9%	(3,931)	(2,988,141)	(2,992,072)
2035	100.1%	217.3%	133.9%	(4,136)	(3,208,522)	(3,212,658)
2036	100.1%	227.5%	137.2%	(4,488)	(3,445,267)	(3,449,755)
2037	100.1%	239.0%	140.9%	(4,959)	(3,699,414)	(3,704,373)
2038	100.1%	251.9%	145.1%	(5,552)	(3,972,386)	(3,977,938)
2039	100.1%	266.4%	149.9%	(6,238)	(4,265,479)	(4,271,717)
2040	100.1%	282.9%	155.3%	(7,113)	(4,580,169)	(4,587,282)
2041	100.1%	301.5%	161.5%	(8,108)	(4,918,170)	(4,926,278)
2042	100.2%	322.4%	168.5%	(9,177)	(5,281,116)	(5,290,293)
2043	100.2%	346.1%	176.5%	(10,403)	(5,670,784)	(5,681,187)
2044	100.2%	372.4%	185.5%	(11,805)	(6,089,307)	(6,101,112)
2045	100.3%	401.6%	195.8%	(13,293)	(6,538,653)	(6,551,946)
2046	100.3%	434.0%	207.4%	(15,032)	(7,021,174)	(7,036,206)
2047	100.4%	470.0%	220.7%	(16,859)	(7,539,287)	(7,556,146)
2048	100.5%	510.1%	235.9%	(18,851)	(8,095,717)	(8,114,568)
2049	100.6%	555.4%	253.2%	(20,979)	(8,693,146)	(8,714,125)
2050	100.7%	606.6%	273.1%	(23,219)	(9,334,714)	(9,357,933)
2051	100.8%	665.0%	296.1%	(25,682)	(10,023,667)	(10,049,349)

Pension unfunded liability layered amortization amounts are reduced to zero when the pension trust is projected to be 100% funded. The healthcare unfunded liability amortization amounts would also be reduced to zero since the healthcare trust is currently more than 100% funded.

Section 3.7: Projected Pension Benefit Recipients and Amounts ($'s in 000's)

Fiscal Year End	Pension Recipient Counts	Pension Benefit Amounts	Fiscal Year End	Pension Recipient Counts	Pension Benefit Amounts
2022	13,972	$ 523,901	2061	3,322	$ 247,589
2023	14,475	541,571	2062	3,032	230,176
2024	14,931	558,743	2063	2,757	213,153
2025	15,322	574,804	2064	2,498	196,552
2026	15,654	589,941	2065	2,253	180,409
2027	15,927	603,906	2066	2,023	164,764
2028	16,120	616,957	2067	1,808	149,662
2029	16,245	628,371	2068	1,607	135,141
2030	16,289	638,195	2069	1,419	121,258
2031	16,267	646,049	2070	1,246	108,058
2032	16,156	646,045	2071	1,085	95,589
2033	15,986	649,844	2072	938	83,897
2034	15,736	651,554	2073	805	73,022
2035	15,417	651,076	2074	684	62,995
2036	15,036	648,676	2075	577	53,829
2037	14,618	644,278	2076	481	45,531
2038	14,136	638,247	2077	397	38,093
2039	13,640	630,181	2078	324	31,501
2040	13,127	620,418	2079	261	25,726
2041	12,587	609,059	2080	208	20,732
2042	12,032	596,090	2081	164	16,473
2043	11,460	581,732	2082	128	12,898
2044	10,885	566,218	2083	97	9,943
2045	10,317	549,623	2084	74	7,541
2046	9,759	532,176	2085	54	5,622
2047	9,212	514,031	2086	39	4,118
2048	8,685	495,291	2087	28	2,963
2049	8,174	476,108	2088	20	2,092
2050	7,678	456,645	2089	14	1,450
2051	7,195	437,031	2090	10	987
2052	6,728	417,362	2091	7	659
2053	6,277	397,718	2092	4	434
2054	5,844	378,168	2093	3	281
2055	5,429	358,769	2094	2	180
2056	5,032	339,565	2095	2	114
2057	4,655	320,596	2096	1	73
2058	4,295	301,889	2097	1	45
2059	3,953	283,470	2098	0	0
2060	3,629	265,363	2099	0	0

Counts include retirees, disabilitants, and beneficiaries.

Section 4: Member Data

Section 4.1: Summary of Members Included

As of June 30	2017	2018	2019	2020	2021
Active Members					
1. Number	4,772	4,418	4,044	3,789	3,396[1]
2. Average Age	50.86	51.13	51.48	51.92	52.14
3. Average Credited Service	18.12	18.62	19.21	19.76	20.31
4. Average Entry Age	32.74	32.51	32.27	32.16	31.83
5. Average Annual Earnings	$ 86,327	$ 87,374	$ 88,879	$ 90,564	$ 94,143
6. Number Vested	4,772	4,418	4,044	3,789	3,396
7. Percent Who Are Vested	100.0%	100.0%	100.0%	100.0%	100.0%
Retirees, Disabilitants, and Beneficiaries					
1. Number	12,983	13,277	13,491	13,689	13,972
2. Average Age	70.36	70.78	71.30	71.85	72.26
3. Average Years Since Retirement	14.13	14.40	14.74	15.06	15.24
4. Average Monthly Pension Benefit					
a. Base	$ 2,228	$ 2,273	$ 2,303	$ 2,330	$ 2,363
b. COLA[2]	128	128	126	126	125
c. PRPA[2]	506	488	518	519	491
d. Adjustment	0	0	0	0	(1)
e. Sick	62	65	67	68	70
f. Total	$ 2,924	$ 2,954	$ 3,014	$ 3,043	$ 3,048
Vested Terminations (vested at termination, not refunded contributions, or commenced benefit)					
1. Number	876	797	812	764	727
2. Average Age	50.82	51.01	51.71	52.37	52.68
3. Average Monthly Pension Benefit	$ 1,441	$ 1,350	$ 1,534	$ 1,579	$ 1,635
Non-Vested Terminations (not vested at termination, not refunded contributions)					
1. Number	1,994	1,900	1,810	1,744	1,679
2. Average Account Balance	$ 20,290	$ 20,872	$ 21,612	$ 22,591	$ 23,388
Total Number of Members	**20,625**	**20,392**	**20,157**	**19,986**	**19,774**

[1] Includes 1,060 male active members and 2,336 female active members.

[2] Calculated by taking the average of the data field, as provided by the State of Alaska, for all participants in the group.

Summary of Members Included

As of June 30, 2021	DB Tier 1	DB Tier 2	DB Total	DCR Tier 3	Grand Total
Active Members					
1. Number	142	3,254	3,396	5,521	8,917
2. Average Age	63.37	51.65	52.14	41.90	45.80
3. Average Credited Service	30.23	19.88	20.31	6.34	11.66
4. Average Entry Age	33.14	31.77	31.83	35.56	34.14
5. Annual Earnings					
a. Total	$ 14,388,684	$ 305,322,636	$ 319,711,320	$ 408,804,718	$ 728,516,038
b. Average	$ 101,329	$ 93,830	$ 94,143	$ 74,045	$ 81,700

Total and average annual earnings ("valuation pay") are the annualized earnings for the fiscal year ending on the valuation date.

As of June 30, 2021	Tier 1	Tier 2	Total
Retirees, Disabilitants, and Beneficiaries			
1. Number	10,454	3,518	13,972
2. Average Age	74.32	66.14	72.26
3. Average Years Since Retirement	18.30	6.14	15.24
4. Average Monthly Pension Benefit			
a. Base	$ 2,375	$ 2,329	$ 2,363
b. COLA	148	57	125
c. PRPA	630	77	491
d. Adjustment	(1)	(1)	(1)
e. Sick	69	71	70
f. Total	$ 3,221	$ 2,533	$ 3,048

Summary of Members Included

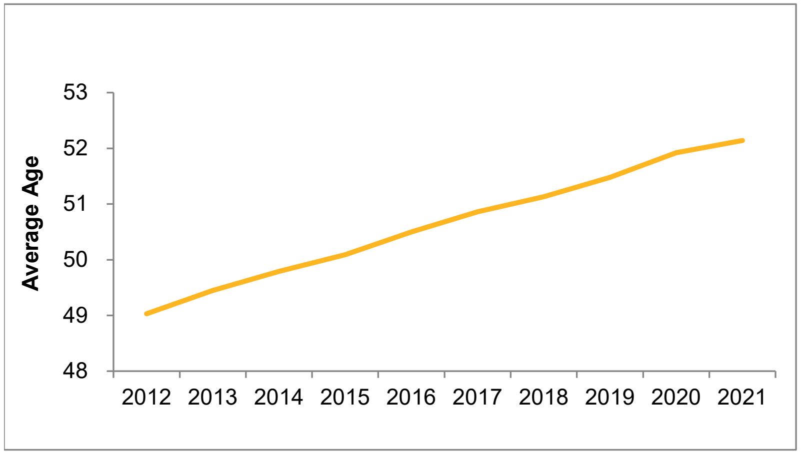
As of June 30, 2021	Active Members	Inactive Members: Retirees	Covered Spouses	Covered Children / Dependents	Deferred	Total Inactive Members
Retiree Medical Participants						
1. Retiree Coverage Only	3,366	7,679	0	0	369	8,048
2. Retiree + Spouse	0	3,935	3,935	0	602	8,472
3. Retiree + Children / Dependents	0	193	0	179	0	372
4. Family	0	331	331	482	0	1,144
5. Total	3,366	12,138	4,266	661	971	18,036

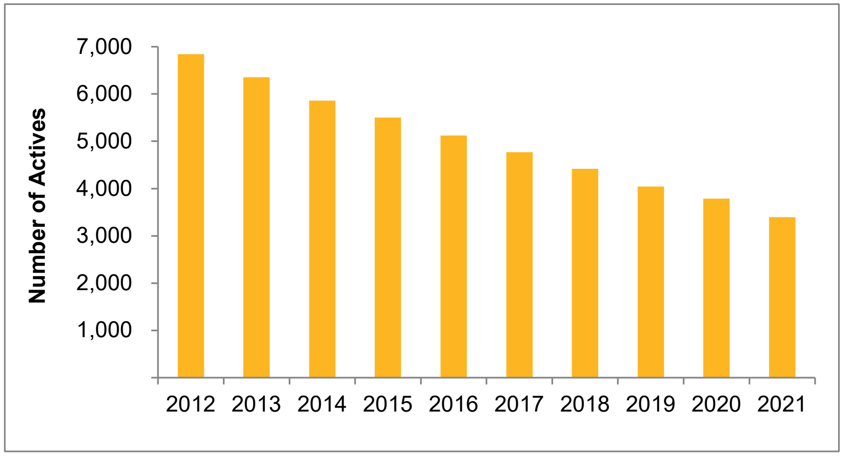
As of June 30, 2021	Retirees	Covered Spouses	Covered Children / Dependents	Deferred	Total Inactive Members
Retiree Medical Participants					
1. Pre-Medicare	2,243	1,274	661	954	5,132
2. Medicare Part A & B	9,685	2,960	0	17	12,662
3. Medicare Part B Only	210	32	0	0	242
4. Total	12,138	4,266	661	971	18,036

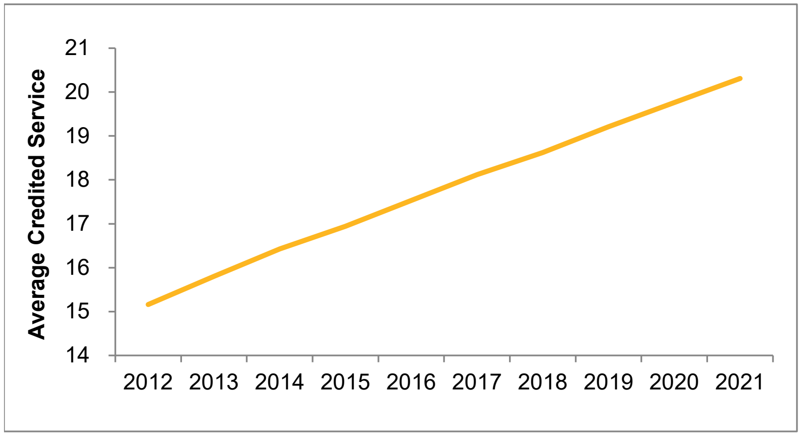
As of June 30, 2021	Retirees
Summary of Retiree Medical Data Received	
1. Retiree records on pension data	13,972
2. Remove duplicates on pension data	(528)
3. Valued in a different retiree healthcare plan[1]	(837)
4. Records without medical coverage	(506)
5. Medical only retirees	37
6. Total	12,138

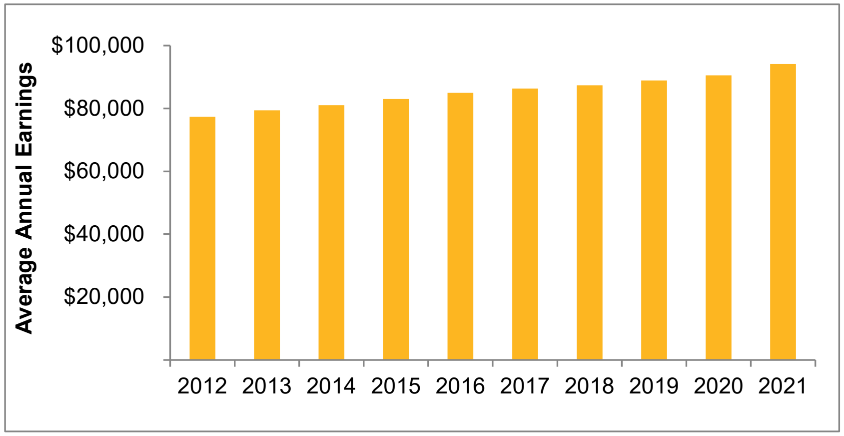
[1] Each member's retiree medical benefits are valued in the plan indicated in the data from Aetna

Summary of Members Included - Active Members at June 30









Average annual earnings (“valuation pay”) are the annualized earnings for the fiscal year ending on the valuation date.

