

State of Alaska

Public Employees' Retirement System

Actuarial Valuation
Report
As of June 30, 2019

May 2020

BUCK



May 7, 2020

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 Public Employees' Retirement System (PERS) as of June 30, 2019 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, 2019. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities and other factors under PERS 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 PERS as of June 30, 2019.

PERS 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 PERS is to pay required contributions that remain level as a percent of total PERS 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 PERS 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 PERS, 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 is expected to increase to 100% after 25 years.

The Board and staff of the State of Alaska may use this report for the review of the operations of PERS. 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 economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. 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, 2019 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.

Governmental Accounting Standards Board (GASB) Statement No. 67 (GASB 67) was effective for PERS beginning with fiscal year ending June 30, 2014, and Statement No. 74 (GASB 74) was effective for PERS beginning with fiscal year ending June 30, 2017. Separate GASB 67 and GASB 74 reports as of June 30, 2019 have been prepared. We have also prepared the member data tables shown in Section 4 of this report for the Statistical Section of the CAFR, and the summary of actuarial assumptions, solvency test, and analysis of financial experience for the Actuarial Section of the CAFR. Please see our separate GASB 67 and GASB 74 reports for other information needed for the CAFR.

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 retiree medical portion of PERS. See Section 6 of this report for further details regarding ASOP 51.

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.

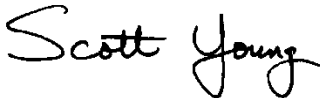
I am available to discuss this report with you at your convenience. I can be reached at 602-803-6174.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "D. J. Kershner".

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.

A handwritten signature in black ink, appearing to read "Scott Young".

Scott Young, FSA, EA, MAAA
Director
Buck

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Executive Summary

Overview

The State of Alaska Public Employees' Retirement System (PERS) provides pension and postemployment healthcare benefits to 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 PERS as of the valuation date of June 30, 2019.

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 PERS 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.

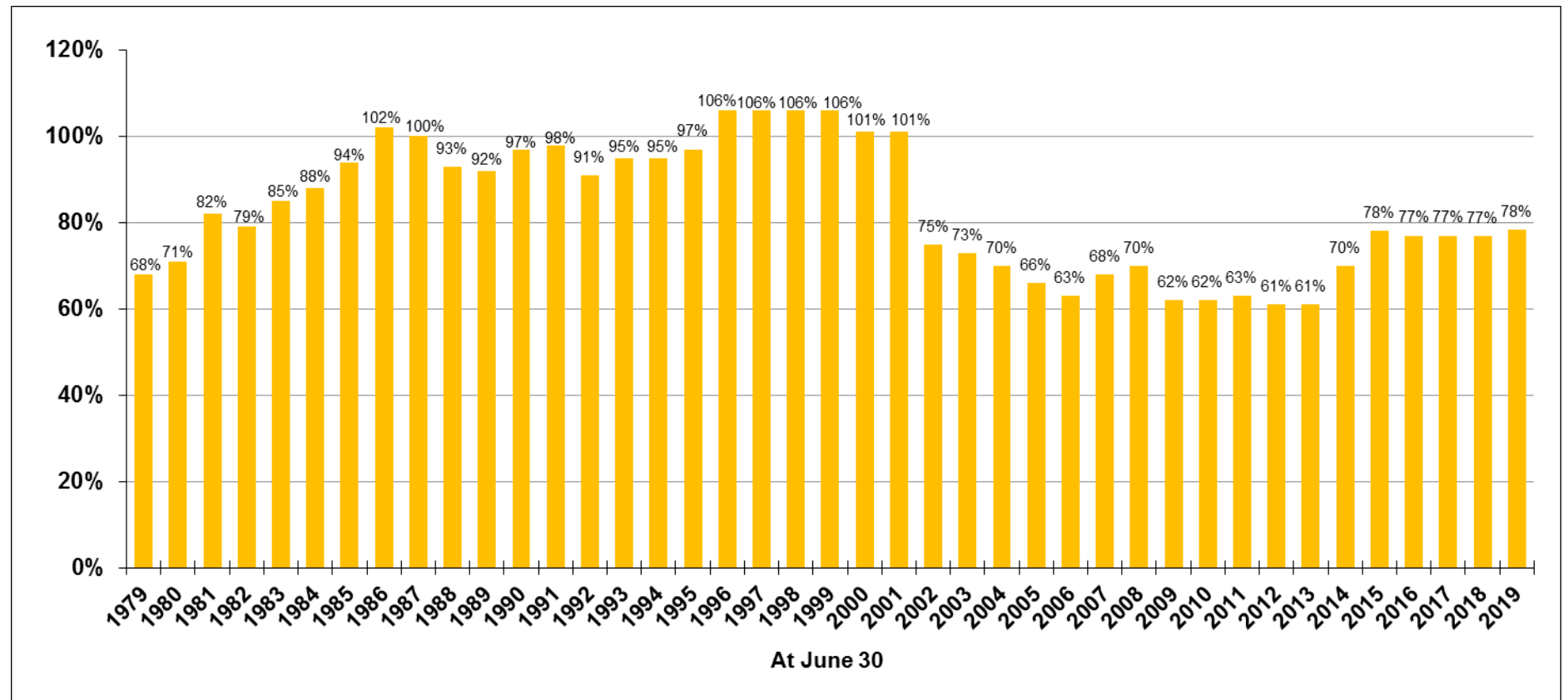
Retiree group benefits models necessarily rely on the use of approximations and estimates, and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements.

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)		2018	2019
Pension			
a.	Actuarial Accrued Liability	\$ 14,606,033	\$ 15,039,180
b.	Valuation Assets	<u>9,430,192</u>	<u>9,576,693</u>
c.	Unfunded Actuarial Accrued Liability, (a) – (b)	\$ 5,175,841	\$ 5,462,487
d.	Funded Ratio based on Valuation Assets, (b) ÷ (a)	64.6%	63.7%
e.	Fair Value of Assets	\$ 9,306,675	\$ 9,489,405
f.	Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	63.7%	63.1%
Healthcare			
a.	Actuarial Accrued Liability	\$ 7,658,104	\$ 7,151,694
b.	Valuation Assets	<u>7,686,509</u>	<u>7,810,491</u>
c.	Unfunded Actuarial Accrued Liability, (a) – (b)	\$ (28,405)	\$ (658,797)
d.	Funded Ratio based on Valuation Assets, (b) ÷ (a)	100.4%	109.2%
e.	Fair Value of Assets	\$ 7,612,001	\$ 7,767,692
f.	Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	99.4%	108.6%
Total			
a.	Actuarial Accrued Liability	\$ 22,264,137	\$ 22,190,874
b.	Valuation Assets	<u>17,116,701</u>	<u>17,387,184</u>
c.	Unfunded Actuarial Accrued Liability, (a) – (b)	\$ 5,147,436	\$ 4,803,690
d.	Funded Ratio based on Valuation Assets, (b) ÷ (a)	76.9%	78.4%
e.	Fair Value of Assets	\$ 16,918,676	\$ 17,257,097
f.	Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	76.0%	77.8%

PERS Funded Ratio History (Based on Valuation Assets)



The key reasons for the change in 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 because there are no available financial instruments for purchase. Future experience is likely to vary from assumptions so there is a potential for future healthcare actuarial gains and 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 FY19 investment return based on fair value of assets was approximately 6.0% compared to the expected investment return of 7.38% (net of investment expenses of approximately 0.04%). This resulted in a market asset loss of approximately \$237 million. Due to the recognition of investment gains and losses over a 5-year period, the FY19 investment return based on actuarial value of assets was approximately 5.5%, which resulted in an actuarial asset loss of approximately \$320 million.

2. Salary Increases

Salary increases for continuing active members during FY19 were higher than expected based on the valuation assumptions, resulting in a liability loss of approximately \$60 million.

3. Demographic Experience

Section 4 provides statistics on active and inactive participants. The number of active participants decreased 9.5%, from 13,434 at June 30, 2018 to 12,152 at June 30, 2019 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 52.52 to 52.84, and average credited service increased from 17.21 to 17.80 years.

The number of benefit recipients increased 2.4%, from 35,454 to 36,310 and their average age increased from 69.85 to 70.29. The number of vested terminated participants decreased 2.8%, from 5,660 to 5,499. Their average age increased from 52.56 to 53.06.

The overall effect of the demographic experience during FY19 was an actuarial gain of approximately \$14.6 million (pension) and \$26.9¹ million (healthcare).

4. COLA/PRPA Experience

The cost-of-living increases and postretirement pension adjustments for benefit recipients during FY19 were more than expected based on the valuation assumptions, resulting in a liability loss of approximately \$8.4 million.

5. Medical Claims Experience and Assumptions

As described in Section 5.2, recent medical claims experience and changes in healthcare enrollment data provided to us for the June 30, 2019 valuation generated an actuarial gain of approximately \$696 million (this amount includes a \$54 million gain due to the Cadillac Tax). Beginning January 1, 2019, Rx benefits were provided through a new contract with Optum. This change in vendors resulted in lower actual (and future expected) claims and higher rebates. Approximately \$666 million of the \$696 million gain in FY19 was attributable to Rx experience, the majority of which was due to the change in Rx vendors.

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. Retired member contribution trend rates were updated to reflect the ongoing shift in population from pre-Medicare to Medicare-eligible and a projection of expected future retiree contributions reflecting the 10% decrease

¹ Includes the effect of changes in dependent coverage elections and part B only experience.

from 2019 to 2020. The Further Consolidated Appropriations Act, 2020 that was signed in December 2019 made several changes, including the repeal of the Cadillac Tax. The repeal of the Cadillac Tax reduced the plan's liabilities as of June 30, 2019 by approximately \$36.3M. The amounts included in the Normal Cost for administrative expenses were updated based on the most recent two years of actual administrative expenses paid from plan assets.

8. Changes in Benefit Provisions Since the Prior Valuation

There have been no changes in the PERS benefit provisions since the prior valuation.

Comparative Summary of Key Actuarial Valuation Results

Pension Employer/State Contribution Rates for Fiscal Year:		2021	2022
a.	Normal Cost Rate Net of Member Contributions	2.88%	2.58%
b.	Past Service Rate	<u>17.78%</u>	<u>17.69%</u>
c.	Total Employer/State Contribution Rate, (a) + (b), not less than (a) ¹	20.66%	20.27%

Healthcare Employer/State Contribution Rates for Fiscal Year:		2021	2022
a.	Normal Cost Rate	3.82%	3.12%
b.	Past Service Rate	<u>0.45%</u>	<u>(2.15%)</u>
c.	Total Employer/State Contribution Rate, (a) + (b), not less than (a) ¹	4.27%	3.12%

Total Employer/State Contribution Rates for Fiscal Year:		2021	2022
a.	Normal Cost Rate Net of Member Contributions	6.70%	5.70%
b.	Past Service Rate	<u>18.23%</u>	<u>17.69%</u>
c.	Total Employer/State Contribution Rate (a) + (b) ¹	24.93%	23.39%
d.	Board Adopted Total Employer/State Contribution Rate	24.93%	TBD
e.	Defined Contribution Retirement (DCR) Rate Paid by Employers	<u>5.92%</u>	<u>6.10%</u>
f.	Board Adopted Total Rate, Including DCR Rate Paid by Employers, (d) + (e)	30.85%	TBD

Contribution rates are based on total (DB and DCR) payroll. The contribution rates shown above for FY22 are estimated assuming no actuarial gains/losses during FY20 and FY21. Actual FY22 contribution rates will be adopted reflecting FY20 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.

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, 2018 and June 30, 2019 based on DB and DCR payroll combined:

	Pension	Healthcare	Total
1. Total Employer/State contribution rate as of June 30, 2018	19.85%	4.74%	24.59%
2. Change due to:			
a. Health claims experience	N/A	(2.39%)	(2.39%)
b. Salary increases	0.16%	N/A	0.16%
c. Investment experience	0.50%	0.38%	0.88%
d. Demographic experience and miscellaneous ¹	(0.45%)	1.16%	0.71%
e. FY19 Contribution shortfall/(excess)	0.11%	0.02%	0.13%
f. Assumption changes	0.00%	0.00%	0.00%
g. Total change, (a) + (b) + (c) + (d) + (e) + (f)	0.33%	(0.83%)	(0.50%)
3. Total Employer/State contribution rate as of June 30, 2019, (1) + (2g)	20.17%	3.91%	24.08%

The following table shows the gain/(loss) on actuarial accrued liability as of June 30, 2019 (\$'s in 000's):

	Pension	Healthcare	Total
Retirement Experience	\$ (3,126)	\$ 1,098	\$ (2,028)
Termination Experience	6,714	(946)	5,768
Active Mortality Experience	8,209	1,977	10,186
Inactive Mortality Experience	4,250	999	5,249
Disability Experience	(1,435)	(981)	(2,416)
Rehires	(13,297)	10,708	(2,589)
Salary Increases	(59,955)	N/A	(59,955)
Alaska COLA	8,345	N/A	8,345
PRPA	(16,716)	N/A	(16,716)
Medical Claims Experience ²	N/A	642,081	642,081
Cadillac Tax – Medical Claims Experience	N/A	54,237	54,237
Cadillac Tax – Repeal	N/A	36,301	36,301
Modified Part B Only Experience	N/A	6,164	6,164
Dependent Coverage Elections	N/A	18,580	18,580
FY20 contributions reduced by 10% and revised trend ³	N/A	(14,270)	(14,270)
Programming Changes ⁴	N/A	11,585	11,585
Miscellaneous ⁵	(8,534)	7,749	(785)
Total	\$ (75,545)	\$ 775,282	\$ 699,737

¹ Includes the effects of census data changes between the two valuations.

² Beginning January 1, 2019, Rx benefits were provided through a new contract with Optum. This change in vendors resulted in lower actual (and future expected) claims and higher rebates. Approximately 95% of the gain shown in this table was due to Rx experience, the majority of which was due to the change in Rx vendors.

³ Based on a projection of future expected retiree contributions, trend was revised to be 0% for the next 3 years and 4% per year thereafter.

⁴ Added Part D benefits for deferred retirees.

⁵ Includes the effects of various data changes that are typical when new census data is received for the annual valuation, the effects of the differences between expected and actual benefit payments, and 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, 2019 due to rehires during the most recent plan year, and (ii) the load that was added to the June 30, 2018 Normal Cost based on the rehire load assumption used in the June 30, 2018 valuation. The development of the FY19 rehire gain/(loss) amount is shown in the table below (\$'s in 000's):

	Pension	Healthcare	Total
1. Increase in Actuarial Accrued Liability at June 30, 2019 due to Rehires	\$ 38,747	\$ 5,468	\$ 44,215
2. June 30, 2018 Normal Cost Rehire Load, with interest to June 30, 2019	\$ 25,450	\$ 16,176	\$ 41,626
3. Rehire Gain/(Loss), (2) – (1)	\$ (13,297)	\$ 10,708	\$ (2,589)

Section 1: Actuarial Funding Results

Section 1.1: Actuarial Liabilities and Normal Cost

Peace Officer/Firefighter (\$'s in 000's)

As of June 30, 2019	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
Active Members		
Retirement Benefits	\$ 939,467	\$ 821,094
Termination Benefits	14,833	4,854
Disability Benefits	1,989	(996)
Death Benefits	10,468	6,592
Return of Contributions	1,735	(4,931)
Medical and Prescription Drug Benefits	403,117	336,045
Medicare Part D Subsidy	(34,438)	(28,768)
Indebtedness	(4,913)	(4,913)
Subtotal	\$ 1,332,258	\$ 1,128,977
Inactive Members		
Not Vested	\$ 2,294	\$ 2,294
Vested Terminations		
- Retirement Benefits	33,268	33,268
- Medical and Prescription Drug Benefits	98,506	98,506
- Medicare Part D Subsidy	(9,681)	(9,681)
- Indebtedness	(524)	(524)
Retirees & Beneficiaries		
- Retirement Benefits	1,565,096	1,565,096
- Medical and Prescription Drug Benefits	554,635	554,635
- Medicare Part D Subsidy	(73,627)	(73,627)
Subtotal	\$ 2,169,967	\$ 2,169,967
Total	\$ 3,502,225	\$ 3,298,944
Total Pension	\$ 2,563,713	\$ 2,421,834
Total Medical, Net of Part D Subsidy	\$ 938,512	\$ 877,110
Total Medical, Gross of Part D Subsidy	\$ 1,056,258	\$ 989,186

Peace Officer/Firefighter (\$'s in 000's)

As of June 30, 2019	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
By Tier		
Tier 1		
- Pension	\$ 1,045,675	\$ 1,044,284
- Medical, Net of Part D Subsidy	310,089	309,304
Tier 2		
- Pension	664,294	644,752
- Medical, Net of Part D Subsidy	263,996	256,450
Tier 3		
- Pension	853,744	732,798
- Medical, Net of Part D Subsidy	364,427	311,356
Total	\$ 3,502,225	\$ 3,298,944

As of June 30, 2019	Normal Cost
Active Members	
Retirement Benefits	\$ 20,338
Termination Benefits	1,774
Disability Benefits	529
Death Benefits	710
Return of Contributions	1,170
Medical and Prescription Drug Benefits	11,222
Medicare Part D Subsidy	(973)
Rehire Assumption (Pension)	4,603
Rehire Assumption (Medical)	1,752
Administrative Expenses (Pension)	1,407
Administrative Expenses (Medical)	511
Total	\$ 43,043
Total Pension	\$ 30,531
Total Medical, Net of Part D Subsidy	\$ 12,512
Total Medical, Gross of Part D Subsidy	\$ 13,485
By Tier	
Tier 1	
- Pension	\$ 584
- Medical, Net of Part D Subsidy	319
Tier 2	
- Pension	5,809
- Medical, Net of Part D Subsidy	2,131
Tier 3	
- Pension	24,138
- Medical, Net of Part D Subsidy	10,062
Total	\$ 43,043

Section 1.1: Actuarial Liabilities and Normal Cost

Others (\$'s in 000's)

As of June 30, 2019	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
Active Members		
Retirement Benefits	\$ 3,674,545	\$ 3,310,952
Termination Benefits	247,320	137,846
Disability Benefits	18,908	5,067
Death Benefits	51,825	39,961
Return of Contributions	16,214	(34,225)
Medical and Prescription Drug Benefits	2,196,562	1,766,876
Medicare Part D Subsidy	(274,706)	(227,249)
Indebtedness	(43,850)	(43,850)
Subtotal	\$ 5,886,818	\$ 4,955,378
Inactive Members		
Not Vested	\$ 73,314	\$ 73,314
Vested Terminations		
- Retirement Benefits	629,468	629,468
- Medical and Prescription Drug Benefits	959,991	959,991
- Medicare Part D Subsidy	(103,660)	(103,660)
- Indebtedness	(12,619)	(12,619)
Retirees & Beneficiaries		
- Retirement Benefits	8,511,432	8,511,432
- Medical and Prescription Drug Benefits	4,575,948	4,575,948
- Medicare Part D Subsidy	(697,322)	(697,322)
Subtotal	\$ 13,936,552	\$ 13,936,552
Total	\$ 19,823,370	\$ 18,891,930
Total Pension	\$ 13,166,557	\$ 12,617,346
Total Medical, Net of Part D Subsidy	\$ 6,656,813	\$ 6,274,584
Total Medical, Gross of Part D Subsidy	\$ 7,732,501	\$ 7,302,815

Others (\$'s in 000's)

As of June 30, 2019	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
By Tier		
Tier 1		
- Pension	\$ 6,346,268	\$ 6,309,542
- Medical, Net of Part D Subsidy	2,671,152	2,636,032
Tier 2		
- Pension	3,661,983	3,537,823
- Medical, Net of Part D Subsidy	1,958,353	1,870,865
Tier 3		
- Pension	3,158,306	2,769,981
- Medical, Net of Part D Subsidy	2,027,308	1,767,687
Total	\$ 19,823,370	\$ 18,891,930

As of June 30, 2019	Normal Cost
Active Members	
Retirement Benefits	\$ 65,622
Termination Benefits	16,611
Disability Benefits	2,234
Death Benefits	2,092
Return of Contributions	8,105
Medical and Prescription Drug Benefits	73,052
Medicare Part D Subsidy	(8,170)
Rehire Assumption (Pension)	17,768
Rehire Assumption (Medical)	11,088
Administrative Expenses (Pension)	5,432
Administrative Expenses (Medical)	3,233
Total	\$ 197,067
Total Pension	\$ 117,864
Total Medical, Net of Part D Subsidy	\$ 79,203
Total Medical, Gross of Part D Subsidy	\$ 87,373
By Tier	
Tier 1	
- Pension	\$ 12,920
- Medical, Net of Part D Subsidy	11,864
Tier 2	
- Pension	30,524
- Medical, Net of Part D Subsidy	20,305
Tier 3	
- Pension	74,420
- Medical, Net of Part D Subsidy	47,034
Total	\$ 197,067

Section 1.1: Actuarial Liabilities and Normal Cost

All Members (\$'s in 000's)

As of June 30, 2019	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
Active Members		
Retirement Benefits	\$ 4,614,012	\$ 4,132,046
Termination Benefits	262,153	142,700
Disability Benefits	20,897	4,071
Death Benefits	62,293	46,553
Return of Contributions	17,949	(39,156)
Medical and Prescription Drug Benefits	2,599,679	2,102,921
Medicare Part D Subsidy	(309,144)	(256,017)
Indebtedness	<u>(48,763)</u>	<u>(48,763)</u>
Subtotal	\$ 7,219,076	\$ 6,084,355
Inactive Members		
Not Vested	\$ 75,608	\$ 75,608
Vested Terminations		
- Retirement Benefits	662,736	662,736
- Medical and Prescription Drug Benefits	1,058,497	1,058,497
- Medicare Part D Subsidy	(113,341)	(113,341)
- Indebtedness	(13,143)	(13,143)
Retirees & Beneficiaries		
- Retirement Benefits	10,076,528	10,076,528
- Medical and Prescription Drug Benefits	5,130,583	5,130,583
- Medicare Part D Subsidy	<u>(770,949)</u>	<u>(770,949)</u>
Subtotal	\$ 16,106,519	\$ 16,106,519
Total	\$ 23,325,595	\$ 22,190,874
Total Pension	\$ 15,730,270	\$ 15,039,180
Total Medical, Net of Part D Subsidy	\$ 7,595,325	\$ 7,151,694
Total Medical, Gross of Part D Subsidy	\$ 8,788,759	\$ 8,292,001

