

# State of Alaska

Teachers' Retirement System

Actuarial Valuation Report  
As of June 30, 2017

June 2018



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June 5, 2018

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

### **Certification of Actuarial Valuation**

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

This report summarizes the annual actuarial valuation results of the State of Alaska Teachers' Retirement System (TRS) as of June 30, 2017 performed by Conduent HR Consulting, LLC (Conduent HR Consulting).

The actuarial valuation is based on financial information provided in the 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), all as summarized in this report. The benefits considered are those delineated in Alaska statutes effective June 30, 2017. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities and other factors under TRS were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Conduent HR Consulting is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of TRS as of June 30, 2017.

TRS is funded by Employer, State, and Member Contributions in accordance with the funding policy adopted by the Alaska Retirement Management Board (Board) and as required by Alaska state statutes. The funding objective for TRS is to pay required contributions that remain level as a percent of total TRS compensation. The Board has also established a funding policy objective that the required contributions be sufficient to pay the Normal Costs of active plan members, plan expenses, and amortize the Unfunded Actuarial Accrued Liability as a level percentage of total TRS compensation over a closed 25-year period and as required by Alaska state statutes. The closed 25-year period was established effective June 30, 2014.

The compensation used to determine required contributions is the total compensation of all active members in TRS, including those hired after July 1, 2006 who are members of the Defined Contribution Retirement (DCR) Plan. This objective is currently being met and is projected to continue to be met.

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

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, 2009 to June 30, 2013. Based on that experience study, the Board adopted new assumptions effective beginning with the June 30, 2014 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, 2017 to better reflect expected future healthcare experience. Based on recent experience, the healthcare cost trend assumptions were also updated. A summary of the actuarial assumptions and methods used in this actuarial valuation are shown in Section 6.

Governmental Accounting Standards Board (GASB) Statement No. 67 (GASB 67) and Statement No. 74 (GASB 74) are effective for TRS during the fiscal year ending June 30, 2017, and separate GASB 67 and GASB 74 reports as of June 30, 2017 have been prepared. Section 3 of this report contains accounting information previously disclosed under GASB 25 for fiscal years 2007 through 2013 and accounting information previously disclosed under GASB 43 for fiscal years 2007 through 2016. We have also prepared the member data tables shown in Section 5 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.

This report was prepared under my supervision and in accordance with all applicable Actuarial Standards of Practice. David Kershner is a Fellow of the Society of Actuaries, an Enrolled Actuary 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.

We are available to discuss this report with you at your convenience. David can be reached at 602-803-6174 and Scott can be reached at 216-682-7583.

Respectfully submitted,

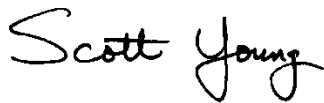
Conduent HR Consulting, LLC



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

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 that reads "Scott Young". The signature is written in a cursive style with a large, stylized "S" and "Y".

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Scott Young, FSA, EA, MAAA  
Director

# Table of Contents

<b>Executive Summary .....</b>	<b>1</b>
<b>Comparative Summary of Key Actuarial Valuation Results.....</b>	<b>6</b>
<b>Section 1: Actuarial Funding Results.....</b>	<b>8</b>
Section 1.1: Actuarial Liabilities and Normal Cost.....	8
Section 1.2: Actuarial Contributions as of June 30, 2017 .....	10
Section 1.3: Roll Forward Contribution Rate Calculation for FY20 .....	11
Section 1.4: Actuarial Gain / (Loss) for FY17 .....	13
Section 1.5: Development of Change in Unfunded Liability During FY17 .....	14
Section 1.6: Analysis of Financial Experience .....	15
Section 1.7: History of Unfunded Liability and Funded Ratio .....	18
<b>Section 2: Plan Assets .....</b>	<b>19</b>
Section 2.1: Summary of Fair Value of Assets.....	19
Section 2.2: Changes in Fair Value of Assets During FY17 .....	20
Section 2.3: Development of Actuarial Value of Assets .....	21
Section 2.4: Historical Asset Rates of Return .....	23
<b>Section 3: Accounting Information (GASB 25 and GASB 43) .....</b>	<b>24</b>
Section 3.1: Historical Exhibits.....	24
Section 3.2: Postemployment Healthcare .....	26
Section 3.3: Solvency Test .....	28
<b>Section 4: Projections .....</b>	<b>31</b>
Section 4.1: Projection Assumptions and Methods .....	31
Section 4.2: Membership Projection .....	32
Section 4.3: Projection of Employer/State Contribution Rates .....	35
Section 4.4: Projection of Employer/State Contribution Amounts.....	36
Section 4.5: Projection of Funded Ratios.....	37
Section 4.6: Table of Projected Actuarial Results .....	38

<b>Section 5: Member Data .....</b>	<b>39</b>
Section 5.1: Summary of Members Included .....	39
Section 5.2: Age and Service Distribution of Active Members.....	43
Section 5.3: Member Data Reconciliation .....	44
Section 5.4: Schedule of Active Member Data.....	46
Section 5.5: Active Member Payroll Reconciliation .....	47
Section 5.6: Summary of New Pension Benefit Recipients .....	48
Section 5.7: Summary of All Pension Benefit Recipients .....	50
Section 5.8: Schedule of Pension Benefit Recipients by Type of Pension Benefit and Option Elected .....	53
Section 5.9: Pension Benefit Recipients Added to and Removed from Rolls .....	54
<b>Section 6: Basis of the Actuarial Valuation .....</b>	<b>55</b>
Section 6.1: Summary of Plan Provisions .....	55
Section 6.2: Description of Actuarial Methods and Valuation Procedures .....	63
Section 6.3: Summary of Actuarial Assumptions .....	71
<b>Glossary of Terms .....</b>	<b>85</b>

# Executive Summary

## Overview

The State of Alaska Teachers' Retirement System (TRS) provides pension and postemployment healthcare benefits to teachers and other eligible participants. The Commissioner of the Department of Administration is responsible for administering the plan. The Alaska Retirement Management Board has fiduciary responsibility over the assets of the plan. This report presents the results of the actuarial valuation of TRS as of the valuation date of June 30, 2017.

## Purpose

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

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

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

Actuarial projections are also performed to provide a long-term view of the expected future funded status and contribution patterns (see Section 4).

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)		2016	2017
<b>Pension</b>			
a.	Actuarial Accrued Liability	\$ 7,159,788	\$ 7,217,525
b.	Valuation Assets	<u>5,428,687</u>	<u>5,476,835</u>
c.	Unfunded Actuarial Accrued Liability, (a) – (b)	\$ 1,731,101	\$ 1,740,690
d.	Funded Ratio based on Valuation Assets, (b) ÷ (a)	75.8%	75.9%
e.	Fair Value of Assets	\$ 4,942,201	\$ 5,312,295
f.	Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	69.0%	73.6%
<b>Healthcare</b>			
a.	Actuarial Accrued Liability	\$ 2,747,836	\$ 2,927,093
b.	Valuation Assets	<u>2,771,704</u>	<u>2,836,802</u>
c.	Unfunded Actuarial Accrued Liability, (a) – (b)	\$ (23,868)	\$ 90,291
d.	Funded Ratio based on Valuation Assets, (b) ÷ (a)	100.9%	96.9%
e.	Fair Value of Assets	\$ 2,523,579	\$ 2,757,631
f.	Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	91.8%	94.2%
<b>Total</b>			
a.	Actuarial Accrued Liability	\$ 9,907,624	\$10,144,618
b.	Valuation Assets	<u>8,200,391</u>	<u>8,313,637</u>
c.	Unfunded Actuarial Accrued Liability, (a) – (b)	\$ 1,707,233	\$ 1,830,981
d.	Funded Ratio based on Valuation Assets, (b) ÷ (a)	82.8%	82.0%
e.	Fair Value of Assets	\$ 7,465,780	\$ 8,069,926
f.	Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	75.4%	79.5%

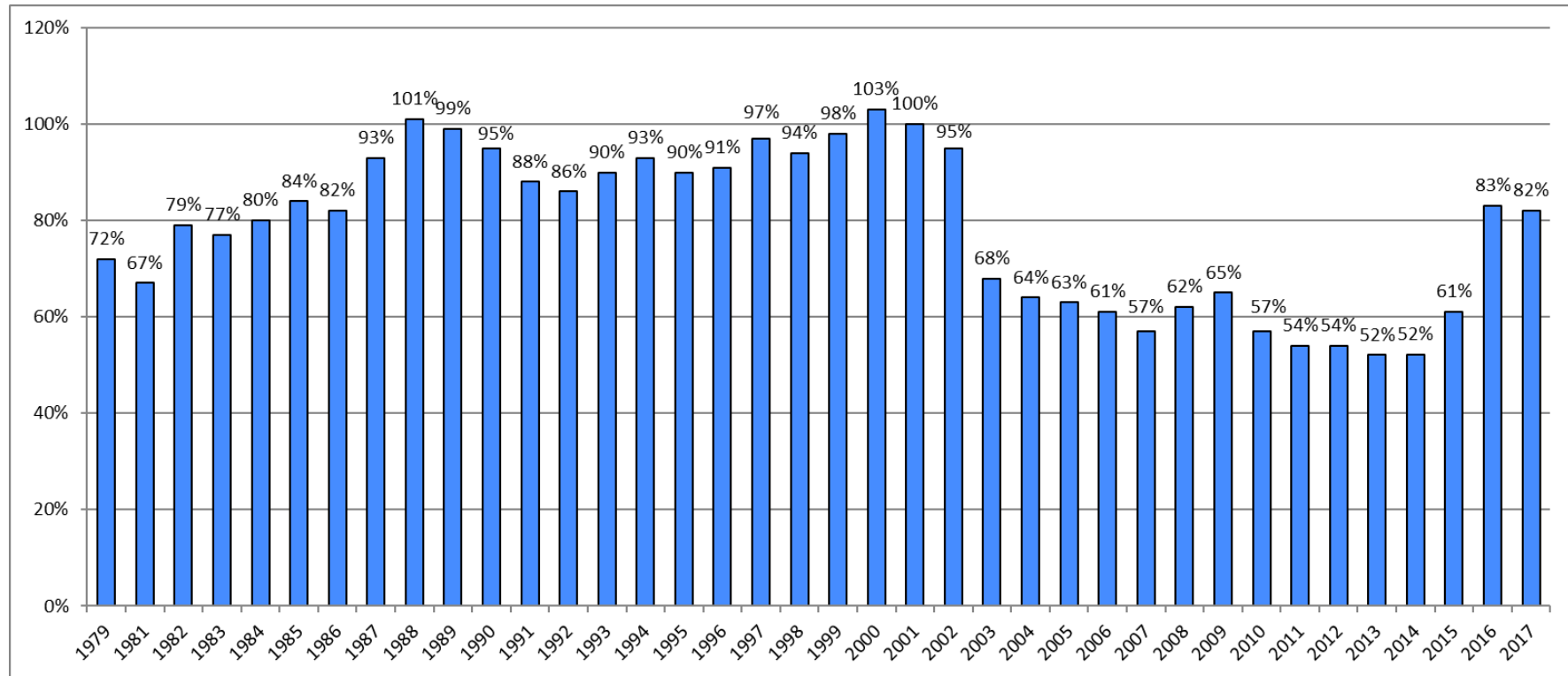
The funded status of the plan (on an Actuarial Value of Assets basis) decreased slightly from June 30, 2016 to June 30, 2017. This decrease was the net impact of various items. The single largest loss was due to the new healthcare trend assumptions. Much of that loss was offset by a gain due to medical claims experience. There were also gains from lower than expected salary increases and cost-of-living adjustments. While the return on market value of assets was greater than expected (approximately 13% vs. 8% expected), there was a net loss on the actuarial value of assets due to the 5-year recognition of investment gains/losses under the asset valuation method.

They key reasons for the change in the funded status are further 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.



## Funded Status (continued)

### TRS Funded Ratio History (Based on Valuation Assets)



## **Funded Status (continued)**

### **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 FY17 investment return based on fair value was approximately 12.9% compared to the expected investment return of 8.00% (net of investment and administrative expenses of approximately 0.2%). This resulted in a market asset gain of approximately \$363 million. Due to the recognition of investment gains and losses over a 5-year period, the FY17 investment return based on actuarial value was approximately 5.6%, which resulted in an actuarial asset loss of approximately \$187 million.

### **2. Salary Increases**

Salary increases for continuing active members during FY17 were less than expected based on the valuation assumptions, which led to liability gains of approximately \$38 million.

### **3. Demographic Experience**

Section 5 provides statistics on active and inactive participants. The number of active participants decreased 6.9% from 5,123 at June 30, 2016 to 4,772 at June 30, 2017 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 50.50 to 50.86 and average credited service increased from 17.53 to 18.12 years.

The number of retirees and beneficiaries increased 2.0% from 12,726 to 12,983, and their average age increased from 69.85 to 70.36. The number of vested terminated participants increased from 875 to 876. Their average age increased from 50.25 to 50.82.

The overall effect of the demographic experience during FY17 was an actuarial loss of approximately \$4 million (pension) and an actuarial gain of approximately \$17 million (healthcare).

### **4. COLA/PRPA Experience**

The cost-of-living increases and postretirement pension adjustments for benefit recipients during FY17 were less than expected based on the valuation assumptions, resulting in a liability gain of approximately \$93 million.

### **5. Medical Claims Experience and Assumptions**

As described in Section 6.2, recent medical claims experience and changes in healthcare enrollment data provided to us for the June 30, 2017 valuation created an actuarial gain of approximately \$258 million. As described in Section 6.3, updated trend rates and the projected impact of the Cadillac Tax generated an actuarial loss of approximately \$379 million.

## **Funded Status (continued)**

### **6. Changes in Methods Since the Prior Valuation**

There have been no changes in the asset or valuation methods since the prior valuation

### **7. Changes in Assumptions Since the Prior Valuation**

The medical trend rate assumption was updated as shown in Section 6.3 to reflect anticipated increases in costs based on recent survey data. An obligation for the Cadillac Tax was also added this year because it was no longer deemed immaterial due to the updated trend rates and the change to use chained CPI (which was part of the Tax Cut and Jobs Act passed in December 2017) to project the tax thresholds in future years.

### **8. Changes in Benefit Provisions Since the Prior Valuation**

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

## Comparative Summary of Key Actuarial Valuation Results

Pension Employer/State Contribution Rates for Fiscal Year:		
	2019	2020
a. Normal Cost Rate Net of Member Contributions	3.26%	3.09%
b. Past Service Rate	<u>17.60%</u>	<u>17.63%</u>
c. Total Employer/State Contribution Rate, (a) + (b) <sup>1</sup>	20.86%	20.72%
Healthcare Employer/State Contribution Rates for Fiscal Year:		
	2019	2020
a. Normal Cost Rate	2.03%	2.05%
b. Past Service Rate	<u>0.67%</u>	<u>1.95%</u>
c. Total Employer/State Contribution Rate, (a) + (b) <sup>1</sup>	2.70%	4.00%
Total Employer/State Contribution Rates for Fiscal Year:		
	2019	2020
a. Normal Cost Rate Net of Member Contributions	5.29%	5.14%
b. Past Service Rate	<u>18.27%</u>	<u>19.58%</u>
c. Total Employer/State Contribution Rate, (a) + (b) <sup>1</sup>	23.56%	24.72%
d. Board Adopted Total Employer/State Contribution Rate	23.56%	TBD
e. Defined Contribution Retirement (DCR) Rate Paid by Employers	<u>5.34%</u>	<u>5.85%</u>
f. Board Adopted Total Rate, Including DCR Rate Paid by Employers, (d) + (e)	28.90%	TBD

Contribution rates are based on total (DB and DCR) payroll. The contribution rates shown above for FY20 are estimated assuming no actuarial gains/losses during FY18 and FY19.

Contribution rates include Employer contribution rates as limited by state statute, and include the additional State contribution required under SB 125.

<sup>1</sup> 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.

## 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, 2016 to June 30, 2017 based on DB and DCR member payroll combined:

	Pension	Healthcare	Total
1. Total Employer/State contribution rate as of June 30, 2016	19.16%	2.57%	21.73%
2. Change due to:			
a. Health claims experience	N/A	(2.32)%	(2.32)%
b. Salary increases	(0.34)%	N/A	(0.34)%
c. Investment experience	1.12%	0.56%	1.68%
d. Demographic experience and miscellaneous <sup>1</sup>	(0.47)%	(0.71)%	(1.18)%
e. FY17 Contribution shortfall/(excess)	(0.07)%	(0.11)%	(0.18)%
f. Assumption changes	0.00%	3.41%	3.41%
g. Total change, (a) + (b) + (c) + (d) + (e) + (f)	0.24%	0.83%	1.07%
3. Total Employer/State contribution rate as of June 30, 2017, (1) + (2)(g)	19.40%	3.40%	22.80%

The following table shows the FY17 gain/(loss) on actuarial accrued liability as of June 30, 2017 (\$'s in 000's):

	Pension	Healthcare	Total
Retirement Experience	\$ 9,201	\$ 5,174	\$ 14,375
Termination Experience	(11,770)	(7,543)	(19,313)
Active Mortality Experience	1,020	(517)	503
Inactive Mortality Experience	(1,302)	8,295	6,993
Disability Experience	(1,010)	(666)	(1,676)
Rehires	5,142	(1,755)	3,387
Salary Increases	37,590	N/A	37,590
Alaska COLA	2,347	N/A	2,347
PRPA	90,530	N/A	90,530
Spousal Elections	N/A	12,000	12,000
New Trend Assumptions	N/A	(357,455)	(357,455)
Medical Claims Experience <sup>2</sup>	N/A	257,626	257,626
Cadillac Tax Impact	N/A	(21,375)	(21,375)
Programming Changes			
• Spouses of Disabled Participants <sup>3</sup>	N/A	7,798	7,798
Elimination of Duplicate Dependent Records <sup>4</sup>	N/A	10,000	10,000
Miscellaneous <sup>5</sup>	(10,367)	24,433	14,066
Total	\$ 121,381	\$ (63,985)	\$ 57,396

<sup>1</sup> Includes the effects of census data changes between the two valuations.

<sup>2</sup> Includes the effects of changes in pre-Medicare and post-Medicare enrollment counts.

<sup>3</sup> Spouses of disabled participants are no longer being valued as both disabled spouses and retiree spouses.

<sup>4</sup> The retiree data we received from Aetna for the 2016 valuation included many duplicates of dependent lives that we discovered when we were performing the 2017 valuation.

<sup>5</sup> This category includes the effects of various data changes that are typical when new census data is received for the annual valuation, the effects of differences between expected and actual benefit payments, and other items that do not fit neatly into any of the other categories.