Section 4.2: Age and Service Distribution of Active Members

Annual Earnings by Age

Age	Number	Total Annual Earnings	Average Annual Earnings
0 - 19	0	$ 0	$ 0
20 - 24	0	0	0
25 - 29	0	0	0
30 - 34	0	0	0
35 - 39	53	4,432,577	83,634
40 - 44	530	47,463,436	89,554
45 - 49	858	80,163,262	93,430
50 - 54	902	86,221,152	95,589
55 - 59	582	55,038,876	94,569
60 - 64	295	28,816,905	97,684
65 - 69	111	11,205,958	100,955
70 - 74	48	4,616,849	96,184
75+	17	1,752,305	103,077
Total	**3,396**	**$319,711,320**	**$ 94,143**

Annual Earnings by Credited Service

Years of Service	Number	Total Annual Earnings	Average Annual Earnings
0	0	$ 0	$ 0
1	3	158,220	52,740
2	1	44,803	44,803
3	7	484,633	69,233
4	12	801,689	66,807
0 - 4	**23**	**$ 1,489,345**	**$ 64,754**
5 - 9	89	6,523,824	73,301
10 - 14	252	21,173,526	84,022
15 - 19	1,262	116,203,267	92,079
20 - 24	1,208	116,732,875	96,633
25 - 29	397	40,101,280	101,011
30 - 34	129	13,459,854	104,340
35 - 39	24	2,701,868	112,578
40+	12	1,325,481	110,457
Total	**3,396**	**$319,711,320**	**$ 94,143**

Years of Credited Service by Age

	Years of Service									
Age	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	Total
0 - 19	0	0	0	0	0	0	0	0	0	0
20 - 24	0	0	0	0	0	0	0	0	0	0
25 - 29	0	0	0	0	0	0	0	0	0	0
30 - 34	0	0	0	0	0	0	0	0	0	0
35 - 39	0	3	13	36	1	0	0	0	0	53
40 - 44	5	30	83	349	63	0	0	0	0	530
45 - 49	1	25	69	346	381	36	0	0	0	858
50 - 54	11	18	46	265	405	141	16	0	0	902
55 - 59	2	9	20	149	204	136	58	4	0	582
60 - 64	3	2	15	72	105	61	29	6	2	295
65 - 69	0	2	4	29	33	13	20	9	1	111
70 - 74	1	0	1	10	13	8	5	4	6	48
75+	0	0	1	6	3	2	1	1	3	17
Total	**23**	**89**	**252**	**1,262**	**1,208**	**397**	**129**	**24**	**12**	**3,396**

Total and average annual earnings ("valuation pay") are the annualized earnings for the fiscal year ending on the valuation date.

Section 4.3: Member Data Reconciliation

Pension

		Inactive Members					
	Active Members	Due a Refund	Deferred Benefits	Retired Members	Disabled Members	Bene-ficiaries	Total
As of June 30, 2020	**3,789**	**1,744**	**764**	**12,267**	**20**	**1,402**	**19,986**
Vested Terminations	(116)	(3)	119	0	0	0	0
Non-Vested Terminations	(3)	3	0	0	0	0	0
Refund of Contributions	(1)	(41)	(3)	0	0	0	(45)
Disability Retirements	(1)	0	0	0	1	0	0
Age Retirements	(326)	(7)	(113)	447	(1)	0	0
Deaths With Beneficiary	(1)	0	(2)	(127)	0	130	0
Deaths Without Beneficiary	(2)	(4)	(2)	(124)	0	(46)	(178)
Data Corrections	0	(1)	1	0	0	(8)	(8)
Transfers In/Out	0	0	0	0	0	0	0
Rehires	57	(16)	(37)	(4)	0	0	0
Pick Ups*	0	4	0	0	0	15	19
Net Change	**(393)**	**(65)**	**(37)**	**192**	**0**	**91**	**(212)**
As of June 30, 2021	**3,396**	**1,679**	**727**	**12,459**	**20**	**1,493**	**19,774**

* Pickup beneficiaries are primarily new DROs.

Healthcare

		Inactive Members				
	Active Members	Retirees	Covered Spouses	Covered Children / Dependents	Deferred	Total Inactive Members
As of June 30, 2020	**3,746**	**12,019**	**4,220**	**669**	**952**	**17,860**
Vested Terminations	(87)	0	0	0	87	87
Non-Vested Terminations	(2)	0	0	0	0	0
Refund of Contributions	(1)	0	0	0	(3)	(3)
Disability Retirements	(1)	1	0	0	0	1
Age Retirements	(257)	257	131	53	0	441
Deferred Retirements	0	51	28	10	(51)	38
Retired without Medical Coverage	(82)	0	0	0	82	82
Deceased	(3)	(259)	(28)	(3)	(8)	(298)
New Beneficiaries	0	40	(40)	0	0	0
Added Retiree Medical Coverage	0	40	13	1	(40)	14
Added Dependent Coverage	0	0	41	27	0	68
Dropped Retiree Medical Coverage	0	(6)	(1)	(1)	6	(2)
Dropped Dependent Coverage	0	0	(97)	(94)	0	(191)
Rehires	55	(3)	(1)	(1)	(52)	(57)
Transfers In/Out	(2)	(2)	0	0	(2)	(4)
Net Change	**(380)**	**119**	**46**	**(8)**	**19**	**176**
As of June 30, 2021	**3,366**	**12,138**	**4,266**	**661**	**971**	**18,036**

Section 4.4: Schedule of Active Member Data

Valuation Date	Number	Annual Earnings (000's)	Annual Average Earnings	Percent Increase in Average Earnings	Number of Participating Employers
June 30, 2021	3,396	$ 319,711	$ 94,143	4.0%	56
June 30, 2020	3,789	343,146	90,564	1.9%	56
June 30, 2019	4,044	359,426	88,879	1.7%	56
June 30, 2018	4,418	386,016	87,373	1.2%	56
June 30, 2017	4,772	411,951	86,327	1.6%	57
June 30, 2016	5,123	435,222	84,955	2.4%	57
June 30, 2015	5,502	456,636	82,995	2.4%	58
June 30, 2014	5,861	474,873	81,023	2.1%	58
June 30, 2013	6,352	504,260	79,386	2.6%	58
June 30, 2012	6,845	529,468	77,351	3.6%	58

Total and average annual earnings ("valuation pay") are the annualized earnings for the fiscal year ending on the valuation date.

Section 4.5: Active Member Payroll Reconciliation

Payroll Field	Payroll Data (000's)
a) DRB actual reported salaries FY21 in employer list	$ 806,609
b) DRB actual reported salaries FY21 in valuation data	719,382
c) Annualized valuation data	728,516
d) Valuation payroll as of June 30, 2021	756,805
e) Rate payroll for FY22	750,334
f) Rate payroll for FY24	762,084

a) Actual reported salaries from DRB employer listing showing all payroll paid during FY21, including those who were not active as of June 30, 2021
b) Payroll from valuation data for people who are in active status as of June 30, 2021
c) Payroll from (b) annualized for both new entrants and part-timers
d) Payroll from (c) with one year of salary scale applied to estimate salaries payable for the upcoming year
e) Payroll from (d) with the part-timer annualization removed
f) Payroll from (e) with two years of assumed decrements and salary scale, and 0% population growth

Section 4.6: Summary of New Pension Benefit Recipients

During the Year Ending June 30	2017	2018	2019	2020	2021
Service					
1. Number	376	465	367	331	447
2. Average Age at Commencement	59.77	59.98	59.87	59.71	59.79
3. Average Monthly Pension Benefit	$ 3,300	$ 3,527	$ 3,562	$ 3,693	$ 3,593
Survivor (including surviving spouse and DROs)					
1. Number	108	87	96	127	145
2. Average Age at Commencement	70.57	71.61	74.36	74.16	76.80
3. Average Monthly Pension Benefit	$ 1,643	$ 2,022	$ 1,795	$ 1,903	$ 1,951
Disability					
1. Number	3	3	5	2	1
2. Average Age at Commencement	43.30	49.92	51.51	53.65	54.35
3. Average Monthly Pension Benefit	$ 3,678	$ 3,625	$ 4,182	$ 3,019	$ 4,886
Total					
1. Number	487	555	468	460	593
2. Average Age at Commencement	62.06	61.75	62.75	63.67	63.94
3. Average Monthly Pension Benefit	$ 2,935	$ 3,292	$ 3,206	$ 3,196	$ 3,194

Summary of New Pension Benefit Recipients

Average Pension Benefit Payments

	Years of Credited Service						
	0 - 4	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25 - 29**	**30+**
Period 7/1/2020 – 6/30/2021:							
Average Monthly Pension	$ 451	$ 764	$ 1,509	$ 2,684	$ 3,625	$ 4,659	$ 6,090
Number of Recipients	8	24	33	83	142	112	46
Period 7/1/2019 – 6/30/2020:							
Average Monthly Pension	$ 243	$ 1,054	$ 1,647	$ 2,600	$ 3,616	$ 4,874	$ 6,772
Number of Recipients	8	19	26	72	90	78	40
Period 7/1/2018 – 6/30/2019:							
Average Monthly Pension	$ 334	$ 891	$ 1,540	$ 2,760	$ 3,567	$ 4,666	$ 6,777
Number of Recipients	4	23	39	87	93	85	41
Period 7/1/2017 – 6/30/2018:							
Average Monthly Pension	$ 204	$ 899	$ 1,583	$ 2,583	$ 3,422	$ 4,580	$ 6,083
Number of Recipients	5	21	61	85	109	130	57
Period 7/1/2016 – 6/30/2017:							
Average Monthly Pension	$ 426	$ 795	$ 1,626	$ 2,433	$ 3,549	$ 4,536	$ 6,351
Number of Recipients	10	22	60	75	100	64	48
Period 7/1/2015 – 6/30/2016:							
Average Monthly Pension	$ 245	$ 1,002	$ 1,535	$ 2,540	$ 3,445	$ 4,472	$ 6,168
Number of Recipients	11	31	82	69	105	74	54
Period 7/1/2014 – 6/30/2015:							
Average Monthly Pension	$ 349	$ 1,041	$ 1,342	$ 2,205	$ 3,267	$ 4,220	$ 5,900
Number of Recipients	11	33	70	67	137	125	94
Period 7/1/2013 – 6/30/2014:							
Average Monthly Pension	$ 235	$ 904	$ 1,435	$ 2,398	$ 3,016	$ 4,073	$ 7,485
Number of Recipients	8	31	31	28	22	18	12
Period 7/1/2012 – 6/30/2013:							
Average Monthly Pension	$ 253	$ 1,030	$ 1,496	$ 2,450	$ 3,281	$ 4,384	$ 6,052
Number of Recipients	10	57	67	90	101	79	64
Period 7/1/2011 – 6/30/2012:							
Average Monthly Pension	$ 353	$ 1,064	$ 1,512	$ 2,241	$ 3,276	$ 4,320	$ 5,739
Number of Recipients	11	43	62	61	118	81	58

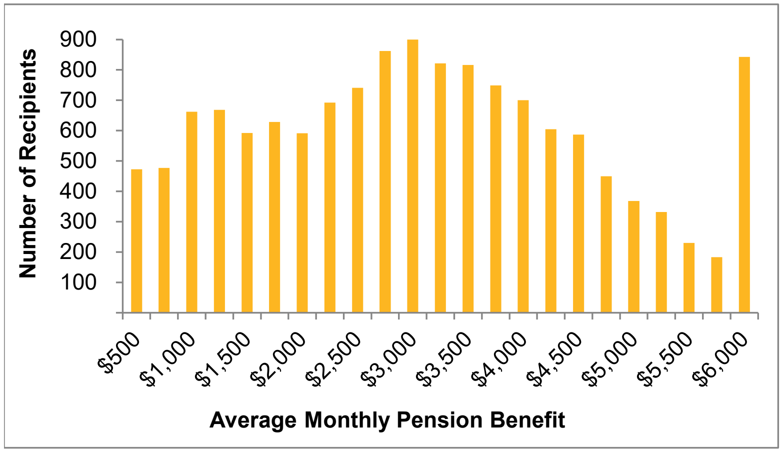
“Average Monthly Pension” includes postretirement pension adjustments and cost-of-living increases.