All Members (\$'s in 000's)

As of June 30, 2019	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
By Tier		
Tier 1		
- Pension	\$ 7,391,943	\$ 7,353,826
- Medical, Net of Part D Subsidy	2,981,241	2,945,336
Tier 2		
- Pension	4,326,277	4,182,575
- Medical, Net of Part D Subsidy	2,222,349	2,127,315
Tier 3		
- Pension	4,012,050	3,502,779
- Medical, Net of Part D Subsidy	2,391,735	2,079,043
Total	\$ 23,325,595	\$ 22,190,874

As of June 30, 2019	Normal Cost
Active Members	
Retirement Benefits	\$ 85,960
Termination Benefits	18,385
Disability Benefits	2,763
Death Benefits	2,802
Return of Contributions	9,275
Medical and Prescription Drug Benefits	84,274
Medicare Part D Subsidy	(9,143)
Rehire Assumption (Pension)	22,371
Rehire Assumption (Medical)	12,840
Administrative Expenses (Pension)	6,839
Administrative Expenses (Medical)	3,744
Total	\$ 240,110
Total Pension	\$ 148,395
Total Medical, Net of Part D Subsidy	\$ 91,715
Total Medical, Gross of Part D Subsidy	\$ 100,858
By Tier	
Tier 1	
- Pension	\$ 13,504
- Medical, Net of Part D Subsidy	12,183
Tier 2	
- Pension	36,333
- Medical, Net of Part D Subsidy	22,436
Tier 3	
- Pension	98,558
- Medical, Net of Part D Subsidy	57,096
Total	\$ 240,110

Section 1.2: Actuarial Contributions as of June 30, 2019

Actuarial Contributions as of June 30, 2019 - Peace Officer/Firefighter (\$'s in 000's)

Normal Cost Rate	Pension	Healthcare	Total
1. Total Normal Cost	\$ 30,531	\$ 12,512	\$ 43,043
2. DB Rate Payroll Projected for FY20	169,949	169,949	169,949
3. DCR Rate Payroll Projected for FY20	180,262	180,262	180,262
4. Total Rate Payroll Projected for FY20	350,211	350,211	350,211
5. Normal Cost Rate			
a. Based on DB Rate Payroll, (1) / (2)	17.97%	7.36%	25.33%
b. Based on Total Rate Payroll, (1) / (4)	8.72%	3.57%	12.29%
6. Average Member Contribution Rate	3.64%	0.00%	3.64%
7. Employer Normal Cost, (5)(b) - (6)	5.08%	3.57%	8.65%

Past Service Rate			
1. Actuarial Accrued Liability	\$ 2,421,834	\$ 877,110	\$ 3,298,944
2. Valuation Assets ¹	1,542,183	957,907	2,500,090
3. Unfunded Actuarial Accrued Liability, (1) - (2)	\$ 879,651	\$ (80,797)	\$ 798,854
4. Funded Ratio, (2) / (1)	63.7%	109.2%	75.8%
5. Past Service Cost Amortization Payment	63,514	(5,455)	58,059
6. Total Rate Payroll Projected for FY20	350,211	350,211	350,211
7. Past Service Rate, (5) / (6)	18.14%	(1.56%)	18.14%
Total Employer / State Contribution Rate, not less than Normal Cost Rate	23.22%	3.57%	26.79%

Normal Cost Rate by Tier (Total Employer and Member)²

Tier 1	19.91%	10.88%	30.79%
Tier 2	17.67%	6.48%	24.15%
Tier 3	18.00%	7.50%	25.50%

¹ Allocated between Peace Officer / Firefighter and Others in proportion to Actuarial Accrued Liability

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

Schedule of Past Service Cost Amortizations - Peace Officer/Firefighter Pension (\$'s in 000's)

Layer	Amortization Period		Balances		Beginning-of-Year Payment
	Date Created	Years Remaining	Initial	Outstanding	
Initial Amount	06/30/2018	20	\$ 731,232	\$ 729,116	\$ 53,663
Experience Study and EGWP	06/30/2018	24	88,162	88,555	\$ 5,849
FY19 (Gain)/Loss	06/30/2019	25	61,980	61,980	\$ 4,002
Total				\$ 879,651	\$ 63,514

Schedule of Past Service Cost Amortizations - Peace Officer/Firefighter Healthcare (\$'s in 000's)

Layer	Amortization		Balances		Beginning-of-Year Payment
	Date Created	Years Remaining	Initial	Outstanding	
Initial Amount	06/30/2018	20	\$ (30,991)	\$ (30,901)	\$ (2,274)
Experience Study and EGWP	06/30/2018	24	27,556	27,679	1,828
FY19 (Gain)/Loss	06/30/2019	25	(77,575)	(77,575)	(5,009)
Total				\$ (80,797)	\$ (5,455)

Schedule of Past Service Cost Amortizations - Peace Officer/Firefighter Total (\$'s in 000's)

Layer	Amortization Period		Balances		Beginning-of-Year Payment
	Date Created	Years Remaining	Initial	Outstanding	
Initial Amount	06/30/2018	20	\$ 700,241	\$ 698,215	\$ 51,389
Experience Study and EGWP	06/30/2018	24	115,718	116,234	7,677
FY19 (Gain)/Loss	06/30/2019	25	(15,595)	(15,595)	(1,007)
Total				\$ 798,854	\$ 58,059

Section 1.2: Actuarial Contributions as of June 30, 2019

Actuarial Contributions as of June 30, 2019 - Others (\$'s in 000's)

Normal Cost Rate	Pension	Healthcare	Total
1. Total Normal Cost	\$ 117,864	\$ 79,203	\$ 197,067
2. DB Rate Payroll Projected for FY20	834,518	834,518	834,518
3. DCR Rate Payroll Projected for FY20	1,162,577	1,162,577	1,162,577
4. Total Rate Payroll Projected for FY20	1,997,095	1,997,095	1,997,095
5. Normal Cost Rate			
a. Based on DB Rate Payroll, (1) / (2)	14.12%	9.49%	23.61%
b. Based on Total Rate Payroll, (1) / (4)	5.90%	3.97%	9.87%
6. Average Member Contribution Rate	2.86%	0.00%	2.86%
7. Employer Normal Cost, (5)(b) - (6)	3.04%	3.97%	7.01%

Past Service Rate			
1. Actuarial Accrued Liability	\$ 12,617,346	\$ 6,274,584	\$ 18,891,930
2. Valuation Assets ¹	8,034,510	6,852,584	14,887,094
3. Unfunded Actuarial Accrued Liability, (1) - (2)	\$ 4,582,836	\$ (578,000)	\$ 4,004,836
4. Funded Ratio, (2) / (1)	63.7%	109.2%	78.8%
5. Past Service Cost Amortization Payment	331,629	(37,715)	293,914
6. Total Rate Payroll Projected for FY20	1,997,095	1,997,095	1,997,095
7. Past Service Rate, (5) / (6)	16.61%	(1.89%)	16.61%
Total Employer / State Contribution Rate, not less than Normal Cost Rate	19.65%	3.97%	23.62%

Normal Cost Rate by Tier (Total Employer and Member)²

Tier 1	17.42%	16.00%	33.42%
Tier 2	13.16%	8.75%	21.91%
Tier 3	14.08%	8.90%	22.98%

¹ Allocated between Peace Officer / Firefighter and Others in proportion to Actuarial Accrued Liability

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

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

Layer	Amortization Period		Balances		Beginning-of-Year Payment
	Date Created	Years Remaining	Initial	Outstanding	
Initial Amount	06/30/2018	20	\$ 3,889,167	\$ 3,877,911	\$ 285,415
Experience Study and EGWP	06/30/2018	24	467,280	469,366	31,003
FY19 (Gain)/Loss	06/30/2019	25	235,559	235,559	15,211
Total				\$ 4,582,836	\$ 331,629

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

Layer	Amortization Period		Balances		Beginning-of-Year Payment
	Date Created	Years Remaining	Initial	Outstanding	
Initial Amount	06/30/2018	20	\$ (47,263)	\$ (47,127)	\$ (3,469)
Experience Study and EGWP	06/30/2018	24	22,293	22,392	1,479
FY19 (Gain)/Loss	06/30/2019	25	(553,265)	(553,265)	(35,725)
Total				\$ (578,000)	\$ (37,715)

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

Layer	Amortization Period		Balances		Beginning-of-Year Payment
	Date Created	Years Remaining	Initial	Outstanding	
Initial Amount	06/30/2018	20	\$ 3,841,904	\$ 3,830,784	\$ 281,946
Experience Study and EGWP	06/30/2018	24	489,573	491,758	32,482
FY19 (Gain)/Loss	06/30/2019	25	(317,706)	(317,706)	(20,514)
Total				\$ 4,004,836	\$ 293,914

Section 1.2: Actuarial Contributions as of June 30, 2019

Actuarial Contributions as of June 30, 2019 - All Members (\$'s in 000's)

Normal Cost Rate	Pension	Healthcare	Total
1. Total Normal Cost	\$ 148,395	\$ 91,715	\$ 240,110
2. DB Rate Payroll Projected for FY20	1,004,467	1,004,467	1,004,467
3. DCR Rate Payroll Projected for FY20	1,342,839	1,342,839	1,342,839
4. Total Rate Payroll Projected for FY20	2,347,306	2,347,306	2,347,306
5. Normal Cost Rate			
a. Based on DB Rate Payroll, (1) / (2)	14.77%	9.13%	23.90%
b. Based on Total Rate Payroll, (1) / (4)	6.32%	3.91%	10.23%
6. Average Member Contribution Rate ¹	2.98%	0.00%	2.98%
7. Employer Normal Cost, (5)(b) - (6)	3.34%	3.91%	7.25%

Past Service Rate			
1. Actuarial Accrued Liability	\$ 15,039,180	\$ 7,151,694	\$ 22,190,874
2. Valuation Assets	9,576,693	7,810,491	17,387,184
3. Unfunded Actuarial Accrued Liability, (1) - (2)	\$ 5,462,487	\$ (658,797)	\$ 4,803,690
4. Funded Ratio, (2) / (1)	63.7%	109.2%	78.4%
5. Past Service Cost Amortization Payment	395,143	(43,170)	351,973
6. Total Rate Payroll Projected for FY20	2,347,306	2,347,306	2,347,306
7. Past Service Rate, (5) / (6)	16.83%	(1.84%)	16.83%
Total Employer / State Contribution Rate, not less than Normal Cost Rate	20.17%	3.91%	24.08%

Normal Cost Rate by Tier (Total Employer and Member) ²			
Tier 1	17.51%	15.80%	33.31%
Tier 2	13.72%	8.47%	22.19%
Tier 3	14.88%	8.62%	23.50%

¹ 7.5% for Peace Officer / Firefighter and 6.82% weighted average for Others

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

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

Layer	Amortization Period		Balances		Beginning-of-Year Payment
	Date Created	Years Remaining	Initial	Outstanding	
Initial Amount	06/30/2018	20	\$ 4,620,399	\$ 4,607,027	\$ 339,078
Experience Study and EGWP	06/30/2018	24	555,442	557,921	36,852
FY19 (Gain)/Loss	06/30/2019	25	297,539	297,539	19,213
Total				\$ 5,462,487	\$ 395,143

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

Layer	Amortization Period		Balances		Beginning-of-Year Payment
	Date Created	Years Remaining	Initial	Outstanding	
Initial Amount	06/30/2018	20	\$ (78,254)	\$ (78,028)	\$ (5,743)
Experience Study and EGWP	06/30/2018	24	49,849	50,071	3,307
FY19 (Gain)/Loss	06/30/2019	25	(630,840)	(630,840)	(40,734)
Total				\$ (658,797)	\$ (43,170)

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

Layer	Amortization Period		Balances		Beginning-of-Year Payment
	Date Created	Years Remaining	Initial	Outstanding	
Initial Amount	06/30/2018	20	\$ 4,542,145	\$ 4,528,999	\$ 333,335
Experience Study and EGWP	06/30/2018	24	605,291	607,992	40,159
FY19 (Gain)/Loss	06/30/2019	25	(333,301)	(333,301)	(21,521)
Total				\$ 4,803,690	\$ 351,973

Section 1.3: Roll Forward Contribution Rate Calculation for FY22 (\$'s in 000's)

	Pension	Healthcare	Total
1. Liability Roll Forward			
a. Actuarial Accrued Liability as of June 30, 2019	\$ 15,039,180	\$ 7,151,694	\$ 22,190,874
b. Normal Cost	141,556	87,971	229,527
c. Interest on (a) and (b) at 7.38%	1,120,338	534,287	1,654,625
d. Estimated Benefit Payments	(904,085)	(398,844)	(1,302,929)
e. Interest on (d) at 7.38%, adjusted for timing	(35,551)	(14,455)	(50,006)
f. Expected Actuarial Accrued Liability as of June 30, 2020	\$ 15,361,438	\$ 7,360,653	\$ 22,722,091
g. Projected Normal Cost	127,518	79,403	206,921
h. Interest on (f) and (g) at 7.38%	1,143,085	549,076	1,692,161
i. Estimated Benefit Payments	(953,247)	(421,016)	(1,374,263)
j. Interest on (i) at 7.38%, adjusted for timing	(37,484)	(15,259)	(52,743)
k. Expected Actuarial Accrued Liability as of June 30, 2021	\$ 15,641,310	\$ 7,552,857	\$ 23,194,167
2. Asset Roll Forward			
a. Actuarial Value of Assets as of June 30, 2019	\$ 9,576,693	\$ 7,810,491	\$ 17,387,184
b. Interest on (a) at 7.38%	706,760	576,414	1,283,174
c. Employee Contributions	76,365	0	76,365
d. Employer Contributions	295,761	92,953	388,714
e. State Assistance Contributions	159,055	0	159,055
f. Interest on (c), (d) and (e) at 7.38%, adjusted for timing*	25,225	3,369	28,594
g. Estimated Benefit Payments	(904,085)	(398,844)	(1,302,929)
h. Administrative Expenses	(6,839)	(3,744)	(10,583)
i. AVA Adjustments	(97,840)	(65,909)	(163,749)
j. Interest on (g) and (h) at 7.38%, adjusted for timing	(35,798)	(14,591)	(50,389)
k. Expected Actuarial Value of Assets as of June 30, 2020	\$ 9,795,297	\$ 8,000,139	\$ 17,795,436
l. Interest on (k) at 7.38%	722,893	590,410	1,313,303
m. Employee Contributions	70,772	0	70,772
n. Employer Contributions	284,407	95,748	380,155
o. State Assistance Contributions**	203,585	0	203,585
p. Interest on (m), (n) and (o) at 7.38%, adjusted for timing*	27,897	3,470	31,367
q. Estimated Benefit Payments	(953,247)	(421,016)	(1,374,263)
r. Administrative Expenses	(6,210)	(3,404)	(9,614)
s. AVA Adjustments	55,343	55,677	111,020
t. Interest on (q) and (r) at 7.38%, adjusted for timing	(37,709)	(15,382)	(53,091)
u. Expected Actuarial Value of Assets as of June 30, 2021	\$ 10,163,028	\$ 8,305,642	\$ 18,468,670
3. Expected Unfunded Actuarial Accrued Liability as of June 30, 2021, 1(k) - 2(s)			
	\$ 5,478,282	\$ (752,785)	\$ 4,725,497

* Employee and Employer Contributions are paid throughout the year. State Assistance Contributions are assumed to be paid on July 1, 2019 for FY20, and July 1, 2020 for FY21.

** The FY20 State Assistance Contribution is expected to be contributed 100% to pension.

	Pension	Healthcare	Total
4. Expected Annual Rate Payroll for FY22			
a. Defined Benefit Members			\$ 842,859
a. Defined Contribution Retirement Members			1,543,010
c. Total Rate Payroll			\$ 2,385,869
5. Expected FY22 Contribution Rate Calculation			
a. Projected Normal Cost for FY22	\$ 120,047	\$ 74,512	\$ 194,559
b. Projected Normal Cost Rate for FY22	5.03%	3.12%	8.15%
c. Expected Member Contribution Rate for FY22	(2.45%)	0.00%	(2.45%)
d. Expected Employer Normal Cost Rate for FY22	2.58%	3.12%	5.70%
e. Expected Unfunded Liability as of June 30, 2021	\$ 5,478,282	\$ (752,785)	\$ 4,725,497
f. FY22 Layered Amortization of Expected Unfunded Liability	421,969	(51,393)	370,576
g. Expected Past Service Cost Contribution Rate for FY22	17.69%	(2.15%)	17.69%
h. Expected Total Contribution Rate for FY22	20.27%	3.12%	23.39%

The components of the expected FY22 amortization amounts are shown below (totals may not add due to rounding):

Expected FY22 Schedule of Past Service Cost Amortizations - Pension (\$'s in 000's)

Layer	Amortization Period		Balances		Beginning-of-Year Payment for 2022
	Date Created	Years Remaining as of June 30, 2021	Initial	Outstanding as of June 30, 2021	
Initial Amount	06/30/2018	18	\$ 4,620,399	\$ 4,547,029	\$ 357,984
Experience Study	06/30/2018	22	555,442	560,157	38,907
(Gain)/Loss FY19	06/30/2019	23	297,539	299,724	20,284
Expected (Gain)/Loss FY20	06/30/2020	24	124,827	125,384	8,282
Expected (Gain)/Loss FY21	06/30/2021	25	(54,012)	(54,012)	(3,488)
Total				\$ 5,478,282	\$ 421,969

Expected FY22 Schedule of Past Service Cost Amortizations - Healthcare (\$'s in 000's)

Layer	Amortization Period		Balances		Beginning-of-Year Payment for 2022
	Date Created	Years Remaining as of June 30, 2021	Initial	Outstanding as of June 30, 2021	
Initial Amount	06/30/2018	18	\$ (78,254)	\$ (77,012)	\$ (6,063)
Experience Study and EGWP	06/30/2018	22	49,849	50,272	3,492
(Gain)/Loss FY19	06/30/2019	23	(630,840)	(635,476)	(43,006)
Expected (Gain)/Loss FY20	06/30/2020	24	21,574	21,671	1,431
Expected (Gain)/Loss FY21	06/30/2021	25	(112,240)	(112,240)	(7,247)
Total				\$ (752,785)	\$ (51,393)

Expected FY22 Schedule of Past Service Cost Amortizations - Total (\$'s in 000's)

Layer	Amortization Period		Balances		Beginning-of-Year Payment for 2022
	Date Created	Years Remaining as of June 30, 2021	Initial	Outstanding as of June 30, 2021	
Initial Amount	06/30/2018	18	\$ 4,542,145	\$ 4,470,017	\$ 351,921
Experience Study and EGWP	06/30/2018	22	605,291	610,429	42,399
(Gain)/Loss FY19	06/30/2019	23	(333,301)	(335,752)	(22,722)
Expected (Gain)/Loss FY20	06/30/2020	24	146,401	147,055	9,713
Expected (Gain)/Loss FY21	06/30/2021	25	(166,252)	(166,252)	(10,735)
Total				\$ 4,725,497	\$ 370,576

Section 1.4: Actuarial Gain/(Loss) for FY19 (\$'s in 000's)

	Pension	Healthcare	Total
1. Expected Actuarial Accrued Liability			
a. Actuarial Accrued Liability as of June 30, 2018	\$ 14,606,033	\$ 7,658,104	\$ 22,264,137
b. Normal Cost	149,974	103,208	253,182
c. Interest on (a) and (b) at 7.38%	1,088,993	572,785	1,661,778
d. Medicare Part D Subsidy and EGWP	0	27,547	27,547
e. Benefit Payments	(837,381)	(420,429)	(1,257,810)
f. Refund of Contributions	(10,638)	0	(10,638)
g. Interest on (d), (e) and (f) at 7.38%, adjusted for timing	(33,346)	(14,239)	(47,585)
h. Assumptions/Methods Changes	-	-	-
i. Expected Actuarial Accrued Liability as of June 30, 2019 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h)	\$ 14,963,635	\$ 7,926,976	\$ 22,890,611
2. Actual Actuarial Accrued Liability as of June 30, 2019	15,039,180	7,151,694	22,190,874
3. Liability Gain/(Loss), (1)(i) - (2)	\$ (75,545)	\$ 775,282	\$ 699,737
4. Expected Actuarial Asset Value			
a. Actuarial Value of Assets as of June 30, 2018	\$ 9,430,192	\$ 7,686,509	\$ 17,116,701
b. Interest on (a) at 7.38%	695,948	567,264	1,263,212
c. Employee Contributions	79,609	0	79,609
d. Employer Contributions	283,098	102,266	385,364
e. State Assistance Contributions	135,360	0	135,360
f. Medicare Part D Subsidy and EGWP	0	27,547	27,547
g. Interest on (c), (d), (e) and (f) at 7.38%, adjusted for timing	23,135	4,705	27,840
h. Benefit Payments	(837,381)	(420,429)	(1,257,810)
i. Refund of Contributions	(10,638)	0	(10,638)
j. Administrative Expenses	(7,429)	(3,665)	(11,094)
k. Interest on (h), (i) and (j) at 7.38%, adjusted for timing	(33,615)	(15,371)	(48,986)
l. Expected Actuarial Asset Value as of June 30, 2019 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h) + (i) + (j) + (k)	\$ 9,758,279	\$ 7,948,826	\$ 17,707,105
5. Actual Actuarial Asset Value as of June 30, 2019	9,576,693	7,810,491	17,387,184
6. Actuarial Asset Value Gain/(Loss), (5) - (4)(l)	\$ (181,586)	\$ (138,335)	\$ (319,921)
7. Total Actuarial Gain/(Loss), (3) + (6)	\$ (257,131)	\$ 636,947	\$ 379,816
8. Contribution Gain/(Loss)	\$ (40,106)	\$ (6,996)	\$ (47,102)
9. Administrative Expense Gain/(Loss)	\$ (302)	\$ 889	\$ 587
10. FY19 Gain/(Loss), (7) + (8) + (9)	\$ (297,539)	\$ 630,840	\$ 333,301