## Section 1: Actuarial Funding Results

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

As of June 30, 2017	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
<b>Active Members</b>		
Retirement Benefits	\$ 2,119,383	\$ 1,858,701
Termination Benefits	44,234	16,067
Disability Benefits	3,812	(1,801)
Death Benefits	11,340	9,175
Return of Contributions	4,465	(51,455)
Medical and Prescription Drug Benefits	1,113,029	1,006,028
Medicare Part D Subsidy	(65,034)	(59,083)
Indebtedness	<u>(32,110)</u>	<u>(32,110)</u>
Subtotal	\$ 3,199,120	\$ 2,745,522
<b>Inactive Members</b>		
Not Vested	\$ 40,458	\$ 40,458
Vested Terminations		
- Retirement Benefits	133,236	133,236
- Medical and Prescription Drug Benefits	204,081	204,081
- Medicare Part D Subsidy	(11,771)	(11,771)
- Indebtedness	(5,000)	(5,000)
Retirees & Beneficiaries		
- Retirement Benefits	5,250,254	5,250,254
- Medical and Prescription Drug Benefits	1,945,319	1,945,319
- Medicare Part D Subsidy	<u>(157,481)</u>	<u>(157,481)</u>
Subtotal	\$ 7,399,096	\$ 7,399,096
<b>Total</b>	<b>\$ 10,598,216</b>	<b>\$ 10,144,618</b>
<b>Total Pension</b>	<b>\$ 7,570,072</b>	<b>\$ 7,217,525</b>
<b>Total Medical, Net of Part D Subsidy</b>	<b>\$ 3,028,143</b>	<b>\$ 2,927,093</b>
<b>Total Medical, Gross of Part D Subsidy</b>	<b>\$ 3,262,429</b>	<b>\$ 3,155,428</b>

As of June 30, 2017	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
<b>By Tier</b>		
Tier 1		
- Pension	\$ 4,842,431	\$ 4,819,211
- Medical, Net of Part D Subsidy	1,559,528	1,554,579
Tier 2		
- Pension	2,727,641	2,398,314
- Medical, Net of Part D Subsidy	<u>1,468,616</u>	<u>1,372,514</u>
<b>Total</b>	<b>\$ 10,598,216</b>	<b>\$ 10,144,618</b>

As of June 30, 2017	Normal Cost
<b>Active Members</b>	
Retirement Benefits	\$ 40,602
Termination Benefits	4,231
Disability Benefits	853
Death Benefits	351
Return of Contributions	8,787
Medical and Prescription Drug Benefits	18,780
Medicare Part D Subsidy	(1,078)
Rehire Assumption (Pension)	10,137
Rehire Assumption (Medical)	<u>1,839</u>
Subtotal	\$ 84,502
<b>Total</b>	<b>\$ 84,502</b>
<b>Total Pension</b>	<b>\$ 64,961</b>
<b>Total Medical, Net of Part D Subsidy</b>	<b>\$ 19,541</b>
<b>Total Medical, Gross of Part D Subsidy</b>	<b>\$ 20,731</b>
<b>By Tier</b>	
Tier 1	
- Pension	\$ 6,871
- Medical, Net of Part D Subsidy	1,462
Tier 2	
- Pension	58,090
- Medical, Net of Part D Subsidy	<u>18,079</u>
<b>Total</b>	<b>\$ 84,502</b>

## Section 1.2: Actuarial Contributions as of June 30, 2017 (\$'s in 000's)

Normal Cost Rate		Pension	Healthcare	Total
1.	Total Normal Cost	\$ 64,961	\$ 19,541	\$ 84,502
2.	DB Rate Payroll Projected for FY18	425,841	425,841	425,841
3.	DCR Rate Payroll Projected for FY18	327,765	327,765	327,765
4.	Total Rate Payroll Projected for FY18	753,606	753,606	753,606
5.	Normal Cost Rate			
a.	Based on DB Rate Payroll, (1) ÷ (2)	15.25%	4.59%	19.84%
b.	Based on Total Rate Payroll, (1) ÷ (4)	8.62%	2.59%	11.21%
6.	Average Member Contribution Rate <sup>1</sup>	4.89%	0.00%	4.89%
7.	Employer Normal Cost Rate, (5)(b) – (6)	3.73%	2.59%	6.32%
Past Service Rate				
1.	Actuarial Accrued Liability	\$ 7,217,525	\$ 2,927,093	\$10,144,618
2.	Valuation Assets	<u>5,476,835</u>	<u>2,836,802</u>	<u>8,313,637</u>
3.	Total Unfunded Actuarial Accrued Liability, (1) – (2)	\$ 1,740,690	\$ 90,291	\$ 1,830,981
4.	Funded Ratio, (2) ÷ (1)	75.88%	96.92%	81.957%
5.	Past Service Cost Amortization Payment <sup>2</sup>	118,090	6,125	124,215
6.	Total Rate Payroll Projected for FY18	753,606	753,606	753,606
7.	Past Service Rate, (5) ÷ (6)	15.67%	0.81%	16.48%
<b>Total Employer/State Contribution Rate</b>		<b>19.40%</b>	<b>3.40%</b>	<b>22.80%</b>
<b>Normal Cost Rate by Tier (Total Employer and Member) <sup>3</sup></b>				
	Tier 1	15.98%	3.40%	19.38%
	Tier 2	15.17%	4.72%	19.89%
	Maturity Ratio	75.10%	67.60%	72.90%

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

<sup>2</sup> Calculated on a level percent of pay basis over a 22-year period as of June 30, 2017.

<sup>3</sup> Rate determined considering the pay for members of the plan in each tier. DCR payroll is excluded from these calculations.



## Section 1.3: Roll Forward Contribution Rate Calculation for FY20<sup>1</sup> (\$ in 000's)

	Pension	Healthcare	Total
<b>1. Liability Roll Forward</b>			
a. Actuarial Accrued Liability as of June 30, 2017	\$ 7,217,525	\$ 2,927,093	\$ 10,144,618
b. Normal Cost	64,961	19,541	84,502
c. Interest on (a) and (b) at 8.00%	582,599	235,731	818,330
d. Estimated Benefit Payments	(469,497)	(132,084)	(601,581)
e. Interest on (d) at 8.00%, adjusted for timing	(19,986)	(5,623)	(25,609)
<b>f. Expected Actuarial Accrued Liability as of June 30, 2018</b>	<b>\$ 7,375,602</b>	<b>\$ 3,044,658</b>	<b>\$ 10,420,260</b>
g. Projected Normal Cost	60,861	17,788	78,649
h. Interest on (f) and (g) at 8.00%	594,917	244,996	839,913
i. Estimated Benefit Payments	(491,263)	(142,048)	(633,311)
j. Interest on (i) at 8.00%, adjusted for timing	(20,912)	(6,047)	(26,959)
<b>k. Expected Actuarial Accrued Liability as of June 30, 2019</b>	<b>\$ 7,519,205</b>	<b>\$ 3,159,347</b>	<b>\$ 10,678,552</b>
<b>2. Asset Roll Forward</b>			
a. Actuarial Value of Assets as of June 30, 2017	\$ 5,476,835	\$ 2,836,802	\$ 8,313,637
b. Interest on (a) at 8.00%	438,147	226,944	665,091
c. Employee Contributions	40,708	0	40,708
d. Employer Contributions	42,202	14,545	56,747
e. State Assistance Contributions	111,757	0	111,757
f. Interest on (c) – (e) at 8.00%, adjusted for timing*	11,422	571	11,993
g. Estimated Benefit Payments	(469,497)	(132,084)	(601,581)
h. AVA Adjustments	(98,430)	(49,238)	(147,668)
i. Interest on (g) at 8.00%, adjusted for timing	(19,986)	(5,623)	(25,609)
<b>j. Expected Actuarial Value of Assets as of June 30, 2018</b>	<b>\$ 5,533,158</b>	<b>\$ 2,891,917</b>	<b>\$ 8,425,075</b>
k. Interest on (j) at 8.00%	442,653	231,353	674,006
l. Employee Contributions	38,683	0	38,683
m. Employer Contributions	39,427	16,171	55,598
n. State Assistance Contributions	128,174	0	128,174
o. Interest on (l) – (n) at 8.00%, adjusted for timing*	12,433	634	13,067
p. Estimated Benefit Payments	(491,263)	(142,048)	(633,311)
q. AVA Adjustments	(91,609)	(45,803)	(137,412)
r. Interest on (p) at 8.00%, adjusted for timing	(20,912)	(6,047)	(26,959)
<b>s. Expected Actuarial Value of Assets as of June 30, 2019</b>	<b>\$ 5,590,744</b>	<b>\$ 2,946,177</b>	<b>\$ 8,536,921</b>
<b>3. Expected Unfunded Actuarial Accrued Liability as of June 30, 2019 1(k) - 2(s)</b>	<b>\$ 1,928,461</b>	<b>\$ 213,170</b>	<b>\$ 2,141,631</b>

\* Employee and Employer Contributions are paid throughout the year. State Assistance is assumed to be paid on August 1<sup>st</sup> (entirely to pension) of each year. Actual timing and allocation of FY19 State Assistance contributions between pension and healthcare to be determined by the ARMB.

<sup>1</sup> Assuming no actuarial gains/losses during FY18 and FY19.  
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	Pension	Healthcare	Total
<b>4. Expected Annual Rate Payroll for FY20</b>			
a. Defined Benefit Members		\$	375,556
b. Defined Contribution Retirement Members			<u>412,434</u>
<b>c. Total Rate Payroll</b>		\$	<b>787,991</b>
<b>5. Expected FY20 Contribution Rate Calculation</b>			
a. Projected Normal Cost for FY20	\$ 56,815	\$ 16,149	\$ 72,964
b. Projected Normal Cost Rate for FY20	7.21%	2.05%	9.26%
c. Expected Member Contribution Rate for FY20	(4.12%)	0.00%	(4.12%)
<b>d. Expected Employer Normal Cost Rate for FY20</b>	<b>3.09%</b>	<b>2.05%</b>	<b>5.14%</b>
e. Expected Unfunded Liability as of June 30, 2019	\$ 1,928,461	\$ 213,170	\$ 2,141,631
f. 20 Year Amortization of Expected Unfunded Liability	138,895	13,353	154,248
<b>g. Expected Past Service Cost Contribution Rate for FY20</b>	<b>17.63%</b>	<b>1.95%</b>	<b>19.58%</b>
<b>h. Expected Total Contribution Rate for FY20</b>	<b>\$ 20.72%</b>	<b>\$ 4.00%</b>	<b>\$ 24.72%</b>

## Section 1.4: Actuarial Gain / (Loss) for FY17 (\$'s in 000's)

	Pension	Healthcare	Total
1. Expected Actuarial Accrued Liability			
a. Actuarial Accrued Liability, June 30, 2016	\$ 7,159,788	\$ 2,747,836	\$ 9,907,624
b. Normal Cost	68,376	19,260	87,636
c. Interest on (a) and (b) at 8.00%	578,253	221,368	799,621
d. Benefit Payments	446,044	120,238	566,282
e. Refund of Contributions	2,378	0	2,378
f. Interest on (d) and (e) at 8.00%, adjusted for timing	19,089	5,118	24,207
g. Change in Actuarial Assumptions and Healthcare Claims	<u>0</u>	<u>121,204</u>	<u>121,204</u>
h. Expected Actuarial Accrued Liability as of June 30, 2017, (a) + (b) + (c) – (d) – (e) – (f) + (g)	\$ 7,338,906	\$ 2,984,312	\$ 10,323,218
2. Actual Actuarial Accrued Liability, June 30, 2017	<u>7,217,525</u>	<u>2,927,093</u>	<u>10,144,618</u>
3. <b>Liability Gain/(Loss), (1)(h) – (2)</b>	<b>\$ 121,381</b>	<b>\$ 57,219</b>	<b>\$ 178,600</b>
4. Expected Actuarial Asset Value			
a. Actuarial Asset Value, June 30, 2016	\$ 5,428,687	\$ 2,771,704	\$ 8,200,391
b. Interest on (a) at 8.00%	434,295	221,736	656,031
c. Employee Contributions	39,878	0	39,878
d. Employer Contributions	36,634	24,069	60,703
e. State Assistance Contributions	116,700	0	116,700
f. Medicare Part D Subsidy	0	6,212	6,212
g. Interest on (c), (d), (e) and (f) at 8.00%, adjusted for timing	12,338	1,188	13,526
h. Benefit Payments	446,044	120,238	566,282
i. Refund of Contributions	2,378	0	2,378
j. Interest on (h) and (i) at 8.00%, adjusted for timing	<u>19,089</u>	<u>5,118</u>	<u>24,207</u>
k. Expected Actuarial Asset Value, June 30, 2017, (a) + (b) + (c) + (d) + (e) + (f) + (g) – (h) – (i) – (j)	\$ 5,601,021	\$ 2,899,553	\$ 8,500,574
5. Actuarial Asset Value, June 30, 2017	<u>5,476,835</u>	<u>2,836,802</u>	<u>8,313,637</u>
6. <b>Actuarial Asset Gain/(Loss), (5) – (4)(k)</b>	<b>\$ (124,186)</b>	<b>\$ (62,751)</b>	<b>\$ (186,937)</b>
7. <b>Total Actuarial Gain/(Loss), (3) + (6)</b>	<b>\$ (2,805)</b>	<b>\$ (5,532)</b>	<b>\$ (8,337)</b>
8. <b>Contribution Gain/(Loss)</b>	<b>\$ 8,238</b>	<b>\$ 12,370</b>	<b>\$ 20,608</b>
9. <b>FY17 Gain/(Loss), (7) + (8)</b>	<b>\$ 5,433</b>	<b>\$ 6,838</b>	<b>\$ 12,272</b>

## Section 1.5: Development of Change in Unfunded Liability During FY17 (\$'s in 000's)

	Pension	Healthcare	Total
1. 2016 Unfunded Liability	\$ 1,731,101	\$ (23,868)	\$ 1,707,233
a. Interest on Unfunded Liability at 8.00%	\$ 138,488	\$ (1,909)	\$ 136,579
b. Normal Cost	68,376	19,260	87,636
c. Employee Contributions	(39,878)	0	(39,878)
d. Employer Contributions	(36,634)	(24,069)	(60,703)
e. State Assistance Contributions	(116,700)	0	(116,700)
f. Medicare Part D Subsidy	0	(6,212)	(6,212)
g. Interest on (b) - (f) at 8.00%, adjusted for timing	(6,868)	353	(6,515)
h. Change in Assumptions and Healthcare Claims	<u>0</u>	<u>121,204</u>	<u>121,204</u>
i. Expected change in Unfunded Liability during FY17	\$ 6,784	\$ 108,627	\$ 115,411
2. Expected 2017 Unfunded Liability, (1) + (1)(i)	\$ 1,737,885	\$ 84,759	\$ 1,822,644
a. Liability (gain)/loss during FY17	\$ (121,381)	\$ (57,219)	\$ (178,600)
b. Actuarial Assets (gain)/loss during FY17	<u>124,186</u>	<u>62,751</u>	<u>186,937</u>
c. Total actuarial (gain)/loss during FY17	\$ 2,805	\$ 5,532	\$ 8,337
3. Actual 2017 Unfunded Liability, (2) + (2)(c)	\$ 1,740,690	\$ 90,291	\$ 1,830,981

## 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				
	2013	2014	2015	2016	2017
1. Health Claims	N/A	N/A	N/A	N/A	N/A
2. Salary Experience	(0.30)%	(0.43)%	(0.34)%	(0.42)%	(0.39)%
3. Investment Experience	2.09%	(3.97)%	0.40%	1.36%	1.32%
4. Demographic Experience and Miscellaneous	0.38%	1.75%	(0.52)%	(0.98)%	(0.98)%
5. Contribution Shortfall	<u>1.34%</u>	<u>1.10%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>(0.09)%</u>
6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5)	3.51%	(1.55)%	(0.46)%	(0.04)%	(0.14)%
7. Assumption and Method Changes	0.00%	(28.73)%	0.00%	2.73%	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)	3.51%	(30.28)%	(0.46)%	2.69%	(0.14)%
10. Beginning Total Employer/State Contribution Rate	<u>44.55%</u>	<u>48.06%</u>	<u>17.78%</u>	<u>19.16%</u>	<u>20.86%</u>
11. Ending Valuation Year Total Employer/State Contribution Rate, (9) + (10)	48.06%	17.78%	17.32%	21.85%	20.72%
12. Fiscal Year Rates					
a. Fiscal Year Employer/State Contribution Rates	15.85%	17.78%	19.16%	20.86%	20.72%*
b. Fiscal Year for Which Rate Applies	FY16	FY17	FY18	FY19	FY20

\*Expected. 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				
	2013	2014	2015	2016	2017
1. Health Claims <sup>1</sup>	(1.21)%	(8.59)%	(4.07)%	(0.43)%	(2.75)%
2. Salary Experience	N/A	N/A	N/A	N/A	N/A
3. Investment Experience	0.35%	(2.34)%	0.22%	0.71%	0.67%
4. Demographic Experience and Miscellaneous	N/A	N/A	N/A	N/A	(0.53)%
5. Contribution Shortfall	<u>0.28%</u>	<u>0.14%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>(0.13)%</u>
6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5)	(0.58)%	(10.79)%	(3.85)%	0.28%	(2.74)%
7. Assumption and Method Changes	0.00%	(4.77)%	0.00%	0.46%	4.04%
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)	(0.58)%	(15.56)%	(3.85)%	0.74%	1.30%
10. Beginning Total Employer/State Contribution Rate	<u>21.76%</u>	<u>21.18%</u>	<u>5.62%</u>	<u>2.59%</u>	<u>2.70%</u>
11. Ending Valuation Year Total Employer/State Contribution Rate, (9) + (10)	21.18%	5.62%	1.77%	3.33%	4.00%
12. Fiscal Year Rates					
a. Fiscal Year Employer/State Contribution Rates	8.63%	5.62%	2.59%	2.70%	4.00%*
b. Fiscal Year for Which Rate Applies	FY16	FY17	FY18	FY19	FY20

\*Expected. Actual Rate to be determined.

<sup>1</sup> 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				
	2013	2014	2015	2016	2017
1. Health Claims <sup>1</sup>	(1.21)%	(8.59)%	(4.07)%	(0.43)%	(2.75)%
2. Salary Experience	(0.30)%	(0.43)%	(0.34)%	(0.42)%	(0.39)%
3. Investment Experience	2.44%	(6.31)%	0.62%	2.07%	1.99%
4. Demographic Experience and Miscellaneous	0.38%	1.75%	(0.52)%	(0.98)%	(1.51)%
5. Contribution Shortfall	<u>1.62%</u>	<u>1.24%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>(0.22)%</u>
6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5)	2.93%	(12.34)%	(4.31)%	0.24%	(2.88)%
7. Assumption and Method Changes	0.00%	(33.50)%	0.00%	3.19%	4.04%
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)	2.93%	(45.84)%	(4.31)%	3.43%	1.16%
10. Beginning Total Employer/State Contribution Rate	<u>66.31%</u>	<u>69.24%</u>	<u>23.40%</u>	<u>21.75%</u>	<u>23.56%</u>
11. Ending Valuation Year Total Employer/State Contribution Rate, (9) + (10)	69.24%	23.40%	19.09%	25.18%	24.72%
12. Fiscal Year Rates					
a. Fiscal Year Employer/State Contribution Rates	24.48%	23.40%	21.75%	23.56%	24.72%*
b. Fiscal Year for Which Rate Applies	FY16	FY17	FY18	FY19	FY20

\*Expected. Actual Rate to be determined.