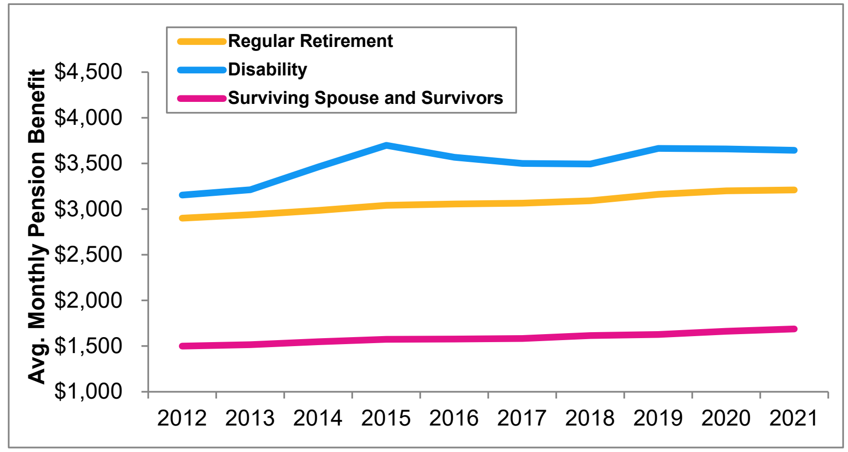
Beneficiaries are not included in the table above.

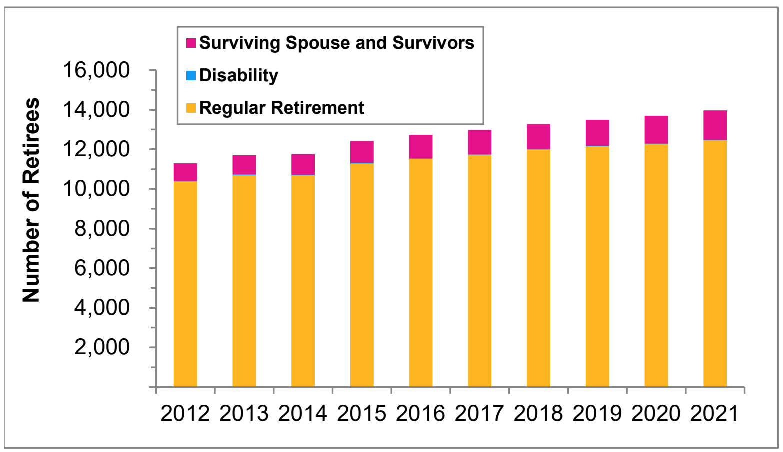
Section 4.7: Summary of All Pension Benefit Recipients

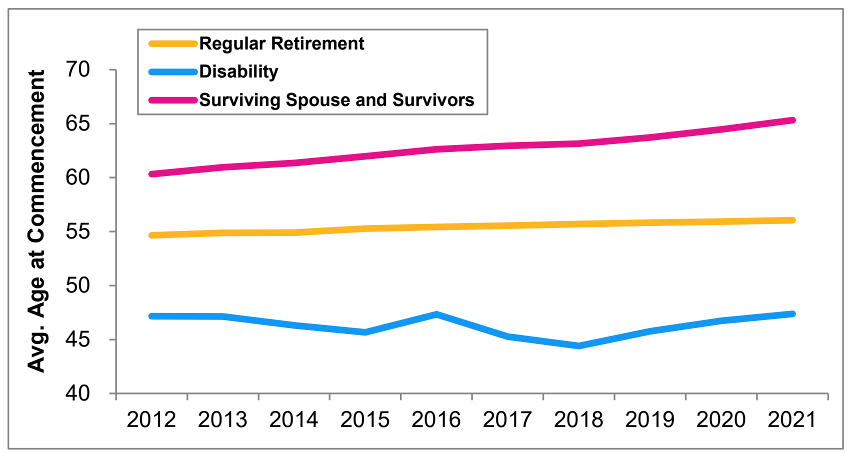
As of June 30	2017	2018	2019	2020	2021
Service					
1. Number, Fiscal Year Start	11,527	11,716	11,988	12,147	12,267
2. Net Change	189	272	159	120	192
3. Number, Fiscal Year End	11,716	11,988	12,147	12,267	12,459
4. Average Age at Commencement	55.55	55.70	55.82	55.93	56.05
5. Average Current Age	70.09	70.50	70.99	71.50	71.85
6. Average Monthly Pension Benefit	$ 3,064	$ 3,093	$ 3,161	$ 3,199	$ 3,210
Surviving Spouse (including DROs)					
1. Number, Fiscal Year Start	1,168	1,237	1,261	1,315	1,400
2. Net Change	69	24	54	85	93
3. Number, Fiscal Year End	1,237	1,261	1,315	1,400	1,493
4. Average Age at Commencement	62.98	63.16	63.73	64.49	65.32
5. Average Current Age	73.42	73.90	74.65	75.26	75.97
6. Average Monthly Pension Benefit	$ 1,584	$ 1,618	$ 1,629	$ 1,665	$ 1,688
Survivor (other than spouse)					
1. Number, Fiscal Year Start	3	3	3	3	2
2. Net Change	0	0	0	(1)	(2)
3. Number, Fiscal Year End	3	3	3	2	0
4. Average Age at Commencement	52.81	53.85	53.85	53.94	0.00
5. Average Current Age	58.22	60.65	61.65	61.56	0.00
6. Average Monthly Pension Benefit	$ 746	$ 749	$ 765	$ 705	$ 0
Disability					
1. Number, Fiscal Year Start	28	27	25	26	20
2. Net Change	(1)	(2)	1	(6)	0
3. Number, Fiscal Year End	27	25	26	20	20
4. Average Age at Commencement	45.25	44.40	45.75	46.74	47.37
5. Average Current Age	50.34	50.02	51.08	51.73	52.85
6. Average Monthly Pension Benefit	$ 3,500	$ 3,494	$ 3,666	$ 3,658	$ 3,643
Total					
1. Number, Fiscal Year Start	12,726	12,983	13,277	13,491	13,689
2. Net Change	257	294	214	198	283
3. Number, Fiscal Year End	12,983	13,277	13,491	13,689	13,972
4. Average Age at Commencement	56.24	56.38	56.56	56.79	57.02
5. Average Current Age	70.36	70.78	71.30	71.85	72.26
6. Average Monthly Pension Benefit	$ 2,924	$ 2,954	$ 3,014	$ 3,043	$ 3,048

Summary of All Pension Benefit Recipients









Summary of All Pension Benefit Recipients

Distribution of Annual Pension Benefits for Benefit Recipients

Annual Pension Benefit by Age

Age	Number	Total Annual Pension Benefit	Average Annual Pension Benefit
0 - 19	0	$ 0	$ 0
20 - 24	0	0	0
25 - 29	0	0	0
30 - 34	0	0	0
35 - 39	0	0	0
40 - 44	6	194,721	32,454
45 - 49	55	1,913,518	34,791
50 - 54	258	11,082,589	42,956
55 - 59	703	30,350,083	43,172
60 - 64	1,729	63,061,790	36,473
65 - 69	2,797	98,633,289	35,264
70 - 74	3,393	118,070,449	34,798
75+	5,031	187,776,040	37,324
Total	**13,972**	**$511,082,479**	**$ 36,579**

Annual Pension Benefit by Years Since Commenced

Years Since Comm.	Number	Total Annual Pension Benefit	Average Annual Pension Benefit
0	514	$ 19,547,143	$ 38,029
1	471	18,221,267	38,686
2	474	18,533,172	39,100
3	488	19,918,428	40,816
4	487	18,219,745	37,412
0 - 4	**2,434**	**$ 94,439,755**	**$ 38,800**
5 - 9	2,517	94,156,710	37,408
10 - 14	2,129	72,087,821	33,860
15 - 19	2,184	70,007,604	32,055
20 - 24	2,175	76,417,673	35,135
25 - 29	1,222	48,723,567	39,872
30 - 34	916	39,327,726	42,934
35 - 39	299	12,721,955	42,548
40+	96	3,199,668	33,330
Total	**13,972**	**$511,082,479**	**$ 36,579**

Years Since Commencement by Age

	Years Since Commencement									
Age	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	Total
0 - 19	0	0	0	0	0	0	0	0	0	0
20 - 24	0	0	0	0	0	0	0	0	0	0
25 - 29	0	0	0	0	0	0	0	0	0	0
30 - 34	0	0	0	0	0	0	0	0	0	0
35 - 39	0	0	0	0	0	0	0	0	0	0
40 - 44	3	2	1	0	0	0	0	0	0	6
45 - 49	52	3	0	0	0	0	0	0	0	55
50 - 54	202	49	5	0	2	0	0	0	0	258
55 - 59	416	192	73	20	2	0	0	0	0	703
60 - 64	777	501	274	140	33	3	1	0	0	1,729
65 - 69	430	953	693	462	231	26	1	0	1	2,797
70 - 74	237	514	699	932	720	227	60	2	2	3,393
75+	317	303	384	630	1,187	966	854	297	93	5,031
Total	**2,434**	**2,517**	**2,129**	**2,184**	**2,175**	**1,222**	**916**	**299**	**96**	**13,972**

Section 4.8: Pension Benefit Recipients by Type of Benefit and Option Elected

Amount of Monthly Pension Benefit	Number of Recipients	Type of Pension Benefit			Option Selected			
		1	2	3	1	2	3	4
$ 1 – 300	240	165	75	0	148	46	39	7
301 – 600	405	276	129	0	228	71	84	22
601 – 900	666	510	156	0	366	135	126	39
901 – 1,200	831	651	180	0	496	158	143	34
1,201 – 1,500	730	560	170	0	406	155	148	21
1,501 – 1,800	735	561	174	0	415	159	138	23
1,801 – 2,100	757	598	159	0	406	155	169	27
2,101 – 2,400	846	714	132	0	383	203	227	33
2,401 – 2,700	999	900	99	0	451	237	281	30
2,701 – 3,000	1,079	1,002	72	5	466	256	324	33
3,001 – 3,300	990	944	42	4	395	244	326	25
3,301 – 3,600	955	919	35	1	392	208	328	27
3,601 – 3,900	874	854	18	2	342	186	320	26
3,901 – 4,200	757	735	17	5	312	163	261	21
4,200+	3,108	3,070	35	3	1,173	555	1,277	103
Total	13,972	12,459	1,493	20	6,379	2,931	4,191	471

Type of Pension Benefit
1. Regular Retirement
2. Survivor Payment
3. Disability

Option Selected
1. Whole Life Annuity
2. 75% Joint and Contingent Annuity
3. 50% Joint and Contingent Annuity
4. 66 2/3% Joint and Survivor Annuity

Section 4.9: Pension Benefit Recipients Added to and Removed from Rolls

	Added to Rolls		Removed from Rolls		Rolls at End of Year		Percent Increase in Annual Pension Benefits	Average Annual Pension Benefit
Year Ended	No.[1]	Annual Pension Benefits[1]	No.[1]	Annual Pension Benefits[1]	No.	Annual Pension Benefits		
June 30, 2021	593	$ 22,728,504	310	$ 11,391,465	13,972	$ 511,082,479	2.3%	$ 36,579
June 30, 2020	460	17,641,920	262	5,527,983	13,689	499,745,440	2.5%	36,507
June 30, 2019	468	18,004,896	254	871,684	13,491	487,631,503	3.6%	36,145
June 30, 2018	555	21,924,986	261	6,926,129	13,277	470,498,291	3.3%	35,437
June 30, 2017	487	17,151,684	230	7,736,025	12,983	455,499,434	2.1%	35,084
June 30, 2016	530	18,364,581	222	6,144,109	12,726	446,083,775	2.8%	35,053
June 30, 2015	888	34,120,658	220	3,531,501	12,418	433,863,303	7.6%	34,938
June 30, 2014	226	5,964,256	181	(1,150,187)	11,750	403,274,146	1.8%	34,321
June 30, 2013	576	19,387,542	172	1,652,575	11,705	396,159,703	4.7%	33,845
June 30, 2012	473	17,104,564	188	(617,561)	11,301	378,424,736	4.9%	33,486

[1] Numbers are estimated, and include other internal transfers.