Section 1.5: Development of Change in Unfunded Liability During FY19 (\$'s in 000's)

	Pension	Healthcare	Total
1. 2018 Unfunded Liability	\$ 5,175,841	\$ (28,405)	\$ 5,147,436
a. Interest on Unfunded Liability at 7.38%	381,977	(2,096)	379,881
b. Normal Cost	149,974	103,208	253,182
c. Employee Contributions	(79,609)	0	(79,609)
d. Employer Contributions	(283,098)	(102,266)	(385,364)
e. State Assistance Contributions	(135,360)	0	(135,360)
f. Administrative Expenses	7,429	3,665	11,094
g. Interest on (b), (c), (d), (e) and (f) at 7.38%, adjusted for timing	(11,798)	4,044	(7,754)
h. Assumptions/Methods Changes	<u>0</u>	<u>0</u>	<u>0</u>
i. Expected Change in Unfunded Liability During FY19 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h)	\$ 29,515	\$ 6,555	\$ 36,070
2. Expected 2019 Unfunded Liability, (1) + (1)(i)	\$ 5,205,356	\$ (21,850)	\$ 5,183,506
a. Liability (Gain)/Loss During FY19	\$ 75,545	\$ (775,282)	\$ (699,737)
b. Actuarial Assets (Gain)/Loss During FY19	<u>181,586</u>	<u>138,335</u>	<u>319,921</u>
c. Total Actuarial (Gain)/Loss During FY19	\$ 257,131	\$ (636,947)	\$ (379,816)
3. Actual 2019 Unfunded Liability, (2) + (2)(c)	\$ 5,462,487	\$ (658,797)	\$ 4,803,690

Section 1.6: Analysis of Financial Experience

Pension

Change in Employer / State Contribution Rate

Due to (Gains) and Losses in Actuarial Accrued Liabilities During the Last Five Fiscal Years
Resulting from Differences Between Assumed Experience and Actual Experience

Type of (Gain) or Loss	Change in Employer / State Contribution Rate During Fiscal Year				
	Pension				
	2015	2016	2017	2018	2019
1. Health Claims	N/A	N/A	N/A	N/A	N/A
2. Salary Experience	(0.32%)	(0.35%)	(0.42%)	(0.37%)	0.17%
3. Investment Experience	0.24%	0.77%	0.75%	0.63%	0.52%
4. Demographic Experience and Miscellaneous	0.34%	0.13%	(1.01%)	(0.24%)	(0.91%)
5. Contribution Shortfall	<u>0.00%</u>	<u>0.00%</u>	<u>0.18%</u>	<u>0.17%</u>	<u>0.11%</u>
6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5)	0.26%	0.55%	(0.50%)	0.19%	(0.11%)
7. Assumptions / Method Changes	0.00%	1.92%	0.00%	1.98%	0.00%
8. System Benefit Changes	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
9. Composite (Gain) or Loss During Year, (6) + (7) + (8)	0.26%	2.47%	(0.50%)	2.17%	(0.11%)
10. Beginning Total Employer / State Contribution Rate	<u>15.98%</u>	<u>16.24%</u>	<u>18.71%</u>	<u>18.21%</u>	<u>20.38%</u>
11. Ending Valuation Year Employer / State Contribution Rate, (9) + (10)	16.24%	18.71%	18.21%	20.38%	20.27%
12. Fiscal Year Rates					
a. Fiscal Year Employer / State Contribution Rate	17.27%	18.27%	18.29%	20.66%	20.27% *
b. Fiscal Year for which Rate Applies	FY18	FY19	FY20	FY21	FY22

* Expected rate. Actual rate to be determined

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

Type of (Gain) or Loss	Change in Employer / State Contribution Rate During Fiscal Year				
	Healthcare				
	2015	2016	2017	2018	2019
1. Health Claims ¹	(3.65%)	1.02%	(2.90%)	(1.75%)	(2.39%)
2. Salary Experience	N/A	N/A	N/A	N/A	N/A
3. Investment Experience	0.21%	0.63%	0.61%	0.49%	0.40%
4. Demographic Experience and Miscellaneous	N/A	N/A	(0.96%)	(1.64%)	0.83%
5. Contribution Shortfall	<u>0.00%</u>	<u>0.00%</u>	<u>(0.14%)</u>	<u>0.08%</u>	<u>0.02%</u>
6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5)	(3.44%)	1.65%	(3.39%)	(2.82%)	(1.14%)
7. Assumptions / Method Changes	0.00%	0.93%	3.41%	2.12%	0.00%
8. System Benefit Changes	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
9. Composite (Gain) or Loss During Year, (6) + (7) + (8)	(3.44%)	2.58%	0.02%	(0.70%)	(1.14%)
10. Beginning Total Employer / State Contribution Rate	<u>5.80%</u>	<u>2.36%</u>	<u>4.94%</u>	<u>4.96%</u>	<u>4.26%</u>
11. Ending Valuation Year Employer / State Contribution Rate, (9) + (10)	2.36%	4.94%	4.96%	4.26%	3.12%
12. Fiscal Year Rates					
a. Fiscal Year Employer / State Contribution Rate	3.11%	4.37%	4.89%	4.27%	3.12% *
b. Fiscal Year for which Rate Applies	FY18	FY19	FY20	FY21	FY22

* Expected rate. Actual rate to be determined

¹ Prior to 2017, the health claims percentages include the effects of healthcare demographic experience gains/losses

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

Type of (Gain) or Loss	Change in Employer / State Contribution Rate During Fiscal Year				
	Total				
	2015	2016	2017	2018	2019
1. Health Claims ¹	(3.65%)	1.02%	(2.90%)	(1.75%)	(2.39%)
2. Salary Experience	(0.32%)	(0.35%)	(0.42%)	(0.37%)	0.17%
3. Investment Experience	0.45%	1.40%	1.36%	1.12%	0.92%
4. Demographic Experience and Miscellaneous	0.34%	0.13%	(1.97%)	(1.88%)	(0.08%)
5. Contribution Shortfall	<u>0.00%</u>	<u>0.00%</u>	<u>0.04%</u>	<u>0.25%</u>	<u>0.13%</u>
6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5)	(3.18%)	2.20%	(3.89%)	(2.63%)	(1.25%)
7. Assumptions / Method Changes	0.00%	2.85%	3.41%	4.10%	0.00%
8. System Benefit Changes	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
9. Composite (Gain) or Loss During Year, (6) + (7) + (8)	(3.18%)	5.05%	(0.48%)	1.47%	(1.25%)
10. Beginning Total Employer / State Contribution Rate	<u>21.78%</u>	<u>18.60%</u>	<u>23.65%</u>	<u>23.17%</u>	<u>24.64%</u>
11. Ending Valuation Year Employer / State Contribution Rate, (9) + (10)	18.60%	23.65%	23.17%	24.64%	23.39%
12. Fiscal Year Rates					
a. Fiscal Year Employer / State Contribution Rate	20.38%	22.64%	23.18%	24.93%	23.39% *
b. Fiscal Year for which Rate Applies	FY18	FY19	FY20	FY21	FY22

* Expected rate. Actual rate to be determined

¹ Prior to 2017, the health claims percentages include the effects of healthcare demographic experience gains/losses

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	10,561,653	7,687,281	72.8%	2,874,372
June 30, 2004	11,443,916	8,030,414	70.2%	3,413,502
June 30, 2005	12,844,841	8,442,919	65.7%	4,401,922
June 30, 2006	14,388,413	9,040,908	62.8%	5,347,505
June 30, 2007	14,570,933	9,900,960	68.0%	4,669,973
June 30, 2008	15,888,141	11,040,106	69.5%	4,848,035
June 30, 2009	16,579,371	10,242,978	61.8%	6,336,393
June 30, 2010	18,132,492	11,157,464	61.5%	6,975,028
June 30, 2011	18,740,550	11,813,774	63.0%	6,926,776
June 30, 2012	19,292,361	11,832,030	61.3%	7,460,331
June 30, 2013	19,992,759	12,162,626	60.8%	7,830,133
June 30, 2014	20,897,372	14,644,598	70.1%	6,252,774
June 30, 2015	20,648,663	16,173,459	78.3%	4,475,204
June 30, 2016	21,369,490	16,467,992	77.1%	4,901,498
June 30, 2017	21,881,395	16,786,771	76.7%	5,094,624
June 30, 2018	22,264,137	17,116,701	76.9%	5,147,436
June 30, 2019	22,190,874	17,387,184	78.4%	4,803,690

Section 2: Plan Assets

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

As of June 30, 2019	Pension	Healthcare	Total Fair Value	Allocation Percent
Cash and Short-Term Investments				
- Cash and Cash Equivalents	\$ 193,372	\$ 159,554	\$ 352,926	2.0%
- Subtotal	\$ 193,372	\$ 159,554	\$ 352,926	2.0%
Fixed Income Investments				
- Domestic Fixed Income Pool	\$ 993,678	\$ 819,561	\$ 1,813,239	10.5%
- 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	\$ 993,678	\$ 819,561	\$ 1,813,239	10.5%
Equity Investments				
- Domestic Equity Pool	\$ 2,188,657	\$ 1,805,150	\$ 3,993,807	23.1%
- International Equity Pool	1,736,262	1,432,026	3,168,288	18.3%
- Private Equity Pool	997,227	822,488	1,819,715	10.5%
- Emerging Markets Equity Pool	341,699	281,826	623,525	3.6%
- Alternative Equity Strategies	921,017	759,632	1,680,649	9.7%
- Subtotal	\$ 6,184,862	\$ 5,101,122	\$ 11,285,984	65.2%
Other Investments				
- Real Estate Pool	\$ 641,672	\$ 529,323	\$ 1,170,995	6.8%
- Other Investments Pool	922,588	760,927	1,683,515	9.7%
- Absolute Return Pool	545,747	450,119	995,866	5.8%
- Other Assets	15	967	982	0.0%
- Subtotal	\$ 2,110,022	\$ 1,741,336	\$ 3,851,358	22.3%
Total Cash and Investments	\$ 9,481,934	\$ 7,821,573	\$ 17,303,507	100.0%
Net Accrued Receivables	7,471	(53,881)	(46,410)	
Net Assets	\$ 9,489,405	\$ 7,767,692	\$ 17,257,097	

Section 2.2: Changes in Fair Value of Assets During FY 2019 (\$'s in 000's)

As of June 30, 2019	Pension	Healthcare	Total Fair Value
1. Fair Value of Assets as of June 30, 2018	\$ 9,306,675	\$ 7,612,001	\$ 16,918,676
2. Additions:			
a. Employee Contributions	\$ 79,609	\$ 0	\$ 79,609
b. Employer Contributions	283,098	102,266	385,364
c. State Assistance Contributions	135,360	0	135,360
d. Interest and Dividend Income	171,359	140,836	312,195
e. Net Appreciation / Depreciation in Fair Value of Investments	372,865	311,499	684,364
f. Medicare Part D Subsidy	0	27,547	27,547
g. Other	23	874	897
h. Total Additions	\$ 1,042,314	\$ 583,022	\$ 1,625,336
3. Deductions:			
a. Medical Benefits	\$ 0	\$ 420,429	\$ 420,429
b. Retirement Benefits	837,381	0	837,381
c. Refund of Contributions	10,638	0	10,638
d. Investment Expenses	4,136	3,237	7,373
e. Administrative Expenses	7,429	3,665	11,094
f. Total Deductions	\$ 859,584	\$ 427,331	\$ 1,286,915
4. Fair Value of Assets as of June 30, 2019	\$ 9,489,405	\$ 7,767,692	\$ 17,257,097
Approximate Fair Value Investment Return Rate During FY 2019 Net of Investment Expenses	5.9%	6.0%	6.0%

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. Investment Gain / (Loss) for FY 2019			
a. Fair Value of Assets as of June 30, 2018	\$ 9,306,675	\$ 7,612,001	\$ 16,918,676
b. Contributions	498,067	102,266	600,333
c. Medicare Part D Subsidy	0	27,547	27,547
d. Benefit Payments	848,019	420,429	1,268,448
e. Administrative Expenses	7,429	3,665	11,094
f. Actual Investment Return (net of expenses)	540,111	449,972	990,083
g. Expected Return Rate (net of expenses)	7.38%	7.38%	7.38%
h. Expected Return - Weighted for Timing	676,353	551,100	1,227,453
i. Investment Gain / (Loss) for the Year, (f) - (h)	(136,242)	(101,128)	(237,370)
2. Actuarial Value as of June 30, 2019			
a. Fair Value as of June 30, 2019	\$ 9,489,405	\$ 7,767,692	\$ 17,257,097
b. Deferred Investment Gain / (Loss)	(87,288)	(42,799)	(130,087)
c. Actuarial Value as of June 30, 2019, (a) - (b)	9,576,693	7,810,491	17,387,184
3. Ratio of Actuarial Value of Assets to Fair Value of Assets	100.9%	100.6%	100.8%
4. Approximate Actuarial Value Investment Return Rate			
During FY 2019 Net of Investment Expenses	5.4%	5.5%	5.5%

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

Pension				
Plan Year Ending	Asset Gain / (Loss)	Gain / (Loss) Recognized in Prior Years	Gain / (Loss) Recognized This Year	Gain / (Loss) Deferred to Future Years
June 30, 2015	\$ (405,373)	\$ (324,300)	\$ (81,073)	\$ 0
June 30, 2016	(732,190)	(439,314)	(146,438)	(146,438)
June 30, 2017	393,607	157,442	78,721	157,444
June 30, 2018	17,834	3,567	3,567	10,700
June 30, 2019	<u>(136,242)</u>	<u>0</u>	<u>(27,248)</u>	<u>(108,994)</u>
Total	\$ (862,364)	\$ (602,605)	\$ (172,471)	\$ (87,288)

Healthcare				
Plan Year Ending	Asset Gain / (Loss)	Gain / (Loss) Recognized in Prior Years	Gain / (Loss) Recognized This Year	Gain / (Loss) Deferred to Future Years
June 30, 2015	\$ (350,420)	\$ (280,336)	\$ (70,084)	\$ 0
June 30, 2016	(584,781)	(350,868)	(116,956)	(116,957)
June 30, 2017	341,151	136,460	68,230	136,461
June 30, 2018	30,997	6,199	6,199	18,599
June 30, 2019	<u>(101,128)</u>	<u>0</u>	<u>(20,226)</u>	<u>(80,902)</u>
Total	\$ (664,181)	\$ (488,545)	\$ (132,837)	\$ (42,799)

Total				
Plan Year Ending	Asset Gain / (Loss)	Gain / (Loss) Recognized in Prior Years	Gain / (Loss) Recognized This Year	Gain / (Loss) Deferred to Future Years
June 30, 2015	\$ (755,793)	\$ (604,636)	\$ (151,157)	\$ 0
June 30, 2016	(1,316,971)	(790,182)	(263,394)	(263,395)
June 30, 2017	734,758	293,902	146,951	293,905
June 30, 2018	48,831	9,766	9,766	29,299
June 30, 2019	<u>(237,370)</u>	<u>0</u>	<u>(47,474)</u>	<u>(189,896)</u>
Total	\$ (1,526,545)	\$ (1,091,150)	\$ (305,308)	\$ (130,087)

Section 2.4: Historical Asset Rates of Return

Year Ending	Actuarial Value		Fair Value	
	Annual	Cumulative*	Annual	Cumulative*
June 30, 2005	8.7%	8.7%	8.5%	8.5%
June 30, 2006	9.3%	9.0%	11.4%	9.9%
June 30, 2007	11.6%	9.9%	18.5%	12.7%
June 30, 2008	10.0%	9.9%	(3.1%)	8.5%
June 30, 2009	(7.3%)	6.2%	(20.5%)	2.0%
June 30, 2010	7.2%	6.4%	10.2%	3.3%
June 30, 2011	7.2%	6.5%	20.4%	5.6%
June 30, 2012	1.2%	5.8%	0.2%	4.9%
June 30, 2013	4.0%	5.6%	12.1%	5.7%
June 30, 2014	21.9%	7.1%	18.1%	6.9%
June 30, 2015	7.0%	7.1%	2.9%	6.5%
June 30, 2016	5.0%	6.9%	(0.7%)	5.9%
June 30, 2017	5.4%	6.8%	12.8%	6.4%
June 30, 2018	6.1%	6.8%	8.2%	6.5%
June 30, 2019	5.5%	6.7%	6.0%	6.5%

* Cumulative since fiscal year ending June 30, 2005

Section 3: Projections

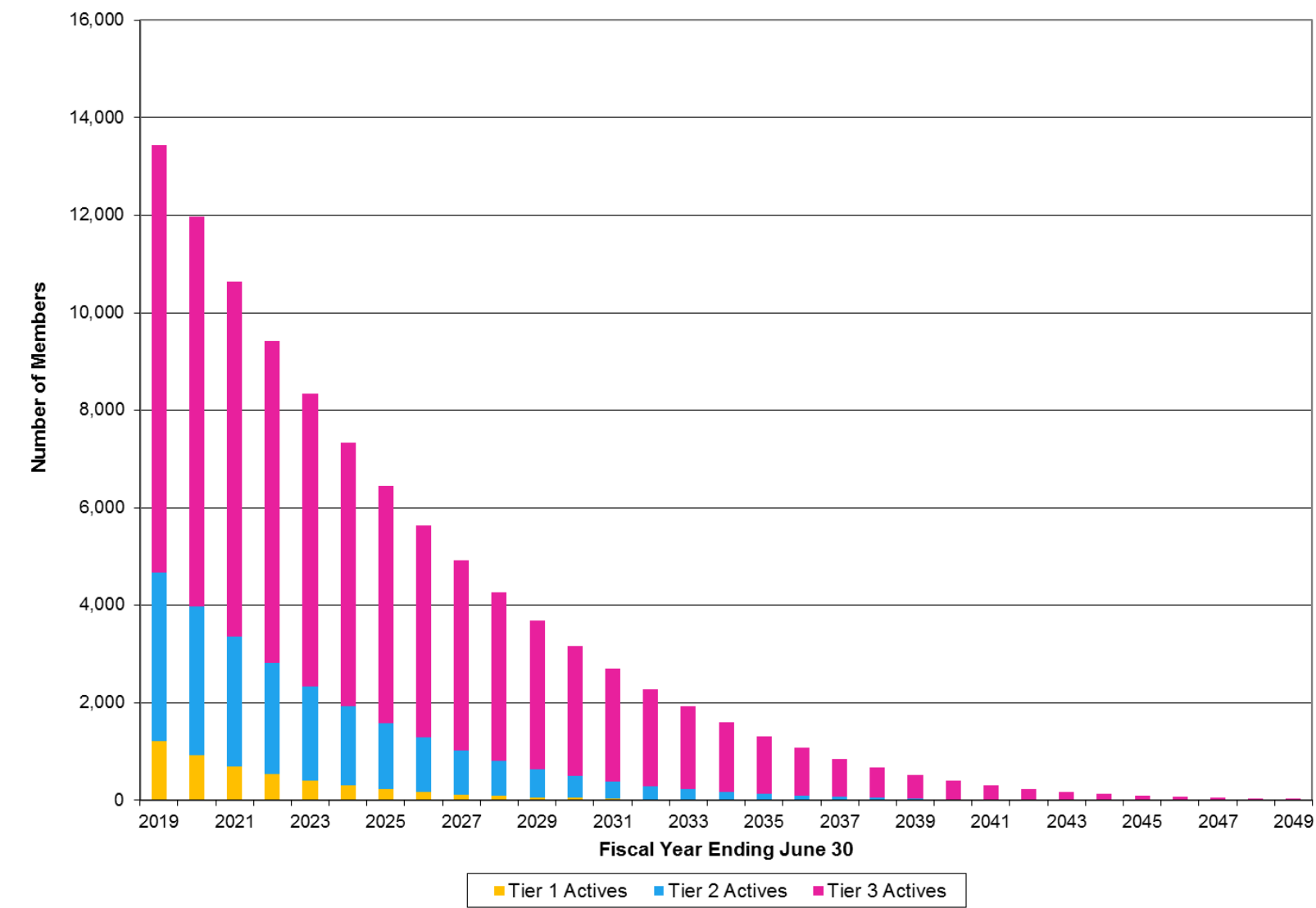
Section 3.1: Projection Assumptions and Methods

Key Assumptions

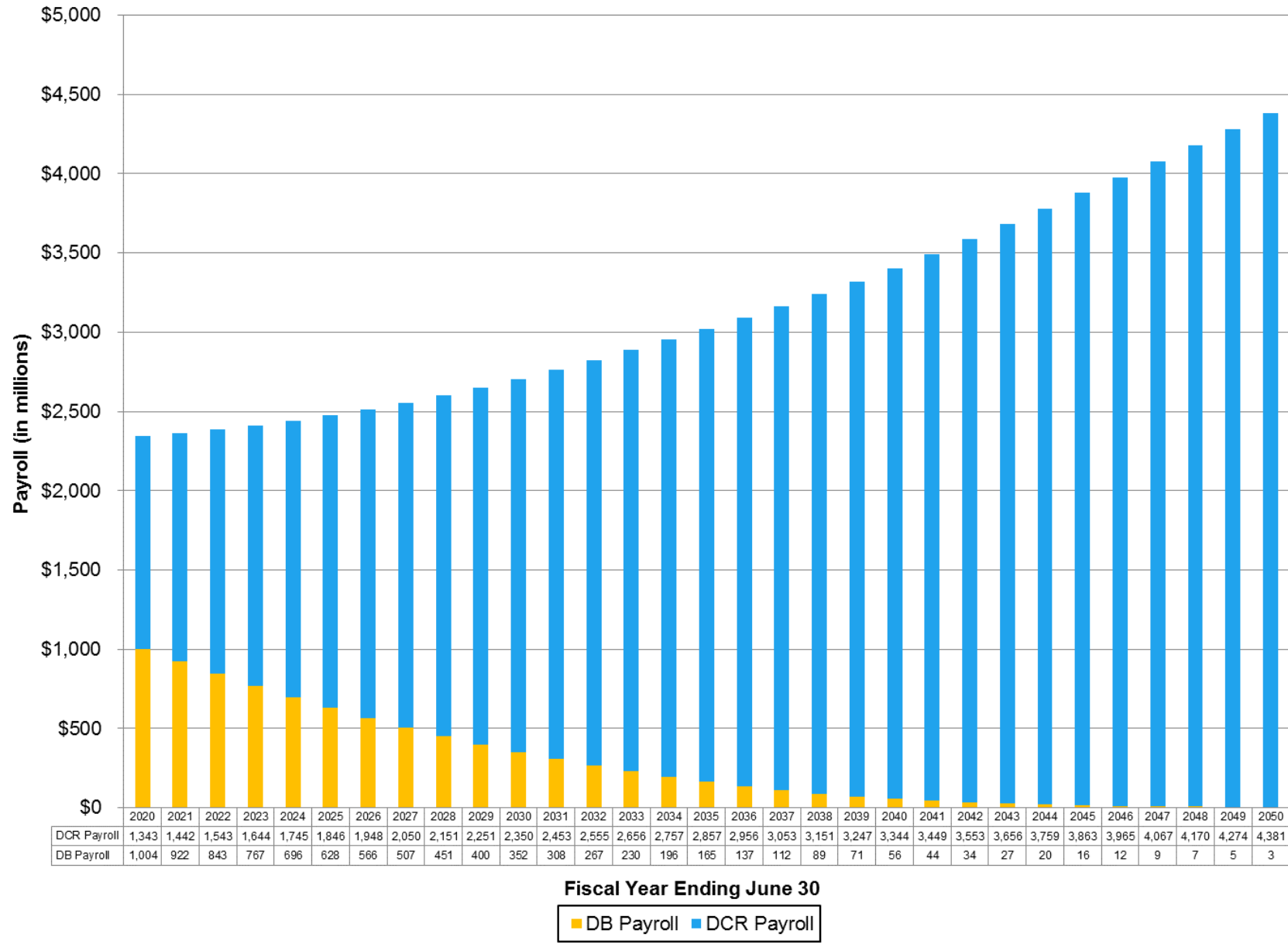
- 7.38% investment return (net of investment expenses) on the Fair Value of Assets in all future years.
- The Actuarial Value of Assets was re-initialized to Fair Value as of June 30, 2014. The Actuarial Value of Assets after June 30, 2014 reflects the deferred gains and losses generated by the smoothing 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, 2019.
- 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, combined.
- The DCR contribution rate determined as of June 30, 2019 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.