<sup>1</sup> 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	\$ 5,835,609	\$ 3,752,285	64.3%	\$ 2,083,324
June 30, 2004	\$ 6,123,600	\$ 3,845,370	62.8%	\$ 2,278,230
June 30, 2005	\$ 6,498,556	\$ 3,958,939	60.9%	\$ 2,539,617
June 30, 2006	\$ 7,229,851	\$ 4,141,700	57.3%	\$ 3,088,151
June 30, 2007	\$ 7,189,403	\$ 4,424,399	61.5%	\$ 2,765,004
June 30, 2008	\$ 7,619,178	\$ 4,936,976	64.8%	\$ 2,682,202
June 30, 2009	\$ 7,847,514	\$ 4,472,958	57.0%	\$ 3,374,556
June 30, 2010	\$ 8,847,788	\$ 4,739,128	53.6%	\$ 4,108,660
June 30, 2011	\$ 9,128,795	\$ 4,937,937	54.1%	\$ 4,190,858
June 30, 2012	\$ 9,346,444	\$ 4,869,154	52.1%	\$ 4,477,290
June 30, 2013	\$ 9,592,107	\$ 4,974,076	51.9%	\$ 4,618,031
June 30, 2014	\$ 9,841,032	\$ 6,019,274	61.2%	\$ 3,821,758
June 30, 2015	\$ 9,729,117	\$ 8,108,923	83.3%	\$ 1,620,194
June 30, 2016	\$ 9,907,624	\$ 8,200,391	82.8%	\$ 1,707,233
June 30, 2017	\$ 10,144,618	\$ 8,313,637	82.0%	\$ 1,830,981



## Section 2: Plan Assets

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

As of June 30, 2017	Pension	Healthcare	Total Fair Value	Allocation Percent
Cash and Short-Term Investments				
– Cash and Cash Equivalents	\$ 139,450	\$ 71,713	\$ 211,163	2.6%
– Subtotal	\$ 139,450	\$ 71,713	\$ 211,163	2.6%
Fixed Income Investments				
– Domestic Fixed Income Pool	\$ 448,908	\$ 234,174	\$ 683,082	8.5%
– International Fixed Income Pool	38,735	20,206	58,941	0.7%
– High Yield Pool	135,934	70,910	206,844	2.5%
– Treasury Inflation Protection Pool	11,681	6,094	17,775	0.2%
– Emerging Debt Pool	35,019	18,268	53,287	0.7%
– Tactical Fixed Income Pool	<u>47,133</u>	<u>24,587</u>	<u>71,720</u>	<u>0.9%</u>
– Subtotal	\$ 717,410	\$ 374,239	\$ 1,091,649	13.4%
Equity Investments				
– Domestic Equity Pool	\$ 1,356,557	\$ 707,699	\$ 2,064,256	25.3%
– International Equity Pool	1,090,177	568,693	1,658,870	20.4%
– Private Equity Pool	447,288	233,329	680,617	8.4%
– Emerging Markets Equity Pool	165,246	86,201	251,447	3.1%
– Alternative Equity Strategies	<u>203,621</u>	<u>106,219</u>	<u>309,840</u>	<u>3.8%</u>
– Subtotal	\$ 3,262,889	\$ 1,702,141	\$ 4,965,030	61.1%
Other Investments				
– Real Estate Pool	\$ 377,714	\$ 196,899	\$ 574,613	7.1%
– Other Investments Pool	510,458	266,282	776,740	9.6%
– Absolute Return Pool	336,372	175,470	511,842	6.3%
– Other Assets	<u>0</u>	<u>318</u>	<u>318</u>	<u>0.0</u>
– Subtotal	\$ 1,224,544	\$ 638,969	\$ 1,863,513	22.9%
Total Cash and Investments	\$ 5,344,293	\$ 2,787,062	\$ 8,131,355	100.0%
Net Accrued Receivables	<u>(31,998)</u>	<u>(29,431)</u>	<u>(61,429)</u>	
Net Assets	\$ 5,312,295	\$ 2,757,631	\$ 8,069,926	

## Section 2.2: Changes in Fair Value of Assets During FY17 (\$'s in 000's)

Fiscal Year 2017	Pension	Healthcare	Total Fair Value
1. Fair Value of Assets, June 30, 2016	\$ 4,942,201	\$ 2,523,579	\$ 7,465,780
2. Additions:			
a. Employee Contributions	\$ 39,878	\$ 0	\$ 39,878
b. Employer Contributions	36,634	24,069	60,703
c. State Assistance Contributions	116,700	0	116,700
d. Interest and Dividend Income	88,988	45,772	134,760
e. Net Appreciation/(Depreciation) in Fair Value of Investments	542,004	277,897	819,901
f. Medicare Part D Subsidy	0	6,212	6,212
g. Other	<u>10</u>	<u>7,698</u>	<u>7,708</u>
h. Total Additions	\$ 824,214	\$ 361,648	\$ 1,185,862
3. Deductions:			
a. Medical Benefits	\$ 0	\$ 120,238	\$ 120,238
b. Retirement Benefits	446,044	0	446,044
c. Refunds of Contributions	2,378	0	2,378
d. Investment Expenses	2,808	1,450	4,258
e. Administrative Expenses	<u>2,890</u>	<u>5,908</u>	<u>8,798</u>
f. Total Deductions	\$ 454,120	\$ 127,596	\$ 581,716
4. Fair Value of Assets, June 30, 2017	\$ 5,312,295	\$ 2,757,631	\$ 8,069,926
Approximate Fair Value Investment Return Rate During FY17 Net of All Expenses	13.0%	12.7%	12.9%
Liquidity Factor	11.4	22.0	13.7

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

The actuarial value of assets was set equal to the fair value at 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 FY17			
a. Fair Value, June 30, 2016	\$ 4,942,201	\$ 2,523,579	\$ 7,465,780
b. Contributions	193,212	24,069	217,281
c. Medicare Part D Subsidy	0	6,212	6,212
d. Benefit Payments	448,422	120,238	568,660
e. Actual Investment Return (net of expenses)	625,304	324,009	949,313
f. Expected Return Rate	8.00%	8.00%	8.00%
g. Expected Return - Weighted for Timing	388,625	197,956	586,581
h. Investment Gain/(Loss) for the Year, (e) – (g)	236,679	126,053	362,732
2. Actuarial Value, June 30, 2017			
a. Fair Value, June 30, 2017	\$ 5,312,295	\$ 2,757,631	\$ 8,069,926
b. Deferred Investment Gain/(Loss)	(164,540)	(79,171)	(243,711)
c. Actuarial Value, June 30, 2017, (a) – (b)	\$ 5,476,835	\$ 2,836,802	\$ 8,313,637
3. Ratio of Actuarial Value of Assets to Fair Value of Assets	103.1%	102.9%	103.0%
4. Approximate Actuarial Value Investment Return Rate During FY17 Net of All Expenses	5.7%	5.4%	5.6%

The tables below show the development of gains/(losses) to be recognized in the current year (in thousands).

Pension				
Plan Year Ended	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years
6/30/2013	\$ 0	\$ 0	\$ 0	\$ 0
6/30/2014	0	0	0	0
6/30/2015	(219,620)	(87,848)	(43,924)	(87,848)
6/30/2016	(443,393)	(88,679)	(88,679)	(266,035)
6/30/2017	<u>236,679</u>	<u>0</u>	<u>47,336</u>	<u>189,343</u>
<b>Total</b>	<b>\$ (426,334)</b>	<b>\$ (176,527)</b>	<b>\$ (85,267)</b>	<b>\$ (164,540)</b>

Healthcare				
Plan Year Ended	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years
6/30/2013	\$ 0	\$ 0	\$ 0	\$ 0
6/30/2014	0	0	0	0
6/30/2015	(121,632)	(48,652)	(24,326)	(48,654)
6/30/2016	(218,931)	(43,786)	(43,786)	(131,359)
6/30/2017	<u>126,053</u>	<u>0</u>	<u>25,211</u>	<u>100,842</u>
<b>Total</b>	<b>\$ (214,510)</b>	<b>\$ (92,438)</b>	<b>\$ (42,901)</b>	<b>\$ (79,171)</b>

Total				
Plan Year Ended	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years
6/30/2013	\$ 0	\$ 0	\$ 0	\$ 0
6/30/2014	0	0	0	0
6/30/2015	(341,252)	(136,500)	(68,250)	(136,502)
6/30/2016	(662,324)	(132,465)	(132,465)	(397,394)
6/30/2017	<u>362,732</u>	<u>0</u>	<u>72,547</u>	<u>290,185</u>
<b>Total</b>	<b>\$ (640,844)</b>	<b>\$ (268,965)</b>	<b>\$ (128,168)</b>	<b>\$ (243,711)</b>

## Section 2.4: Historical Asset Rates of Return

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

\*Cumulative since FYE June 30, 2005.

## Section 3: Accounting Information (GASB 25 and GASB 43)<sup>1</sup>

### Section 3.1: Historical Exhibits (\$'s in 000's)

#### Schedule of Employer Contributions

The following shows pension disclosure under GASB No. 25 for fiscal years ending 2007 through 2013.

Fiscal Year Ended June 30	Total Annual Required Contribution	Percentage Contributed		
		By Employer	By State	Total
2013	\$ 259,786	14.4%	75.8%	90.2%
2012	229,509	16.6%	68.6%	85.2%
2011	167,978	19.5%	65.1%	84.6%
2010	170,788	19.8%	58.8%	78.6%
2009	94,388	28.7%	110.6%	139.3%
2008	134,544	23.3%	82.7%	106.0%
2007	169,974	62.2%	0.00%	62.2%

<sup>1</sup> Pension figures for fiscal years after 2013 are contained in separate GASB 67 reports and postemployment healthcare figures for fiscal years after 2016 are contained in separate GASB 74 reports.

## Schedule of Funding Progress (\$'s in 000's)

The exhibit below shows pension disclosure under GASB No. 25, prior to 2006.

Valuation Date	Total Actuarial Accrued Liability	Valuation Assets	Assets as a Percent of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)	Annual Active Member Payroll	UAAL as a Percent of Annual Active Member Payroll
June 30, 2005	\$ 6,498,556	\$ 3,958,939	60.9%	\$ 2,539,617	\$ 535,837	474.0%
June 30, 2004 <sup>2</sup>	6,123,600	3,845,370	62.8%	2,278,230	522,421	436.1%
June 30, 2003	5,835,609	3,752,285	64.3%	2,083,324	532,630	391.1%
June 30, 2002 <sup>1 2 3</sup>	5,411,642	3,689,036	68.2%	1,722,606	509,437	338.1%
June 30, 2001	4,603,147	4,372,229	95.0%	230,918	496,188	46.5%
June 30, 2000 <sup>1 2 3</sup>	4,198,868	4,184,015	99.6%	14,853	482,571	3.1%
June 30, 1999	3,720,954	3,815,633	102.5%	N/A	466,414	N/A
June 30, 1998	3,528,757	3,446,070	97.7%	82,687	469,433	17.6%
June 30, 1997	3,320,069	3,120,044	94.0%	200,025	466,455	42.9%

<sup>1</sup> Change in Asset Valuation Method

<sup>2</sup> Change of Assumptions

<sup>3</sup> Change in Methods

### Section 3.2: Postemployment Healthcare (\$'s in 000's)

The exhibit below shows postemployment healthcare disclosure without regard to the Medicare Part D subsidy under GASB No. 43 for fiscal years 2007 through 2016.

Valuation Date	Total Actuarial Accrued Liability	Valuation Assets	Assets as a Percent of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)	Annual Active Member Payroll <sup>1</sup>	UAAL as a Percent of Annual Active Member Payroll
June 30, 2016 – 4.43%	\$ 4,898,395	\$ 2,836,802	57.9%	\$ 2,061,593	\$ 474,291	434.7%
June 30, 2015 – 4.31%	4,840,935	2,686,272	55.5%	2,154,663	503,163	428.2%
June 30, 2014 <sup>2</sup> – 4.25%	5,373,322	2,248,135	41.8%	3,125,187	523,580	596.9%
June 30, 2013 – 5.08%	5,002,345	1,803,763	36.1%	3,198,582	550,044	581.5%
June 30, 2012 <sup>2</sup> – 5.01%	5,046,942	1,674,160	33.2%	3,372,782	561,971	600.2%
June 30, 2011 – 7.08%	3,635,492	1,591,988	43.8%	2,043,504	584,068	349.9%
June 30, 2010 <sup>2</sup> – 8.00%	3,076,388	1,479,260	48.1%	1,597,128	564,887	282.7%
June 30, 2009 – 4.50%	4,604,820	1,357,239	29.5%	3,247,581	557,026	583.0%
June 30, 2008 <sup>2</sup> – 4.50%	4,648,055	1,266,890	27.3%	3,381,165	549,148	615.7%
June 30, 2007 – 4.50%	4,059,573	982,532	24.2%	3,077,041	554,245	552.2%

<sup>1</sup> Actual active member payroll has been based on information provided by KPMG, LLP.

<sup>2</sup> Change in assumptions.



## Schedule of Employer Contributions (\$'s in 000's)

The following shows postemployment healthcare disclosure without regard to the Medicare Part D subsidy under GASB No. 43 for fiscal years ending 2007 through 2016.

Fiscal Year Ended June 30	Total Annual Required Contribution	Percentage Contributed		
		By Employer	By State	Total
2016	336,595	7.9%	11.8%	19.7%
2015	352,417	7.6%	100.1%	107.7%
2014	320,797	10.0%	35.6%	45.6%
2013	330,411	10.7%	33.3%	44.0%
2012	192,700	18.8%	46.6%	65.4%
2011	167,686	25.8%	51.5%	77.3%
2010*	312,922	13.6%	38.8%	52.4%
2009	164,171	28.7%	62.1%	90.8%
2008	185,271	23.6%	85.7%	109.3%
2007	76,879	62.2%	0.00%	62.2%

\* The ARC and percentage contributed are based on Conduent's calculation and do not match the CAFR. The percentage contributed in includes the legal settlement in FY10, net of fees, as well as the Medicare Part D subsidy contributed by the State to the Healthcare Fund.

The exhibit below shows the healthcare annual required contribution (ARC) as a percentage of pay for fiscal years 2008 through 2016.

ARC (% of Pay)			
Valuation Date	Fiscal Year	Healthcare	Healthcare Discount Rate
June 30, 2005	FY08	54.45%	4.50%
June 30, 2006	FY09	52.20%	4.50%
June 30, 2007	FY10	52.42%	4.50%
June 30, 2008	FY11	28.71%	8.25%
June 30, 2009	FY12	34.29%	7.08%
June 30, 2010*	FY13	60.07%	5.01%
June 30, 2011	FY14	61.27%	5.08%
June 30, 2012	FY15	70.04%	4.25%
June 30, 2013	FY16	70.97%	4.31%

\* Change in discount rate assumptions effective June 30, 2010

GASB 67 accounting is effective beginning in FY14 and GASB 74 accounting is effective beginning in FY17. They are provided in separate reports.

GASB 43 ARC is based on DB salary only and a level dollar basis to determine normal cost and amortization of the unfunded liability. These amounts are converted to percentage of pay. DB salary is the same salary used for determination of employer contribution rates.

See Section 3.3 of prior years' actuarial valuation reports for Notes to Trend Data.

### Section 3.3: Solvency Test (\$'s in 000's)

The exhibit below shows the pension Solvency Test for valuation dates June 30, 2005 through June 30, 2016.

Valuation Date	Pension Actuarial Accrued Liability For:				Portion of Actuarial Accrued Liability Covered by Assets:		
	(1)	(2)	(3)	Pension Valuation Assets	(1)	(2)	(3)
	Active Member Contributions	Inactive Members	Active Members (Employer-Financed Portion)				
June 30, 2016	\$ 709,903	\$ 5,329,673	\$ 1,120,212	\$ 5,428,687	100.0%	88.5%	0.0%
June 30, 2015	714,422	5,192,935	1,144,367	5,422,651	100.0%	90.7%	0.0%
June 30, 2014 <sup>1 2</sup>	718,694	5,042,250	1,160,418	3,771,139	100.0%	60.5%	0.0%
June 30, 2013	726,139	4,726,282	1,137,132	3,170,313	100.0%	51.7%	0.0%
June 30, 2012	727,435	4,532,982	1,139,360	3,194,994	100.0%	54.4%	0.0%
June 30, 2011	717,819	4,352,035	1,126,250	3,345,949	100.0%	60.4%	0.0%
June 30, 2010 <sup>1</sup>	716,675	4,153,119	1,137,187	3,259,868	100.0%	61.2%	0.0%
June 30, 2009	692,105	3,815,020	956,862	3,115,719	100.0%	63.5%	0.0%
June 30, 2008	654,662	3,700,812	876,180	3,670,086	100.0%	81.5%	0.0%
June 30, 2007	638,420	3,567,894	837,134	3,441,867	100.0%	78.6%	0.0%
June 30, 2006 <sup>1 2</sup>	615,207	3,432,703	811,426	3,296,934	100.0%	78.1%	0.0%
June 30, 2005	589,169	3,200,339	545,077	3,184,976 <sup>3</sup>	100.0%	81.1%	0.0%

<sup>1</sup> Change in Assumptions

<sup>2</sup> Change in Methods

<sup>3</sup> The pension and postemployment healthcare valuation assets were allocated using a ratio of fair value of assets as of June 30, 2005.

The exhibit below shows the postemployment healthcare Solvency Test for valuation dates June 30, 2005 through June 30, 2016.