Section 5: Basis of the Actuarial Valuation

Section 5.1: Summary of Plan Provisions

Effective Date

July 1, 1955, with amendments through June 30, 2021. Chapter 97, 1990 Session Laws of Alaska, created a two-tier retirement system. Members who were first hired under TRS before July 1, 1990 (Tier 1) are eligible for different benefits than members hired after June 30, 1990 (Tier 2). Chapter 9, 2005 Session Laws of Alaska, closed the plan to new members hired after June 30, 2006.

Administration of Plan

The Commissioner of Administration or the Commissioner's designee is the administrator of the system. The Attorney General of the state is the legal counsel for the system and shall advise the administrator and represent the system in legal proceedings.

Prior to June 30, 2005, the Teachers' Retirement Board prescribed policies and adopted regulations and performed other activities necessary to carry out the provisions of the system. The Alaska State Pension Investment Board, Department of Revenue, Treasury Division was responsible for investing TRS funds.

On July 27, 2005, Senate Bill 141, enacted as Chapter 9, 2005 Session laws of Alaska, replaced the Teachers' Retirement Board and the Alaska State Pension Investment Board with the Alaska Retirement Management Board.

Employers Included

Currently, there are 56 employers participating in TRS, including the State of Alaska, 52 school districts, and three other eligible organizations.

Membership

Membership in TRS is mandatory for the following employees hired before July 1, 2006:

- certificated full-time and part-time elementary and secondary teachers, certificated school nurses, and certificated employees in positions requiring teaching certificates;
- positions requiring a teaching certificate as a condition of employment in the Department of Education and Early Development and the Department of Labor and Workforce Development;
- University of Alaska full-time and part-time teachers, and full-time administrative employees in positions requiring academic standing if approved by the TRS administrator;
- certain full-time or part-time teachers of Alaska Native language or culture who have elected to be covered under TRS;
- members on approved sabbatical leave under AS 14.20.310;
- certain State legislators who have elected to be covered under TRS; and
- a teacher who has filed for worker's compensation benefits due to an on-the-job assault and who, as a result of the physical injury, is placed on leave without pay.

Employees participating in the University of Alaska's Optional Retirement Plan or other retirement plans funded by the State are not covered by TRS.

Employees who work half-time in TRS and Public Employees' Retirement System (PERS) simultaneously are eligible for half-time TRS and PERS credit.

Senate Bill 141, signed into law on July 27, 2005, closes the plan effective July 1, 2006 to new members first hired on or after July 1, 2006.

Credited Service

TRS members receive a year of membership credit if they work a minimum of 172 days during the school year (July 1 through June 30 of the following year). Fractional credit is determined based on the number of days worked. Part-time members who work at least 50% of full-time receive membership credit for each day in proportion to full-time service. Credit is granted for all Alaskan public school service.

Members may claim other types of service, including:

- Outside teaching service in out-of-state schools or Alaska private schools (not more than ten years may be claimed);
- Military service (not more than five years of military service or ten years of combined outside and military service may be claimed);
- Alaska Bureau of Indian Affairs (BIA) service;
- Retroactive Alaskan service that was not creditable at the time it occurred, but later became creditable because of legislative change;
- Unused sick leave credit after members retire; and
- Leave of absence without pay.

Except for retroactive Alaska service that occurred before July 1, 1955, and unused sick leave, contributions are required for all claimed service.

Members receiving TRS disability benefits continue to earn TRS credit while disabled.

Survivors who are receiving occupational death benefits continue to earn TRS service credit while occupational survivor benefits are being paid.

Employer Contributions

TRS employers contribute the amounts required, in addition to employees' contributions, to fund the benefits of the system.

The normal cost rate is a uniform rate for all participating employers (less the value of members' contributions).

The past service rate is a uniform rate for all participating employers to amortize the unfunded past service liability with payments that are a level percentage of payroll amount over a closed 25-year period starting June 30, 2014. Effective June 30, 2018, each future year's unfunded service liability is separately amortized on a level percent of pay basis over 25 years.

Employer rates cannot be less than the normal cost rate.

Pursuant to AS14.25.070 effective July 1, 2008, each TRS employer will pay a simple uniform contribution rate of 12.56% of member payroll.

Additional State Contributions

Pursuant to AS14.25.085 effective July 1, 2008, the State shall contribute an amount (in addition to the State contribution as an employer) that, when combined with the employer contribution of 12.56%, will be sufficient to pay the total contribution rate adopted by the Board.

Member Contributions

Mandatory Contributions: Members are required to contribute 8.65% of their base salaries. Members' contributions are deducted from gross salaries before federal income taxes are withheld.

Contributions for Claimed Service: Member contributions are also required for most of the claimed service described above.

1% Supplemental Contributions: Members who joined the system before July 1, 1982 and elected to participate in the supplemental contributions provision are required to contribute an additional 1% of their salaries. Supplemental contributions are deducted from gross salaries after federal income taxes are withheld. Under the supplemental provision, an eligible spouse or dependent child will receive a survivor's allowance or spouse's pension if the member dies (see below). Supplemental contributions are only refundable upon death (see below).

Interest: Members' contributions earn 4.5% interest, compounded annually on June 30.

Refund of Contributions: Terminated members may receive refunds of their member contribution accounts which includes their mandatory contributions, indebtedness payments, and interest earned. Terminated members' accounts may be attached to satisfy claims under Alaska Statute 09.38.065, federal income tax levies, and valid Qualified Domestic Relations Orders.

Reinstatement of Contributions: Refunded accounts and the corresponding TRS service may be reinstated upon reemployment in TRS prior to July 1, 2010. Interest accrues on refunds until paid in full or members retire.

Retirement Benefits

Eligibility

a. Members, including deferred vested members, are eligible for normal retirement at age 55 or early retirement at age 50 if they were hired before July 1, 1990 (Tier 1), and age 60 or early retirement at age 55 if they were hired on or after July 1, 1990 (Tier 2). Additionally, they must have at least:
   - (i) eight years of paid-up membership service;
   - (ii) 15 years of paid-up creditable service, the last five years of which are membership service, and they were first hired under TRS before July 1, 1975;
   - (iii) five years of paid-up membership service and three years of paid-up Alaska Bureau of Indian Affairs service;
   - (iv) 12 years of combined part-time and full-time paid-up membership service;
   - (v) two years of paid-up membership service if they are vested in PERS; or
   - (vi) one year of paid-up membership service if they are retired from PERS.

b. Members may retire at any age when they have:
   - (i) 25 years of paid-up creditable service, the last five years of which are membership service;
   - (ii) 20 years of paid-up membership service;
   - (iii) 20 years of combined paid-up membership and Alaska Bureau of Indian Affairs service, the last five years of which are membership service; or
   - (iv) 20 years of combined paid-up part-time and full-time membership service.

Benefit Type

Lifetime benefits are paid to members. Eligible members may receive normal, unreduced benefits when they (1) reach normal retirement age and complete the service required; or (2) satisfy the minimum service requirements to retire at any age under (b) above. Members may receive early, actuarially reduced benefits when they reach early retirement age and complete the service required.

Members may select joint and survivor options and a last survivor option. Under these options and early retirement, benefits are actuarially adjusted so that members receive the actuarial equivalents of their normal benefit amounts.

Benefit Calculations

Retirement benefits are calculated by multiplying the average base salary (ABS) times the total TRS service times the percentage multiplier. The ABS is determined by averaging the salaries earned during the three highest school years. Members must earn at least 115 days of credit in a school year to include it in the ABS calculation. TRS pays a minimum benefit of $25.00 per month for each year of service when the calculated benefit is less.

The percentage multipliers are 2% for the first 20 years and 2.5% for all remaining service. Service before July 1, 1990 is calculated at 2%.

Salaries are subject to compensation limits under IRC 401(a)(17) for members first hired on or after July 1, 1996. Retirement benefit amounts are subject to IRC 415(b) limits regardless of hire date.

Indebtedness

Members who terminate and refund their TRS contributions are not eligible to retire unless they return to TRS employment and pay back their refunds plus interest or accrue additional service which qualifies them for retirement. TRS refunds must be paid in full if the corresponding service is to count toward the minimum service requirements for retirement. Refunded TRS service is included in total service for the purpose of calculating retirement benefits. However, when refunds are not completely paid before retirement, benefits are actuarially reduced for life. Indebtedness balances may also be created when a member purchases qualified claimed service.

Reemployment of Retired Members

Retirees who return to work in a permanent full-time or part-time TRS position after a Normal Retirement are eligible to return under the Standard Option.

Under the Standard Option, retirement and retiree healthcare benefits are suspended while retired members are reemployed under TRS. During reemployment, members earn additional TRS service and contributions are withheld from their wages.

Members retired under the Retirement Incentive Programs (RIPs) who return to employment will:

a. forfeit the three years of incentive credits that they received;

b. owe TRS 110% of the benefits that they received under the RIP, which may include costs for health insurance, excluding amounts that they paid to participate; and

c. be charged 7% interest from the date that they are reemployed until their indebtedness is paid in full or they retire again. If the indebtedness is not completely paid, future benefits will be actuarially reduced for life.

Employers make contributions to the unfunded liability of the plan on behalf of rehired retired members at the rate the employer is making contributions to the unfunded liability of the plan for other members.

Postemployment Healthcare Benefits

When pension benefits begin, major medical benefits are provided by TRS to (1) all employees first hired before July 1, 1990 (Tier 1) and their surviving spouses and (2) members and their surviving spouses who have 25 years of membership service, are disabled or age 60 or older, regardless of their initial hire dates. Employees first hired after June 30, 1990 (Tier 2) and their surviving spouses may receive major medical benefits prior to age 60 by paying premiums.

Medical, prescription drug, dental, vision, and audio coverage is provided through the AlaskaCare Retiree Health Plan. Health plan provisions do not vary by retirement tier or age, except for Medicare coordination. Participants in dental, vision, and audio coverage pay a full self-supporting rate and those benefits are not included in this valuation.

Starting in 2022, prior authorization will be required for certain specialty medications for all participants. There is no change to the medications that are covered by the plan.

Starting in 2022, certain preventive benefits for pre-Medicare participants will now be covered by the plan.

Surviving spouses continue coverage only if a pension payment form that provided survivor benefits was elected. Alternate payees (i.e. individuals who are the subject of a domestic relations order or DRO) are allowed to participate in the plan, but must pay the full cost.

Where premiums are required prior to age 60 (Tier 2), the valuation bases this payment upon the age of the retiree.

Participants in the defined benefit plan are covered under the following benefit design:

Plan Feature	Amounts
Deductible (single/family)	\$150 / \$450
Coinsurance (most services)	20%
Outpatient surgery/testing	0%
Maximum Out-of-Pocket (single/family, excluding deductible)	\$800 / \$2,400
Rx Copays (generic/brand/mail-order), does not apply to OOP max	\$4 / \$8 / \$0
Lifetime Maximum	\$2,000,000

The plan coordinates with Medicare on a traditional Coordination of Benefits Method. Starting in 2019, the prescription drug coverage is through a Medicare Part D EGWP arrangement.

Disability Benefits

Monthly disability benefits are paid to permanently disabled members until they die, recover, or become eligible for normal retirement. To be eligible, members must have at least five years of paid-up membership service.