Section 3.2: Membership Projection

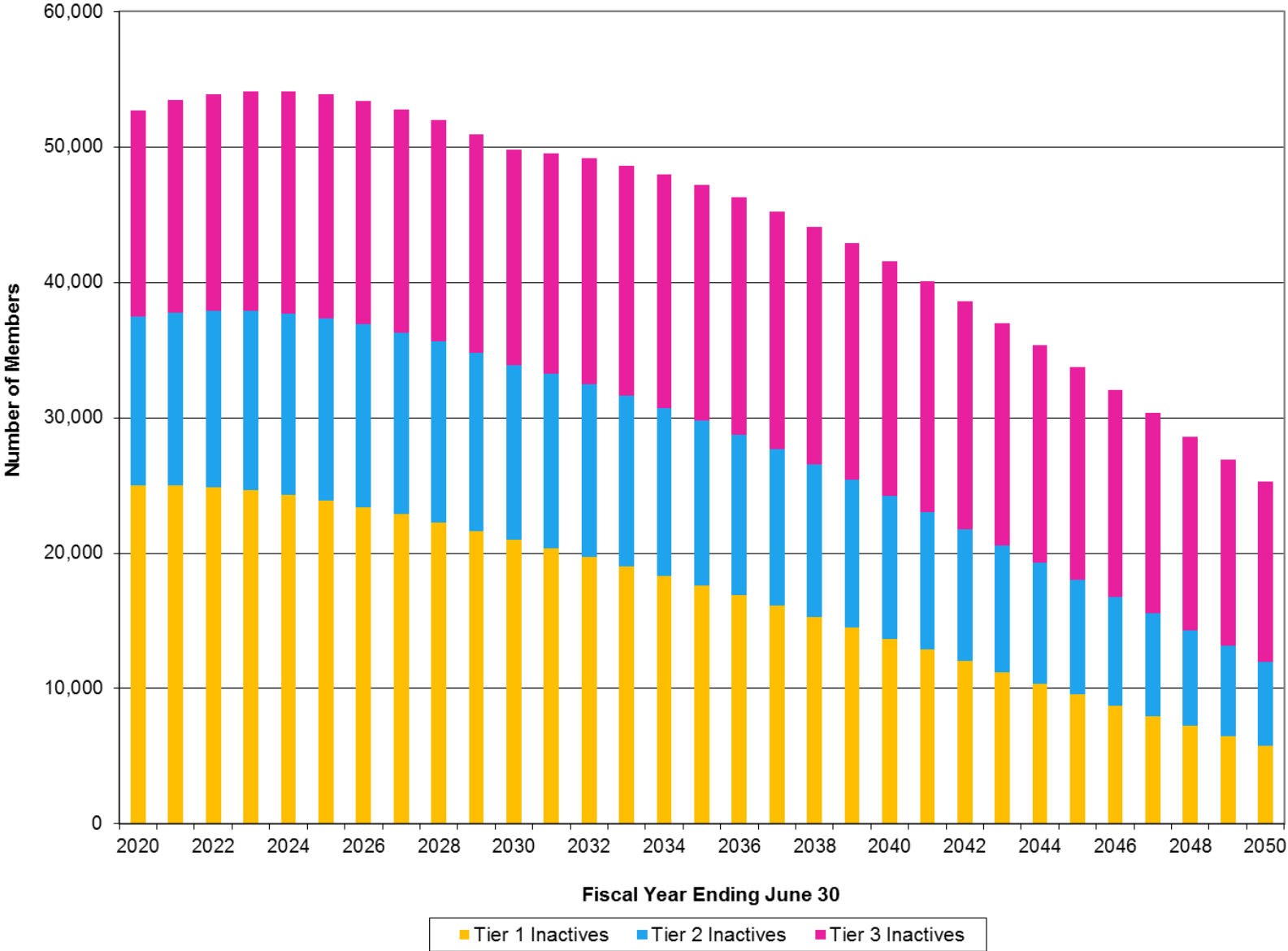
Projected Active Member Count



Projected DB and DCR Payroll

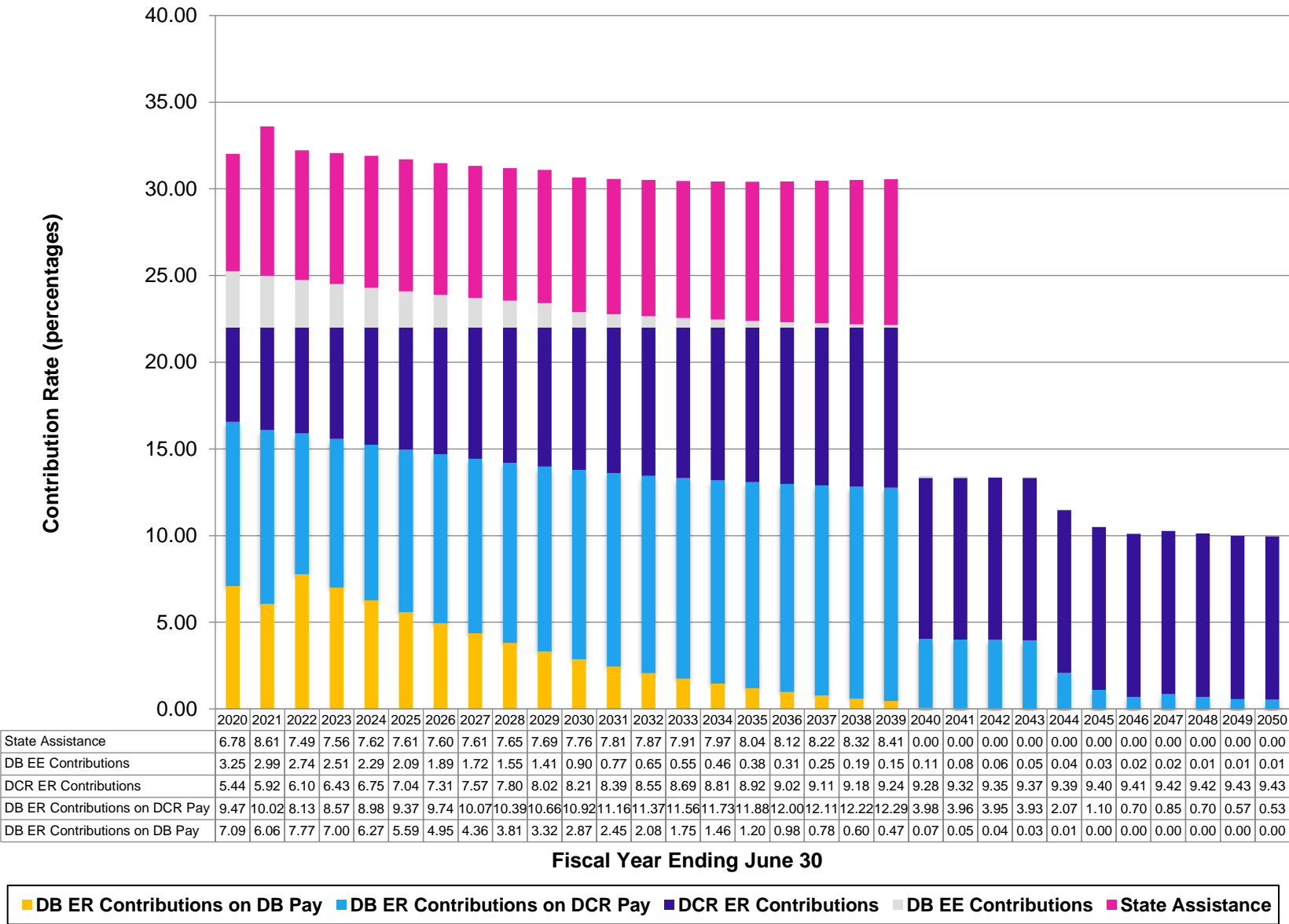


Projected Inactive Member Count

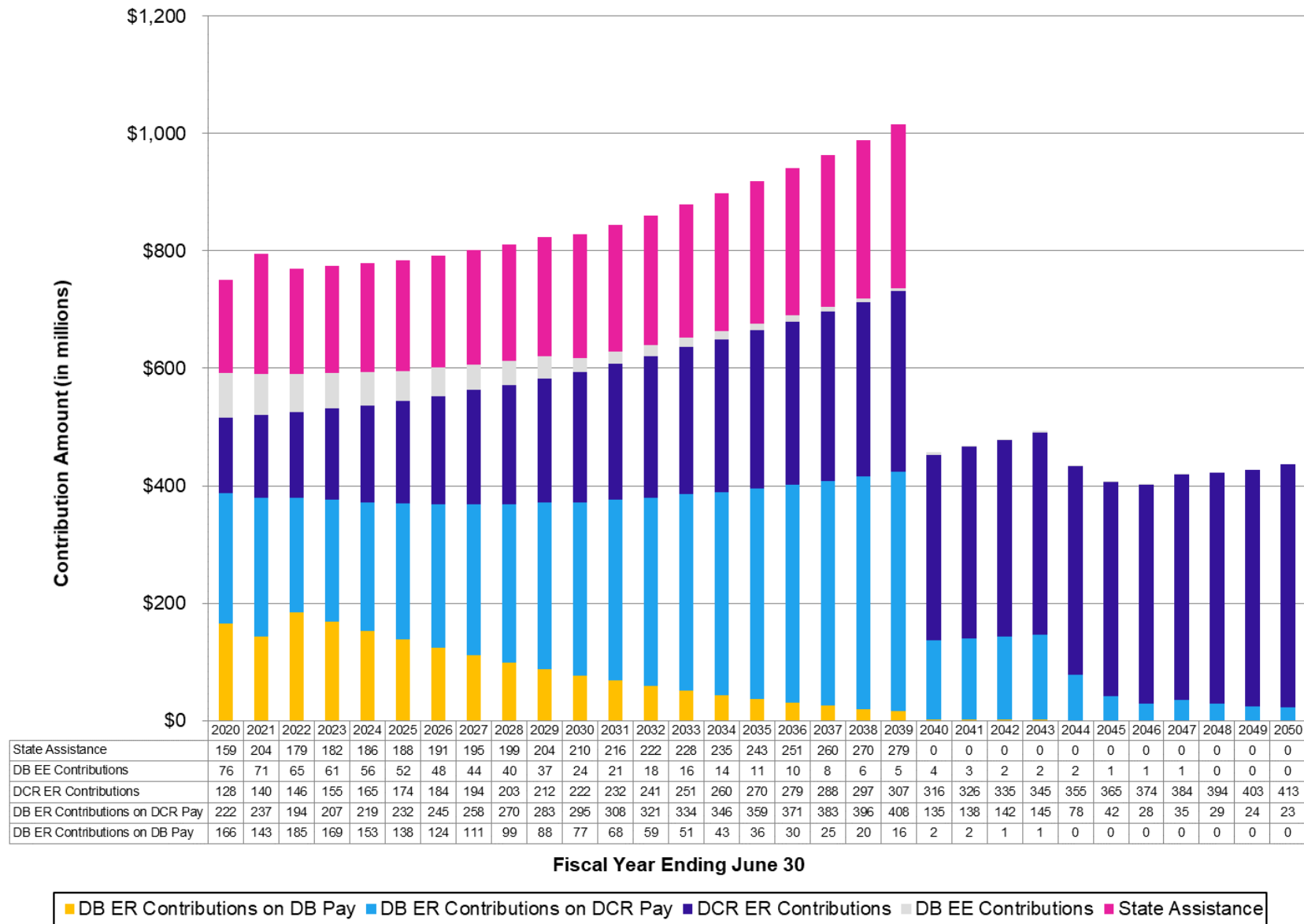


Section 3.3: Projected Employer/State Contribution Rates

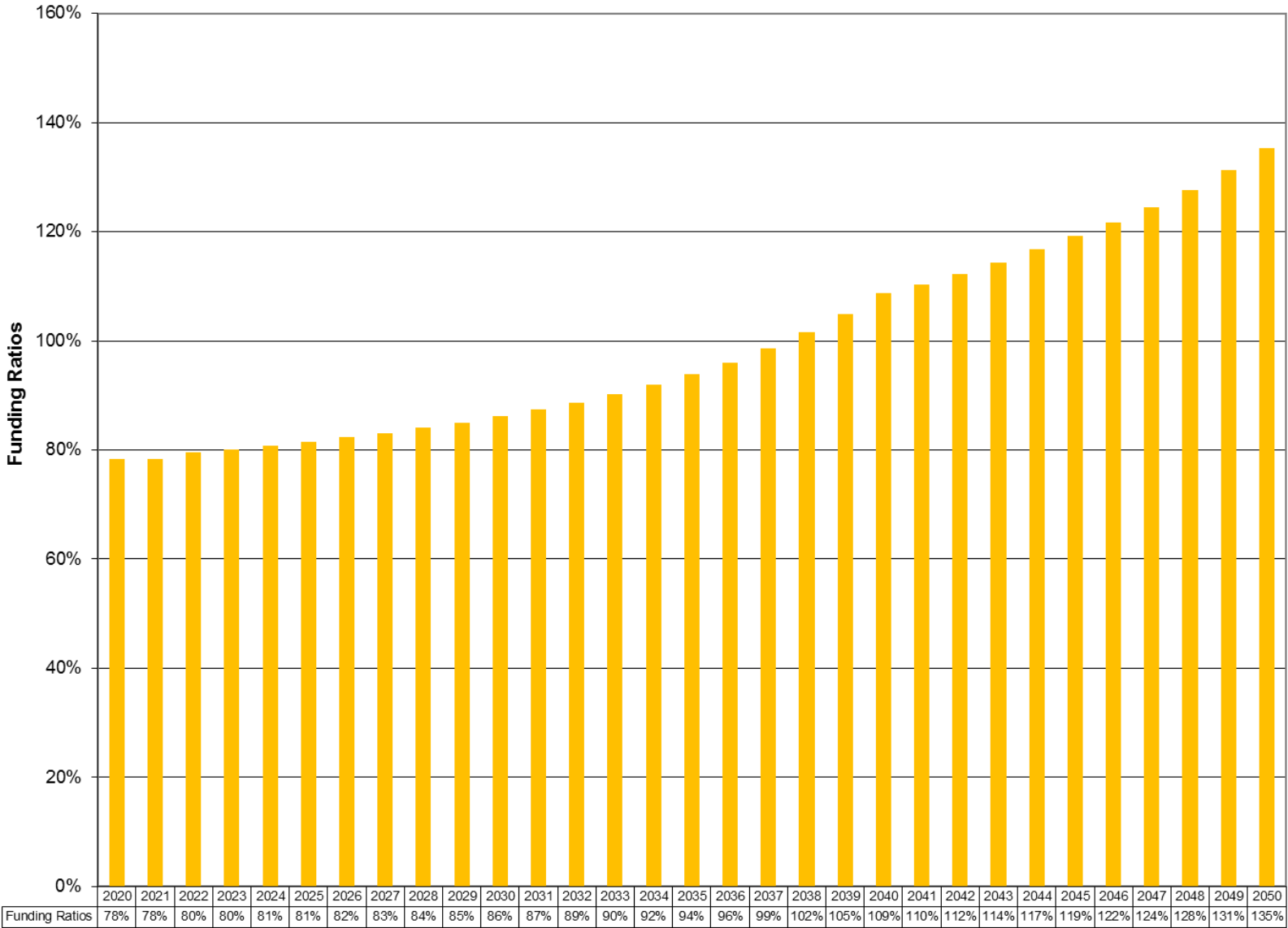
Based on Total DB and DCR Payroll



Section 3.4: Projected Employer/State Contribution Amounts



Section 3.5: Projection of Funded Ratios



Fiscal Year Ending June 30

Section 3.6: Table of Projected Actuarial Results

State of Alaska PERS Financial Projections (\$ in Thousands) Based on 2019 Actuarial Valuation Results, 0% Population Growth for Payroll Baseline