Valuation Date	Postemployment Healthcare Actuarial Accrued Liability For:			Postemployment Healthcare Valuation Assets	Portion of Actuarial Accrued Liability Covered by Assets:		
	(1) Active Member Contributions	(2) Inactive Members	(3) Active Members (Employer-Financed Portion)		(1)	(2)	(3)
June 30, 2016	\$ 0	\$ 1,853,084	\$ 894,752	\$ 2,771,704	100.0%	100.0%	100.0%
June 30, 2015	0	1,870,987	806,406	2,686,272	100.0%	100.0%	100.0%
June 30, 2014 <sup>1 2</sup>	0	2,008,223	911,447	2,248,135	100.0%	100.0%	26.3%
June 30, 2013	0	2,012,114	990,440	1,803,763	100.0%	89.6%	0.0%
June 30, 2012	0	1,933,288	1,013,379	1,674,160	100.0%	86.6%	0.0%
June 30, 2011	0	1,879,564	1,053,127	1,591,988	100.0%	84.7%	0.0%
June 30, 2010 <sup>1</sup>	0	1,755,961	1,084,846	1,479,260	100.0%	84.2%	0.0%
June 30, 2009	0	1,477,788	905,739	1,357,239	100.0%	91.8%	0.0%
June 30, 2008 <sup>1</sup>	0	1,480,864	906,660	1,266,890	100.0%	85.6%	0.0%
June 30, 2007	0	1,344,131	801,824	982,532	100.0%	73.1%	0.0%
June 30, 2006 <sup>1 2</sup>	0	1,493,219	877,296	844,766	100.0%	56.6%	0.0%
June 30, 2005	0	1,493,837	670,134	773,963 <sup>3</sup>	100.0%	51.8%	0.0%

Healthcare liabilities are calculated using the funding assumptions (i.e., funding investment return and net of Medicare Part D subsidy).

<sup>1</sup> Change in Assumptions

<sup>2</sup> Change in Methods

<sup>3</sup> The pension and postemployment healthcare valuation assets were allocated using a ratio of fair value of assets as of June 30, 2005.

The exhibit below shows the combined pension and postemployment healthcare Solvency Test for valuation dates June 30, 2010 and before.

Valuation Date	Actuarial Accrued Liability For:			Valuation Assets	Portion of Actuarial Accrued Liability Covered by Assets:		
	(1)	(2)	(3)		(1)	(2)	(3)
	Active Member Contributions	Inactive Members	Active Members (Employer-Financed Portion)				
June 30, 2010 <sup>1</sup>	\$ 716,875	\$ 5,909,080	\$ 2,222,033	\$ 4,739,128	100.0%	68.1%	0.0%
June 30, 2009	692,105	5,292,808	1,862,601	4,472,958	100.0%	71.4%	0.0%
June 30, 2008 <sup>1</sup>	654,662	5,181,676	1,782,840	4,936,976	100.0%	82.6%	0.0%
June 30, 2007	638,420	4,912,025	1,638,958	4,424,399	100.0%	77.1%	0.0%
June 30, 2006 <sup>1 2</sup>	615,207	4,925,922	1,688,722	4,141,700	100.0%	71.6%	0.0%
June 30, 2005	589,169	4,694,176	1,215,211	3,958,939	100.0%	71.8%	0.0%
June 30, 2004 <sup>1</sup>	569,435	4,423,036	1,131,129	3,845,370	100.0%	74.1%	0.0%
June 30, 2003	548,947	4,105,445	1,181,217	3,752,285	100.0%	78.0%	0.0%
June 30, 2002 <sup>1 2 3</sup>	523,142	3,755,882	1,132,618	3,689,036	100.0%	84.3%	0.0%
June 30, 2001	533,752	3,213,431	855,964	4,372,229	100.0%	100.0%	73.0%

Healthcare liabilities are calculated using the funding assumptions (i.e., funding investment return and net of Medicare Part D subsidy).

<sup>1</sup> Change in Assumptions

<sup>2</sup> Change in Methods

<sup>3</sup> Change in Asset Valuation Method

## Section 4: Projections

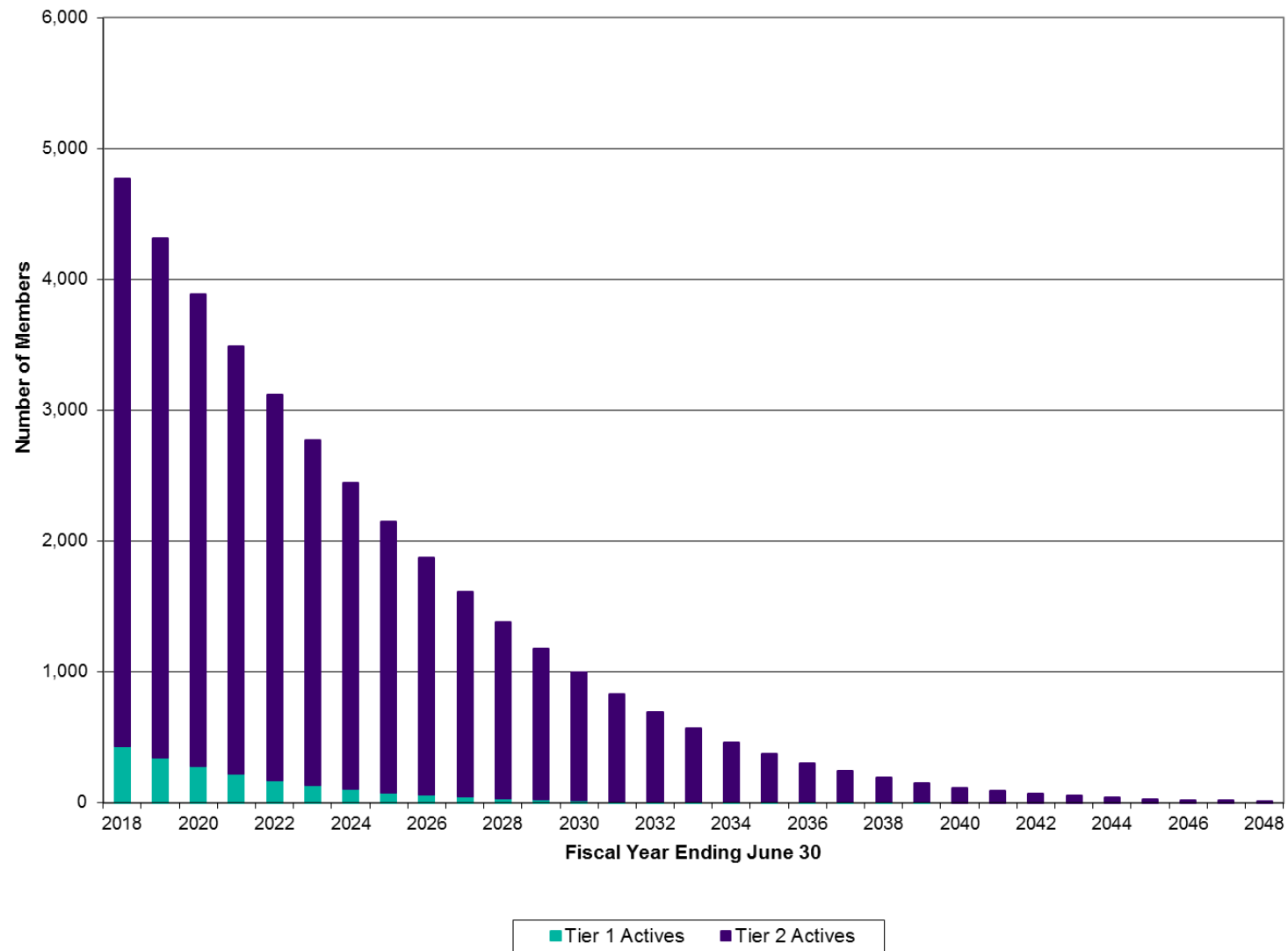
### Section 4.1: Projection Assumptions and Methods

#### Key Assumptions

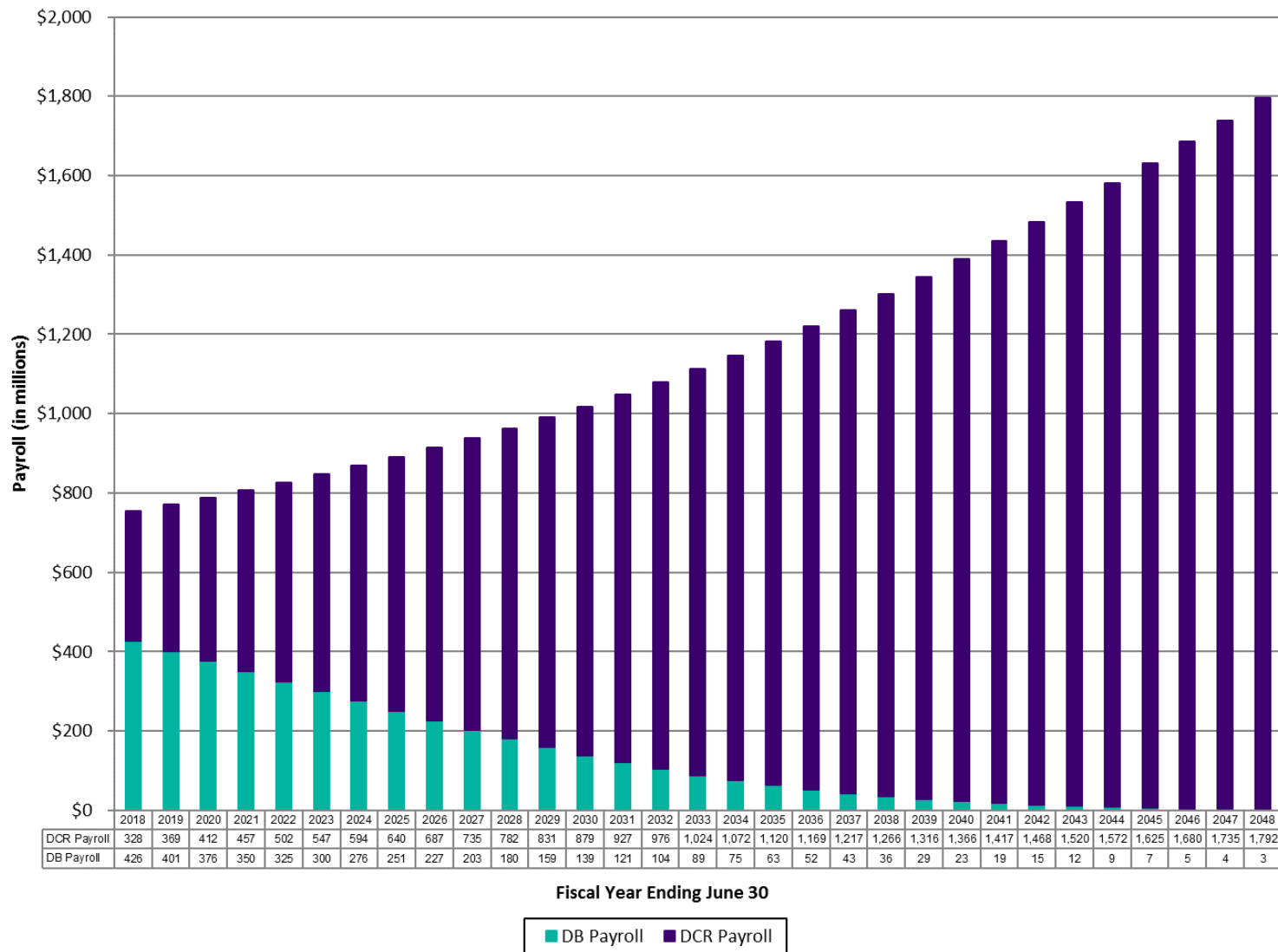
- 8.00% investment return on the Fair Value of Assets in all future years.
- The Actuarial Value of Assets was re-initialized to Fair Value as of June 30, 2014. The Actuarial Value of Assets after June 30, 2014 reflects the deferred gains and losses generated by the smoothing method. The current deferred amount is recognized in the first four years of the projections.
- Actuarial assumptions and methods as described in Section 6. All future demographic experience is assumed to be exactly realized.
- The actuarially calculated contribution rate using a two-year lag roll-forward approach adopted each year.
- No new DB Plan members enter Tiers 1 or 2.
- Projections assume a 0% increase in the total active member population. All new members are expected to enter the DCR plan and contribution rates are determined as a percent of total DB and DCR payroll, combined.