Disability benefits are equal to 50% of the member’s base salary at the time of disability. The benefit is increased by 10% of the base salary for each minor child, up to a maximum of 40%. Members continue to earn TRS service until eligible for normal retirement.

Members are appointed to normal retirement on the first of the month after they become eligible.

Death Benefits

Monthly death benefits may be paid to a spouse or dependent children upon the death of a member. If monthly benefits are not payable under the supplemental contributions provision or occupational and non-occupational death provisions, the designated beneficiary receives the lump sum benefit described below.

Occupational Death

When an active member dies from occupational causes, a monthly survivor's pension may be paid to the spouse, unless benefits are payable under the supplemental contributions provision (see below). The pension equals 40% of the member's base salary on the date of death or disability, if earlier. If there is no spouse, the pension may be paid to the member's dependent children. On the member's normal retirement date, the benefit converts to a normal retirement benefit. The normal benefit is based on the member's average base salary on the date of death and service, including service accumulated from the date of the member's death to the normal retirement date.

Non-Occupational Death

When a vested member dies from non-occupational causes, the surviving spouse may elect to receive a monthly 50% joint and survivor benefit or a lump sum benefit, unless benefits are payable under the supplemental contributions provision (see below). The monthly benefit is calculated on the member's average base salary and TRS service accrued at the time of death.

Lump Sum Benefit

Upon the death of an active member who has less than one year of service or an inactive member who is not vested, the designated beneficiary receives the member's contribution account, which includes mandatory contributions, indebtedness payments, and interest earned. Any supplemental contributions will also be refunded. If the member has more than one year of TRS service or is vested, the beneficiary also receives $1,000 and $100 for each year of TRS service, up to a maximum of $3,000. An additional $500 may be payable if the member is survived by dependent children.

Supplemental Contributions Provision

Members are eligible for supplemental coverage if they joined TRS before July 1, 1982, elected to participate in the supplemental provision, and made the required contributions. A survivor's allowance or spouse's pension (see below) may be payable if the member made supplemental contributions for at least one year and dies while in membership service or while disabled under TRS. In addition, the allowance and pension may be payable if the member dies while retired or in deferred vested status if supplemental contributions were made for at least five years.

a. **Survivor's Allowance:** If the member is survived by dependent children, the surviving spouse and dependent children are entitled to a survivor's allowance. The allowance for the spouse is equal to 35% of the member's base salary at the time of death or disability, plus 10% for each dependent child up to a maximum of 40%. The allowance terminates and a spouse's pension becomes payable when there is no longer an eligible dependent child.

b. **Spouse's Pension:** The spouse's pension is equal to 50% of the retirement benefit that the deceased member was receiving or the unreduced retirement benefit that the deceased member would have received if retired at the time of death. The spouse's pension begins on the first of the month after the member's death or termination of the survivor's allowance.

Death After Retirement

If a joint and survivor option was selected at retirement, the eligible spouse receives continuing, lifetime monthly benefits after the member dies. A survivor's allowance or spouse's pension may be payable if the member participated in the supplemental contributions provision. If a joint and survivor option was not selected and benefits are not payable under the supplemental contributions provision, the designated beneficiary receives the member's contribution account, less any benefits already paid and the member's last benefit check.

Postretirement Pension Adjustments

Postretirement pension adjustments (PRPAs) are granted annually to eligible benefit recipients when the consumer price index (CPI) for urban wage earners and clerical workers for Anchorage increases during the preceding calendar year. PRPAs are calculated by multiplying the recipient's base benefit including past PRPAs, but excluding the Alaska COLA, times:

a. The lesser of 75% of the CPI increase in the preceding calendar year or 9% if the recipient is at least age 65 or on TRS disability; or
b. The lesser of 50% of the CPI increase in the preceding calendar year or 6% if the recipient is at least age 60, or under age 60 if the recipient has been receiving benefits for at least eight years.

Ad hoc PRPAs, up to a maximum of 4%, may be granted to eligible recipients who were first hired before July 1, 1990 (Tier 1) if the CPI increases and the funded ratio is at least 105%.

In a year where an ad hoc PRPA is granted, eligible recipients will receive the higher of the two calculations.

Alaska Cost-of-Living Allowance (COLA)

Eligible benefit recipients who reside in Alaska receive an Alaska COLA equal to 10% of their base benefits. The following benefit recipients are eligible:

a. members who were first hired under TRS before July 1, 1990 (Tier 1) and their survivors;
b. members who were first hired under TRS after June 30, 1990 (Tier 2) and their survivors if they are at least age 65; and
c. all disabled members.

Changes in Benefit Provisions Valued Since the Prior Valuation

Starting in 2022, prior authorization will be required for certain specialty medications for all participants, and certain preventive benefits for pre-Medicare participants will now be covered by the plan. There were no other changes in benefit provisions since the prior valuation.

Section 5.2: Description of Actuarial Methods and Valuation Procedures

The funding method used in this valuation was adopted by the Board in October 2006. Changes in methods were adopted by the Board in January 2019 based on the experience study for the period July 1, 2013 to June 30, 2017. The asset smoothing method used to determine valuation assets was changed effective June 30, 2014.

Benefits valued are those delineated in Alaska State statutes as of the valuation date. Changes in State statutes effective after the valuation date are not taken into consideration in setting the assumptions and methods.

Actuarial Cost Method

Liabilities and contributions shown in the report are computed using the Entry Age Normal Actuarial Cost Method, level percent of pay.

Effective June 30, 2018, the Board adopted a layered UAAL amortization method: Layer #1 equals the sum of (i) the UAAL at June 30, 2018 based on the 2017 valuation, plus (ii) the FY18 experience gain/loss. Layer #1 is amortized over the remainder of the 25-year closed period that was originally established in 2014[1]. Layer #2 equals the change in UAAL at June 30, 2018 due to the experience study and EGWP implementation. Layer #2 is amortized over a separate closed 25-year period starting in 2018. Future layers will be created each year based on the difference between actual and expected UAAL occurring that year, and will be amortized over separate closed 25-year periods. The UAAL amortization continues to be on a level percent of pay basis. State statutes allow the contribution rate to be determined on payroll for all members, defined benefit and defined contribution member payroll combined.

Projected pension and postemployment healthcare benefits were determined for all active members. Cost factors designed to produce annual costs as a constant percentage of each member's expected compensation in each year from the assumed entry age to the assumed retirement age were applied to the projected benefits to determine the normal cost (the portion of the total cost of the plan allocated to the current year under the method). The normal cost is determined by summing intermediate results for active members and determining an average normal cost rate which is then related to the total payroll of active members. The actuarial accrued liability for active members (the portion of the total cost of the plan allocated to prior years under the method) was determined as the excess of the actuarial present value of projected benefits over the actuarial present value of future normal costs.

The actuarial accrued liability for retired members and their beneficiaries currently receiving benefits, terminated vested members and disabled members not yet receiving benefits was determined as the actuarial present value of the benefits expected to be paid. No future normal costs are payable for these members.

The actuarial accrued liability under this method at any point in time is the theoretical amount of the fund that would have been accumulated had annual contributions equal to the normal cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date). The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of plan assets measured on the valuation date.

Under this method, experience gains or losses, i.e., decreases or increases in accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the unfunded actuarial accrued liability.

[1] Layer #1 is referred to as "initial amount" in Sections 1.2 and 1.3.

Valuation of Assets

The actuarial asset value was reinitialized to equal Fair Value of Assets as of June 30, 2014. Beginning in FY15, the asset valuation method recognizes 20% of the gain or loss each year, for a period of five years. All assets are valued at fair value. Assets are accounted for on an accrued basis and are taken directly from financial statements audited by KPMG LLP.

Changes in Methods Since the Prior Valuation

There were no changes in the asset or valuation methods since the prior valuation.

Valuation of Retiree Medical and Prescription Drug Benefits

This section outlines the detailed methodology used in the internal model developed by Buck to calculate the initial per capita claims cost rates for the TRS postemployment healthcare plan. Note that the methodology reflects the results of our annual experience rate update for the period from July 1, 2020 to June 30, 2021.

Base claims cost rates are incurred healthcare costs expressed as a rate per member per year. Ideally, claims cost rates should be derived for each significant component of cost that can be expected to require differing projection assumptions or methods (i.e., medical claims, prescription drug claims, administrative costs, etc.). Separate analysis is limited by the availability and historical credibility of cost and enrollment data for each component of cost. This valuation reflects non-prescription claims separated by Medicare status, including eligibility for free Part A coverage. Prescription costs are analyzed separately as in prior valuations. Administrative costs are assumed in the final per capita claims cost rates used for valuation purposes, as described below. Analysis to date on Medicare Part A coverage is limited since Part A claim data is not available by individual, nor is this status incorporated into historical claim data.

<u>Benefits</u>

Medical, prescription drug, dental, vision and audio coverage is provided through the AlaskaCare Retiree Health Plan and is available to employees of the State and subdivisions who meet retirement criteria based on the retirement plan tier in effect at their date of hire. Health plan provisions do not vary by retirement tier or age, except for Medicare coordination for those Medicare-eligible. Dental, vision and audio claims (DVA) are excluded from data analyzed for this valuation because those are retiree-pay all benefits where rates are assumed to be self-supporting. Buck relies upon rates set by a third-party for the DVA benefits. Buck reviewed historical rate-setting information and views contribution rate adjustments made are not unreasonable.

<u>Administration and Data Sources</u>

The plan was administered by Wells Fargo Insurance Services (acquired by HealthSmart, in January 2012) from July 1, 2009 through December 31, 2013 and by Aetna effective January 1, 2014.

Claims incurred for the period from July 2019 through June 2021 (FY20 through FY21) were provided by the State of Alaska from reports extracted from their data warehouse, which separated claims by Medicare status. Monthly enrollment data for the same period was provided by Aetna.

Aetna also provided census information identifying Medicare Part B only participants. These participants are identified when hospital claims are denied by Medicare; Aetna then flags that participant as a Part B only participant. Buck added newly identified participants to our list of Medicare Part B only participants. Buck assumes that once identified as Part B only, that participant remains in that status until we are notified otherwise.

Aetna provided a snapshot file as of July 1, 2021 of retirees and dependents that included a coverage level indicator. The monthly enrollment data includes double coverage participants. These are participants whereby both the retiree and spouse are retirees from the State and both are reflected with Couple coverage in the enrollment. In this case, such a couple would show up as four members in the monthly enrollment (each would be both a retiree and a spouse). As a result, the snapshot census file was used to adjust the total member counts in the monthly enrollment reports to estimate the number of unique participants enrolled in coverage. Based on the snapshot files from the last two valuations, the total member count in the monthly enrollment reports needs to be reduced by approximately 13% to account for the number of participants with double coverage.

Aetna does not provide separate experience by Medicare status in standard reporting so the special reports mentioned above from the data warehouse were used this year to obtain that information and incorporate it into the per capita rate development for each year of experience (with corresponding weights applied in the final per capita cost).

Methodology

Buck projected historical claim data to FY22 for retirees using the following summarized steps:

1. Develop historical annual incurred claim cost rates – an analysis of medical costs was completed based on claims information and enrollment data provided by the State of Alaska and Aetna for each year in the experience period of FY20 through FY21.
    - Costs for medical services and prescriptions were analyzed separately, and separate trend rates were developed to project expected future medical and prescription costs for the valuation year (e.g. from the experience period up through FY22).
    - Because the reports provided reflected incurred claims, no additional adjustment was needed to determine incurred claims to be used in the valuation.
    - An offset for costs expected to be reimbursed by Medicare was incorporated beginning at age 65. Alaska retirees who do not have 40 quarters of Medicare-covered compensation do not qualify for Medicare Part A coverage free of charge. This is a relatively small and closed group. Medicare was applied to State employment for all employees hired after March 31, 1986. For the “no-Part A” individuals who are required to enroll in Medicare Part B, the State is the primary payer for hospital bills and other Part A services. Claim experience is not available separately for participants with both Medicare Parts A and B and those with Part B only. For Medicare Part B only participants, a lower average claims cost was applied to retirees covered by both Medicare Part A and B vs. retirees covered only by Medicare Part B based upon manual rate models that estimate the Medicare covered proportion of medical costs. To the extent that no-Part A claims can be isolated and applied strictly to the appropriate closed group, actuarial accrued liability will be more accurate.
    - Based on census data received from Aetna, less than 1% of the current retiree population was identified as having coverage only under Medicare Part B. We assume that 5% of actives hired before April 1, 1986 and current retirees who are not yet Medicare eligible will not be eligible for Medicare Part A.
    - Based upon a reconciliation of valuation census data to the snapshot eligibility files provided by Aetna as of July 1, 2020, and July 1, 2021, Buck adjusted member counts used for duplicate records where participants have double coverage; i.e. primary coverage as a retiree and secondary coverage as the covered spouse of another retiree. This is to reflect the total cost per distinct individual/member which is then applied to distinct members in the valuation census.
    - Buck understands that pharmacy claims reported do not reflect rebates. Based on actual pharmacy rebate information provided by Optum, rebates were assumed to be 19.5% of prescription drug claims for FY20, 16.2% of pre-Medicare, and 14.3% of Medicare prescription drug claims for FY21.
2. Develop estimated EGWP reimbursements – Segal provided estimated 2022 EGWP subsidies, developed with the assistance of OptumRx. These amounts are applicable only to Medicare-eligible participants.