Fiscal Year End	Valuation Amounts on July 1 (Beginning of Fiscal Year)				Flow Amounts During Following 12 Months										Deferred Asset Gain/(Loss)	Ending Actuarial Assets	
	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	Total Salaries	Er/State Ctb Rate	DCR Ctb Rate	Total Ctb Rate	DB Contributions				Benefit Payments	Net Contribs			Investment Earnings
									Employer	State Assistance	Employee	Total					
2020	\$17,387,184	\$22,190,874	78.4%	(\$4,803,690)	\$2,347,306	23.34%	5.44%	28.78%	\$388,714	\$159,055	\$76,365	\$624,134	\$1,302,929	(\$678,795)	\$1,251,778	\$24,062	\$17,795,436
2021	17,795,436	22,722,091	78.3%	(4,926,655)	2,364,145	24.69%	5.92%	30.61%	380,155	203,585	70,772	654,512	1,374,263	(719,751)	1,293,355	(85,182)	18,468,670
2022	18,468,670	23,194,167	79.6%	(4,725,497)	2,385,869	23.39%	6.10%	29.49%	379,353	178,702	65,459	623,514	1,445,206	(821,692)	1,330,232	(47,474)	18,930,801
2023	18,930,801	23,616,968	80.2%	(4,686,167)	2,411,254	23.13%	6.43%	29.56%	375,432	182,291	60,610	618,333	1,513,140	(894,807)	1,364,492	0	19,345,169
2024	19,345,169	23,972,154	80.7%	(4,626,985)	2,440,856	22.87%	6.75%	29.62%	372,231	185,993	55,979	614,203	1,578,474	(964,271)	1,396,089	0	19,769,951
2025	19,769,951	24,266,654	81.5%	(4,496,703)	2,474,306	22.57%	7.04%	29.61%	370,156	188,295	51,789	610,240	1,640,811	(1,030,571)	1,425,016	0	20,158,108
2026	20,158,108	24,500,630	82.3%	(4,342,522)	2,514,124	22.29%	7.31%	29.60%	369,325	191,073	47,574	607,972	1,700,059	(1,092,087)	1,451,438	0	20,511,859
2027	20,511,859	24,674,678	83.1%	(4,162,819)	2,556,989	22.04%	7.57%	29.61%	368,974	194,586	44,016	607,576	1,754,730	(1,147,154)	1,475,584	0	20,835,335
2028	20,835,335	24,789,941	84.0%	(3,954,606)	2,602,138	21.85%	7.80%	29.65%	369,504	199,063	40,349	608,916	1,807,066	(1,198,150)	1,497,685	0	21,130,511
2029	21,130,511	24,846,537	85.0%	(3,716,026)	2,650,707	21.67%	8.02%	29.69%	370,568	203,840	37,365	611,773	1,855,944	(1,244,171)	1,517,896	0	21,400,418
2030	21,400,418	24,844,459	86.1%	(3,444,041)	2,702,088	21.55%	8.21%	29.76%	372,618	209,682	24,319	606,619	1,892,273	(1,285,654)	1,536,490	0	21,647,931
2031	21,647,931	24,783,528	87.3%	(3,135,597)	2,761,000	21.42%	8.39%	29.81%	375,772	215,634	21,260	612,666	1,938,424	(1,325,758)	1,553,458	0	21,872,754
2032	21,872,754	24,659,644	88.7%	(2,786,890)	2,822,228	21.32%	8.55%	29.87%	379,589	222,110	18,344	620,043	1,982,322	(1,362,279)	1,568,910	0	22,076,913
2033	22,076,913	24,472,463	90.2%	(2,395,550)	2,886,168	21.22%	8.69%	29.91%	384,149	228,296	15,874	628,319	2,022,615	(1,394,296)	1,582,999	0	22,263,507
2034	22,263,507	24,221,418	91.9%	(1,957,911)	2,952,756	21.16%	8.81%	29.97%	389,469	235,334	13,583	638,386	2,057,108	(1,418,722)	1,596,110	0	22,439,112
2035	22,439,112	23,908,844	93.9%	(1,469,732)	3,022,165	21.12%	8.92%	30.04%	395,300	242,982	11,484	649,766	2,086,336	(1,436,570)	1,608,682	0	22,609,731
2036	22,609,731	23,536,279	96.1%	(926,548)	3,093,285	21.10%	9.02%	30.12%	401,509	251,174	9,589	662,272	2,110,746	(1,448,474)	1,621,133	0	22,781,153
2037	22,781,153	23,104,649	98.6%	(323,496)	3,165,022	21.11%	9.11%	30.22%	407,971	260,165	7,913	676,049	2,130,815	(1,454,766)	1,633,888	0	22,959,273
2038	22,959,273	22,616,499	101.5%	342,774	3,239,767	21.14%	9.18%	30.32%	415,339	269,548	6,156	691,043	2,141,569	(1,450,526)	1,647,550	0	23,155,495
2039	23,155,495	22,077,080	104.9%	1,078,415	3,318,029	21.17%	9.24%	30.41%	423,381	279,046	4,977	707,404	2,146,094	(1,438,690)	1,662,841	0	23,379,012
2040	23,379,012	21,489,747	108.8%	1,889,265	3,399,457	4.05%	9.28%	13.33%	137,678	0	3,739	141,417	2,139,577	(1,998,160)	1,648,622	0	23,028,974
2041	23,028,974	20,863,037	110.4%	2,165,937	3,492,862	4.01%	9.32%	13.33%	140,064	0	2,794	142,858	2,126,001	(1,983,143)	1,623,388	0	22,668,825
2042	22,668,825	20,201,914	112.2%	2,466,911	3,587,159	3.99%	9.35%	13.34%	143,128	0	2,152	145,280	2,103,236	(1,957,956)	1,597,791	0	22,308,353
2043	22,308,353	19,513,845	114.3%	2,794,508	3,682,686	3.96%	9.37%	13.33%	145,834	0	1,841	147,675	2,073,691	(1,926,016)	1,572,429	0	21,954,529
2044	21,954,529	18,804,237	116.8%	3,150,292	3,779,717	2.08%	9.39%	11.47%	78,618	0	1,512	80,130	2,032,104	(1,951,974)	1,545,472	0	21,547,845
2045	21,547,845	18,084,245	119.2%	3,463,600	3,878,119	1.10%	9.40%	10.50%	42,659	0	1,163	43,822	1,984,318	(1,940,496)	1,515,984	0	21,123,194
2046	21,123,194	17,359,782	121.7%	3,763,412	3,976,969	0.70%	9.41%	10.11%	27,838	0	795	28,633	1,929,799	(1,901,166)	1,486,189	0	20,708,114
2047	20,708,114	16,637,727	124.5%	4,070,387	4,076,145	0.85%	9.42%	10.27%	34,647	0	815	35,462	1,868,254	(1,832,792)	1,458,162	0	20,333,407
2048	20,333,407	15,925,715	127.7%	4,407,692	4,176,674	0.70%	9.42%	10.12%	29,237	0	418	29,655	1,804,074	(1,774,419)	1,432,760	0	19,991,691
2049	19,991,691	15,227,357	131.3%	4,764,334	4,279,243	0.57%	9.43%	10.00%	24,392	0	428	24,820	1,736,056	(1,711,236)	1,409,973	0	19,690,387
Totals:									\$8,493,604	\$4,300,454	\$699,434	\$13,493,492					

Note: The FY20 and FY21 Employer/State contribution rates shown above differ from those shown in Section 1.6 because they are adjusted for total salaries.

Section 3.6: Table of Projected Actuarial Results (continued)

State of Alaska PERS Financial Projections (\$ in Thousands) Based on 2019 Actuarial Valuation Results, 0% Population Growth for Payroll Baseline

Fiscal Year End	Valuation Amounts on July 1 (Beginning of Fiscal Year)					
	Funding Ratio Pension	Funding Ratio Healthcare	Funding Ratio Total	Surplus (Deficit) Pension	Surplus (Deficit) Healthcare	Surplus (Deficit) Total
-----	-----	-----	-----	-----	-----	-----
2020	63.7%	109.2%	78.4%	(\$5,462,487)	658,797	(\$4,803,690)
2021	63.8%	108.7%	78.3%	(\$5,566,141)	639,486	(\$4,926,655)
2022	65.0%	110.0%	79.6%	(\$5,478,282)	752,785	(\$4,725,497)
2023	65.5%	110.3%	80.2%	(\$5,479,436)	793,269	(\$4,686,167)
2024	66.1%	110.5%	80.7%	(\$5,455,981)	828,996	(\$4,626,985)
2025	66.9%	111.1%	81.5%	(\$5,385,982)	889,279	(\$4,496,703)
2026	67.6%	111.7%	82.3%	(\$5,296,848)	954,326	(\$4,342,522)
2027	68.4%	112.4%	83.1%	(\$5,187,205)	1,024,386	(\$4,162,819)
2028	69.3%	113.2%	84.0%	(\$5,055,028)	1,100,422	(\$3,954,606)
2029	70.2%	114.0%	85.0%	(\$4,897,773)	1,181,747	(\$3,716,026)
2030	71.2%	115.0%	86.1%	(\$4,713,669)	1,269,628	(\$3,444,041)
2031	72.3%	116.0%	87.3%	(\$4,499,683)	1,364,086	(\$3,135,597)
2032	73.6%	117.2%	88.7%	(\$4,253,064)	1,466,174	(\$2,786,890)
2033	75.1%	118.4%	90.2%	(\$3,970,765)	1,575,215	(\$2,395,550)
2034	76.7%	119.9%	91.9%	(\$3,650,356)	1,692,445	(\$1,957,911)
2035	78.7%	121.4%	93.9%	(\$3,287,906)	1,818,174	(\$1,469,732)
2036	81.0%	123.2%	96.1%	(\$2,879,664)	1,953,116	(\$926,548)
2037	83.6%	125.2%	98.6%	(\$2,422,427)	2,098,931	(\$323,496)
2038	86.7%	127.5%	101.5%	(\$1,911,477)	2,254,251	\$342,774
2039	90.4%	130.0%	104.9%	(\$1,342,241)	2,420,656	\$1,078,415
2040	94.8%	132.9%	108.8%	(\$710,128)	2,599,393	\$1,889,265
2041	95.2%	136.1%	110.4%	(\$625,187)	2,791,124	\$2,165,937
2042	95.8%	139.8%	112.2%	(\$530,050)	2,996,961	\$2,466,911
2043	96.5%	144.0%	114.3%	(\$423,539)	3,218,047	\$2,794,508
2044	97.4%	148.7%	116.8%	(\$305,035)	3,455,327	\$3,150,292
2045	97.8%	154.0%	119.2%	(\$246,659)	3,710,259	\$3,463,600
2046	97.9%	160.0%	121.7%	(\$220,628)	3,984,040	\$3,763,412
2047	98.0%	166.7%	124.5%	(\$207,558)	4,277,945	\$4,070,387
2048	98.1%	174.3%	127.7%	(\$186,102)	4,593,794	\$4,407,692
2049	98.2%	182.8%	131.3%	(\$168,394)	4,932,728	\$4,764,334

Section 4: Member Data

Section 4.1: Summary of Members Included

As of June 30	2015	2016	2017	2018 ¹	2019
Active Members					
1. Number	17,660	16,105	14,719	13,434	12,152 ²
2. Average Age	51.34	51.74	52.10	52.52	52.84
3. Average Credited Service	15.29	15.95	16.57	17.21	17.80
4. Average Entry Age	36.05	35.79	35.53	35.30	35.04
5. Average Annual Earnings	\$ 73,248	\$ 75,717	\$ 76,902	\$ 77,813	\$ 82,192
6. Number Vested	16,996	15,607	14,314	13,103	11,868
7. Percent Who Are Vested	96.2%	96.9%	97.2%	97.5%	97.7%
Retirees, Disabilitants and Beneficiaries					
1. Number	32,145	33,353	34,347	35,454	36,310
2. Average Age	68.60	69.02	69.42	69.85	70.29
3. Average Years Since Retirement	11.27	11.48	11.71	11.87	12.14
4. Average Monthly Pension Benefit					
Base	\$ 1,490	\$ 1,529	\$ 1,574	\$ 1,616	\$ 1,660
COLA ³	92	93	93	94	92
P.R.P.A. ³	258	245	230	222	241
Adjustment	1	1	1	1	1
Total	\$ 1,841	\$ 1,868	\$ 1,898	\$ 1,933	\$ 1,994
Vested Terminations (vested at time of termination, not refunded contributions or commenced benefits)					
1. Number	6,304	6,160	5,962	5,660	5,499
2. Average Age	51.80	52.08	52.45	52.56	53.06
3. Average Monthly Pension Benefit	\$ 991	\$ 1,042	\$ 1,080	\$ 1,087	\$ 1,123
Non-Vested Terminations With Account Balances (not vested at termination, not refunded contributions)					
1. Number	12,339	11,880	11,506	11,192	10,921
2. Average Account Balance	\$ 5,981	\$ 6,212	\$ 6,462	\$ 6,558	\$ 6,923
Total Number of Members	68,448	67,498	66,534	65,740	64,882

¹ 4 members who were terminated before the valuation date were subsequently rehired, per census data as of October 1, 2018. These members were valued as active as of the valuation date.

² Includes 5,650 male active members and 6,502 female active members.

³ 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

Active Members

As of June 30, 2019	Tier 1	DB		Total	DCR Tier 4	Grand Total
		Tier 2	Tier 3			
1. Number	982	3,030	8,140	12,152	21,902	34,054
2. Average Age	61.82	55.80	50.66	52.84	40.96	45.20
3. Average Credited Service	22.75	22.37	15.50	17.80	4.33	9.14
4. Average Entry Age	39.07	33.43	35.16	35.04	36.63	36.06
5. Annual Earnings						
(a) Amount (000's)	\$ 77,264	\$ 263,316	\$ 658,216	\$ 998,796	\$ 1,328,934	\$ 2,327,730
(b) Average	\$ 78,680	\$ 86,903	\$ 80,862	\$ 82,192	\$ 60,676	\$ 68,354

Retirees, Disabilitants and Beneficiaries

As of June 30, 2019	Tier 1	Tier 2	Tier 3	Total
1. Number	23,614	8,378	4,318	36,310
2. Average Age	71.57	68.46	66.78	70.29
3. Average Years Since Retirement	14.92	8.04	4.91	12.14
4. Average Monthly Pension Benefit				
Base	\$ 1,719	\$ 1,709	\$ 1,237	\$ 1,660
COLA	116	52	39	92
P.R.P.A.	327	102	44	241
Adjustment	1	2	3	1
Total	2,163	1,865	1,323	1,994

Summary of Members Included

As of June 30, 2019	Active	Retiree	Covered Spouse	Covered Children / Dependent	Deferred	Total
Retiree Medical Participants						
1. Retiree Coverage Only	12,019	18,732	0	0	2,413	21,145
2. Retiree + Spouse	0	12,318	12,318	0	3,368	28,004
3. Retiree + Children / Other Dependent	0	427	0	437	0	864
4. Family	<u>0</u>	<u>813</u>	<u>813</u>	<u>1,128</u>	<u>0</u>	<u>2,754</u>
5. Total	12,019	32,290	13,131	1,565	5,781	52,767

Retiree Medical Participants as of June 30, 2019					
	Retiree	Covered Spouse	Covered Children / Dependent	Deferred	All Members
Pre-Medicare	8,466	5,246	1,565	5,637	20,914
Medicare Part A & B	23,643	7,847	0	144	31,634
Medicare Part B Only	<u>181</u>	<u>38</u>	<u>0</u>	<u>0</u>	<u>219</u>
Total	32,290	13,131	1,565	5,781	52,767

As of June 30, 2019	Retiree
Summary of Retiree Medical Data Received	
1. Retiree records on pension data	36,326
2. Multiple records on pension data	(916)
3. Records valued in a different retiree healthcare plan ¹	(1,101)
4. Records without medical coverage	<u>(2,019)</u>
5. Total	32,290

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

Summary of Members Included

Active Members – DB Only

As of June 30	2015	2016	2017	2018 ¹	2019
Peace Officer/Firefighter					
1. Number	1,827	1,704	1,606	1,507	1,382 ²
2. Average Age	46.26	46.80	47.22	47.75	48.25
3. Average Credited Service	16.23	16.87	17.41	18.15	18.90
4. Average Entry Age	30.03	29.93	29.81	29.60	29.35
5. Average Annual Earnings	\$ 101,450	\$ 105,317	\$ 106,987	\$ 108,580	\$ 120,089
6. Number Vested	1,817	1,695	1,599	1,500	1,374
7. Percent Who Are Vested	99.5%	99.5%	99.6%	99.5%	99.4%
Others					
1. Number	15,833	14,401	13,113	11,927	10,770 ³
2. Average Age	51.93	52.32	52.70	53.12	53.43
3. Average Credited Service	15.18	15.84	16.47	17.09	17.66
4. Average Entry Age	36.75	36.48	36.23	36.03	35.77
5. Average Annual Earnings	\$ 69,994	\$ 72,214	\$ 73,218	\$ 73,926	\$ 77,329
6. Number Vested	15,179	13,912	12,715	11,603	10,494
7. Percent Who Are Vested	95.9%	96.6%	97.0%	97.3%	97.4%
Total					
1. Number	17,660	16,105	14,719	13,434	12,152
2. Average Age	51.34	51.74	52.10	52.52	52.84
3. Average Credited Service	15.29	15.95	16.57	17.21	17.80
4. Average Entry Age	36.05	35.79	35.53	35.30	35.04
5. Average Annual Earnings	\$ 73,248	\$ 75,717	\$ 76,902	\$ 77,813	\$ 82,192
6. Number Vested	16,996	15,607	14,314	13,103	11,868
7. Percent Who Are Vested	96.2%	96.9%	97.3%	97.5%	97.7%

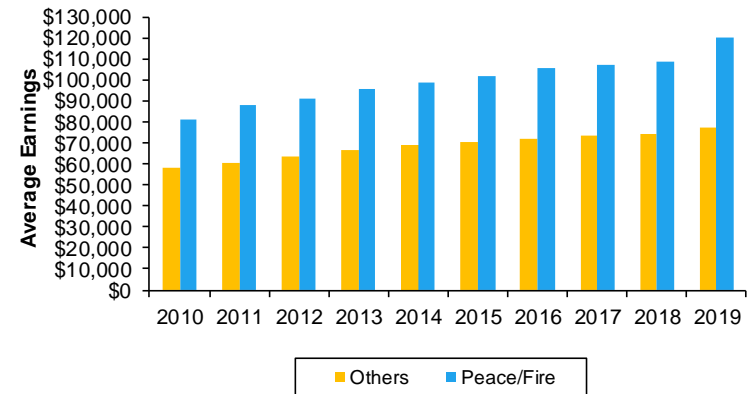
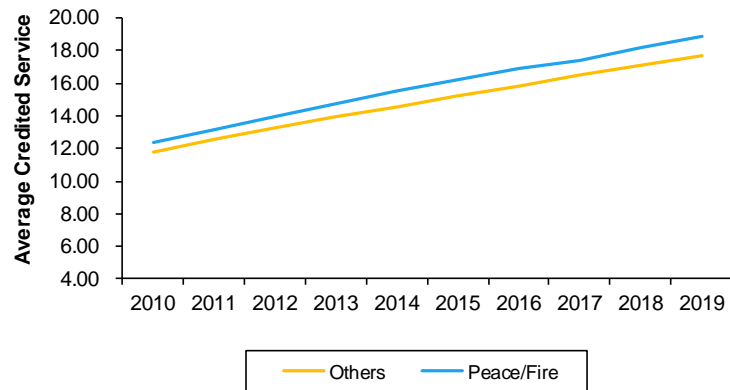
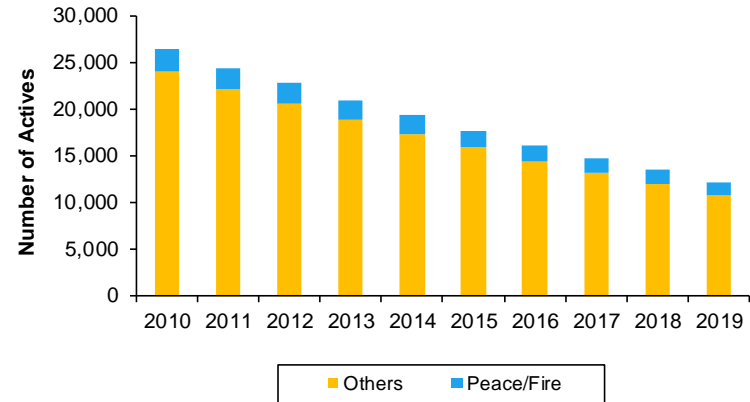
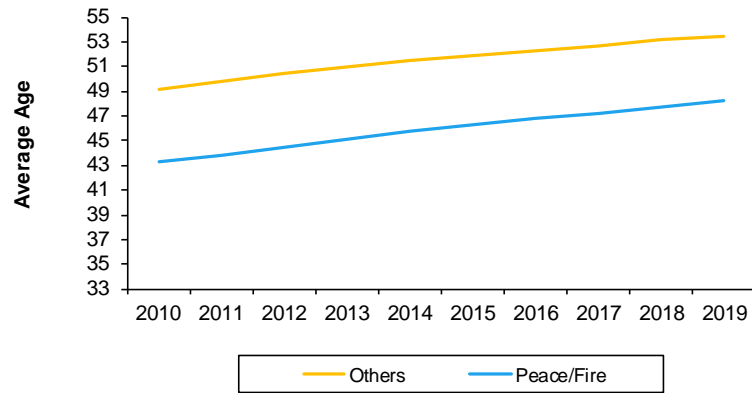
Total and average annual earnings (“valuation pay”) are the annualized earnings for the fiscal year ending on the valuation date.

¹ 4 members who were terminated before the valuation date were subsequently rehired, per census data as of October 1, 2018. These members were valued as active as of the valuation date.

² Includes 1,173 male active members and 209 female active members.

³ Includes 4,477 male active members and 6,293 female active members.

Summary of Members Included – Active Members as of June 30



Total and 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

Peace Officer/Firefighter

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	12	1,207,294	100,608
35 – 39	142	17,038,253	119,988
40 – 44	307	37,690,010	122,769
45 – 49	403	49,487,557	122,798
50 – 54	294	35,292,738	120,043
55 – 59	159	18,275,385	114,940
60 – 64	52	5,507,215	105,908
65 – 69	11	1,292,101	117,464
70 – 74	2	172,186	86,093
75+	0	0	0
Total	1,382	\$ 165,962,739	\$ 120,089

Annual Earnings by Credited Service

Years of Service	Number	Total Annual Earnings	Average Annual Earnings
0	1	\$ 33,369	\$ 33,369
1	1	69,125	69,125
2	1	57,954	57,954
3	2	171,473	85,737
4	2	152,967	76,484
0 – 4	7	484,888	69,270
5 – 9	15	1,217,948	81,197
10 – 14	318	35,403,668	111,332
15 – 19	540	63,121,664	116,892
20 – 24	357	47,124,548	132,002
25 – 29	115	14,804,244	128,733
30 – 34	25	3,180,082	127,203
35 – 39	3	337,333	112,444
40+	2	288,364	144,182
Total	1,382	\$ 165,962,739	\$ 120,089

Years of Credited Service by Age

Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
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	1	0	11	0	0	0	0	0	0	12
35 – 39	2	2	88	49	1	0	0	0	0	142
40 – 44	2	4	79	166	56	0	0	0	0	307
45 – 49	1	1	59	144	158	40	0	0	0	403
50 – 54	1	5	37	96	100	48	7	0	0	294
55 – 59	0	1	31	66	31	20	9	1	0	159
60 – 64	0	1	11	15	11	6	7	1	0	52
65 – 69	0	1	1	4	0	1	2	1	1	11
70 – 74	0	0	1	0	0	0	0	0	1	2
75+	0	0	0	0	0	0	0	0	0	0
Total	7	15	318	540	357	115	25	3	2	1,382

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

Age and Service Distribution of Active Members

Others

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	91	6,351,422	69,796
35 – 39	663	50,873,398	76,732
40 – 44	1,189	92,458,881	77,762
45 – 49	1,611	132,715,934	82,381
50 – 54	2,175	169,842,911	78,089
55 – 59	2,763	212,370,958	76,862
60 – 64	1,524	112,714,258	73,959
65 – 69	571	42,570,616	74,554
70 – 74	145	10,590,906	73,041
75+	38	2,342,687	61,650

Total 10,770 \$ 832,831,971 \$ 77,329

Annual Earnings by Credited Service

Years of Service	Number	Total Annual Earnings	Average Annual Earnings
0	15	\$ 784,565	\$ 52,304
1	45	2,257,784	50,173
2	45	2,651,443	58,921
3	55	2,953,579	53,701
4	93	5,372,917	57,773
0 – 4	253	14,020,288	55,416
5 – 9	766	45,621,819	59,559
10 – 14	2,940	207,099,506	70,442
15 – 19	3,461	271,278,784	78,382
20 – 24	1,867	158,511,035	84,901
25 – 29	1,098	99,990,319	91,066
30 – 34	291	27,326,226	93,905
35 – 39	74	7,137,003	96,446
40+	20	1,846,991	92,350