## Section 4.2: Membership Projection

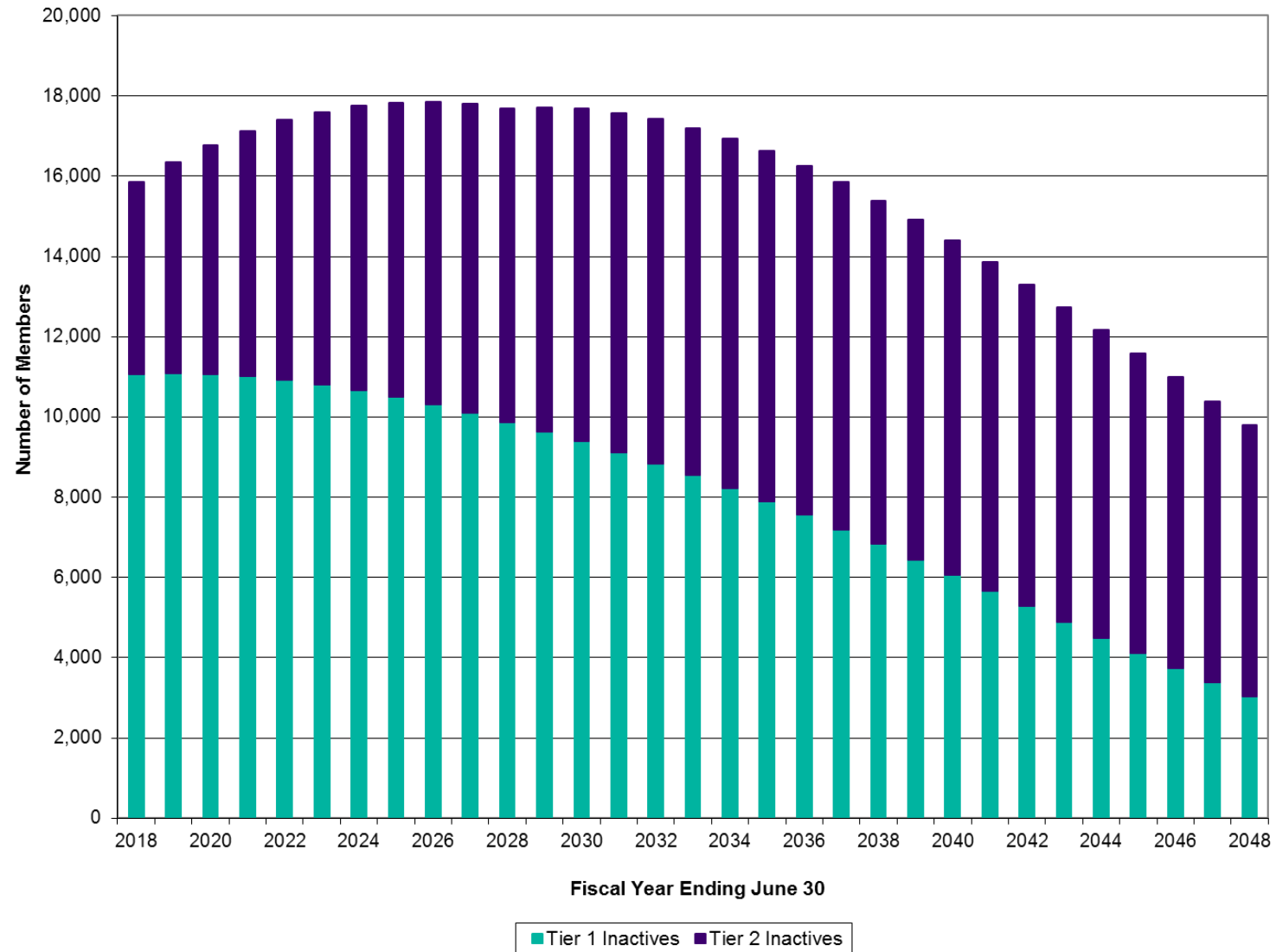
### Projected Active Member Count



## Projected DB and DCR Payroll



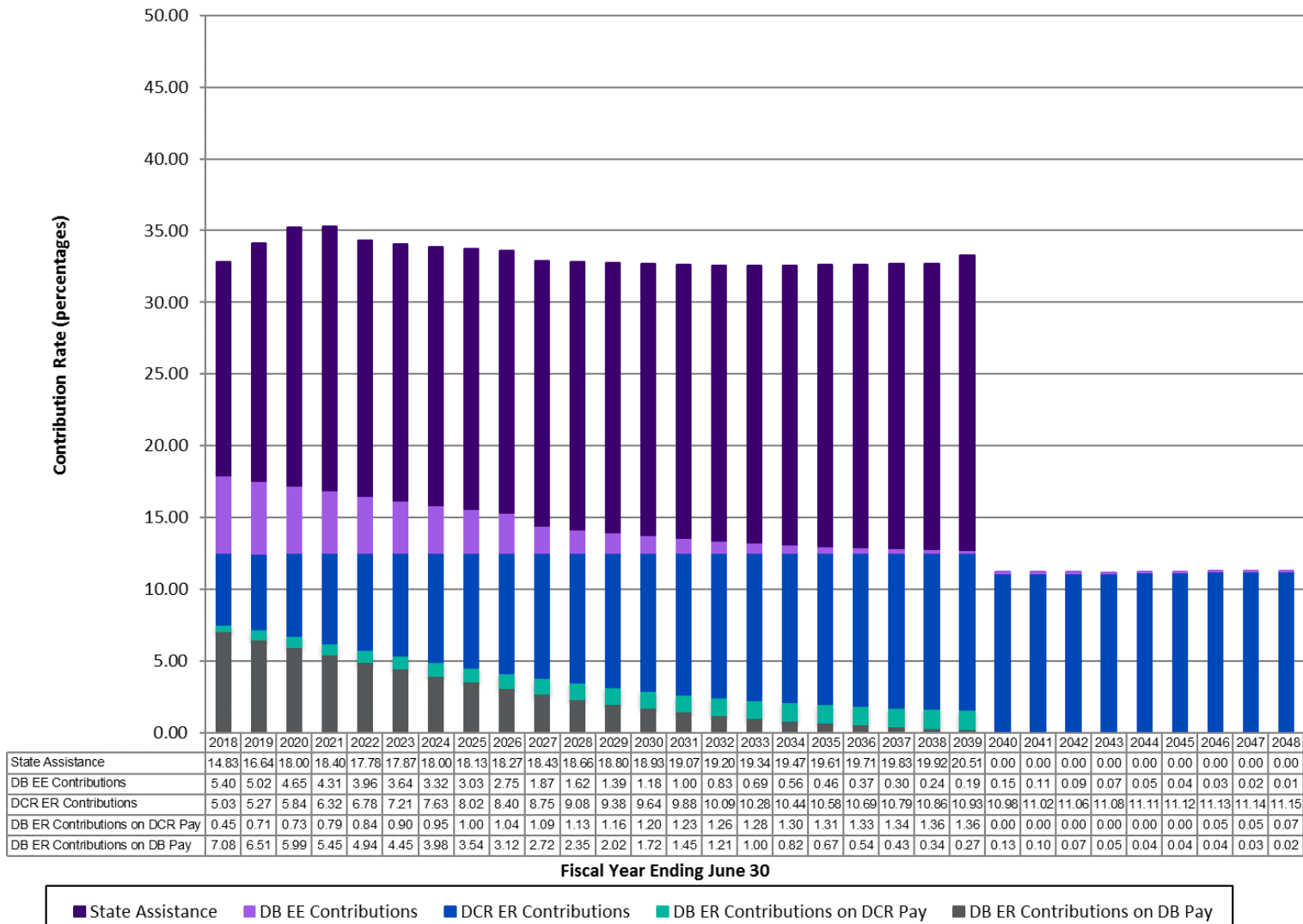
## Projected Inactive Member Count



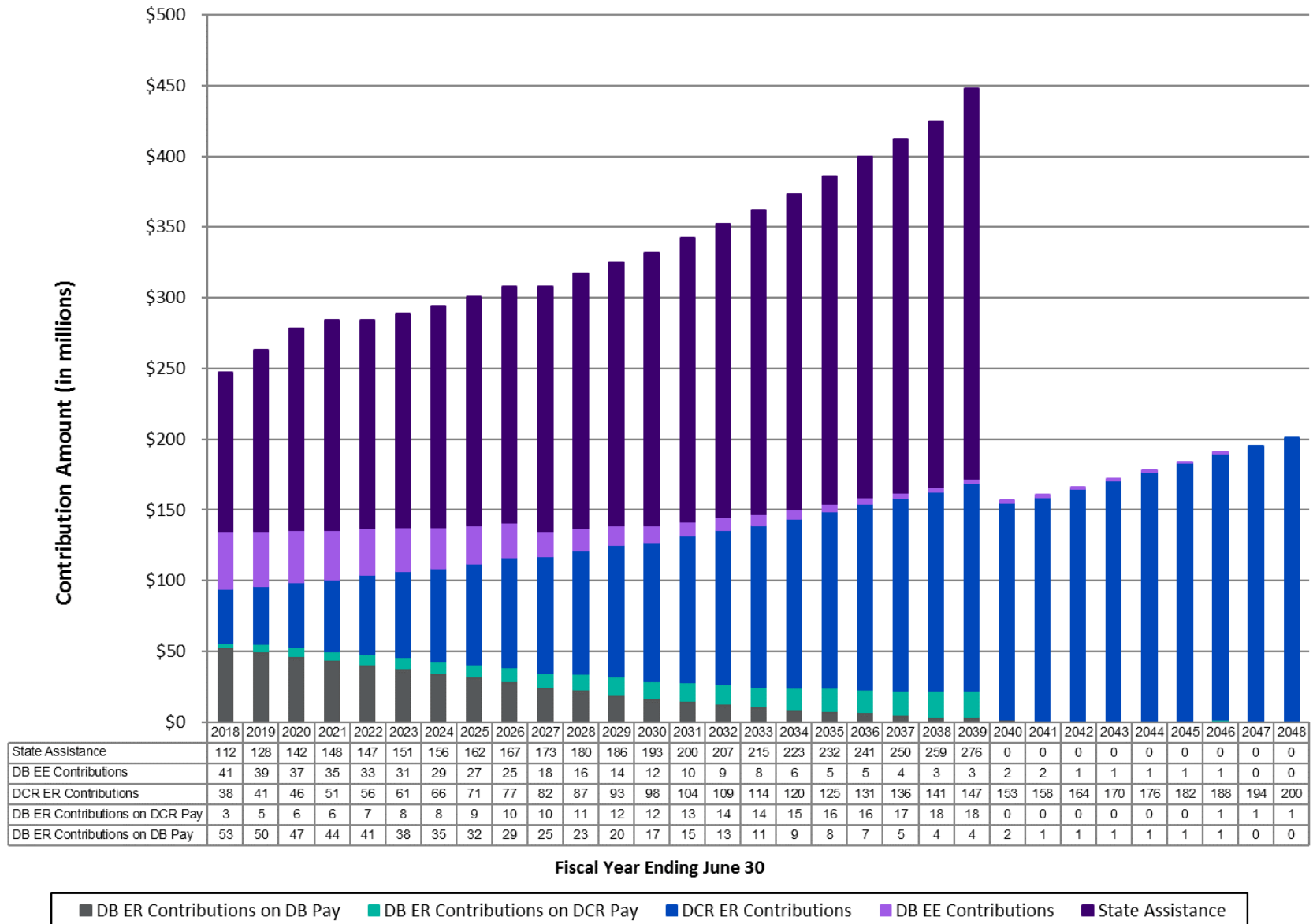


### Section 4.3: Projection of Employer/State Contribution Rates

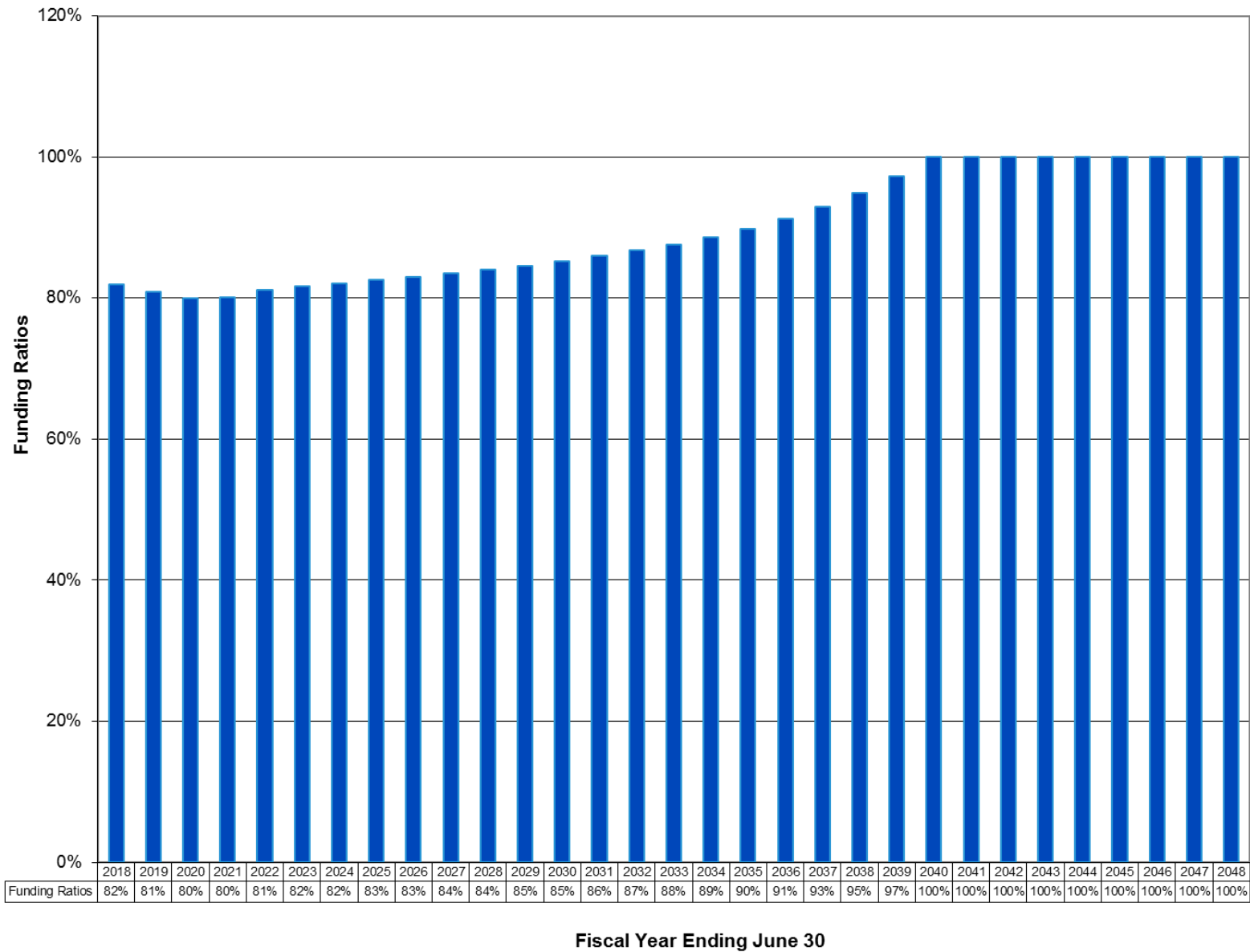
Based on Total DB and DCR Payroll



## Section 4.4: Projection of Employer/State Contribution Amounts



## Section 4.5: Projection of Funded Ratios



## Section 4.6: Table of Projected Actuarial Results

### State of Alaska TRS Financial Projections (\$ in Thousands) Based on 2017 Actuarial Valuation Results, 0% Population Growth for Payroll Baseline

Fiscal Year End	FY 18 Investment Return 8.00%				Investment Return of 8.00% for FY 18 and beyond.														Deferred Asset Gain/(Loss)	Ending Actuarial Assets
	Valuation Amounts on July 1 (Beginning of Fiscal Year)				Flow Amounts During Following 12 Months															
	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								
2018	\$8,313,637	\$10,144,620	82.0%	(\$1,830,983)	\$753,606	22.36%	5.03%	27.39%	\$56,747	\$111,757	\$40,708	\$209,212	\$601,581	(\$392,369)	\$631,978	(\$115,541)	\$8,425,076			
2019	8,425,076	10,420,263	80.9%	(1,995,187)	770,059	23.86%	5.27%	29.13%	55,598	128,174	38,683	222,455	633,311	(410,856)	650,871	12,628	8,536,922			
2020	8,536,922	10,678,554	79.9%	(2,141,632)	787,990	24.72%	5.84%	30.56%	52,953	141,839	36,677	231,469	665,296	(433,827)	670,507	72,546	8,713,684			
2021	8,713,684	10,886,797	80.0%	(2,173,114)	806,996	24.64%	6.32%	30.96%	50,357	148,487	34,744	233,588	696,771	(463,183)	688,456	0	9,011,503			
2022	9,011,503	11,096,949	81.2%	(2,085,446)	826,899	23.56%	6.78%	30.34%	47,795	147,022	32,714	227,531	728,873	(501,342)	704,813	0	9,214,974			
2023	9,214,974	11,285,376	81.7%	(2,070,402)	847,774	23.22%	7.21%	30.43%	45,356	151,497	30,833	227,686	760,224	(532,538)	719,945	0	9,402,381			
2024	9,402,381	11,451,285	82.1%	(2,048,904)	869,059	22.93%	7.63%	30.56%	42,845	156,430	28,834	228,109	792,112	(564,003)	733,798	0	9,572,176			
2025	9,572,176	11,592,976	82.6%	(2,020,800)	891,114	22.67%	8.02%	30.69%	40,457	161,559	26,991	229,007	824,675	(595,668)	746,240	0	9,722,748			
2026	9,722,748	11,708,150	83.0%	(1,985,402)	914,245	22.43%	8.40%	30.83%	38,033	167,032	25,141	230,206	856,428	(626,222)	757,204	0	9,853,730			
2027	9,853,730	11,795,501	83.5%	(1,941,771)	937,872	22.24%	8.75%	30.99%	35,733	172,849	17,538	226,120	886,602	(660,482)	766,475	0	9,959,723			
2028	9,959,723	11,854,038	84.0%	(1,894,315)	962,677	22.14%	9.08%	31.22%	33,501	179,635	15,595	228,731	910,778	(682,047)	774,304	0	10,051,981			
2029	10,051,981	11,882,618	84.6%	(1,830,637)	989,970	21.98%	9.38%	31.36%	31,481	186,114	13,761	231,356	940,628	(709,272)	780,781	0	10,123,490			
2030	10,123,490	11,878,393	85.2%	(1,754,903)	1,018,395	21.85%	9.64%	31.49%	29,737	192,782	12,017	234,536	968,598	(734,062)	785,708	0	10,175,136			
2031	10,175,136	11,841,144	85.9%	(1,666,008)	1,048,250	21.75%	9.88%	31.63%	28,093	199,901	10,483	238,477	993,986	(755,509)	789,204	0	10,208,831			
2032	10,208,831	11,772,099	86.7%	(1,563,268)	1,079,625	21.67%	10.09%	31.76%	26,667	207,288	8,961	242,916	1,017,472	(774,556)	791,375	0	10,225,651			
2033	10,225,651	11,670,502	87.6%	(1,444,851)	1,112,606	21.62%	10.28%	31.90%	25,367	215,178	7,677	248,222	1,039,613	(791,391)	792,308	0	10,226,568			
2034	10,226,568	11,535,232	88.7%	(1,308,664)	1,147,268	21.59%	10.44%	32.03%	24,322	223,373	6,425	254,120	1,056,432	(802,312)	792,231	0	10,216,487			
2035	10,216,487	11,369,338	89.9%	(1,152,851)	1,183,198	21.59%	10.58%	32.17%	23,427	232,026	5,443	260,896	1,068,486	(807,590)	791,530	0	10,200,426			
2036	10,200,426	11,175,609	91.3%	(975,183)	1,221,131	21.58%	10.69%	32.27%	22,835	240,685	4,518	268,038	1,078,387	(810,349)	790,457	0	10,180,534			
2037	10,180,534	10,954,309	92.9%	(773,775)	1,260,638	21.60%	10.79%	32.39%	22,313	249,985	3,782	276,080	1,084,912	(808,832)	789,282	0	10,160,985			
2038	10,160,985	10,707,025	94.9%	(546,040)	1,302,077	21.62%	10.86%	32.48%	22,135	259,374	3,125	284,634	1,086,924	(802,290)	788,351	0	10,147,046			
2039	10,147,046	10,436,573	97.2%	(289,527)	1,345,282	22.14%	10.93%	33.07%	21,928	275,918	2,556	300,402	1,087,136	(786,734)	788,520	0	10,148,832			
2040	10,148,832	10,143,165	100.0%	5,667	1,389,721	0.13%	10.98%	11.11%	1,807	0	2,085	3,892	1,083,783	(1,079,891)	765,924	0	9,834,865			
2041	9,834,865	9,828,849	100.0%	6,016	1,435,574	0.10%	11.02%	11.12%	1,436	0	1,579	3,015	1,075,190	(1,072,175)	741,138	0	9,503,828			
2042	9,503,828	9,497,556	100.0%	6,272	1,482,689	0.07%	11.06%	11.13%	1,038	0	1,334	2,372	1,061,789	(1,059,417)	715,201	0	9,159,612			
2043	9,159,612	9,153,073	100.0%	6,539	1,531,202	0.05%	11.08%	11.13%	765	0	1,072	1,837	1,043,066	(1,041,229)	688,439	0	8,806,823			
2044	8,806,823	8,799,984	100.0%	6,839	1,581,239	0.04%	11.11%	11.15%	632	0	791	1,423	1,020,734	(1,019,311)	661,151	0	8,448,662			
2045	8,448,662	8,441,463	100.0%	7,199	1,632,347	0.04%	11.12%	11.16%	652	0	653	1,305	994,835	(993,530)	633,596	0	8,088,729			
2046	8,088,729	8,080,882	100.0%	7,847	1,685,097	0.09%	11.13%	11.22%	1,517	0	506	2,023	967,946	(965,923)	605,974	0	7,728,779			
2047	7,728,779	7,719,177	100.0%	9,602	1,739,203	0.08%	11.14%	11.22%	1,392	0	348	1,740	939,749	(938,009)	578,367	0	7,369,137			
Totals:									\$786,919	\$4,148,905	\$415,574	\$5,351,398								

The FY 18 Employer/State contribution rates don't match the September 16, 2016 Allocation of Additional State Contributions letter due to updated projected Total Salaries

The FY 18 State Assistance contribution was allocated 100% to pension

Past service contribution rates set to be greater than or equal to 0% for both pension and retiree medical

The employer contribution rate as a % of DCR pay for Occupational Death & Disability and Retiree Medical is 1.17%, determined as of June 30, 2017

## Section 5: Member Data

### Section 5.1: Summary of Members Included

As of June 30	2013	2014	2015	2016	2017 <sup>1</sup>
<b>Active Members</b>					
1. Number	6,352	5,861	5,502	5,123	4,772
2. Average Age	49.45	49.79	50.09	50.50	50.86
3. Average Credited Service	15.80	16.43	16.94	17.53	18.12
4. Average Entry Age	33.65	33.36	33.15	32.97	32.74
5. Average Annual Earnings	\$ 79,386	\$ 81,023	\$ 82,995	\$ 84,954	\$ 86,327
6. Number Vested	5,880	5,586	5,297	4,966	4,772
7. Percent Who Are Vested	92.6%	95.3%	96.3%	96.9%	100.0%
<b>Retirees, Disabilitants and Beneficiaries</b>					
1. Number	11,705	11,750	12,418	12,726	12,983
2. Average Age	68.38	69.09	69.35	69.85	70.36
3. Average Years Since Retirement	N/A	N/A	13.50	13.78	14.13
4. Average Monthly Pension Benefit					
Base	\$ 2,111	\$ 2,110	\$ 2,175	\$ 2,204	\$ 2,228
C.O.L.A. <sup>2</sup>	127	126	129	128	128
P.R.P.A. <sup>2</sup>	528	567	550	529	506
Adjustment	0	0	0	-	0
Sick	54	57	58	60	62
Total	\$ 2,820	\$ 2,860	\$ 2,912	\$ 2,921	\$ 2,924
<b>Vested Terminations (vested at time of termination, not refunded contributions or commenced benefit)</b>					
1. Number	906	1,274 <sup>3</sup>	890	875	876
2. Average Age	49.68	52.56	50.09	50.25	50.82
3. Average Monthly Pension Benefit	\$ 1,283	\$ 1,916	\$ 1,273	\$ 1,352	\$ 1,441
<b>Non-Vested Terminations (not vested at termination, not refunded contributions)</b>					
1. Number	2,448	2,328	2,218	2,103	1,994
2. Average Account Balance	\$ 17,866	\$ 18,452	\$ 18,962	\$ 19,728	\$ 20,290
<b>Total Number of Members</b>	<b>21,411</b>	<b>21,213</b>	<b>21,028</b>	<b>20,827</b>	<b>20,625</b>

### Summary of Members Included

As of June 30, 2017		DB			DCR Tier 3	Grand Total
		Tier 1	Tier 2	Total		
Active Members						
1.	Numbers	435	4,337	4,772	4,694	9,466
2.	Average Age	60.23	49.92	50.86	40.21	45.58
3.	Average Credited Service	27.69	17.16	18.12	4.88	11.56

<sup>1</sup> 40 members who were terminated before the valuation date were subsequently rehired, per census data as of October 1, 2017. These members were valued as active as of the valuation date.

<sup>2</sup> Calculated by taking the average of the data field, as provided by the State of Alaska, for all participants in the group.

<sup>3</sup> Includes 279 members eligible for unreduced retirement on June 30, 2014.