3. Adjust for claim fluctuation, anomalous experience, etc. – explicit adjustments are often made for anticipated large claims or other anomalous experience. FY19 and FY20 experience were compared to assess the impact of COVID-19 and whether an adjustment to FY20 claims was indicated for use in the June 30, 2020 valuation. A material decrease in medical claims during March 2020 to June 2020 was experienced due to COVID-19. Therefore, an adjustment was made for those months to adjust for the decrease that is not expected to continue in future years. There was an observed spike in prescription drug claims in March 2020; however, the FY20 prescription drug experience appears reasonable to use without adjustment for COVID-19. To adjust for the decrease in medical claims due to COVID-19 during the last 4 months of FY20, the per capita cost during the first 8 months was used as the basis for estimating claims that would have occurred in the absence of COVID-19. FY21 experience was also thoroughly reviewed to assess the impact of COVID-19 and whether an adjustment to FY21 claims was appropriate for use in the June 30, 2021 valuation. FY21 medical per capita claims were noticeably lower than expected, so a 4% load was added to the FY21 medical claims used in the per capita claims cost development to better reflect future expected long-term costs of the plan. Total prescription drug claims experience for FY21 was reasonable and consistent with FY19 and FY20 experience. Therefore, no adjustment was made to FY21 prescription drug claims. Due to group size and demographics, we did not make any additional large claim adjustments. We do blend both Alaska plan-specific and national trend factors as described below. Buck compared data utilized to lag reports and quarterly plan experience presentations provided by the State and Aetna to assess accuracy and reasonableness of data.
4. Trend all data points to the projection period – project prior years' experience forward to FY22 for retiree benefits on an incurred claim basis. Trend factors derived from historical Alaska-specific experience and national trend factors are shown in the table in item 5 below.
5. Apply credibility to prior experience – adjust prior year's data by assigning weight to recent periods, as shown at the right of the table below. The Board approved a change in the weighting of experience periods beginning with the June 30, 2017 valuation as outlined below. Note also that for FY20 to FY21 medical and both years of prescription drugs we averaged projected plan costs using Alaska-specific trend factors and national trend factors, assigning 75% weight to Alaska-specific trends and 25% to national trends. For FY21 to FY22 medical we applied 100% weight to national trends because the Alaska-specific trends were impacted by COVID-19:

Alaska-Specific and National Average Weighted Trend from Experience Period to Valuation Year

Experience Period	Medical	Prescription	Weighting Factors
FY20 to FY21	6.3% Pre-Medicare / 5.2% Medicare	7.6%	50%
FY21 to FY22	8.1% Pre-Medicare / 4.8% Medicare	8.0%	50%

Trend assumptions used for rate development are assessed annually and as additional/improved reporting becomes available, we will incorporate into rate development as appropriate.

6. Starting in 2022, prior authorization will be required for certain specialty medications. There is no change to the medications that are covered by the plan. Segal provided an estimate of the impact of this change to the DB retiree health plan cost for calendar year 2022. The DB base claims costs for pre-Medicare prescription drug, Medicare prescription drug, and EGWP were adjusted to reflect this change. Additionally, starting in 2022, certain preventive benefits for pre-Medicare participants will now be covered by the plan. Segal provided an estimate of the impact of this change to the DB retiree health plan cost for calendar year 2022. The DB base claims cost for pre-Medicare medical was adjusted to reflect this change.
7. Develop separate administration costs – no adjustments were made for internal administrative costs. Third party retiree plan administration fees for FY22 are based upon total fees projected to 2022 by Segal based on actual FY21 fees. The annual per participant per year administrative cost rate for medical and prescription benefits is $493.

Healthcare Reform

Healthcare Reform legislation passed on March 23, 2010 included several provisions with potential implications for the State of Alaska Retiree Health Plan liability. Buck evaluated the impact due to these provisions.

Because the State plan is retiree-only, and was in effect at the time the legislation was enacted, not all provisions of the health reform legislation apply to the State plan. Unlimited lifetime benefits and dependent coverage to age 26 are two of these provisions. We reviewed the impact of including these provisions, but there was no decision made to adopt them, and no requirement to do so.

Because Transitional Reinsurance fees are only in effect until 2016, we excluded these for valuation purposes.

The Further Consolidated Appropriations Act, 2020 passed in December 2019 repealed several healthcare-related taxes, including the Cadillac Tax.

The Tax Cuts and Jobs Act passed in December 2017 included the elimination of the individual mandate penalty and changed the inflation measure for purposes of determining the limits for the High Cost Excise Tax to use chained CPI. It is our understanding the law does not directly impact other provisions of the ACA. While the nullification of the ACA's individual mandate penalty does not directly impact employer group health plans, it could contribute to the destabilization of the individual market and increase the number of uninsured. Such destabilization could translate to increased costs for employers. We have considered this when setting our healthcare cost trend assumptions and will continue to monitor this issue.

We have not identified any other specific provisions of healthcare reform or its potential repeal that would be expected to have a significant impact on the measured obligation. We will continue to monitor legislative activity.

Data

In accordance with actuarial standards, we note the following specific data sources and steps taken to value retiree medical benefits:

The Division of Retirement and Benefits provided pension valuation census data, which for people currently in receipt of healthcare benefits was supplemented by coverage data from the healthcare claims administrator (Aetna).

Certain adjustments and assumptions were made to prepare the data for valuation:

- All records provided with retiree medical coverage on the Aetna data were included in this valuation and we relied on the Aetna data as the source of medical coverage for current retirees and their dependents.
- Some records in the Aetna data were duplicates due to the double coverage (i.e. coverage as a retiree and as a spouse of another retiree) allowed under the plan. Records were adjusted for these members so that each member was only valued once. Any additional value of the double coverage (due to coordination of benefits) is small and reflected in the per capita costs.
- Covered children included in the Aetna data were valued until age 23, unless disabled. We assumed that those dependents over 23 were only eligible and valued due to being disabled.
- For individuals included in the pension data expecting a future pension, we valued health benefits starting at the same point that the pension benefit is assumed to start.

We are not aware of any other data issues that would be expected to have a material impact on the results and there are no unresolved matters related to the data.

The chart below shows the basis of setting the per capita claims cost assumption, which includes both PERS and TRS.

	Medical		Prescription Drugs (Rx)	
	Pre-Medicare	Medicare	Pre-Medicare	Medicare
A. Fiscal 2020				
1. Incurred Claims	$ 229,531,664	$ 89,497,345	$ 64,442,660	$ 188,022,328
2. Adjustments for Rx Rebates	0	0	(12,566,319)	(36,664,354)
3. Net incurred claims	$ 229,531,664	$ 89,497,345	$ 51,876,341	$ 151,357,974
4. Average Enrollment	19,354	44,965	19,354	44,965
5. Claim Cost Rate (3) / (4)	11,860	1,990	2,680	3,366
6. Trend to Fiscal 2022	1.149	1.103	1.162	1.162
7. Fiscal 2022 Incurred Cost Rate (5) x (6)	$ 13,630	$ 2,195	$ 3,116	$ 3,912
B. Fiscal 2021				
1. Incurred Claims	$ 196,566,470	$ 86,512,435	$ 60,691,609	$ 207,822,858
2. Adjustments for Rx Rebates and COVID (Medical only)	7,862,659	3,460,497	(9,832,041)	(29,718,669)
3. Net incurred claims	$ 204,429,129	$ 89,972,933	$ 50,859,568	$ 178,104,189
4. Average Enrollment	18,106	47,025	18,106	47,025
5. Claim Cost Rate (3) / (4)	11,291	1,913	2,809	3,787
6. Trend to Fiscal 2022	1.081	1.048	1.080	1.080
7. Fiscal 2022 Incurred Cost Rate (5) x (6)	$ 12,205	$ 2,005	$ 3,034	$ 4,090

	Medical		Prescription Drugs (Rx)	
	Pre-Medicare	Medicare	Pre-Medicare	Medicare
C. Incurred Cost Rate by Fiscal Year				
1. Fiscal 2020 A.(7)	13,630	2,195	3,116	3,912
2. Fiscal 2021 B.(7)	12,205	2,005	3,034	4,090
D. Weighting by Fiscal Year				
1. Fiscal 2020	50%	50%	50%	50%
2. Fiscal 2021	50%	50%	50%	50%
E. Fiscal 2022 Incurred Cost Rate				
1. Rate at Average Age C x D	$ 12,918	$ 2,100	$ 3,075	$ 4,001
2. Average Aging Factor	0.822	1.271	0.832	1.124
3. Rate at Age 65 (1) / (2)	$ 15,708	$ 1,652	$ 3,695	$ 3,560

F. Development of Part A&B and Part B Only Cost from Pooled Rate Above	
1. Part A&B Average Enrollment	46,602
2. Part B Only Average Enrollment	423
3. Total Medicare Average Enrollment B(4)	47,025
4. Cost ratio for those with Part B only to those with Parts A&B	3.300
5. Factor to determine cost for those with Parts A&B (2) / (3) x (4) + (1) / (3) x 1.00	1.021
6. Medicare per capita cost for all participants: E(3)	$ 1,652
7. Cost for those eligible for Parts A&B: (6) / (5)	$ 1,619
8. Cost for those eligible for Part B only: (7) x (4)	$ 5,341

	Medical		Prescription Drugs (Rx)	
	Pre-Medicare	Medicare	Pre-Medicare	Medicare
1. Rate at Age 65	$ 15,708	$ 1,619	$ 3,695	$ 3,560
2. Adjustment factor for plan changes	1.39%	0.00%	-8.67%	-2.41%
3. Adjusted Rate at Age 65 (1) x [1 + (2)]	$ 15,926	$ 1,619	$ 3,375	$ 3,474

Following the development of total projected costs, a distribution of per capita claims cost was developed. This was accomplished by allocating total projected costs to the population census used in the valuation. The allocation was done separately for each of prescription drugs and medical costs for the Medicare eligible and pre-Medicare populations. The allocation weights were developed using participant counts by age and assumed morbidity and aging factors. Results were tested for reasonableness based on historical trend and external benchmarks for costs paid by Medicare.

Below are the results of this analysis:

Distribution of Per Capita Claims Cost by Age
for the Period July 1, 2021 through June 30, 2022

Age	Medical and Medicare Parts A & B	Medical and Medicare Part B Only	Prescription Drug	Medicare EGWP Subsidy
45	$ 9,719	$ 9,719	$ 2,062	$ 0
50	10,996	10,996	2,449	0
55	12,441	12,441	2,908	0
60	14,076	14,076	3,133	0
65	1,619	5,341	3,474	1,131
70	1,877	6,192	3,836	1,249
75	2,176	7,178	4,235	1,379
80	2,402	7,925	4,130	1,345

Section 5.3: Summary of Actuarial Assumptions

The demographic and economic assumptions used in the June 30, 2021 valuation are described below. Unless noted otherwise, these assumptions were adopted by the Board in January 2019 based on the experience study for the period July 1, 2013 to June 30, 2017.

Investment Return

7.38% per year, net of investment expenses.

Salary Scale

Salary scale rates based upon the 2013-2017 actual experience (see Table 1).

Inflation – 2.50% per year.

Productivity – 0.25% per year.

Payroll Growth

2.75% per year (inflation + productivity).

Total Inflation

Total inflation as measured by the Consumer Price Index for urban and clerical workers for Anchorage is assumed to increase 2.50% annually.

Mortality (Pre-Commencement)

Mortality rates based upon the 2013-2017 actual experience.

RP-2014 white-collar employee table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement.

Deaths are assumed to result from occupational causes 15% of the time.

Mortality (Post-Commencement)

Mortality rates based upon the 2013-2017 actual experience.