Total 10,770 \$ 832,831,971 \$ 77,329

Years of Credited Service by Age

Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
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	12	28	48	3	0	0	0	0	0	91
35 – 39	44	91	368	157	3	0	0	0	0	663
40 – 44	44	119	448	479	97	2	0	0	0	1,189
45 – 49	38	116	469	619	310	57	2	0	0	1,611
50 – 54	46	139	556	680	429	280	44	1	0	2,175
55 – 59	37	130	573	836	586	474	114	13	0	2,763
60 – 64	19	98	330	459	313	190	84	27	4	1,524
65 – 69	9	32	116	173	105	74	32	23	7	571
70 – 74	3	10	25	38	22	21	12	9	5	145
75+	1	3	7	17	2	0	3	1	4	38
Total	253	766	2,940	3,461	1,867	1,098	291	74	20	10,770

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	With Deferred Benefits	Retired Members	Disabled Members	Beneficiaries	Total
As of June 30, 2018	13,434	11,192	5,660	31,218*	189	4,062	65,755
Vested Terminations	(485)	(4)	499	0	(10)	0	0
Non-vested Terminations	(54)	54	0	0	0	0	0
Cash-outs	(37)	(217)	(59)	0	(1)	(51)	(365)
Converted to DCR Plan	0	0	0	0	0	0	0
Disability Retirements	(18)	0	(3)	0	21	0	0
Age Retirements	(989)	(10)	(390)	1,412	(23)	N/A	0
Deaths With Beneficiary	(20)	(5)	(21)	(271)	0	329	12
Deaths Without Beneficiary	(6)	(14)	(2)	(412)	(2)	(133)	(569)
Expired Benefits	0	0	0	0	0	(7)	(7)
Data Corrections	(1)	2	(3)	4	0	(18)	(16)
Transfers Out	5	0	(3)	(2)	0	0	0
Rehires	322	(111)	(179)	(29)	(1)	0	2
Pick Ups***	1	0	0	2	0	49	52
Net Change	(1,282)	(305)	(161)	704	(16)	169	(891)
As of June 30, 2019	12,152	10,887	5,499	31,922**	173	4,231	64,864

* Includes 15 medical only retirees

** Includes 16 medical only retirees

*** Pickup beneficiaries are primarily new QDROs

Healthcare

	Active	Inactive Members				Total Inactive Members
		Inactive Individuals	Covered Spouses	Covered Children	Deferred	
As of June 30, 2018	13,380	31,396	12,880	1,645	6,070	51,991
Vested Terminations	(442)	0	0	0	442	442
Non-vested Terminations	(66)	0	0	0	0	0
Cash-outs	(37)	0	0	0	(97)	(97)
Disability	(22)	22	12	16	0	50
Rehires	308	(19)	0	(6)	(179)	(204)
Retirement	(1,021)	1,021	546	167	0	1,734
Retired from deferred status	0	409	218	49	(422)	254
Retired without medical coverage	(56)	0	0	0	(17)	(17)
Deceased	(25)	(696)	(178)	(4)	(14)	(892)
New Beneficiaries	0	149	(149)	0	0	0
Added Dependent Coverage	N/A	0	153	82	0	235
Dropped Dependent Coverage	N/A	0	(334)	(377)	0	(711)
Added Retiree Medical Coverage	0	153	0	0	0	153
Dropped Retiree Medical Coverage	0	(144)	(11)	0	0	(155)
Transfer to/from another plan	0	(1)	(6)	(7)	(2)	(16)
Net Change	(1,361)	894	251	(80)	(289)	776
As of June 30, 2019	12,019	32,290	13,131	1,565	5,781	52,767

Section 4.4: Schedule of Active Member Data

Peace Officer/Firefighter

Valuation Date	Number	Annual Earnings (000's)	Annual Average Earnings	Percent Increase/ (Decrease) in Average Earnings	Number of Participating Employers
June 30, 2019	1,382	\$ 165,963	\$ 120,089	10.6%	155
June 30, 2018	1,507	163,630	108,580	1.5%	155
June 30, 2017	1,606	171,821	106,987	1.6%	155
June 30, 2016	1,704	179,461	105,317	3.8%	155
June 30, 2015	1,827	185,350	101,450	2.5%	159
June 30, 2014	1,958	193,737	98,946	3.4%	159
June 30, 2013	2,065	197,534	95,658	4.8%	159
June 30, 2012	2,164	197,544	91,286	4.1%	160
June 30, 2011	2,275	199,537	87,709	8.6%	160
June 30, 2010	2,388	192,895	80,777	2.8%	160

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

Others

Valuation Date	Number	Annual Earnings (000's)	Annual Average Earnings	Percent Increase/ (Decrease) in Average Earnings	Number of Participating Employers
June 30, 2019	10,770	\$ 832,832	\$ 77,329	4.6%	155
June 30, 2018	11,927	881,716	73,926	1.0%	155
June 30, 2017	13,113	960,106	73,218	1.4%	155
June 30, 2016	14,401	1,039,960	72,214	3.2%	155
June 30, 2015	15,833	1,108,218	69,994	2.1%	159
June 30, 2014	17,339	1,188,918	68,569	3.4%	159
June 30, 2013	18,890	1,252,786	66,320	4.5%	159
June 30, 2012	20,566	1,305,337	63,471	4.6%	160
June 30, 2011	22,118	1,342,122	60,680	4.7%	160
June 30, 2010	24,054	1,393,803	57,945	4.5%	160

Total and average 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 (000s)
a) DRB actual reported salaries FY19 – employer list	\$ 2,166,250
b) DRB actual reported salaries FY19 – valuation data	2,123,367
c) Annualized valuation data	2,327,729
d) Valuation payroll as of June 30, 2019	2,425,842
e) Rate payroll for FY20	2,347,306
f) Rate payroll for FY22	2,385,869

- a) Actual reported salaries from DRB employer listing showing all payroll paid during FY19, including those who were not active as of June 30, 2019
- b) Payroll from valuation data for people who are in active status as of June 30, 2019
- 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

Peace Officer/Firefighter

During the Year Ending June 30 Service	2015	2016	2017	2018	2019
1. Number	97	108	119	105	109
2. Average Age at Commencement	55.29	55.91	56.65	55.70	55.61
3. Average Monthly Pension Benefit	\$ 4,146	\$ 4,614	\$ 4,166	\$ 4,519	\$ 4,412
Survivor (including surviving spouse and DROs)					
1. Number	36	27	42	44	36
2. Average Age at Commencement	63.51	61.48	62.88	63.76	68.19
3. Average Monthly Pension Benefit	\$ 1,546	\$ 1,745	\$ 1,797	\$ 2,187	\$ 1,842
Disability Retirements					
1. Number	3	2	4	4	4
2. Average Age at Commencement	40.50	42.07	49.33	46.56	50.44
3. Average Monthly Pension Benefit	\$ 3,433	\$ 3,096	\$ 2,427	\$ 3,230	\$ 3,071
Total					
1. Number	136	137	165	153	149
2. Average Age at Commencement	57.14	56.81	58.06	57.78	58.51
3. Average Monthly Pension Benefit	\$ 3,442	\$ 4,026	\$ 3,521	\$ 3,814	\$ 3,755

Summary of New Pension Benefit Recipients

Average Pension Benefit Payments – Peace Officer/Firefighter

	Years of Credited Service						
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+
Period 7/1/18 - 6/30/19:							
Average Monthly Pension Benefit	\$ 0	\$ 651	\$ 1,933	\$ 3,362	\$ 4,786	\$ 6,196	\$ 5,688
Number of Recipients	0	5	11	25	38	26	6
Period 7/1/17 - 6/30/18:							
Average Monthly Pension Benefit	\$ 0	\$ 1,063	\$ 2,133	\$ 3,747	\$ 4,847	\$ 6,024	\$ 7,717
Number of Recipients	0	4	18	19	35	30	3
Period 7/1/16 - 6/30/17:							
Average Monthly Pension Benefit	\$ 0	\$ 686	\$ 2,075	\$ 3,234	\$ 4,462	\$ 5,151	\$ 6,376
Number of Recipients	0	8	9	28	41	23	14
Period 7/1/15 - 6/30/16:							
Average Monthly Pension Benefit	\$ 0	\$ 958	\$ 1,742	\$ 3,347	\$ 4,622	\$ 5,778	\$ 7,221
Number of Recipients	0	6	11	19	30	28	16
Period 7/1/14 - 6/30/15:							
Average Monthly Pension Benefit	\$ 0	\$ 1,173	\$ 1,621	\$ 3,632	\$ 4,436	\$ 5,457	\$ 6,863
Number of Recipients	0	8	9	26	24	25	7
Period 7/1/13 - 6/30/14:							
Average Monthly Pension Benefit	\$ 290	\$ 1,423	\$ 2,002	\$ 2,902	\$ 4,014	\$ 5,464	\$ 6,299
Number of Recipients	1	9	10	14	22	16	7
Period 7/1/12 - 6/30/13:							
Average Monthly Pension Benefit	\$ 0	\$ 865	\$ 1,779	\$ 2,762	\$ 3,793	\$ 4,983	\$ 4,911
Number of Recipients	0	9	8	19	31	18	4
Period 7/1/11 - 6/30/12:							
Average Monthly Pension Benefit	\$ 0	\$ 1,159	\$ 1,161	\$ 3,142	\$ 3,504	\$ 4,673	\$ 5,079
Number of Recipients	0	13	13	12	20	17	7
Period 7/1/10 - 6/30/11:							
Average Monthly Pension Benefit	\$ 525	\$ 880	\$ 1,469	\$ 2,666	\$ 3,743	\$ 4,806	\$ 5,661
Number of Recipients	1	8	18	10	24	16	8
Period 7/1/09 - 6/30/10:							
Average Monthly Pension Benefit	\$ 1,902	\$ 1,242	\$ 1,459	\$ 2,284	\$ 3,179	\$ 4,527	\$ 4,695
Number of Recipients	4	7	16	14	28	14	7

Average Monthly Pension Benefit" includes post-retirement pension adjustments and cost-of-living increases.

Summary of New Pension Benefit Recipients

Others

During the Year Ending June 30	2015	2016	2017	2018	2019
Service					
1. Number	1,281	1,472	1,393	1,419	1,288
2. Average Age at Commencement	60.70	61.28	61.40	62.19	61.38
3. Average Monthly Pension Benefit	\$ 2,310	\$ 2,269	\$ 2,404	\$ 2,477	\$ 2,540
Survivor (including surviving spouse and DROs)					
1. Number	275	286	292	261	238
2. Average Age at Commencement	69.00	66.30	67.12	70.38	69.25
3. Average Monthly Pension Benefit	\$ 1,159	\$ 1,093	\$ 1,150	\$ 1,120	\$ 1,249
Disability Retirements					
1. Number	27	22	14	28	17
2. Average Age at Commencement	51.39	53.04	52.43	53.80	52.95
3. Average Monthly Pension Benefit	\$ 1,858	\$ 2,209	\$ 2,405	\$ 1,896	\$ 2,313
Total					
1. Number	1,583	1,780	1,699	1,708	1,543
2. Average Age at Commencement	61.98	61.98	62.31	63.31	62.50
3. Average Monthly Pension Benefit	\$ 2,103	\$ 2,079	\$ 2,189	\$ 2,260	\$ 2,339

Summary of New Pension Benefit Recipients

Average Pension Benefit Payments – Others

	Years of Credited Service						
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+
Period 7/1/18 - 6/30/19:							
Average Monthly Pension Benefit	\$ 652	\$ 646	\$ 1,301	\$ 2,071	\$ 3,058	\$ 4,596	\$ 5,685
Number of Recipients	21	190	266	289	222	205	105
Period 7/1/17 - 6/30/18:							
Average Monthly Pension Benefit	\$ 414	\$ 607	\$ 1,299	\$ 1,982	\$ 3,034	\$ 4,475	\$ 6,085
Number of Recipients	26	221	351	280	223	214	127
Period 7/1/16 - 6/30/17:							
Average Monthly Pension Benefit	\$ 381	\$ 640	\$ 1,271	\$ 2,067	\$ 3,119	\$ 4,579	\$ 6,224
Number of Recipients	27	254	375	233	212	191	115
Period 7/1/15 - 6/30/16:							
Average Monthly Pension Benefit	\$ 434	\$ 660	\$ 1,240	\$ 2,017	\$ 3,059	\$ 4,158	\$ 6,583
Number of Recipients	30	323	387	266	192	161	135
Period 7/1/14 - 6/30/15:							
Average Monthly Pension Benefit	\$ 430	\$ 685	\$ 1,260	\$ 2,008	\$ 3,086	\$ 4,544	\$ 6,195
Number of Recipients	42	284	304	213	198	169	98
Period 7/1/13 - 6/30/14:							
Average Monthly Pension Benefit	\$ 503	\$ 700	\$ 1,189	\$ 2,065	\$ 3,021	\$ 4,439	\$ 5,490
Number of Recipients	48	347	319	241	214	224	121
Period 7/1/12 - 6/30/13:							
Average Monthly Pension Benefit	\$ 414	\$ 650	\$ 1,179	\$ 1,925	\$ 2,879	\$ 4,356	\$ 5,208
Number of Recipients	59	349	365	257	206	209	132
Period 7/1/11 - 6/30/12:							
Average Monthly Pension Benefit	\$ 407	\$ 610	\$ 1,147	\$ 1,931	\$ 2,805	\$ 4,214	\$ 5,076
Number of Recipients	67	351	314	204	208	188	106
Period 7/1/10 - 6/30/11:							
Average Monthly Pension Benefit	\$ 409	\$ 633	\$ 1,150	\$ 1,876	\$ 2,690	\$ 4,294	\$ 5,226
Number of Recipients	73	352	270	227	172	205	105
Period 7/1/09 - 6/30/10:							
Average Monthly Pension Benefit	\$ 485	\$ 579	\$ 1,116	\$ 1,763	\$ 2,674	\$ 4,008	\$ 5,039
Number of Recipients	93	367	273	217	218	200	74

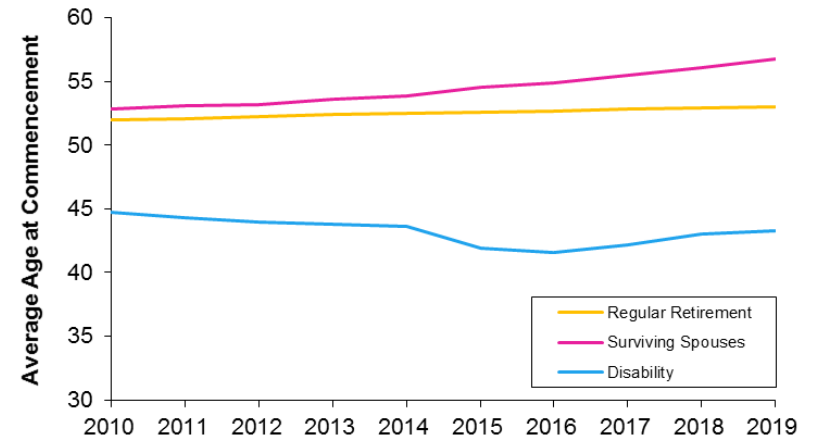
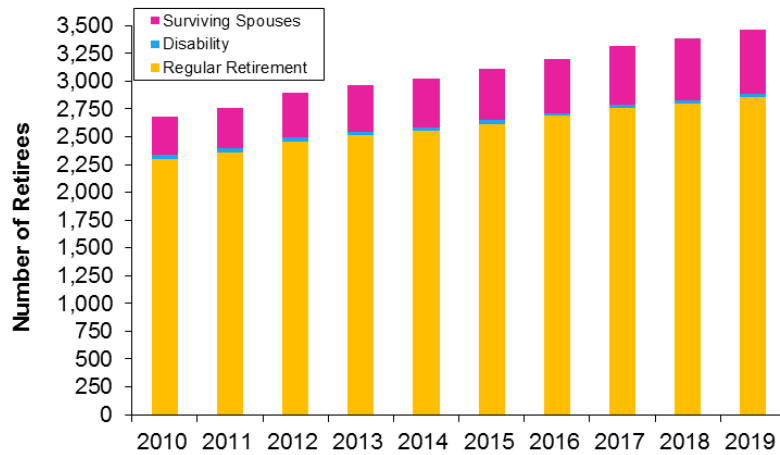
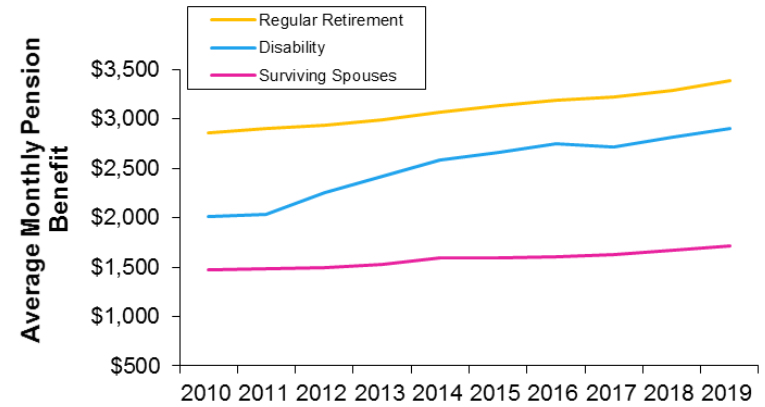
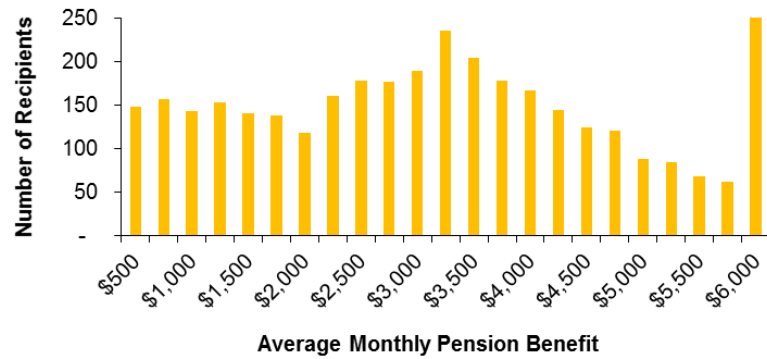
"Average Monthly Benefit" includes post-retirement pension adjustments and cost-of-living increases.

Section 4.7: Summary of All Pension Benefit Recipients

	Peace Officer/ Firefighter	Others
Service Retirements		
1. Number, June 30, 2018	2,803	28,400
2. Net Change During FY19	54	649
3. Number, June 30, 2019	2,857	29,049
4. Average Age At Commencement	53.02	58.20
5. Average Current Age	67.96	70.36
6. Average Monthly Pension Benefit	\$ 3,388	\$ 1,978
Survivors (including surviving spouses and DROs)		
1. Number, June 30, 2018	559	3,503
2. Net Change During FY19	23	146
3. Number, June 30, 2019	582	3,649
4. Average Age At Commencement	56.73	62.60
5. Average Current Age	68.05	72.62
6. Average Monthly Pension Benefit	\$ 1,713	\$ 1,082
Disability Retirements		
1. Number, June 30, 2018	25	164
2. Net Change During FY19	1	(17)
3. Number, June 30, 2019	26	147
4. Average Age At Commencement	43.29	46.71
5. Average Current Age	48.73	54.90
6. Average Monthly Pension Benefit	\$ 2,900	\$ 1,838
Total		
1. Number, June 30, 2018	3,387	32,067
2. Net Change During FY19	78	778
3. Number, June 30, 2019	3,465	32,845
4. Average Age At Commencement	53.57	58.63
5. Average Current Age	67.83	70.55
6. Average Monthly Pension Benefit	\$ 3,103	\$ 1,877

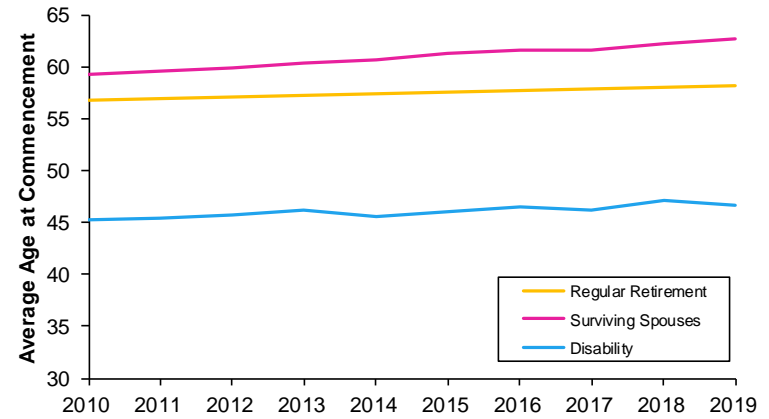
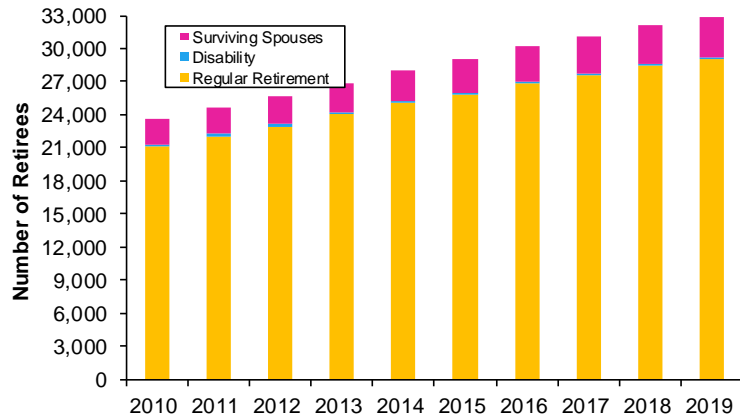
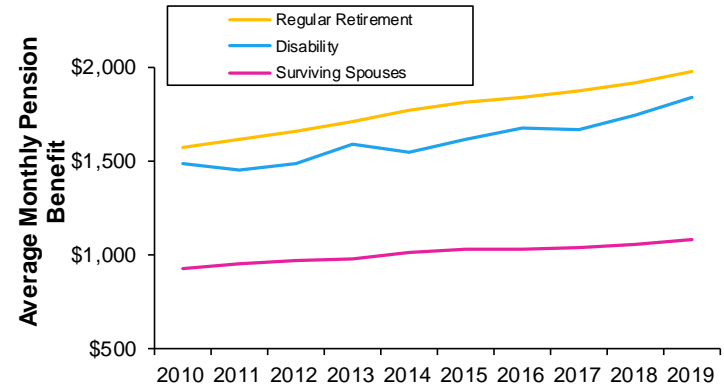
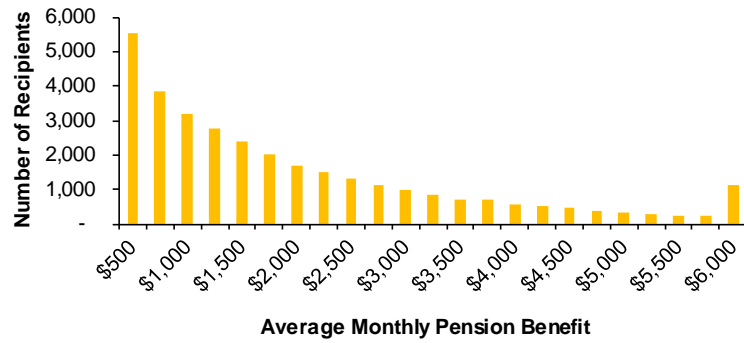
Summary of All Pension Benefit Recipients