4. Average Entry Age	32.54	32.76	32.74	35.33	34.02
5. Annual Earnings					
a. Amount	\$ 41,703,788	\$370,247,226	\$411,951,014	\$312,346,514	\$724,297,528
b. Average	\$ 95,871	\$ 85,369	\$ 86,327	\$ 66,542	\$ 76,516

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

As of June 30, 2017	Tier 1	Tier 2	Total
<b>Retirees, Disabiltants and Beneficiaries</b>			
1. Numbers	10,710	2,273	12,983
2. Average Age	71.47	65.14	70.36
3. Average Years Since Retirement	16.08	4.90	14.13
4. Average Monthly Pension Benefit			
Base	\$ 2,291	\$ 1,928	\$ 2,228
C.O.L.A.	146	43	158
P.R.P.A.	600	63	506
Adjustment	0	0	0
Sick	64	56	62

## Summary of Members Included

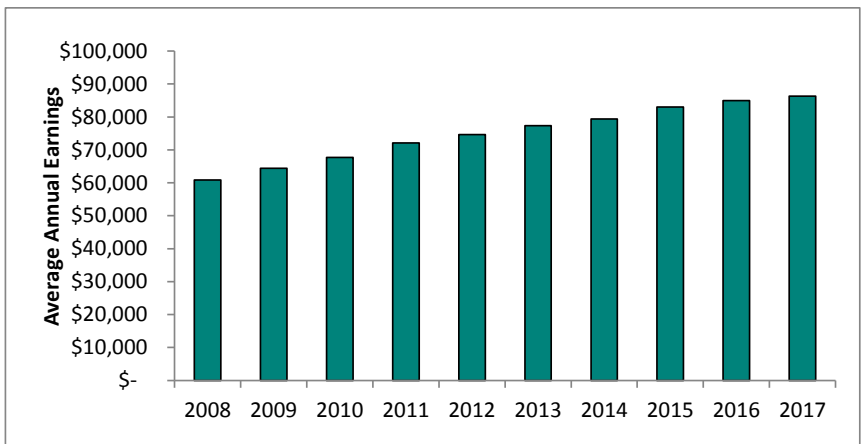
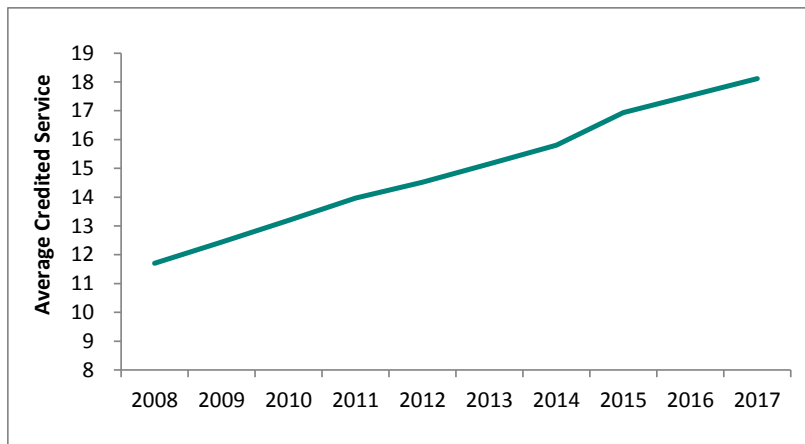
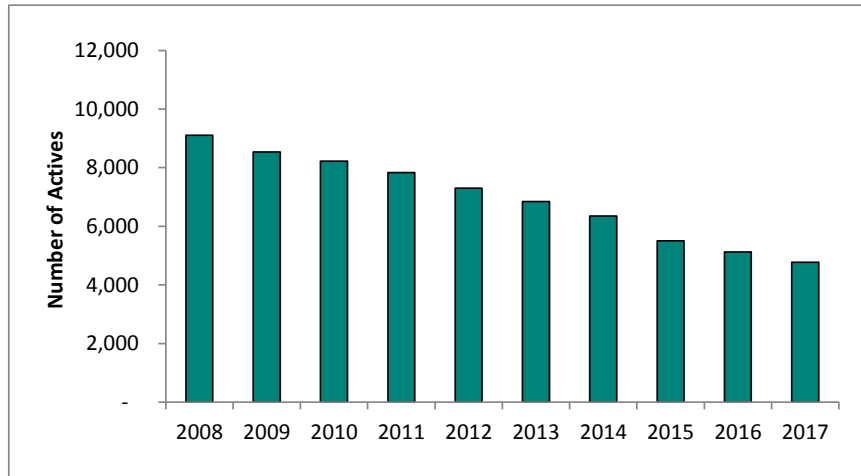
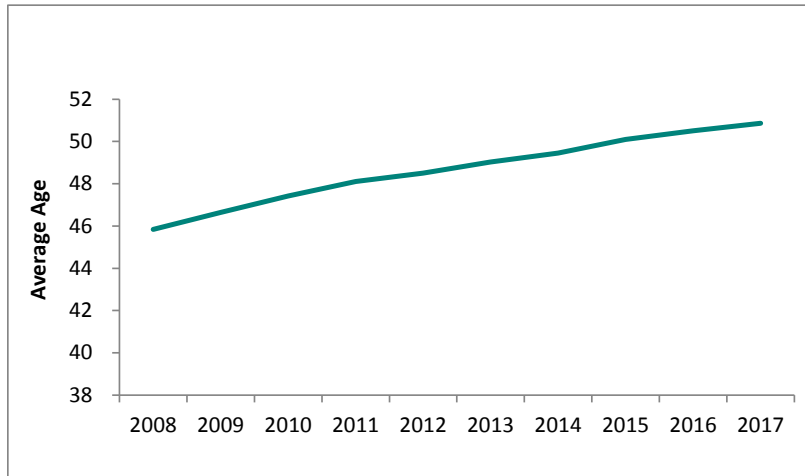
As of June 30, 2017	Active	Retiree	Covered Spouse	Covered Children / Dependent	Total
<b>Retiree Medical Participants</b>					
1. Retiree Coverage Only	4,714	7,099	0	0	7,099
2. Retiree + Spouse	0	3,882	3,832	0	7,764
3. Retiree + Children / Other Dependent	0	168	0	209	377
4. Family	<u>0</u>	<u>397</u>	<u>397</u>	<u>584</u>	<u>1,378</u>
5. Total	4,714	11,546	4,279	793	16,618

Retiree Medical Participants as of June 30, 2017				
	Retirees	Spouses	Kids	All Members
Pre-Medicare	2,944	1,669	793	5,406
Medicare Part A & B	8,402	2,552	0	10,954
Medicare Part B Only	<u>200</u>	<u>58</u>	<u>0</u>	<u>258</u>
Total	11,546	4,279	793	16,618

As of June 30, 2017	Retiree
<b>Summary of Retiree Medical Data Received</b>	
1. Retiree records on pension data	12,983
1. Records valued in a different retiree healthcare plan <sup>1</sup>	(310)
2. Records without medical coverage	<u>(1,127)</u>
3. Total	11,546

<sup>1</sup> Each members retiree medical benefits are valued in the plan they retired from where they receive the most pension benefits.  
Conduent HR Consulting, LLC

## Summary of Members Included - Active Members at June 30



Total annual earnings are the annualized earnings for the fiscal year ending on the valuation date.



## Section 5.2: Age and Service Distribution of Active Members

**Annual Earnings by Age**

Age	Number	Total Annual Earnings	Average Annual Earnings
0 – 19	0	\$ 0	\$ 0
20 – 24	0	0	0
25 – 29	0	0	0
30 – 34	15	1,050,608	70,041
35 – 39	416	32,580,504	78,319
40 – 44	807	66,399,563	82,280
45 – 49	1,104	95,208,431	86,240
50 – 54	938	82,735,237	88,204
55 – 59	809	71,177,944	87,983
60 – 64	450	40,590,486	90,201
65 – 69	178	16,690,522	93,767
70 – 74	46	4,506,790	97,974
75+	9	1,010,929	112,325

Total 4,772 \$ 411,951,014 \$ 86,327

**Annual Earnings by Credited Service**

Years of Service	Number	Total Annual Earnings	Average Annual Earnings
0	0	\$ 0	\$ 0
1	2	140,473	70,237
2	8	452,234	56,529
3	7	465,713	66,530
4	16	983,600	61,475
0 – 4	33	2,042,020	61,879
5 – 9	188	13,759,901	73,191
10 – 14	1,230	98,992,848	80,482
15 – 19	1,683	144,438,439	85,822
20 – 24	977	88,687,968	90,776
25 – 29	490	46,298,542	94,487
30 – 34	121	12,092,558	99,938
35 – 39	28	3,100,106	110,718
40+	22	2,538,632	115,392

Total 4,772 \$ 411,951,014 \$ 86,327

**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	4	10	0	0	0	0	0	0	15
35 – 39	7	38	292	79	0	0	0	0	0	416
40 – 44	13	55	291	397	51	0	0	0	0	807
45 – 49	4	37	241	487	302	33	0	0	0	1,104
50 – 54	5	17	150	287	275	190	14	0	0	938
55 – 59	1	19	128	244	217	152	44	4	0	809
60 – 64	2	12	87	128	94	73	39	13	2	450
65 – 69	0	5	24	48	31	35	16	7	12	178
70 – 74	0	1	7	10	7	5	7	3	6	46
75+	0	0	0	3	0	2	1	1	2	9
Total	33	188	1,230	1,683	977	490	121	28	22	4,772

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

## Section 5.3: Member Data Reconciliation

### Pension

	Active Members	Inactive Members					Total
		Due a Refund	With Deferred Benefits	Retired Members	Disabled Members	Bene- ficiaries	
<b>As of June 30, 2016</b>	<b>5,123</b>	<b>2,103</b>	<b>875</b>	<b>11,527</b>	<b>28</b>	<b>1,171</b>	<b>20,827</b>
Vested Terminations	(136)	(1)	137	0	0	0	0
Non-vested Terminations	(11)	12	(1)	0	0	0	0
Cash-outs	0	(63)	(8)	0	0	0	(71)
Disability Retirements	(3)	0	0	0	3	0	0
Age Retirements	(278)	(10)	(87)	379	(4)	N/A	0
Deaths With Beneficiary	(1)	0	(3)	(76)	0	80	0
Deaths Without Beneficiary	(6)	(7)	(2)	(107)	0	(39)	(161)
Data Corrections	0	2	1	(1)	0	0	2
Transfers Out	0	0	0	0	0	0	0
Rehires	84	(42)	(36)	(6)	0	0	0
Pick Ups*	0	0	0	0	0	28	28
<b>Net Change</b>	<b>(351)</b>	<b>(109)</b>	<b>1</b>	<b>189</b>	<b>(1)</b>	<b>69</b>	<b>(202)</b>
<b>As of June 30, 2017</b>	<b>4,772</b>	<b>1,994</b>	<b>876</b>	<b>11,716</b>	<b>27</b>	<b>1,240</b>	<b>20,625</b>

\*Pickup beneficiaries are primarily new DROs.

## Healthcare

	Active	Inactive Members			
		Inactive Individuals	Covered Spouses	Covered Children	Total Inactive Members
<b>As of June 30, 2016</b>	<b>5,042</b>	<b>11,334</b>	<b>4,251</b>	<b>846</b>	<b>16,431</b>
Vested Terminations	(129)	42	0	0	42
Non-vested Terminations	(8)	0	0	0	0
Disability	(3)	3	0	0	3
Rehires	82	(9)	0	0	(9)
Retirement	(225)	225	82	14	321
Deceased	(7)	(208)	(52)	(4)	(264)
New Beneficiaries	0	55	0	0	55
Added Dependent Coverage	N/A	0	60	22	82
Dropped Dependent Coverage	N/A	0	(118)	(93)	(211)
Added Retiree Medical Coverage	0	100	57	9	166
Dropped Retiree Medical Coverage	(29)	(20)	(6)	(2)	(28)
Transfer to/from another plan	(9)	26	5	1	32
<b>Net Change</b>	<b>(328)</b>	<b>212</b>	<b>28</b>	<b>(53)</b>	<b>187</b>
<b>As of June 30, 2017</b>	<b>4,714</b>	<b>11,546</b>	<b>4,279</b>	<b>793</b>	<b>16,618</b>

## Section 5.4: Schedule of Active Member Data

Valuation Date	Number	Annual Earnings (000's)	Annual Average Earnings	Percent Increase/ (Decrease) in Average Earnings	Number of Participating Employers
June 30, 2017	4,772	\$ 411,951	\$ 86,327	1.6%	57
June 30, 2016	5,123	435,222	84,954	2.4%	57
June 30, 2015	5,502	456,636	82,995	2.4%	58
June 30, 2014	5,861	474,873	81,023	2.1%	58
June 30, 2013	6,352	504,260	79,386	2.6%	58
June 30, 2012	6,845	529,468	77,351	3.6%	58
June 30, 2011	7,303	545,155	74,648	3.5%	58
June 30, 2010	7,832	564,887	72,125	6.5%	58
June 30, 2009	8,226	557,026	67,715	5.2%	58
June 30, 2008	8,531	549,148	64,371	5.8%	58

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

## Section 5.5: Active Member Payroll Reconciliation

Payroll Field	Payroll Data (000s)
a) DRB actual reported salaries FY17 – employer list	\$ 777,298
b) DRB actual reported salaries FY17 – valuation data	700,344
c) Include October data adjustment for rehires	712,995
d) Annualized valuation data	724,298
e) Valuation payroll as of June 30, 2017	763,012
f) Rate payroll for FY18	753,606
g) Rate payroll for FY20	787,991

- a) Actual reported salaries from DRB employer listing showing all payroll paid during FY17, including those who were not active as of June 30, 2017
- b) Payroll from valuation data for people who are in active status as of June 30, 2017
- c) Payroll from (b) including additional people added who were listed as active as of October 1, 2017 and were run as active in the valuation
- d) Payroll from (c) annualized for both new entrants and part-timers
- e) Payroll from (d) with one year of salary scale applied to estimate salaries payable for the upcoming year
- f) Payroll from (e) with the part-timer annualization removed
- g) Payroll from (f) with two years of assumed decrements and salary scale, and 0% population growth

## Section 5.6: Summary of New Pension Benefit Recipients

During the Year Ending June 30	2013	2014	2015	2016	2017
<b>Service</b>					
1. Number	461	146	791	422	376
2. Average Age at Commencement	59.88	60.43	59.87	60.32	59.77
3. Average Monthly Pension Benefit	\$ 3,084	\$ 2,433	\$ 3,363	\$ 3,190	\$ 3,300
<b>Survivor (including surviving spouse and DROs)</b>					
1. Number	108	76	89	104	108
2. Average Age at Commencement	68.46	70.21	70.22	72.15	70.57
3. Average Monthly Pension Benefit	\$ 1,561	\$ 1,658	\$ 1,715	\$ 1,633	\$ 1,643
<b>Disability</b>					
1. Number	7	4	8	4	3
2. Average Age at Commencement	49.61	50.80	53.62	50.48	43.30
3. Average Monthly Pension Benefit	\$ 3,625	\$ 3,945	\$ 3,808	\$ 3,616	\$ 3,678
<b>Total</b>					
1. Number	576	226	888	530	487
2. Average Age at Commencement	61.36	63.55	60.85	62.56	62.06
3. Average Monthly Pension Benefit	\$ 2,805	\$ 2,199	\$ 3,202	\$ 2,888	\$ 2,935

## Summary of New Pension Benefit Recipients

### Average Pension Benefit Payments

	Years of Credited Service						
	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30+
Period 7/1/16 – 6/30/17: <sup>1</sup>							
Average Monthly Pension Benefit	\$ 426	\$ 795	\$ 1,626	\$ 2,433	\$ 3,549	\$ 4,536	\$ 6,351
Number of Recipients	10	22	60	75	100	64	48
Period 7/1/15- 6/30/16: <sup>1</sup>							
Average Monthly Pension Benefit	\$ 245	\$ 1,002	\$ 1,535	\$ 2,540	\$ 3,445	\$ 4,472	\$ 6,168
Number of Recipients	11	31	82	69	105	74	54
Period 7/1/14- 6/30/15: <sup>1</sup>							
Average Monthly Pension Benefit	\$ 349	\$ 1,041	\$ 1,342	\$ 2,205	\$ 3,267	\$ 4,220	\$ 5,900
Number of Recipients	11	33	70	67	137	125	94
Period 7/1/13- 6/30/14: <sup>1</sup>							
Average Monthly Pension Benefit	\$ 235	\$ 904	\$ 1,435	\$ 2,398	\$ 3,016	\$ 4,073	\$ 7,485
Number of Recipients	8	31	31	28	22	18	12
Period 7/1/12- 6/30/13: <sup>1</sup>							
Average Monthly Pension Benefit	\$ 253	\$ 1,030	\$ 1,496	\$ 2,450	\$ 3,281	\$ 4,384	\$ 6,052
Number of Recipients	10	57	67	90	101	79	64
Period 7/1/11- 6/30/12: <sup>1</sup>							
Average Monthly Pension Benefit	\$ 353	\$ 1,064	\$ 1,512	\$ 2,241	\$ 3,276	\$ 4,320	\$ 5,739
Number of Recipients	11	43	62	61	118	81	58
Period 7/1/10- 6/30/11: <sup>1</sup>							
Average Monthly Pension Benefit	\$ 146	\$ 902	\$ 1,432	\$ 2,328	\$ 3,131	\$ 4,283	\$ 5,496
Number of Recipients	5	68	63	77	118	104	67
Period 7/1/09- 6/30/10: <sup>1</sup>							
Average Monthly Pension Benefit	\$ 482	\$ 1,020	\$ 1,343	\$ 2,263	\$ 2,992	\$ 4,120	\$ 6,263
Number of Recipients	14	50	63	85	109	79	49
Period 7/1/08- 6/30/09: <sup>1</sup>							
Average Monthly Pension Benefit	\$ 230	\$ 950	\$ 1,168	\$ 2,239	\$ 2,957	\$ 3,897	\$ 4,860
Number of Recipients	13	35	64	52	67	54	18

<sup>1</sup> “Average Monthly Pension Benefit” includes postretirement pension adjustments and cost-of-living increases