93% of male and 90% of female rates of RP-2014 white-collar healthy annuitant table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement.

Turnover

Select and ultimate rates based upon the 2013-2017 actual experience (see Table 2).

Disability

Incidence rates based upon the 2013-2017 actual experience (see Table 3). Disability rates cease once a member is eligible for retirement.

Post-disability mortality in accordance with the RP-2014 disabled table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement.

Retirement

Retirement rates based upon the 2013-2017 actual experience (see Table 4).

Deferred vested members are assumed to retire at their earliest unreduced retirement date.

The modified cash refund annuity is valued as a three-year certain and life annuity.

Spouse Age Difference

Males are assumed to be three years older than their wives. Females are assumed to be two years younger than husbands.

Percent Married for Pension

85% of male members and 75% of female members are assumed to be married at termination from active service.

Dependent Spouse Medical Coverage Election

Applies to members who do not have double medical coverage. 65% of male members and 60% of female members are assumed to be married and cover a dependent spouse.

Dependent Children

- Pension: For the participants who are assumed to be married, those between ages 25 and 45 are assumed to have two dependent children.
- Healthcare: Benefits for dependent children have been valued only for members currently covering their dependent children. These benefits are only valued through the dependent children’s age 23 (unless the child is disabled).

Contribution Refunds

0% of terminating members with vested benefits are assumed to have their contributions refunded. 100% of those with non-vested benefits are assumed to have their contributions refunded.

Imputed Data

Data changes from the prior year which are deemed to have an immaterial impact on liabilities and contribution rates are assumed to be correct in the current year’s client data. Non-vested terminations with appropriate refund dates are assumed to have received a full refund of contributions. Active members with missing salary and service are assumed to be terminated with status based on their vesting percentage.

Active Rehire Assumption

The Normal Cost used for determining contribution rates and in the projections includes a rehire assumption to account for anticipated rehires. The Normal Cost shown in the report includes the following assumptions (which were developed based on the five years of rehire loss experience through June 30, 2017). For projections, these assumptions were assumed to grade to zero uniformly over a 20-year period.

- Pension: 15.57%
- Healthcare: 12.03%

Re-Employment Option

All re-employed retirees are assumed to return to work under the Standard Option.

Active Data Adjustment

No adjustment was made to reflect participants who terminate employment before the valuation date and are subsequently rehired after the valuation date.

Alaska Cost-of-Living Adjustments (COLA)

Of those benefit recipients who are eligible for the Alaska COLA, 60% are assumed to remain in Alaska and receive the COLA.

Postretirement Pension Adjustment (PRPA)

50% and 75% of assumed inflation, or 1.25% and 1.875% respectively, is valued for the annual automatic PRPA as specified in the statute.

Expenses

The investment return assumption is net of investment expenses.

The Normal Cost as of June 30, 2021 was increased by the following amounts for administrative expenses (for projections, the percent increase was assumed to remain constant in future years):

- Pension: $3,217,000
- Healthcare: $1,604,000

Part-Time Status

Part-time employees are assumed to earn 0.75 years of credited service per year.

Sick Leave

4.5 days of unused sick leave for each year of service are assumed to be available to be credited once the member is retired, terminates or dies.

Service

Total credited service is provided by the State. This service is assumed to be the only service that should be used to calculate benefits. Additionally, the State provides claimed service (including Bureau of Indian Affairs Service). Claimed service is used for vesting and eligibility purposes as described in Section 5.1.

Final Average Earnings

Final Average Earnings is provided on the data for active members. This amount is used as a minimum in the calculation of the average earnings in the future.

Per Capita Claims Cost

Sample claims cost rates adjusted to age 65 for FY22 medical and prescription drugs are shown below. The prescription drug costs reflect the plan change to require prior authorization for certain specialty medications. The pre-Medicare medical cost reflects the coverage of additional preventive benefits.

	Medical	Prescription Drugs
Pre-Medicare	$ 15,926	$ 3,375
Medicare Parts A & B	$ 1,619	$ 3,474
Medicare Part B Only	$ 5,341	$ 3,474
Medicare Part D – EGWP	N/A	$ 1,131

Members are assumed to attain Medicare eligibility at age 65. All costs are for the 2022 fiscal year (July 1, 2021 – June 30, 2022).

The EGWP subsidy is assumed to increase in future years by the trend rates shown on the following pages. No future legislative changes or other events are anticipated to impact the EGWP subsidy. If any legislative or other changes occur in the future that impact the EGWP subsidy (which could either increase or decrease the plan’s Actuarial Accrued Liability), those changes will be evaluated and quantified when they occur.

Third Party Administrator Fees

$493 per person per year; assumed to increase at 4.5% per year.

Medicare Part B Only

We assume that 5% of actives hired before April 1, 1986 and current retirees who are not yet Medicare eligible will not be eligible for Medicare Part A.

Healthcare Cost Trend

The table below shows the rate used to project the cost from the shown fiscal year to the next fiscal year. For example, 6.3% is applied to the FY22 pre-Medicare medical claims costs to get the FY23 medical claims costs.

	Medical Pre-65	Medical Post-65	Prescription Drugs / EGWP
FY22	6.3%	5.4%	7.1%
FY23	6.1%	5.4%	6.8%
FY24	5.9%	5.4%	6.4%
FY25	5.8%	5.4%	6.1%
FY26	5.6%	5.4%	5.7%
FY27-FY40	5.4%	5.4%	5.4%
FY41	5.3%	5.3%	5.3%
FY42	5.2%	5.2%	5.2%
FY43	5.1%	5.1%	5.1%
FY44	5.1%	5.1%	5.1%
FY45	5.0%	5.0%	5.0%
FY46	4.9%	4.9%	4.9%
FY47	4.8%	4.8%	4.8%
FY48	4.7%	4.7%	4.7%
FY49	4.6%	4.6%	4.6%
FY50+	4.5%	4.5%	4.5%

For the June 30, 2014 valuation and later, the updated Society of Actuaries' Healthcare Cost Trend Model is used to project medical and prescription drug costs. This model estimates trend amounts that are projected out for 80 years. The model has been populated with assumptions that are specific to the State of Alaska.

Aging Factors

Age	Medical	Prescription Drugs
0 – 44	2.0%	4.5%
45 – 54	2.5%	3.5%
55 – 64	2.5%	1.5%
65 – 74	3.0%	2.0%
75 – 84	2.0%	-0.5%
85 – 94	0.3%	-2.5%
95+	0.0%	0.0%

Retired Member Contributions for Medical Benefits

Currently contributions are required for TRS members who are under age 60 and have less than 25 years of service. Eligible Tier 1 members are exempt from contribution requirements. Annual FY22 contributions based on monthly rates shown below for calendar 2022 are assumed based on the coverage category for current retirees. The retiree only rate shown is used for current active and inactive members and spouses in Tier 2 who are assumed to retire prior to age 60 with less than 25 years of service and who are not disabled. For dependent children, we value 1/3 of the annual retiree contribution to estimate the per child rate based upon the assumed number of children in rates where children are covered.

Coverage Category	Calendar 2022 Annual Contribution	Calendar 2022 Monthly Contribution	Calendar 2021 Monthly Contribution
Retiree Only	$ 8,448	$ 704	$ 704
Retiree and Spouse	$ 16,896	$ 1,408	$ 1,408
Retiree and Child(ren)	$ 11,940	$ 995	$ 995
Retiree and Family	$ 20,388	$ 1,699	$ 1,699
Composite	$ 12,552	$ 1,046	$ 1,046

Trend Rate for Retired Member Medical Contributions

The table below shows the rate used to project the retired member medical contributions from the shown fiscal year to the next fiscal year. For example, 0.0% is applied to the FY22 retired member medical contributions to get the FY23 retired member medical contributions.

Trend Assumptions	
FY22	0.0%
FY23+	4.0%

Graded trend rates for retired member medical contributions are consistent with the rates used for the June 30, 2020 valuation. Actual FY22 retired member medical contributions are reflected in the valuation.

Healthcare Participation

100% of system paid members and their spouses are assumed to elect healthcare benefits as soon as they are eligible. 20% of non-system paid members and their spouses are assumed to elect healthcare benefits as soon as they are eligible.

Changes in Assumptions Since the Prior Valuation

Healthcare claim costs are updated annually as described in Section 5.2. The amounts included in the Normal Cost for administrative expenses were changed from $3,003,000 to $3,217,000 for pension, and from $1,362,000 to $1,604,000 for healthcare (based on the most recent two years of actual administrative expenses paid from plan assets).

Table 1: Salary Scale

Years of Service	Percent Increase
0	6.75%
1	6.25%
2	5.75%
3	5.25%
4	4.75%
5	4.25%
6	3.75%
7	3.65%
8	3.55%
9	3.45%
10	3.35%
11	3.25%
12	3.15%
13	3.05%
14	2.95%
15	2.85%
16+	2.75%

Table 2: Turnover Rates

Select Rates during the First 8 Years of Employment

Years of Service	Male	Female
0	20.40%	17.00%
1	20.40%	17.00%
2	16.80%	14.00%
3	14.40%	12.00%
4	12.00%	10.00%
5	10.80%	9.00%
6	9.00%	7.50%
7	7.20%	6.00%

Ultimate Rates after the First 8 Years of Employment

Age	Male	Female	Age	Male	Female
22	2.62%	3.79%	39	2.57%	3.74%
23	2.62%	3.79%	40	2.26%	2.75%
24	2.61%	3.79%	41	2.26%	2.75%
25	2.61%	3.79%	42	2.25%	2.74%
26	2.61%	3.79%	43	2.24%	2.73%
27	2.60%	3.79%	44	2.23%	2.73%
28	2.60%	4.27%	45	2.22%	2.72%
29	2.60%	4.76%	46	2.21%	2.71%
30	2.60%	5.24%	47	2.20%	2.70%
31	2.60%	5.73%	48	2.18%	2.69%
32	2.59%	6.22%	49	2.16%	2.68%
33	2.59%	5.72%	50	3.43%	4.42%
34	2.59%	5.23%	51	3.39%	4.39%
35	2.59%	4.74%	52	3.35%	4.36%
36	2.58%	4.25%	53	3.30%	4.32%
37	2.58%	3.75%	54	3.00%	7.56%
38	2.58%	3.75%	55+	2.00%	5.00%

Table 3: Disability Rates

Age	Male	Female
< 31	0.0337%	0.0612%
31	0.0337%	0.0613%
32	0.0337%	0.0613%
33	0.0342%	0.0622%
34	0.0347%	0.0631%
35	0.0353%	0.0641%
36	0.0357%	0.0650%
37	0.0362%	0.0659%
38	0.0371%	0.0674%
39	0.0379%	0.0689%
40	0.0387%	0.0703%
41	0.0395%	0.0718%
42	0.0403%	0.0733%
43	0.0423%	0.0770%
44	0.0443%	0.0806%
45	0.0464%	0.0843%
46	0.0483%	0.0879%
47	0.0504%	0.0916%
48	0.0536%	0.0975%
49	0.0569%	0.1034%
50	0.0601%	0.1093%
51	0.0634%	0.1152%
52	0.0666%	0.1211%
53	0.0746%	0.1356%
54	0.0826%	0.1501%
55	0.0905%	0.1645%
56	0.0985%	0.1790%
57	0.1064%	0.1935%
58	0.1245%	0.2263%
59	0.1426%	0.2592%
60	0.1606%	0.2920%
61	0.1787%	0.3249%
62	0.1967%	0.3577%
63	0.2253%	0.4096%
64	0.2572%	0.4677%
65	0.2933%	0.5332%
66	0.3343%	0.6079%
67	0.3812%	0.6930%
68	0.4345%	0.7900%
69	0.4953%	0.9006%
70+	0.5647%	1.0267%

Table 4: Retirement Rates

	Reduced		Unreduced	
Age	Male	Female	Male	Female
< 45	N/A	N/A	3.0%	3.0%
45	N/A	N/A	5.0%	5.0%
46	N/A	N/A	5.0%	8.0%
47	N/A	N/A	5.0%	8.0%
48	N/A	N/A	5.0%	8.0%
49	N/A	N/A	5.0%	8.0%
50	10.0%	10.0%	5.0%	14.0%
51	10.0%	10.0%	8.0%	13.0%
52	10.0%	10.0%	15.0%	13.0%
53	10.0%	12.0%	15.0%	14.0%
54	10.0%	12.0%	15.0%	15.0%
55	15.0%	8.0%	20.0%	17.0%
56	10.0%	8.0%	17.0%	17.0%
57	10.0%	8.0%	15.0%	17.0%
58	10.0%	8.0%	20.0%	17.0%
59	10.0%	8.0%	20.0%	23.0%
60	N/A	N/A	25.0%	23.0%
61	N/A	N/A	18.0%	23.0%
62	N/A	N/A	18.0%	21.0%
63	N/A	N/A	18.0%	21.0%
64	N/A	N/A	18.0%	26.0%
65	N/A	N/A	30.0%	21.0%
66	N/A	N/A	25.0%	21.0%
67	N/A	N/A	25.0%	21.0%
68	N/A	N/A	25.0%	26.0%
69	N/A	N/A	35.0%	26.0%
70	N/A	N/A	30.0%	26.0%
71	N/A	N/A	30.0%	37.0%
72	N/A	N/A	30.0%	37.0%
73	N/A	N/A	30.0%	37.0%
74	N/A	N/A	30.0%	37.0%
75 - 79	N/A	N/A	50.0%	50.0%
80+	N/A	N/A	100.0%	100.0%

Section 6: Actuarial Standard of Practice No. 51

Funding future retirement benefits prior to when those benefits become due involves assumptions regarding future economic and demographic experience. These assumptions are applied to calculate actuarial liabilities, current contribution requirements, and the funded status of the plan. However, to the extent future experience deviates from the assumptions used, variations will occur in these calculated values. These variations create risk to the plan. Understanding the risks to the funding of the plan is important.