Peace Officer/Firefighter



Summary of All Pension Benefit Recipients

Others



Summary of All Pension Benefit Recipients

Peace Officer/Firefighter

Annual Pension Benefit by Age

Age	Number	Total Annual Benefit	Average Annual Benefit
0 – 19	0	\$ 0	\$ 0
20 – 24	0	0	0
25 – 29	0	0	0
30 – 34	0	0	0
35 – 39	4	173,169	43,292
40 – 44	8	310,438	38,805
45 – 49	74	3,532,323	47,734
50 – 54	188	9,809,800	52,180
55 – 59	352	14,735,404	41,862
60 – 64	634	23,536,821	37,124
65 – 69	806	28,407,111	35,245
70 – 74	681	23,926,286	35,134
75+	718	24,589,136	34,247

Total 3,465 \$129,020,488 \$ 37,235

Annual Pension Benefit by Years Since Commencement

Years Since Commencement	Number	Total Annual Benefit	Average Annual Benefit
0	137	\$ 6,129,853	\$ 44,743
1	157	7,175,326	45,703
2	150	6,299,539	41,997
3	137	6,278,885	45,831
4	152	6,615,694	43,524
0 – 4	733	32,499,297	44,337
5 – 9	525	18,871,668	35,946
10 – 14	589	17,791,088	30,206
15 – 19	644	21,905,509	34,015
20 – 24	535	19,830,615	37,067
25 – 29	227	8,463,805	37,285
30 – 34	154	7,521,824	48,843
35 – 39	38	1,607,036	42,290
40+	20	529,646	26,482

Total 3,465 \$129,020,488 \$ 37,235

Years Since Benefit Commencement by Age

Age	Years Since Commencement									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
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	3	1	0	0	0	0	0	0	0	4
40 – 44	5	1	2	0	0	0	0	0	0	8
45 – 49	58	12	2	1	1	0	0	0	0	74
50 – 54	134	42	8	3	1	0	0	0	0	188
55 – 59	185	73	63	27	2	2	0	0	0	352
60 – 64	182	132	143	149	24	2	1	1	0	634
65 – 69	87	163	192	227	117	16	2	1	1	806
70 – 74	34	67	133	157	191	62	29	3	5	681
75+	45	34	46	80	199	145	122	33	14	718
Total	733	525	589	644	535	227	154	38	20	3,465

Summary of All Benefit Recipients

Others

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	1	62,938	62,938
30 – 34	1	6,894	6,894
35 – 39	4	63,045	15,761
40 – 44	12	130,978	10,915
45 – 49	42	703,685	16,754
50 – 54	213	6,076,425	28,528
55 – 59	1,653	49,181,216	29,753
60 – 64	6,592	170,029,546	25,793
65 – 69	8,677	203,424,005	23,444
70 – 74	7,018	148,851,344	21,210
75+	8,632	161,436,620	18,702

Total 32,845 \$739,966,696 \$ 22,529

Annual Pension Benefit by Years Since Commencement

Years Since Commencement	Number	Total Annual Pension Benefit	Average Annual Pension Benefit
0	1,485	\$ 41,029,368	\$ 27,629
1	1,689	46,470,707	27,514
2	1,482	38,994,335	26,312
3	1,636	41,504,829	25,370
4	1,626	42,730,378	26,279
0 – 4	7,918	210,729,617	26,614
5 – 9	7,752	187,787,212	24,224
10 – 14	6,358	133,882,757	21,057
15 – 19	4,795	93,818,164	19,566
20 – 24	3,286	66,314,955	20,181
25 – 29	1,595	26,887,909	16,858
30 – 34	861	16,208,288	18,825
35 – 39	229	3,511,241	15,333
40+	51	826,553	16,207

Total 32,845 \$739,966,696 \$ 22,529

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	1	0	0	0	0	0	0	0	0	1
30 – 34	1	0	0	0	0	0	0	0	0	1
35 – 39	1	3	0	0	0	0	0	0	0	4
40 – 44	6	4	2	0	0	0	0	0	0	12
45 – 49	19	12	8	3	0	0	0	0	0	42
50 – 54	148	30	18	12	4	1	0	0	0	213
55 – 59	1,149	398	64	27	10	4	1	0	0	1,653
60 – 64	3,521	2,274	710	54	19	10	3	1	0	6,592
65 – 69	1,828	3,055	2,740	948	86	10	8	2	0	8,677
70 – 74	669	1,315	1,855	2,257	883	23	11	4	1	7,018
75+	575	661	961	1,494	2,284	1,547	838	222	50	8,632
Total	7,918	7,752	6,358	4,795	3,286	1,595	861	229	51	32,845

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

Peace Officer/Firefighter

Amount of Monthly Pension Benefit	Number of Recipients	Type of Pension Benefit			Option Selected				
		1	2	3	1	2	3	4	5
\$ 1 – \$ 300	53	20	33	0	37	7	0	2	7
301 – 600	172	106	66	0	92	38	23	7	12
601 – 900	172	96	75	1	102	39	9	11	11
901 – 1,200	179	103	76	0	109	36	19	8	7
1,201 – 1,500	171	115	55	1	98	37	20	6	10
1,501 – 1,800	163	121	41	1	86	43	23	8	3
1,801 – 2,100	156	109	45	2	70	43	30	7	6
2,101 – 2,400	216	164	51	1	96	68	29	13	10
2,401 – 2,700	201	170	26	5	78	70	34	13	6
2,701 – 3,000	228	204	22	2	68	97	40	14	9
3,001 – 3,300	285	250	32	3	93	117	51	13	11
3,301 – 3,600	242	213	24	5	87	100	32	13	10
3,601 – 3,900	184	169	12	3	60	80	28	12	4
3,901 – 4,200	186	181	4	1	46	87	34	15	4
Over \$4,200	857	836	20	1	215	434	133	63	12
Totals	3,465	2,857	582	26	1,337	1,296	505	205	122

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
5. Level Income Option

Schedule of Pension Benefit Recipients by Type of Pension Benefit and Option Elected

Others

Amount of Monthly Pension Benefit	Number of Recipients	Type of Pension Benefit			Option Selected				
		1	2	3	1	2	3	4	5
\$ 1 – \$ 300	2,100	1,560	538	2	997	391	281	68	363
301 – 600	5,088	4,288	790	10	2,655	1,197	824	258	154
601 – 900	4,239	3,561	663	15	2,215	1,024	684	190	126
901 – 1,200	3,401	2,938	456	7	1,663	843	642	159	94
1,201 – 1,500	2,940	2,572	347	21	1,425	775	541	117	82
1,501 – 1,800	2,351	2,085	244	22	1,074	681	443	89	64
1,801 – 2,100	1,973	1,782	175	16	896	547	374	97	59
2,101 – 2,400	1,684	1,542	123	19	726	480	348	81	49
2,401 – 2,700	1,414	1,319	82	13	588	436	272	67	51
2,701 – 3,000	1,176	1,100	70	6	475	389	240	35	37
3,001 – 3,300	984	933	43	8	398	324	195	40	27
3,301 – 3,600	857	826	31	0	312	280	195	51	19
3,601 – 3,900	753	725	24	4	288	261	150	35	19
3,901 – 4,200	647	622	25	0	241	213	146	32	15
Over \$4,200	3,238	3,196	38	4	1,077	1,193	738	180	50
Totals	32,845	29,049	3,649	147	15,030	9,034	6,073	1,499	1,209

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
5. Level Income Option

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

Peace Officer/Firefighter

Year Ended	Added to Rolls		Removed from Rolls		Rolls – End of Year		Percent Increase in Annual Pension Benefits	Average Annual Pension Benefit
	No. ¹	Annual Pension Benefits ¹	No. ¹	Annual Pension Benefits ¹	No.	Annual Pension Benefits		
June 30, 2019	149	\$ 6,713,940	71	\$ 233,335	3,465	\$ 129,020,488	5.3%	\$ 37,235
June 30, 2018	153	7,002,504	81	2,573,694	3,387	122,539,883	3.7%	36,179
June 30, 2017	166	6,971,580	54	2,132,027	3,315	118,111,073	4.3%	35,629
June 30, 2016	137	6,618,744	49	1,594,392	3,204	113,271,520	4.6%	35,353
June 30, 2015	136	5,617,344	46	633,048	3,116	108,247,168	4.8%	34,739
June 30, 2014	109	4,270,620	50	(145,771)	3,026	103,262,870	4.5%	34,125
June 30, 2013	113	4,162,920	42	240,775	2,967	98,846,479	4.1%	33,315
June 30, 2012	179	5,246,271	41	(177,568)	2,896	94,924,334	6.1%	32,778
June 30, 2011	114	3,772,720	33	116,090	2,758	89,500,495	4.3%	32,451
June 30, 2010	118	3,593,724	46	1,413,071	2,677	85,843,865	2.6%	32,067

¹ Numbers are estimated, and include other internal transfers.

Pension Benefit Recipients Added to and Removed from Rolls

Others

Year Ended	Added to Rolls		Removed from Rolls		Rolls – End of Year		Percent Increase in Annual Pension Benefits	Average Annual Pension Benefit
	No. ¹	Annual Pension Benefits ¹	No. ¹	Annual Pension Benefits ¹	No.	Annual Pension Benefits		
June 30, 2019	1,543	\$ 43,301,707	765	\$ 3,096,594	32,845	\$ 739,966,696	5.7%	\$ 22,529
June 30, 2018	1,708	46,316,673	673	10,533,376	32,067	699,761,583	5.4%	21,822
June 30, 2017	1,699	44,619,382	816	14,610,212	31,032	663,978,286	4.7%	21,398
June 30, 2016	1,780	44,409,702	660	12,099,362	30,149	633,969,116	5.4%	21,028
June 30, 2014	1,583	39,939,292	627	7,232,812	29,029	601,658,776	5.7%	20,726
June 30, 2013	1,778	44,823,611	603	3,011,383	28,073	568,952,296	7.9%	20,267
June 30, 2012	1,808	43,247,667	554	4,861,626	26,898	527,140,068	7.9%	19,598
June 30, 2012	1,679	37,855,250	636	5,344,239	25,644	488,754,027	7.1%	19,059
June 30, 2011	1,595	37,100,217	554	6,897,899	24,601	456,243,016	7.1%	18,546
June 30, 2010	1,667	35,089,579	517	8,712,630	23,560	426,040,698	6.6%	18,083

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

January 1, 1961, with amendments through June 30, 2019. Chapter 82, 1986 Session Laws of Alaska, created a two tier retirement system. Members who were first hired under PERS before July 1, 1986 (Tier 1) are eligible for different benefits than members hired after June 30, 1986 (Tier 2). Chapter 4, 1996 Session Laws of Alaska created a third tier for members who were first hired after June 30, 1996 (Tier 3). 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 Public Employees' 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 PERS funds.

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

Employers Included

Currently there are 155 employers participating in PERS, including the State of Alaska and 154 political subdivisions and public organizations. Two additional political subdivisions participate in PERS for healthcare benefits only.

Membership

PERS membership is mandatory for all permanent full-time and part-time employees of the State of Alaska and participating political subdivisions and public organizations, unless they are specifically excluded by Alaska Statute or employer participation agreements. Employees participating in the University of Alaska's Optional Retirement Plan or other retirement plans funded by the State are not covered by PERS. Elected officials may waive PERS membership.

Certain members of the Alaska Teachers' Retirement System (TRS) are eligible for PERS retirement benefits for their concurrent elected public official service with municipalities. In addition, employees who work half-time in PERS and TRS simultaneously are eligible for half-time PERS and TRS 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

Permanent employees who work at least 30 hours a week earn full-time credit; part-time employees working between 15 and 30 hours a week earn partial credit based upon the number of hours worked. Members receiving PERS occupational disability benefits continue to earn PERS credit while disabled. Survivors who are receiving occupational death benefits continue to earn PERS service credit while occupational survivor benefits are being paid.

Members may claim other types of service, including:

- part-time State of Alaska service rendered after December 31, 1960, and before January 1, 1976;
- service with the State, former Territory of Alaska, or U.S. Government in Alaska before January 1, 1961;
- past Peace Officer, correctional officer, fire fighter, and special officer service after January 1, 1961;
- military service (not more than five years may be claimed);
- temporary service after December 31, 1960;
- elected official service before January 1, 1981;
- Alaska Bureau of Indian Affairs service;
- past service rendered by employees who worked half-time in PERS and TRS simultaneously;
- leave without pay service after June 13, 1987, while receiving Workers' Compensation;
- Village Public Safety Officer service; and
- service as a temporary employee of the legislature before July 1, 1979, but this service must have been claimed no later than July 1, 2003, or by the date of retirement, if sooner (not more than 10 years may be claimed).

Except for service before January 1, 1961, with the State, former Territory of Alaska, or U.S. Government in Alaska, contributions are required for all past service.

Past employment with participating political subdivisions that occurred before the employers joined PERS is creditable if the employers agree to pay the required contributions.

At the election of certain PERS members, certain service may be credited in the same fashion as members in TRS.

Members employed as dispatchers or within a state correctional facility may, at retirement, elect to convert their dispatcher or correctional facility service from "all other" service to Peace Officer/Firefighter service and retire under the 20 year retirement option. Members pay the full actuarial cost of conversion.

Employer Contributions

PERS 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 AS 39.35.255 effective July 1, 2008, each PERS employer will pay a simple uniform contribution rate of 22% of member payroll.

Additional State Contributions

Pursuant to AS 39.35.280 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 (22%) will be sufficient to pay the total contribution rate adopted by The Alaska Retirement Management Board.

Member Contributions

Mandatory Contributions: Peace Officer/Firefighter members are required to contribute 7.5% of their compensation; all Others contribute 6.75%. Those all Others who have elected to have their service calculated under TRS rules contribute 9.76% of their compensation. Members' contributions are deducted from gross wages before federal income taxes are withheld.

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

Voluntary Contributions: Members may voluntarily contribute up to 5% of their salary on an after-tax basis. Voluntary contributions are recorded in a separate account and are payable to the:

- a. member in lump sum payment upon termination of employment;
- b. member's beneficiary if the member dies; or
- c. member in a lump sum, life annuity, or payments over a designated period of time when the member retires.

Interest: Members' contributions earn 4.5% interest, compounded semiannually on June 30 and December 31.

Refund of Contributions: Terminated members may receive refunds of their member contribution accounts which includes their mandatory and voluntary 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 PERS service may be reinstated upon reemployment in PERS 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, 1986 (Tier 1), and 60 or early retirement at age 55 if they were hired after July 1, 1986 (Tiers 2 & 3). Additionally, they must have at least:
 - (i) five years of paid-up PERS service;
 - (ii) 60 days of paid-up PERS service as employees of the legislature during each of five legislative sessions and they were first hired by the legislature before May 30, 1987;
 - (iii) 80 days of paid-up PERS service as employees of the legislature during each of five legislative sessions and they were first hired by the legislature after May 29, 1987;
 - (iv) two years of paid-up PERS service and they are vested in TRS; or
 - (v) two years of paid-up PERS service and a minimum three years of TRS service to qualify for a public service benefit.
- b. Members may retire at any age when they have:
 - (i) 20 paid-up years of PERS Peace Officer/Firefighter service; or
 - (ii) 30 paid-up years of PERS "all other" or "elected official" 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 under the "20 and out" or "30 and out" provisions. Members may receive early, actuarially reduced benefits when they reach early retirement age and complete the service required.

Members may elect an early retirement or a joint and survivor option. Members who entered PERS prior to July 1, 1996 may also select a 66-2/3 last survivor option and a level income 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 monthly compensation (AMC) times credited PERS service times the percentage multiplier. The AMC is determined by averaging the salaries earned during the five highest (three highest for Peace Officer/Firefighter members or members hired prior to July 1, 1996) consecutive payroll years. Members must earn at least 115 days of credit in the last year worked to include it in the AMC calculation. PERS pays a minimum benefit of \$25.00 per month for each year of service when the calculated benefit is less.

The percentage multipliers for Peace Officer/Firefighter members are 2% for the first ten years of service and 2.5% for all service over 10 years.

The percentage multipliers for all Others are 2% for the first ten years, 2.25% for the next ten years, and 2.5% for all remaining service earned on or after July 1, 1986. All service before that date is calculated at 2%.

Indebtedness

Members who terminate and refund their PERS contributions are not eligible to retire, unless they return to PERS employment and pay back their refunds plus interest or accrue additional service which qualifies them for retirement. PERS refunds must be paid in full if the corresponding service is to count toward the minimum service requirements for retirement. Refunded PERS service is included in total service for the purpose of calculating retirement benefits. However, if a member is otherwise eligible to retire, 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

Retirement and retiree healthcare benefits are suspended while retired members are reemployed under PERS. During reemployment, members earn additional PERS service and contributions are withheld from their wages. A member who retired with a normal retirement benefit can elect to waive payment of PERS contributions. The waiver allows the member to continue receiving the retirement benefit during the period of reemployment. Members who elect the waiver option do not earn additional PERS service. The Waiver Option first became effective July 1, 2005 and applies to reemployment periods after that date. The Waiver Option is not available to members who retired early or under the Retirement Incentive Programs (RIPs). The Waiver Option is no longer available after June 30, 2009.

Members retired under the Retirement Incentive Programs (RIPs) who return to employment under PERS, TRS, or the University of Alaska's Optional Retirement Plan will:

- a. forfeit the three years of incentive credits that they received;
- b. owe PERS 150% of the benefits that they received for state and political subdivision members, and 110% for school district employees, under the 1996-2000 RIP, which may include costs for health insurance, excluding amounts that they paid to participate for the 1986 and 1989 RIPs. Under prior RIPs, the penalty is 110% of the benefits received; 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

Major medical benefits are provided to retirees and their surviving spouses by PERS for all employees hired before July 1, 1986 (Tier 1) and disabled retirees. Employees hired after June 30, 1986 (Tier 2) and their surviving spouses with five years of credited service (or ten years of credited service for those first hired after June 30, 1996 (Tier 3)) must pay the full monthly premium if they are under age sixty and will receive benefits paid by PERS if they are over age sixty. Tier 3 Members with between five and ten years of credited service must pay the full monthly premium regardless of their age. Tier 2 and Tier 3 Members with less than five years of credited service are not eligible for postemployment healthcare benefits. Tier 2 Members who are receiving a conditional benefit and are age eligible are eligible for postemployment healthcare benefits. In addition, Peace Officers and their surviving spouses with twenty-five years of Peace Officer membership service, Other employees and their surviving spouses with thirty years of membership service, and any disabled member receive benefits paid by PERS, regardless of their age or date of hire.

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.

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

Occupational Disability

Members are not required to satisfy age or service requirements to be eligible for occupational disability. Monthly benefits are equal to 40% of their gross monthly compensation on the date of their disability. Members on occupational disability continue to earn PERS service until they become eligible for normal retirement. Peace Officer/Firefighter members may elect to retain the disability benefit formula for the calculation of their normal retirement benefits.

Non-occupational Disability

Members must be vested (five paid up years of PERS service) to be eligible for non-occupational disability benefits. Monthly benefits are calculated based on the member's average monthly compensation and PERS service on the date of termination from employment because of disability. Members do not earn PERS service while on non-occupational disability.

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 occupational and non-occupational death provisions, the designated beneficiary receives the lump sum benefit described below.

Occupational Death

When an active member (vested or non-vested) dies from occupational causes, a monthly survivor's pension may be paid to the spouse. The pension equals 40% of the member's gross monthly compensation 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 salary on the date of death and service, including service accumulated from the date of the member's death to the normal retirement date. Survivors of Peace Officer/Firefighter members receive the greater of 50% of the member's gross monthly compensation on the date of death or disability, or 75% of the member's monthly normal retirement benefit (including service projected to Normal Retirement). If the member is unmarried with no children, a refund of contributions is payable to the estate.

Death after Occupational Disability

When a member dies while occupationally disabled, benefits are paid as described above in Occupational Death.

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. The monthly benefit is calculated on the member's average monthly compensation and PERS service at the time of termination or death.

Lump Sum Non-occupational Death Benefit

Upon the death of a member who has less than one year of service, the designated beneficiary receives the member's contribution account, which includes mandatory and voluntary contributions, indebtedness payments, and interest earned. If the member has more than one year of PERS service or is vested, the beneficiary also receives \$1,000 and \$100 for each year of PERS service.

Death After Retirement

When a retired member dies, the designated beneficiary receives the member's contribution account, less any benefits already paid and the member's last benefit check. If the member selected a survivor option at retirement, the eligible spouse receives continuing, lifetime monthly benefits.

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, excluding the Alaska COLA, times:

- a. 75% of the CPI increase in the preceding calendar year or 9%, whichever is less, if the recipient is at least age 65 or on PERS disability; or

- b. 50% of the CPI increase in the preceding calendar year or 6%, whichever is less, if the recipient is at least age 60, or has been receiving benefits for at least five years.