Actuarial Standard of Practice No. 51 (ASOP 51)[1] requires certain disclosures of potential risks to the plan and provides useful information for intended users of actuarial reports that determine plan contributions or evaluate the adequacy of specified contribution levels to support benefit provisions.

Under ASOP 51, risk is defined as the potential of actual future measurements deviating from expected future measurements resulting from actual future experience deviating from actuarially assumed experience.

It is important to note that not all risk is negative, but all risk should be understood and accepted based on knowledge, judgement, and educated decisions. Future measurements may deviate in ways that produce positive or negative financial impacts to the plan.

In the actuary's professional judgment, the following risks may reasonably be anticipated to significantly affect the pension plan's future financial condition and contribution requirements.

- Investment Risk – potential that the investment return will be different than the 7.38% expected in the actuarial valuation
- Contribution Risk – potential that the contribution actually made will be different than the actuarially determined contribution
- Long-Term Return on Investment Risk – potential that changes in long-term capital market assumptions or the plan's asset allocation will create the need to update the long-term return on investment assumption
- Longevity Risk – potential that participants live longer than expected compared to the valuation mortality assumptions
- Salary Increase Risk – potential that future salaries will be different than expected in the actuarial valuation
- Inflation Risk – potential that the consumer price index (CPI) for urban wage earners and clerical workers for Anchorage is different than the 2.5% assumed in the valuation
- Other Demographic Risk – potential that other demographic experience will be different than expected

The following information is provided to comply with ASOP 51 and furnish beneficial information on potential risks to the plan. **This list is not all-inclusive**; it is an attempt to identify the more significant risks and how those risks might affect the results shown in this report.

Note that ASOP 51 does not require the actuary to evaluate the ability or willingness of the plan sponsor to make contributions to the plan when due, or to assess the likelihood or consequences of potential future changes in law. In addition, this valuation report is not intended to provide investment advice or to provide guidance on the management or reduction of risk.

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1 ASOP 51 does not apply to the healthcare portion of the plan. Accordingly, all figures in this section relate to the pension portion.

Assessment of Risks

Investment Risk

Plan costs are very sensitive to the market return.

- Any return on assets lower than assumed will increase costs.
- The plan uses an actuarial value of assets that smooths gains and losses on market returns over a five-year period to help control some of the volatility in costs due to investment risk.
- Historical experience of actual returns is shown in Section 2.4 of this report. This historical experience illustrates how returns can vary over time.

Contribution Risk

There is a risk to the plan when the employer's and/or State's actual contribution amount and the actuarially determined contribution differ.

- If the actual contribution is lower than the actuarially determined contribution, the plan may not be sustainable in the long term.
- Any underpayment of the contribution will increase future contribution amounts to help pay off the additional Unfunded Actuarial Accrued Liability associated with the underpayment(s).
- As long as the Board consistently adopts the actuarially determined contributions, this risk is mitigated due to Alaska statutes requiring the State to contribute additional funds necessary to pay the total contributions adopted by the Board.

Long-Term Return on Investment Risk

Inherent in the long-term return on investment assumption is the expectation that the current rate will be used until the last benefit payment of the plan is made. There is a risk that sustained changes in economic conditions, changes in long-term future capital market assumptions, or changes to the plan's asset allocation will necessitate an update to the long-term return on investment assumption used.

- Under a lower long-term return on investment assumption, less investment return is available to pay plan benefits. This may lead to a need for increased employer contributions.
- The liabilities will be higher at a lower assumed rate of return because future benefits will have a lower discount rate applied when calculating the present value.
- A 1% decrease in the long-term return on investment assumption will increase actuarial accrued liability by approximately 11%.
- This risk may be increased due to the plan being closed to new entrants. As the plan continues to mature, the magnitude of negative cash flow discussed in the Plan Maturity Measures later in this section will grow, thereby creating a need for more liquid assets that may not garner the same long-term return as currently assumed.

Longevity Risk

Plan costs will be increased as participants are expected to live longer.

- Benefits are paid over a longer lifetime when life expectancy is expected to increase. The longer duration of payments leads to higher liabilities.
- Health care has been improving, which affects the life expectancy of participants. As health care improves, leading to longer life expectancies, costs to the plan could increase.

- The mortality assumption for the plan mitigates this risk by assuming future improvement in mortality. However, any improvement in future mortality greater than that expected by the current mortality assumption would lead to increased costs for the plan.
- The Postretirement Pension Adjustments and Alaska Cost-of-Living Allowance increase longevity risk because members who live longer than expected will incur more benefit payment increases than expected and therefore increase costs.

Salary Increase Risk

Plan costs will be increased if actual salary increases are larger than expected.

- Higher-than-expected salary increases will produce higher benefits.
- The higher benefits may be partially offset by increased employee contributions due to higher salaries.
- If future payroll grows at a rate different than assumed, contributions as a percentage of payroll will be affected.

Inflation Risk

Plan costs will be increased if the actual CPI for Anchorage is greater than the 2.5% assumed in the valuation.

- Retirement benefits will be greater than expected if the CPI is greater than the assumed rate, which will increase costs.
- This risk is mitigated by the 75% and 50% of CPI provisions and the 9% and 6% maximums.
- This risk is also mitigated by the age and time in payment requirements to receive an increase.
- Inflation risk may be associated with the interaction of inflation with other assumptions, but this is not significant as a standalone assumption, and therefore is considered as part of the associated assumption risk instead of being discussed here.

Other Demographic Risk

The plan is subject to risks associated with other demographic assumptions (e.g., retirement, termination, and retired members remaining in Alaska assumptions). Differences between actual and expected experience for these assumptions tend to have less impact on the overall costs of the plan. The demographic assumptions used in the valuation are re-evaluated regularly as part of the four-year experience studies to ensure the assumptions are consistent with long-term expectations.

Historical Information

Monitoring certain information over time may help understand risks faced by the plan. Historical information is included throughout this report. Some examples are:

- Funded Ratio History shown in the Executive Summary illustrates how the plan's funded status (comparison of actuarial accrued liabilities to actuarial value of assets) has changed over time.
- Section 1.6 shows historical analysis of financial experience including how contribution rates have changed over time.
- Section 2.4 shows the volatility of asset returns over time.
- Section 4 includes various historical information showing how member census data has changed over time.

Plan Maturity Measures

There are certain measures that may aid in understanding the significant risks to the plan.

Ratio of Retired Liability to Total Liability ($'s in $000's)	June 30, 2020	June 30, 2021
1. Retiree and Beneficiary Accrued Liability	$ 5,570,625	$ 5,657,056
2. Total Accrued Liability	$ 7,447,036	$ 7,471,887
3. Ratio, (1) ÷ (2)	74.8%	75.7%

A high percentage of liability concentrated on participants in pay status indicates a mature plan (often a ratio above 60% - 65%). Because the plan was closed to new entrants in 2006, we expect the percentage in item #3 to continue to increase over time. An increasing percentage may indicate a need for a less risky asset allocation, which may lead to a lower long-term return on asset assumption and increased costs. Higher percentages may also indicate greater investment risk as benefit payments may be greater than contributions creating an increased reliance on investment returns. This ratio should be monitored each year in the future.

Ratio of Cash Flow to Assets ($'s in $000's)	FYE June 30, 2020	FYE June 30, 2021
1. Contributions	$ 207,899	$ 196,748
2. Benefit Payments	490,447	501,429
3. Cash Flow, (1) - (2)	$ (282,548)	$ (304,681)
4. Fair Value of Assets	$ 5,444,799	$ 6,731,481
5. Ratio, (3) ÷ (4)	(5.2%)	(4.5%)

When this cash flow ratio is negative, more cash is being paid out than deposited in the trust. Negative cash flow indicates the trust needs to rely on investment returns to cover benefit payments and / or may need to invest in more liquid assets to cover the benefit payments. More liquid assets may not generate the same returns as less liquid assets, which can increase the investment risk. Currently, the low magnitude of the ratio implies there may already be enough liquid assets to cover the benefit payments, less investment return is needed to cover the shortfall, or only a small portion of assets will need to be converted to cash. Therefore, the investment risk is likely not amplified at this time. However, due to the plan being closed, we expect this measure to become increasingly negative over time. This maturity measure should be monitored in the future.

Contribution Volatility ($'s in $000's)	June 30, 2020	June 30, 2021
1. Fair Value of Assets	$ 5,444,799	$ 6,731,481
2. DB/DCR Payroll	$ 741,090	$ 750,334
3. Asset to Payroll Ratio, (1) ÷ (2)	734.7%	897.1%
4. Accrued Liability	$ 7,447,036	$ 7,471,887
5. Liability to Payroll Ratio, (4) ÷ (2)	1,004.9%	995.8%

Plans that have higher asset-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, a plan with an asset-to-payroll ratio of 10% may experience twice the contribution volatility due to investment return volatility than a plan with an asset-to-payroll ratio of 5%. Plans that have higher liability-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to changes in liability. For example, if an assumption change increases the liability of two plans by the same percent, the plan with a liability-to-payroll ratio of 10% may experience twice the contribution volatility than a plan with a liability-to-payroll ratio of 5%.

Glossary of Terms

Actuarial Accrued Liability

Total accumulated cost to fund pension or postemployment benefits arising from service in all prior years.

Actuarial Cost Method

Technique used to assign or allocate, in a systematic and consistent manner, the expected cost of a pension or postemployment plan for a group of plan members to the years of service that give rise to that cost.

Actuarial Present Value of Projected Benefits

Amount which, together with future interest, is expected to be sufficient to pay all future benefits.

Actuarial Valuation

Study of probable amounts of future pension or postemployment benefits and the necessary amount of contributions to fund those benefits.

Actuary

Person who performs mathematical calculations pertaining to pension and insurance benefits based on specific procedures and assumptions.

GASB 67 and 68

Governmental Accounting Standards Board Statement Number 67 amends Number 25 effective for the fiscal year beginning after June 15, 2013 and defines new financial reporting requirements for public pension plans.

Governmental Accounting Standards Board Statement Number 68 amends Number 27 effective for fiscal years beginning after June 15, 2014 and defines new accounting and financial reporting requirements for employers sponsoring public pension plans.

GASB 74 and 75

Governmental Accounting Standards Board Statement Number 74 amends Number 43 effective for the fiscal year beginning after June 15, 2016 and defines new financial reporting requirements for public postemployment benefit plans.

Governmental Accounting Standards Board Statement Number 75 amends Number 45 effective for fiscal years beginning after June 15, 2017 and defines new accounting and financial reporting requirements for employers sponsoring public postemployment benefit plans.

Normal Cost

That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual participant or the plan as a whole.

Rate Payroll

Members' earnings used to determine contribution rates.

Unfunded Actuarial Accrued Liability (UAAL)

The portion of the actuarial accrued liability not offset by plan assets.

Valuation Payroll

Members' earnings used to determine Normal Cost and Actuarial Accrued Liability.

Vested Benefits

Benefits which are unconditionally guaranteed regardless of employment.