Ad-hoc PRPAs, up to a maximum of 4%, may be granted to eligible recipients who first entered PERS before July 1, 1986 (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

Eligible benefit recipients who reside in Alaska receive an Alaska cost of living allowance (COLA) equal to 10% of their base benefits or \$50, whichever is more. The following benefit recipients are eligible:

- a. members who first entered PERS before July 1, 1986 (Tier 1) and their survivors;
- b. members who first entered PERS after June 30, 1986 (Tiers 2 & 3) and their survivors if they are at least age 65; and
- c. all disabled members.

Changes in Benefit Provisions Valued Since the Prior Valuation

There were no 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 Method

Entry Age Normal Cost.

Liabilities and contributions shown in the report are computed using the Entry Age Normal Actuarial Cost Method.

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 2014¹. 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 value method recognizes 20% of the gain or loss each year, for a period of 5 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 have been 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 to develop the initial per capita claims cost rates for the PERS postemployment healthcare plan. Note that the methodology reflects the results of our annual experience rate update for the period from July 1, 2018 to June 30, 2019.

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.

Benefits

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.

Administration and Data Sources

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 2017 through June 2019 (FY18 through FY19) 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, 2019 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 that 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 FY20 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 FY18 through FY19
 - 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 FY19).
 - Because the reports provided this year 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 4/1/1986 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, 2018, and July 1, 2019, 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 Aetna for years through 2018 and Optum for January-June 2019, rebates were assumed to be 12% of prescription drug claims for FY18 and 17% of prescription drug claims for FY19.
2. Develop estimated EGWP reimbursements – Segal provided estimated 2019 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. Due to group size and demographics, we did not make any 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 FY20 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 6/30/17 valuation as outlined below. Note also that 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:

Alaska-Specific and National Average Weighted Trend from Experience Period to Valuation Year			
Experience Period	Medical	Prescription	Weighting Factors
FY18 to FY19	6.2% Pre-Medicare / 4.0% Medicare	8.0%	50%
FY19 to FY20	7.3% Pre-Medicare / 4.6% Medicare	1.2%	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. Develop separate administration costs – no adjustments were made for internal administrative costs. Third party retiree plan administration fees for FY20 are based upon total fees projected to 2020 by Segal based on actual FY19 fees. The annual per participant per year administrative cost rate for medical and prescription benefits is \$348.

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 of the following 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 valuation results included in the report reflect the repeal of this tax. The removal of the Cadillac Tax created an actuarial gain of approximately \$36.3M.

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 provision of health care 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:

- Some records provided on the Aetna data were associated with a participant social security number not listed on the RIN-to-SSN translation file. We reconciled those participants with the pension valuation data as either a surviving spouse or a retiree in the appropriate plan based on account structure information in the Aetna data.
- 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 2018				
1. Incurred Claims	\$ 228,572,782	\$ 72,875,570	\$ 65,406,973	\$ 178,763,430
2. Adjustments for Rx Rebates	0	0	(7,848,837)	(21,451,612)
3. Net incurred claims	\$ 228,572,782	\$ 72,875,570	\$ 57,558,136	\$ 157,311,819
4. Average Enrollment	21,920	40,560	21,920	40,560
5. Claim Cost Rate (3) / (4)	10,428	1,797	2,626	3,878
6. Trend to Fiscal 2020	1.140	1.088	1.093	1.093
7. Fiscal 2020 Incurred Cost Rate (5) x (6)	\$ 11,883	\$ 1,955	\$ 2,870	\$ 4,239

B. Fiscal 2019				
1. Incurred Claims	\$ 230,731,518	\$ 80,855,220	\$ 63,846,605	\$ 183,281,273
2. Adjustments for Rx Rebates	0	0	(10,853,923)	(31,157,816)
3. Net incurred claims	\$ 230,731,518	\$ 80,855,220	\$ 52,992,682	\$ 152,123,456
4. Average Enrollment	20,625	42,843	20,625	42,843
5. Claim Cost Rate (3) / (4)	11,187	1,887	2,569	3,551
6. Trend to Fiscal 2020	1.073	1.046	1.012	1.012
7. Fiscal 2020 Incurred Cost Rate (5) x (6)	\$ 12,003	\$ 1,974	\$ 2,600	\$ 3,593

	Medical		Prescription Drugs (Rx)	
	Pre-Medicare	Medicare	Pre-Medicare	Medicare
C. Incurred Cost Rate by Fiscal Year				
1. Fiscal 2018 A.(7)	11,883	1,955	2,870	4,239
2. Fiscal 2019 B.(7)	12,003	1,974	2,600	3,593

D. Weighting by Fiscal Year				
1. Fiscal 2018	50%	50%	50%	50%
2. Fiscal 2019	50%	50%	50%	50%

E. Fiscal 2020 Incurred Cost Rate				
1. Rate at Average Age C x D	\$ 11,943	\$ 1,964	\$ 2,735	\$ 3,916
2. Average Aging Factor	0.826	1.256	0.838	1.119
3. Rate at Age 65 (1) / (2)	\$ 14,464	\$ 1,564	\$ 3,263	\$ 3,501

F. Development of Part A&B and Part B Only Cost from Pooled Rate Above

1. Part A&B Average Enrollment	42,469
2. Part B Only Average Enrollment	374
3. Total Medicare Average Enrollment B(4)	42,843
4. Cost ratio for those with Part B only to those with Parts A&B	3.180
5. Factor to determine cost for those with Parts A&B (2) / (3) x (4) + (1) / (3) x 1.00	1.019
6. Medicare per capita cost for all participants: E(3)	\$ 1,564
7. Cost for those eligible for Parts A&B: (6) / (5)	\$ 1,534
8. Cost for those eligible for Part B only: (7) x (4)	\$ 4,880

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, 2019 through June 30, 2020**

Age	Medical and Medicare Parts A & B	Medical and Medicare Part B Only	Prescription Drug	Medicare EGWP Subsidy
45	\$ 8,827	\$ 8,827	\$ 1,993	\$ 0
50	9,987	9,987	2,368	0
55	11,299	11,299	2,812	0
60	12,784	12,784	3,029	0
65	1,534	4,880	3,501	1,044
70	1,779	5,657	3,865	1,152
75	2,062	6,558	4,267	1,272
80	2,277	7,240	4,162	1,241

Section 5.3: Summary of Actuarial Assumptions

The demographic and economic assumptions used in the June 30, 2019 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.

100% (male and female) of RP-2014 employee table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement.

Mortality (Post-Commencement)

Mortality rates based upon the 2013-2017 actual experience.

91% of male and 96% of female rates of RP-2014 healthy annuitant table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement.

Turnover

Based upon the 2013-2017 actual experience (See Tables 2 and 3).

Disability

Incidence rates based on 2013-2017 actual experience (See Table 4).

Post-disability mortality in accordance with the RP-2014 disabled table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement. Disabilities are assumed to be occupational 75% of the time for Peace Officer/Firefighters, 40% of the time for Others.

Retirement

Retirement rates based upon the 2013-2017 actual experience (See Tables 5 and 6).

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

For Others, 75% of male members and 70% female members are assumed to be married. For Peace Officer/Firefighters, 85% of male members and 60% of female members are assumed to be married.

Dependent Spouse Medical Coverage Election

Applies to members who do not have double medical coverage. For Others, 65% of male members and 60% female members are assumed to be married and cover a dependent spouse. For Peace Officer/Firefighters, 75% of male members and 50% of female members are assumed to be married and cover a dependent spouse.

Dependent Children

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

For Others, 5% of terminating members with vested benefits are assumed to have their contributions refunded.

For Peace Officers/Firefighters, 10% 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 5 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: 18.77%
- Healthcare: 17.09%

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, 70% of Others and 65% of Peace Officers/Firefighters 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, 2019 was increased by the following amounts for administrative expenses (for projections, the % increase was assumed to remain constant in future years):

- Pension: \$6,839,000
- Healthcare: \$3,744,000

Part-Time Status

Part-time employees are assumed to earn 1.00 years of credited service per year for Peace Officer/Firefighter and 0.75 years of credited service per year for Other members.

Re-Employment Option

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

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 FY20 medical and prescription drugs are shown below:

	Medical	Prescription Drugs
Pre-Medicare	\$ 14,464	\$ 3,263
Medicare Parts A & B	\$ 1,534	\$ 3,501
Medicare Part B Only	\$ 4,880	\$ 3,501
Medicare Part D – EGWP	N/A	\$ 1,044

Members are assumed to attain Medicare eligibility at age 65. All costs are for the 2020 fiscal year (July 1, 2019 – June 30, 2020).

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

\$348 per person per year; assumed to increase at 4.5% per year.

Medicare Part B Only

We assume that 5% of actives hired before 4/1/1986 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, 7.0% is applied to the FY20 pre-Medicare medical claims costs to get the FY21 medical claims costs.

	Medical Pre-65	Medical Post-65	Prescription Drugs / EGWP
FY20	7.0%	5.4%	8.0%
FY21	6.5%	5.4%	7.5%
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 PERS members who are under age 60 and have less than 30 years of service (25 for Peace Officer/Firefighter). Eligible Tier 1 members are exempt from contribution requirements. Annual FY20 contributions based on monthly rates shown below for calendar 2020 are assumed based on the coverage category for current retirees. The composite rate shown is used for current active and inactive members in Tier 2 or 3 who are assumed to retire prior to age 60 with less than 30 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 2020 Annual Contribution	Calendar 2020 Monthly Contribution	Calendar 2019 Monthly Contribution
Retiree Only	\$ 8,892	\$ 741	\$ 823
Retiree and Spouse	\$ 17,784	\$ 1,482	\$ 1,647
Retiree and Child(ren)	\$ 12,564	\$ 1,047	\$ 1,163
Retiree and Family	\$ 21,456	\$ 1,788	\$ 1,987
Composite	\$ 13,212	\$ 1,101	\$ 1,223

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 FY20 retired member medical contributions to get the FY21 retired member medical contributions.

Trend Assumptions	
FY20	0.0%
FY21	0.0%
FY22	0.0%
FY23+	4.0%

Graded trend rates for retired member medical contributions were updated to the rates shown above for the June 30, 2019 valuation to reflect the ongoing shift in population from pre-Medicare to Medicare-eligible and a projection of expected future retiree contributions reflecting the 10% decrease from 2019 to 2020. Actual FY20 retired member medical contributions are reflected in the valuation.

Healthcare Participation

100% of system paid members and their spouses are assumed to elect the 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. Retired member contribution trend rates were updated to reflect the ongoing shift in population from pre-Medicare to Medicare-eligible and a projection of expected future retiree contributions reflecting the 10% decrease from 2019 to 2020. The Further Consolidated Appropriations Act, 2020 that was signed in December 2019 made several changes, including the repeal of the Cadillac Tax. The repeal of the Cadillac Tax reduced the plan's liabilities as of June 30, 2019 by approximately \$36.3M. The amounts included in the Normal Cost for administrative expenses were changed to \$6,839,000 for pension and \$3,744,000 for healthcare (based on the most recent two years of actual administrative expenses paid from plan assets). No adjustment was made to reflect participants who terminate employment before the valuation date and are subsequently rehired after the valuation date.

Table 1: Alaska PERS Salary Scale

Peace Officer / Firefighter		Others	
Service	% Increase	Service	% Increase
0	7.75%	0	6.75%
1	7.25%	1	6.25%
2	6.75%	2	5.75%
3	6.25%	3	5.25%
4	5.75%	4	4.75%
5	5.25%	5	4.25%
6	4.75%	6	3.75%
7	4.25%	7	3.65%
8	3.75%	8	3.55%
9	3.65%	9	3.45%
10	3.55%	10	3.35%
11	3.45%	11	3.25%
12	3.35%	12	3.15%
13	3.25%	13	3.05%
14	3.15%	14	2.95%
15	3.05%	15	2.85%
16	2.95%	16	2.75%
17	2.85%	17	2.75%
18	2.75%	18	2.75%
19	2.75%	19	2.75%
20+	2.75%	20+	2.75%

Table 2: Alaska PERS Peace Officer / Firefighter Turnover Table

Service	Male (rounded)	Female (rounded)
0	0.15	0.15
1	0.12	0.08
2	0.07	0.06
3	0.06	0.06
4	0.06	0.07

Members with 5 or more years of service

Age	Male	Female
20	0.047000	0.068000
21	0.047000	0.068000
22	0.047000	0.068000
23	0.044600	0.068000
24	0.042200	0.068000
25	0.039800	0.068000
26	0.037400	0.068000
27	0.035000	0.068000
28	0.033200	0.066300
29	0.031400	0.064600
30	0.029600	0.062900
31	0.027900	0.061200
32	0.026100	0.059500
33	0.025000	0.053600
34	0.023900	0.047700
35	0.022800	0.041800
36	0.021700	0.036000
37	0.020600	0.030100
38	0.020500	0.029900
39	0.020400	0.029800
40	0.016800	0.033900
41	0.016700	0.033700
42	0.016700	0.033600
43	0.017100	0.033300
44	0.017600	0.033100
45	0.018100	0.032800
46	0.018500	0.032500
47	0.019000	0.032300
48	0.022200	0.031900
49	0.025300	0.031500
50	0.031800	0.064200
51	0.042400	0.063200
52	0.042400	0.061900
53	0.042400	0.060400
54	0.042400	0.030000
55+	0.030000	0.020000

Table 3: Alaska PERS Others Turnover Table

Service	Hire Age < 35		Hire Age >35	
	Male (rounded)	Female (rounded)	Male (rounded)	Female (rounded)
0	0.29	0.29	0.20	0.20
1	0.16	0.20	0.12	0.15
2	0.13	0.16	0.10	0.13
3	0.10	0.13	0.09	0.10
4	0.08	0.10	0.09	0.09

Members with 5 or more years of service

Age	Male	Female
20	0.114000	0.129900
21	0.114000	0.129900
22	0.114000	0.129900
23	0.108300	0.122100
24	0.102600	0.114300
25	0.096900	0.106500
26	0.091200	0.098700
27	0.085500	0.090900
28	0.083000	0.087200
29	0.080500	0.083400
30	0.078000	0.079700
31	0.075400	0.076000
32	0.072900	0.072300
33	0.069900	0.068800
34	0.066900	0.065300
35	0.063900	0.061700
36	0.061000	0.058200
37	0.058000	0.054700
38	0.056300	0.053500
39	0.054700	0.052300
40	0.048600	0.056500
41	0.047100	0.055100
42	0.045600	0.053800
43	0.045000	0.051900
44	0.044400	0.049900
45	0.043900	0.048000
46	0.043300	0.046000
47	0.042700	0.044100
48	0.042600	0.044000
49	0.042400	0.043900
50	0.036300	0.044500
51	0.036000	0.044300
52	0.035600	0.044000
53	0.035200	0.043700
54	0.041700	0.062000
55+	0.030000	0.050000

Table 4: Alaska PERS Disability Table

Age	Peace Officer / Firefighter		Others	
	Male	Female	Male	Female
20	0.000179	0.000112	0.000327	0.000376
21	0.000179	0.000112	0.000327	0.000376
22	0.000179	0.000112	0.000327	0.000376
23	0.000244	0.000153	0.000360	0.000400
24	0.000310	0.000194	0.000392	0.000424
25	0.000374	0.000234	0.000425	0.000448
26	0.000440	0.000275	0.000456	0.000472
27	0.000505	0.000316	0.000489	0.000496
28	0.000526	0.000329	0.000501	0.000510
29	0.000548	0.000343	0.000513	0.000524
30	0.000570	0.000356	0.000524	0.000538
31	0.000591	0.000370	0.000536	0.000554
32	0.000612	0.000383	0.000548	0.000568
33	0.000634	0.000397	0.000566	0.000586
34	0.000657	0.000411	0.000584	0.000606
35	0.000679	0.000425	0.000602	0.000624
36	0.000702	0.000439	0.000620	0.000644
37	0.000724	0.000453	0.000638	0.000662
38	0.000757	0.000473	0.000669	0.000696
39	0.000789	0.000493	0.000701	0.000728
40	0.000822	0.000514	0.000734	0.000762
41	0.000854	0.000534	0.000765	0.000794
42	0.000887	0.000554	0.000797	0.000826
43	0.000977	0.000611	0.000879	0.000908
44	0.001066	0.000667	0.000962	0.000990
45	0.001157	0.000723	0.001043	0.001072
46	0.001247	0.000780	0.001125	0.001154
47	0.001337	0.000836	0.001208	0.001236
48	0.001462	0.000914	0.001329	0.001360
49	0.001588	0.000993	0.001451	0.001484
50	0.001714	0.001071	0.001572	0.001608
51	0.001839	0.001150	0.001694	0.001734
52	0.001965	0.001228	0.001815	0.001858
53	0.002294	0.001434	0.002132	0.002168
54	0.002624	0.001640	0.002450	0.002478

Table 5: Alaska PERS Peace Officer / Firefighter Retirement Table

Age at Retirement	Reduced		Unreduced	
	Male	Female	Male	Female
< 47	N/A	N/A	0.8800	0.0600
47	N/A	N/A	0.8800	0.1500
48	N/A	N/A	0.1430	0.1500
49	N/A	N/A	0.1430	0.1500
50	0.0500	0.0500	0.1650	0.1500
51	0.0500	0.0700	0.1650	0.1500
52	0.0700	0.0700	0.2035	0.1500
53	0.0700	0.0700	0.2035	0.1500
54	0.0700	0.3500	0.2035	0.2500
55	0.0700	0.0800	0.2750	0.2000
56	0.0700	0.0800	0.2750	0.1500
57	0.0700	0.0800	0.2750	0.1500
58	0.0700	0.0800	0.2750	0.1500
59	0.2000	0.2000	0.2750	0.1500
60	N/A	N/A	0.3300	0.2500
61	N/A	N/A	0.2750	0.2000
62	N/A	N/A	0.2750	0.3000
63	N/A	N/A	0.2750	0.5000
64	N/A	N/A	0.2200	0.5000
65	N/A	N/A	0.2200	0.5000
66	N/A	N/A	0.2750	0.5000
67	N/A	N/A	0.5500	0.5000
68	N/A	N/A	0.5500	0.5000
69	N/A	N/A	0.5500	0.5000
70	N/A	N/A	1.0000	1.0000
71	N/A	N/A	1.0000	1.0000
72	N/A	N/A	1.0000	1.0000
73	N/A	N/A	1.0000	1.0000
74	N/A	N/A	1.0000	1.0000
75	N/A	N/A	1.0000	1.0000

Table 6: Alaska PERS Others Retirement Table

Age at Retirement	Reduced		Unreduced	
	Male	Female	Male	Female
< 50	N/A	N/A	0.1100	0.1100
50	0.0600	0.0800	0.3300	0.3850
51	0.0600	0.0800	0.3575	0.3850
52	0.0900	0.0800	0.3575	0.3850
53	0.0600	0.0800	0.3575	0.3850
54	0.2000	0.1500	0.3850	0.3850
55	0.0600	0.0600	0.3300	0.3300
56	0.0600	0.0600	0.2200	0.2200
57	0.0600	0.0600	0.2200	0.1980
58	0.0600	0.0600	0.2200	0.1980
59	0.1500	0.2000	0.2200	0.1980
60	N/A	N/A	0.2200	0.2310
61	N/A	N/A	0.2200	0.2200
62	N/A	N/A	0.2200	0.2200
63	N/A	N/A	0.2200	0.2200
64	N/A	N/A	0.2200	0.2200
65	N/A	N/A	0.2475	0.2860
66	N/A	N/A	0.2750	0.2860
67	N/A	N/A	0.2200	0.2420
68	N/A	N/A	0.2475	0.2420
69	N/A	N/A	0.2750	0.2420
70	N/A	N/A	0.2750	0.2420
71	N/A	N/A	0.2750	0.2420
72	N/A	N/A	0.2750	0.2750
73	N/A	N/A	0.2750	0.2750
74	N/A	N/A	0.2750	0.3850
75 - 79	N/A	N/A	0.5500	0.5500
80+	N/A	N/A	1.0000	1.0000

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.

A new Actuarial Standard of Practice (ASOP) has been adopted for measurements on or after November 1, 2018 - Actuarial Standard of Practice No. 51 ("ASOP 51")¹. ASOP 51 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 recommended contribution in the actuarial valuation
- 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.

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 recommended amount differ.

- If the actual contribution is lower than the recommended 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 12%.
- 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 will 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/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 stand alone assumption and therefore is considered as part of the associated assumption risk instead of 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 4-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 on page 3 shows the plan's funded status (comparison of actuarial accrued liabilities to actuarial value of assets) 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, 2018	June 30, 2019
1. Retiree and Beneficiary Accrued Liability	\$ 9,591,758	\$ 10,076,528
2. Total Accrued Liability	\$ 14,606,033	\$ 15,039,180
3. Ratio, (1) ÷ (2)	65.7%	67.0%

A high percentage of liability concentrated on participants in pay status indicates a mature plan (often a ratio above 60 - 65 percent). Because the plan was closed to new entrants in 2006, we expect the percentage in #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, 2018	FYE June 30, 2019
1. Contributions	\$ 457,339	\$ 498,067
2. Benefit Payments	\$ 812,877	\$ 848,019
3. Cash Flow, (1) – (2)	\$ (355,538)	\$ (349,952)
4. Fair Value of Assets	\$ 9,306,675	\$ 9,489,405
5. Ratio, (3) ÷ (4)	(3.8%)	(3.7%)

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 garner 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, 2018	June 30 2019
1. Fair Value of Assets	\$ 9,306,675	\$ 9,489,405
2. DB/DCR Payroll	\$ 2,267,338	\$ 2,347,306
3. Asset to Payroll Ratio, (1) ÷ (2)	410.5%	404.3%
4. Accrued Liability	\$ 14,606,033	\$ 15,039,180
5. Liability to Payroll Ratio, (4) ÷ (2)	644.2%	640.7%

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.