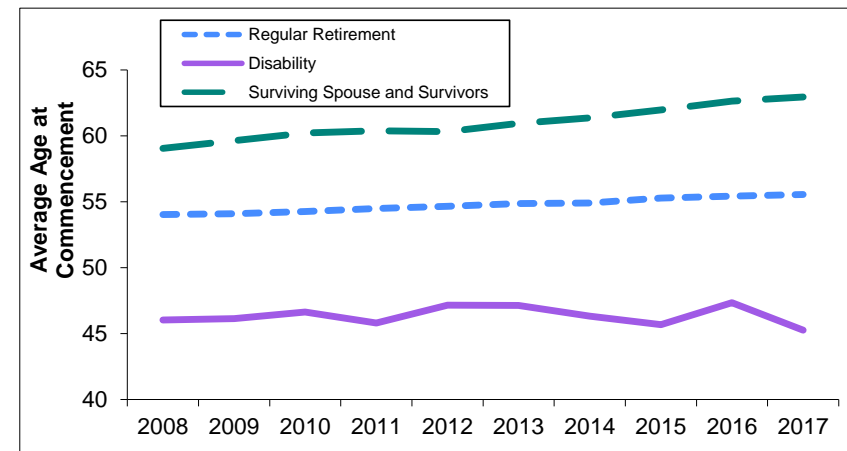
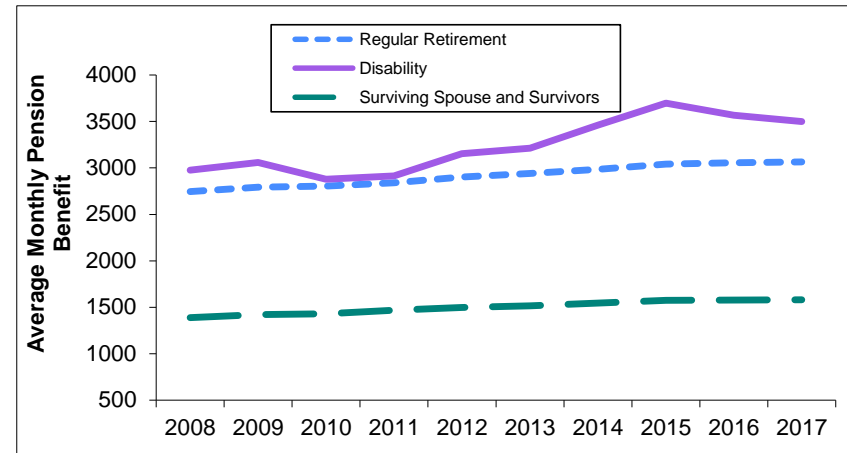
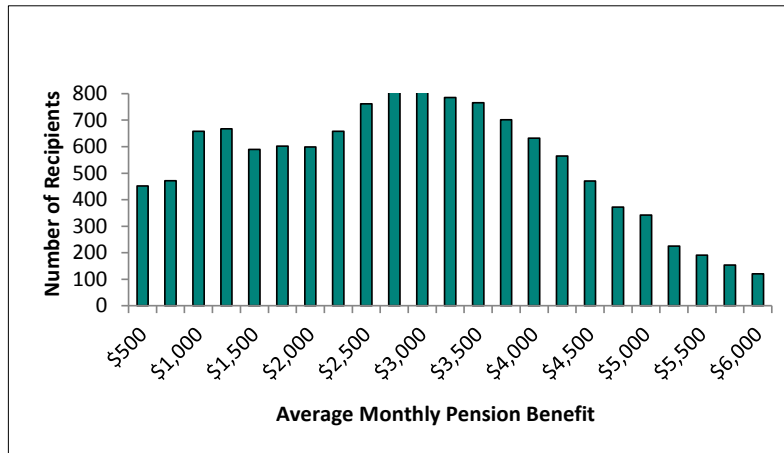
<sup>1</sup> Does not include beneficiaries.

## Section 5.7: Summary of All Pension Benefit Recipients

As of June 30 Service	2013	2014	2015	2016	2017
1. Number, Fiscal Year Start	10,371	10,688	10,681	11,287	11,527
2. Net Change	317	(7)	606	240	189
3. Number, Fiscal Year End	10,688	10,681	11,287	11,527	11,716
4. Average Age at Commencement	54.87	54.91	55.28	55.43	55.55
5. Average Current Age	68.17	68.87	69.09	69.58	70.09
6. Average Monthly Pension Benefit	\$ 2,939	\$ 2,986	\$ 3,040	\$ 3,056	\$ 3,064
<b>Surviving Spouse's Benefits (includes DROs)</b>					
1. Number, Fiscal Year Start	893	980	1,034	1,096	1,168
2. Net Change	87	54	62	72	69
3. Number, Fiscal Year End	980	1,034	1,096	1,168	1,237
4. Average Age at Commencement	61.07	61.47	62.04	62.66	62.98
5. Average Current Age	71.40	71.98	72.54	73.07	73.42
6. Average Monthly Pension Benefit	\$ 1,517	\$ 1,548	\$ 1,576	\$ 1,580	\$ 1,584
<b>Survivor's Benefits (other than spouses)</b>					
1. Number, Fiscal Year Start	4	5	5	6	3
2. Net Change	1	0	1	(3)	0
3. Number, Fiscal Year End	5	5	6	3	3
4. Average Age at Commencement	38.32	39.19	49.91	52.81	52.81
5. Average Current Age	42.20	44.07	54.06	57.22	58.22
6. Average Monthly Pension Benefit	\$ 1,272	\$ 1,302	\$ 1,128	\$ 746	\$ 746
<b>Disabilities</b>					
1. Number, Fiscal Year Start	33	32	30	29	28
2. Net Change	(1)	(2)	(1)	(1)	(1)
3. Number, Fiscal Year End	32	30	29	28	27
4. Average Age at Commencement	47.13	46.32	45.67	47.34	45.25
5. Average Current Age	50.99	50.40	49.16	51.56	50.34
6. Average Monthly Pension Benefit	\$ 3,213	\$ 3,461	\$ 3,699	\$ 3,568	\$ 3,500
<b>Total</b>					
1. Number, Fiscal Year Start	11,301	11,705	11,750	12,418	12,726
2. Net Change	404	45	668	308	257
3. Number, Fiscal Year End	11,705	11,750	12,418	12,726	12,983
4. Average Age at Commencement	55.36	55.45	55.85	56.07	56.24
5. Average Current Age	68.38	69.09	69.35	69.86	70.36
6. Average Monthly Pension Benefit	\$ 2,820	\$ 2,860	\$ 2,912	\$ 2,921	\$ 2,924



## Summary of All Pension Benefit Recipients



## Summary of All Pension Benefit Recipients

### Distribution of Annual Pension Benefits for Benefit Recipients

#### Annual Pension Benefit by Age

Age	Number	Total Annual Pension Benefit	Average Annual Pension Benefit
0 – 19	0	\$ 0	\$ 0
20 – 24	0	0	0
25 – 29	0	0	0
30 – 34	0	0	0
35 – 39	1	2,472	2,472
40 – 44	11	410,607	37,328
45 – 49	53	1,864,995	35,189
50 – 54	270	10,385,662	38,465
55 – 59	855	32,084,560	37,526
60 – 64	2,229	74,313,395	33,339
65 – 69	3,226	106,202,709	32,921
70 – 74	2,863	100,714,278	35,178
75+	3,475	129,520,756	37,272
<b>Total</b>	<b>12,983</b>	<b>\$ 455,499,434</b>	<b>\$ 35,084</b>

#### Annual Pension Benefit by Years Since Commencement

Years Since Commencement	Number	Total Annual Pension Benefit	Average Annual Pension Benefit
0	456	\$15,741,948	\$ 34,522
1	499	17,894,358	35,860
2	564	21,236,135	37,653
3	525	18,906,476	36,012
4	538	19,310,346	35,893
0 – 4	2,582	93,089,263	36,053
5 – 9	2,271	76,401,498	33,642
10 – 14	2,146	65,175,699	30,371
15 – 19	2,265	75,310,461	33,250
20 – 24	1,890	72,154,255	38,177
25 – 29	849	33,047,014	38,925
30 – 34	741	32,487,793	43,843
35 – 39	174	5,938,411	34,129
40+	65	1,895,040	29,154
<b>Total</b>	<b>12,983</b>	<b>\$ 455,499,434</b>	<b>\$ 35,084</b>

#### Years Since 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	1	0	0	0	0	0	0	0	0	1
40 – 44	9	2	0	0	0	0	0	0	0	11
45 – 49	45	5	1	2	0	0	0	0	0	53
50 – 54	193	62	14	0	1	0	0	0	0	270
55 – 59	455	245	128	23	3	1	0	0	0	855
60 – 64	905	678	386	211	48	0	0	0	1	2,229
65 – 69	565	750	889	662	311	44	2	2	1	3,226
70 – 74	209	353	484	884	656	201	71	4	1	2,863
75+	200	176	244	483	871	603	668	168	62	3,475
<b>Total</b>	<b>2,582</b>	<b>2,271</b>	<b>2,146</b>	<b>2,265</b>	<b>1,890</b>	<b>849</b>	<b>741</b>	<b>174</b>	<b>65</b>	<b>12,983</b>

## Section 5.8: Schedule of Pension Benefit Recipients by Type of Pension Benefit and Option Elected

Amount of Monthly Pension Benefit	Number of Recipients	Type of Pension Benefit			Option Selected			
		1	2	3	1	2	3	4
\$ 1 – \$ 300	223	157	66	0	136	44	37	6
301 – 600	394	280	114	0	204	81	88	21
601 – 900	680	534	146	0	360	140	143	37
901 – 1,200	809	650	159	0	454	172	147	36
1,201 – 1,500	734	576	158	0	395	163	152	24
1,501 – 1,800	713	570	143	0	371	160	154	28
1,801 – 2,100	719	597	122	0	351	161	182	25
2,101 – 2,400	849	747	102	0	369	206	247	27
2,401 – 2,700	1,020	934	85	1	446	240	300	34
2,701 – 3,000	1,008	956	49	3	407	247	326	28
3,001 – 3,300	957	914	36	7	369	206	354	28
3,301 – 3,600	885	861	19	5	344	181	337	23
3,601 – 3,900	806	783	17	6	294	168	313	31
3,901 – 4,200	673	665	6	2	264	121	276	12
Over \$4,200	2,513	2,492	18	3	866	414	1,154	79
Totals	12,983	11,716	1,240	27	5,630	2,704	4,210	439

### Type of Pension Benefit

1. Regular retirement
2. Survivor payment
3. Disability

### Option Selected

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

## Section 5.9: Pension Benefit Recipients Added to and Removed from Rolls

Year Ended	Added to Rolls		Removed from Rolls		Rolls – End of Year		Percent Increase in Annual Pension Allowances	Average Annual Pension Allowance
	No. <sup>1</sup>	Annual Pension Allowances <sup>1</sup>	No. <sup>1</sup>	Annual Pension Allowances <sup>1</sup>	No.	Annual Pension Allowances		
June 30, 2017	487	\$17,151,684	230	\$7,736,025	12,983	\$455,499,434	2.11%	\$35,084
June 30, 2016	530	18,364,581	222	6,144,109	12,726	446,083,775	2.82%	35,053
June 30, 2015	888	34,120,658	220	3,531,501	12,418	433,863,303	7.59%	34,938
June 30, 2014	226	5,964,256	181	(1,150,187)	11,750	403,274,146	1.80%	34,321
June 30, 2013	576	19,387,542	172	1,652,575	11,705	396,159,703	4.69%	33,845
June 30, 2012	473	17,104,564	188	(617,561)	11,301	378,424,736	4.91%	33,486
June 30, 2011	564	19,546,369	146	1,464,766	11,016	360,702,611	5.28%	32,744
June 30, 2010	533	16,980,817	190	5,495,399	10,598	342,621,008	3.47%	32,329
June 30, 2009	368	9,788,639	139	(2,857,118)	10,255	331,135,590	3.97%	32,290
June 30, 2008	481	14,265,236	133	806,945	10,026	318,489,833	4.41%	31,766

<sup>1</sup> Numbers are estimated, and include other internal transfers.

## Section 6: Basis of the Actuarial Valuation

### Section 6.1: Summary of Plan Provisions

#### Effective Date

July 1, 1955, with amendments through June 30, 2017. Chapter 97, 1990 Session Laws of Alaska, created a two-tier retirement system. Members who were first hired under TRS before July 1, 1990 (Tier 1) are eligible for different benefits than members hired after June 30, 1990 (Tier 2). Chapter 9, 2005 Session Laws of Alaska, closed the plan to new members hired after June 30, 2006.

#### Administration of Plan

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

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

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

#### Employers Included

Currently, there are 57 employers participating in TRS, including the State of Alaska, 53 school districts, and three other eligible organizations.

#### Membership

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

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

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

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

## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.1: Summary of Plan Provisions (continued)

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

#### **Credited Service**

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

Members may claim other types of service, including:

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

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

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

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

## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.1: Summary of Plan Provisions (continued)

#### Employer Contributions

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

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

The past service rate is a uniform rate for all participating employers to amortize the unfunded past service liability with payments that are a level percentage of payroll amount over a closed 25-year period starting June 30, 2014.

Employer rates cannot be less than the normal cost rate.

#### Additional State Contribution

Pursuant to AS14.25.070 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 (12.56%) will be sufficient to pay the total contribution rate adopted by The State of Alaska Retirement Management Board.

#### Member Contributions

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

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

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

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

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

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

## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.1: Summary of Plan Provisions (continued)

#### Retirement Benefits

##### Eligibility:

- a. Members, including deferred vested members, are eligible for normal retirement at age 55 or early retirement at age 50 if they were hired before July 1, 1990 (Tier 1) and age 60 or early retirement at age 55 if they were hired on or after July 1, 1990 (Tier 2). Additionally, they must have at least:
  - (i) eight years of paid-up membership service;
  - (ii) 15 years of paid-up creditable service, the last five years of which are membership service, and they were first hired under TRS before July 1, 1975;
  - (iii) five years of paid-up membership service and three years of paid-up Alaska Bureau of Indian Affairs service;
  - (iv) 12 years of combined part-time and full-time paid-up membership service;
  - (v) two years of paid-up membership service if they are vested in PERS; or
  - (vi) one year of paid-up membership service if they are retired from PERS.
- b. Members may retire at any age when they have:
  - (i) 25 years of paid-up creditable service, the last five years of which are membership service;
  - (ii) 20 years of paid-up membership service;
  - (iii) 20 years of combined paid-up membership and Alaska Bureau of Indian Affairs service, the last five years of which are membership service; or
  - (iv) 20 years of combined paid-up part-time and full-time membership service.

##### Benefit Type

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

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



## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.1: Summary of Plan Provisions (continued)

#### Benefit Calculation

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

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

#### Indebtedness

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

#### Reemployment of Retired Members

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

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

Members retired under the RIP who return to employment under TRS, PERS, Judicial Retirement System (JRS) or the University of Alaska's Optional Retirement Plan will:

- a. forfeit the three years of incentive credits that they received;
- b. owe TRS 110% of the benefits that they received under the RIP, which may include costs for health insurance, excluding amounts that they paid to participate; and
- c. be charged 7% interest from the date that they are reemployed until their indebtedness is paid in full or they retire again. If the indebtedness is not completely paid, future benefits will be actuarially reduced for life.

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

## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.1: Summary of Plan Provisions (continued)

#### Postemployment Healthcare Benefits

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

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

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

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

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

Plan Feature	Amounts
Deductible (single/family)	\$150 / \$450
Coinsurance - most services	20%
Outpatient surgery/testing	0%
Maximum Out-of-Pocket (single/family, 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.

#### Disability Benefits

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

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

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

## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.1: Summary of Plan Provisions (continued)

#### Death Benefits

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

#### Occupational Death

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

#### Non-occupational Death

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

#### Lump Sum Benefit

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

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

- a. **Survivor's Allowance:** If the member is survived by dependent children, the surviving spouse and dependent children are entitled to a survivor's allowance. The allowance for the spouse is equal to 35% of the member's base salary at the time of death or disability, plus 10% for each dependent child up to a maximum of 40%. The allowance terminates and a spouse's pension becomes payable when there is no longer an eligible dependent child.
- b. **Spouse's Pension:** The spouse's pension is equal to 50% of the retirement benefit that the deceased member was receiving or the unreduced retirement benefit that the deceased member would have received if retired at the time of death. The spouse's pension begins on the first of the month after the member's death or termination of the survivor's allowance.

## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.1: Summary of Plan Provisions (continued)

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

#### Postretirement Pension Adjustments

Postretirement pension adjustments (PRPAs) are granted annually to eligible benefit recipients when the consumer price index (CPI) for urban wage earners and clerical workers for Anchorage increases during the preceding calendar year. PRPAs are calculated by multiplying the recipient's base benefit, including past PRPAs, 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 TRS 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 under age 60 if the recipient has been receiving benefits for at least eight years.

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

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

#### Alaska Cost of Living Allowance

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

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

#### Changes in Benefit Provisions Since the Prior Valuation

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

## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.2: Description of Actuarial Methods and Valuation Procedures

The funding method used in this valuation was adopted by the Board in October 2006. Changes in the amortization of unfunded actuarial accrued liability were made in 2014. 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. Any funding surpluses or unfunded actuarial accrued liability are amortized over a closed 25-year period (established June 30, 2014) as a level percentage of payroll amount. 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 for pension benefits (constant dollar amount for healthcare benefits) 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.

#### **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.

## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.2: Description of Actuarial Methods and Valuation Procedures (continued)

#### 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 TRS postemployment healthcare plan. Note that the methodology reflects the results of our annual experience rate update for the period from July 1, 2016 to June 30, 2017. Healthcare cost trend and retiree contribution increase assumptions for the period after June 30, 2017 were updated since the prior valuation.

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. Conduent HR Consulting relies upon rates set by a third-party for the DVA benefits. Conduent HR Consulting 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 2015 through June 2017 (FY16 through FY17) 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. Conduent HR Consulting added newly identified participants to our list of Medicare Part B only participants. Conduent HR Consulting 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, 2017 of retirees and dependents that included a coverage level indicator. The monthly enrollment data includes dual 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 dual coverage.

## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.2: Description of Actuarial Methods and Valuation Procedures (continued)

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

Conduent HR Consulting projected historical claim data to FY18 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 FY16 through FY17. (For this year's valuation, the Board approved reducing the number of experience periods from four years to two years.)
  - 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 FY18).
  - Because the reports provided this year reflected incurred claims, no additional adjustment was needed (as it was in prior years) 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. For future retirees, we assume their Part A eligible status based on a combination of date of hire and/or re-hire, date of birth, tier, etc.
  - Based upon a reconciliation of valuation census data to the snapshot eligibility files provided by Aetna as of July 1, 2016, and July 1, 2017, Conduent HR Consulting adjusted member counts used for duplicate records where participants have dual 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.
  - Conduent HR Consulting understands that pharmacy claims reported do not reflect rebates. Based upon reported rebates in proportion to incurred claims for State of Alaska retiree plans, Conduent HR Consulting reduced reported pharmacy incurred claims by 9% to estimate the rebates for the retiree population for the FY16 claims and by 12% for FY17 claims. These estimates were based upon reported rebates for retirees from Aetna and Envision Rx.



## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.2: Description of Actuarial Methods and Valuation Procedures (continued)

2. Develop estimated Retiree Drug Subsidy reimbursement - actual subsidy payments to the State were received for claims incurred during the 2009 through 2016 calendar years. Conduent HR Consulting obtained this information based upon recorded and available information in the RDS Subsidy website and as provided by the State. The projected subsidy for FY18 was determined based on the historical ratio of subsidy received to claims incurred (adjusted for rebates), and then applied to the appropriate projection period. 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. Conduent HR Consulting 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 FY18 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 as outlined below. The prior valuation uses a weighting of 35%/35%/20%/10% for the previous four fiscal years of experience (most recent to oldest). 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
FY16 to FY17	5.3%	8.5%	50%
FY17 to FY18	7.0% Pre-Medicare / 4.5% Medicare	6.2%	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. Based upon recent experience trending up, particularly for prescription drugs, the Board has approved our recommendation to update to the valuation healthcare cost trend assumption.



## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.2: Description of Actuarial Methods and Valuation Procedures (continued)

6. Develop separate administration costs – no adjustments were made for internal administrative costs. Third party retiree plan administration fees for FY18 are based upon rates in effect at the midpoint of the year, January 2018, as communicated by the State. We also ensured that these rates were consistent with the calculation of the 2018 budget and retiree contribution rates calculated by Segal. Included in the administration costs are medical and prescription fees of \$28.25 (\$27.70 for medical and \$0.55 for Rx check) PEP, \$4.60 PPM for retiree direct billing, \$0.71 PEP for the Gaps in Care program (applicable to early retirees only) and a share of the HDMS fee for data analytics. The annual per participant per year administrative cost rate for medical and prescription benefits is \$236.
7. Healthcare Reform legislation passed on March 23, 2010 included several provisions with potential implications for the State of Alaska Retiree Health Plan liability. Conduent HR Consulting evaluated the impact of the following provisions; however, none of the impacts have been included in the valuation results except for the excise tax described below.
  - 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 Plan will be subject to the high cost plan excise tax (Cadillac tax). Based upon guidance available at the valuation date, Conduent HR Consulting estimated the tax based upon a blended test of pre and post-Medicare projected costs and enrollment projections.
    - A blended test compares a weighted average per capita cost (based upon proportions of pre/post Medicare eligible enrollments) to the tax cost thresholds in each projection year. Projected enrollment was based upon the enrollment data provided by Aetna, and valuation headcount projections for future years.
    - We included administrative fees and applied Retiree Drug Subsidy reimbursements to the Medicare rates.
  - We assumed claim costs would increase according to valuation trend assumptions from the June 30, 2017 valuation, and that the tax cost thresholds would increase at 2.82% (the CPI assumption of 3.12% less 0.30% to estimate the impact of using the chained CPI as required by the Tax Cut and Jobs Act passed in December 2017). The first year increased at 3.82% to reflect the additional 1.0% over inflation assumption.
  - Conduent HR Consulting determined the impact to be approximately \$21.4 million of the projected June 30, 2017 healthcare actuarial accrued liability for the defined benefit plan.

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 ("Cadillac 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.

## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.2: Description of Actuarial Methods and Valuation Procedures (continued)

We have not identified any other specific provision of health care reform that would be expected to have a significant impact on the measured obligation. While the House of Representatives voted to pass the American Health Care Act (AHCA), which would have repealed many provisions of the Affordable Care Act (ACA), the bill was rejected by the Senate. We will continue to monitor legislative activity.

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 did not add these records to the retiree medical valuation data as they were unable to tie with our pension valuation data (and therefore were unable to be associated with a specific plan or participant).
  - Some in pay participants and beneficiaries on the pension valuation data who were previously assumed to be receiving medical benefits were not listed on the provided Aetna data. We have updated these records to only be valued under the pension valuation.
  - Some records in the Aetna data were duplicates due to the dual coverage (i.e. coverage as a retiree and as a spouse of another retiree) allowed under the Plan. Records were changed for these members so that each member was only valued once. Any additional value of the dual 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 handicapped. We assumed that those dependents over 23 were only eligible and included due to being handicapped.
  - Conduent HR Consulting understands that retiree medical coverage/eligibility is in place while a pension benefit is payable. If a participant dies, dependent coverage is only assumed to continue if they have ongoing pension/survivor benefits.
  - 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.
  - Future retirees' level of coverage is estimated according to valuation assumptions regarding spousal coverage.
- Limitations on the use of the valuation results due to uncertainty about various aspects of the data: Excluded records due to file mismatches are noted above but not are expected to have a material impact on the results.

Unresolved matters: None.

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

## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.2: Description of Actuarial Methods and Valuation Procedures (continued)

	Medical		Prescription Drugs (Rx)		
	Pre-Medicare	Medicare	Pre-Medicare	Medicare	Total
<b>A. Fiscal 2016</b>					
1. Incurred Claims	\$ 237,116,614	\$ 65,703,369	\$ 67,176,175	\$ 146,089,568	\$ 516,085,726
2. Adjustments for Rx Rebates	<u>0</u>	<u>0</u>	<u>(6,045,856)</u>	<u>(13,148,061)</u>	<u>(19,193,917)</u>
3. Net incurred claims	\$ 237,116,614	\$ 65,703,369	\$ 61,130,319	\$ 132,941,507	\$ 496,891,809
4. Average Enrollment	24,439	36,151	24,439	36,151	60,591
5. Claim Cost Rate (3) / (4)	9,702	1,817	2,501	3,677	
6. Trend to Fiscal 2018	1.126	1.100	1.152	1.152	
7. Fiscal 2018 Incurred Cost Rate (5) x (6)	\$ 10,929	\$ 1,999	\$ 2,882	\$ 4,237	
<b>B. Fiscal 2017</b>					
1. Incurred Claims	\$ 231,784,641	\$ 71,323,054	\$ 64,788,957	\$ 161,532,441	\$ 529,429,093
2. Adjustments for Rx Rebates	<u>0</u>	<u>0</u>	<u>(7,774,675)</u>	<u>(19,383,893)</u>	<u>(27,158,568)</u>
3. Net incurred claims	\$ 231,784,641	\$ 71,323,054	\$ 57,014,282	\$ 142,148,548	\$ 502,270,525
4. Average Enrollment	23,342	38,502	23,342	38,502	61,844
5. Claim Cost Rate (3) / (4)	9,930	1,852	2,443	3,692	
6. Trend to Fiscal 2018	1.070	1.045	1.062	1.062	
7. Fiscal 2018 Incurred Cost Rate (5) x (6)	\$ 10,625	\$ 1,936	\$ 2,594	\$ 3,921	
<b>C. Incurred Cost Rate by Fiscal Year</b>					
1. Fiscal 2016 A.(7)	10,929	1,999	2,882	4,237	
2. Fiscal 2017 B.(7)	10,625	1,936	2,594	3,921	
<b>D. Weighting by Fiscal Year</b>					
1. Fiscal 2016	50%	50%	50%	50%	
2. Fiscal 2017	50%	50%	50%	50%	
<b>E. Fiscal 2018 Incurred Cost Rate</b>					
1. Rate at Average Age C x D	\$ 10,777	\$ 1,968	\$ 2,738	\$ 4,079	
2. Average Aging Factor	0.788	1.305	0.784	1.101	
3. Rate at Age 65 (1) / (2)	<b>\$ 13,682</b>	\$ 1,508	<b>\$ 3,493</b>	<b>\$ 3,706</b>	
<b>F. Development of Part A&amp;B and Part B Only Cost from Pooled Rate Above</b>					
1. Part A&B Average Enrollment		38,227			
2. Part B Only Average Enrollment		275			
3. Total Medicare Average Enrollment B(4)		38,502			
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		1.016			
6. Medicare per capita cost for all participants: E(3)		\$ 1,508			
7. Cost for those eligible for Parts A&B: (6) / (5)		<b>\$ 1,485</b>			
8. Cost for those eligible for Part B only: (7) x (4)		<b>\$ 4,722</b>			

## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.2: Description of Actuarial Methods and Valuation Procedures (continued)

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, 2017 through June 30, 2018**

Age	Medical and Medicare Parts A & B	Medical and Medicare Part B Only	Prescription Drug	Medicare Retiree Drug Subsidy
45	\$ 7,577	\$ 7,577	\$ 1,843	\$ -
50	8,573	8,573	2,188	-
55	9,699	9,699	2,599	-
60	11,520	11,520	3,013	-
65	1,485	4,722	3,493	659
70	1,807	5,745	3,763	710
75	2,145	6,822	4,014	757
80	2,311	7,349	4,115	776

## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.3: Summary of Actuarial Assumptions

The demographic and economic assumptions used in the June 30, 2017 valuation are described below. Unless otherwise noted, these assumptions were adopted by the Board in December 2014 based on an experience study performed as of June 30, 2013.

#### Investment Return

8.00% per year (geometric), compounded annually, net of all expenses.

#### Salary Scale

Inflation – 3.12% per year.

Productivity – 0.50% per year.

See Table 1 for salary scale rates.

#### Payroll Growth

3.62% 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 3.12% annually.

#### Mortality (Pre-termination)<sup>1</sup>

Based upon the 2010-2013 actual experience. (See Table 2).

68% of male rates and 60% of female rates of post-termination mortality.

Deaths are assumed to result from non-occupational causes 85% of the time.

#### Mortality (Post-termination)<sup>1</sup>

Based upon the 2010-2013 actual experience. (See Table 3).

94% of male and 97% of female rates of RP-2000, 2000 Base Year projected to 2018 with Projection Scale BB, with a 3-year setback for males and a 4-year setback for females.

#### Total Turnover

Select and ultimate rates based upon the 2010-2013 actual withdrawal experience. (See Table 4).

#### Disability

Incidence rates based upon the 2010-2013 actual experience, in accordance with Table 5. Post-disability mortality in accordance with the RP-2000 Disabled Retiree Mortality Table, 2000 Base Year, projected to 2018 with Projection Scale BB. (See Table 7).

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<sup>1</sup> The mortality assumptions include an allowance for expected future mortality improvement. The mortality table used was set in 2014 with an Actual Deaths to Expected Deaths ratio of 109%.

## **Section 6: Basis of the Actuarial Valuation (continued)**

### **Section 6.3: Summary of Actuarial Assumptions (continued)**

#### **Retirement**

Retirement rates based upon the 2010-2013 actual experience in accordance with Table 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.

#### **Marriage and Age Difference**

Wives are assumed to be three years younger than husbands. 85% of male members and 75% of female members are assumed to be married.

#### **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**

5% 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, 2015):

- Pension: 18.49%
- Healthcare: 10.39%

#### **Active Data Adjustment**

To reflect participants who terminate employment before the valuation date and are subsequently rehired after the valuation date, participants who are listed as terminated in the June 30 census data file but active in the October 1 census data file are updated to active status as of June 30.

#### **COLA**

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

## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.3: Summary of Actuarial Assumptions (continued)

#### Sick Leave

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

#### Postretirement Pension Adjustment

50% and 75% of assumed inflation, or 1.56% and 2.34% respectively, is valued for the annual automatic Postretirement Pension Adjustment (PRPA) as specified in the statute.

#### Expenses

The investment return assumption is net of all expenses.

#### Part-time Status

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

#### Re-employment Option

We assume all re-employed retirees return to work under the Standard Option.

#### Service

Total credited service is provided by the State. We assume that this service is 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 2.1.

#### 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 FY18 medical and prescription drugs are shown below:

	Medical	Prescription Drugs
Pre-Medicare	\$13,682	\$ 3,493
Medicare Parts A & B	\$ 1,485	\$ 3,706
Medicare Part B Only	\$ 4,722	\$ 3,706
Medicare Part D	N/A	\$ 659

## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.3: Summary of Actuarial Assumptions (continued)

#### Third Party Administrator Fees

\$236 per person per year; assumed to increase at 4% per year.

#### Medicare Part B Only

For actives and retirees not yet Medicare-eligible, participation is set based on whether the employee/retiree will have 40 quarters of employment after March 31, 1986, depending upon date of hire and/or re-hire.

#### 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, 8.0% is applied to the FY18 pre-Medicare medical claims cost to get the FY19 medical claims cost.

	Medical Pre-65	Medical Post-65	Prescription Drugs	RDS/ EGWP
FY18	8.0%	5.5%	9.0%	6.5%
FY19	7.5%	5.5%	8.5%	6.2%
FY20	7.0%	5.4%	8.0%	6.0%
FY21	6.5%	5.4%	7.5%	5.7%
FY22	6.3%	5.4%	7.1%	5.5%
FY23	6.1%	5.4%	6.8%	5.4%
FY24	5.9%	5.4%	6.4%	5.2%
FY25	5.8%	5.4%	6.1%	5.0%
FY26	5.6%	5.4%	5.7%	4.8%
FY27-FY40	5.4%	5.4%	5.4%	4.7%
FY41	5.2%	5.2%	5.2%	4.6%
FY42	5.1%	5.1%	5.1%	4.5%
FY43	5.0%	5.0%	5.0%	4.5%
FY44	4.8%	4.8%	4.8%	4.4%
FY45	4.7%	4.7%	4.7%	4.3%
FY46	4.5%	4.5%	4.5%	4.2%
FY47	4.4%	4.4%	4.4%	4.2%
FY48	4.3%	4.3%	4.3%	4.1%
FY49	4.1%	4.1%	4.1%	4.0%
FY50+	4.0%	4.0%	4.0%	4.0%

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. The model was updated this year to use the newest version and incorporate recent trend survey information, which generated the updated trend rates shown above.



## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.3: Summary of Actuarial Assumptions (continued)

The table below shows the amount each trend rate shown on the previous page was increased by to account for the Cadillac Tax:

	Pre-65	Post-65		Pre-65	Post-65
FY18-FY29	0.00%	0.00%	FY60	0.04%	0.39%
FY30	0.00%	0.14%	FY61	0.04%	0.38%
FY31	0.00%	0.23%	FY62	0.04%	0.38%
FY32	0.00%	0.24%	FY63	0.04%	0.37%
FY33	0.00%	0.21%	FY64	0.14%	0.37%
FY34	0.00%	0.20%	FY65	0.18%	0.36%
FY35	0.00%	0.20%	FY66	0.18%	0.36%
FY36	0.00%	0.20%	FY67	0.17%	0.35%
FY37	0.00%	0.16%	FY68	0.17%	0.35%
FY38	0.05%	0.17%	FY69	0.17%	0.34%
FY39	0.08%	0.15%	FY70	0.17%	0.34%
FY40	0.07%	0.13%	FY71	0.16%	0.33%
FY41	0.06%	0.10%	FY72	0.16%	0.33%
FY42	0.05%	0.08%	FY73	0.16%	0.32%
FY43	0.03%	0.05%	FY74	0.16%	0.32%
FY44	0.02%	0.03%	FY75	0.16%	0.31%
FY45	0.02%	0.03%	FY76	0.15%	0.31%
FY46	0.02%	0.02%	FY77	0.15%	0.31%
FY47	0.02%	0.03%	FY78	0.15%	0.30%
FY48	0.02%	0.03%	FY79	0.15%	0.30%
FY49	0.03%	0.05%	FY80	0.15%	0.29%
FY50	0.02%	0.04%	FY81	0.14%	0.29%
FY51	0.03%	0.06%	FY82	0.14%	0.28%
FY52	0.03%	0.06%	FY83	0.14%	0.28%
FY53	0.04%	0.14%	FY84	0.14%	0.28%
FY54	0.04%	0.41%	FY85	0.14%	0.27%
FY55	0.04%	0.41%	FY86	0.14%	0.27%
FY56	0.04%	0.41%	FY87	0.13%	0.26%
FY57	0.04%	0.41%	FY88	0.13%	0.26%
FY58	0.04%	0.41%	FY89	0.13%	0.26%
FY59	0.04%	0.40%	FY90	0.13%	0.25%

## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.3: Summary of Actuarial Assumptions (continued)

#### Aging Factors<sup>1</sup>

Age	Medical	Prescription Drugs
0-44	2.0%	4.5%
45-54	2.5%	3.5%
55-64	3.5%	3.0%
65-74	4.0%	1.5%
75-84	1.5%	0.5%
85-95	0.5%	0.0%
96+	0.0%	0.0%

#### Retired Member Contributions for Medical Benefits

Currently contributions are required for TRS members who are under age 60 and have less than 25 years of service. Eligible Tier 1 members are exempt from contribution requirements. Annual FY18 contributions based on monthly rates shown below for calendar 2017 and 2018 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 who are assumed to retire prior to age 60 with less than 25 years of service and who are not disabled. For dependent children, we value 1/3 of the annual retiree contribution to estimate the per child rate based upon the assumed number of children in rates where children are covered:

Coverage Category	Calendar 2018 Annual Contribution	Calendar 2018 Monthly Contribution	Calendar 2017 Monthly Contribution
Retiree Only	\$ 9,324	\$ 777	\$ 777
Retiree and Spouse	\$ 18,648	\$ 1,554	\$ 1,554
Retiree and Child(ren)	\$ 13,164	\$ 1,097	\$ 1,097
Retiree and Family	\$ 22,500	\$ 1,875	\$ 1,875
Composite	\$ 13,848	\$ 1,154	\$ 1,154

<sup>1</sup> Note that the pre-65 factor represents the percentage increase from the ages noted to the next age. However, the post-65 factor represents the percentage decrease from the ages noted to the prior age. That is, 2.5% is used to adjust from 54 to 55, but 1.5% is used to adjust from age 84 back to age 83.

## Section 6: Basis of the Actuarial Valuation (continued)

### Section 6.3: Summary of Actuarial Assumptions (continued)

#### Trend Rate for Retired Member Medical Contribution

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, 8.0% is applied to the FY18 retired member medical contributions to get the FY19 retired member medical contributions.

Trend Assumptions	
FY18	8.0%
FY19	7.6%
FY20	7.2%
FY21	6.8%
FY22	6.5%
FY23	6.3%
FY24	6.0%
FY25	5.9%
FY50	4.0%
FY100	4.0%

Graded trend rates for retired member medical contributions were reinitialized for the June 30, 2014 valuation and updated to the rates shown above for the June 30, 2017 valuation. Actual FY18 retired member medical contributions are reflected in the valuation.

#### Healthcare Participation

100% of system paid members and their spouses are assumed to elect healthcare benefits as soon as they are eligible. 10% 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

The healthcare cost trend assumption was updated as shown above to reflect anticipated increases in costs based on recent survey data. Healthcare claim costs are updated annually as described in Section 6.2.

## Table 1: Alaska TRS Salary Scale

Years of service	Percent Increase
0	8.11%
1	7.51%
2	6.91%
3	6.41%
4	6.11%
5	6.11%
6	5.90%
7	5.69%
8	5.55%
9	5.40%
10	5.26%
11	5.11%
12	4.96%
13	4.84%
14	4.72%
15	4.60%
16	4.49%
17	4.37%
18	4.27%
19	4.17%
20	4.07%
21	3.97%
22+	3.87%

## Table 2: Alaska TRS Mortality Table (Pre-termination)

Age	Male	Female	Age	Male	Female
20	0.000182	0.000098	53	0.001295	0.000855
21	0.000191	0.000101	54	0.001483	0.000908
22	0.000200	0.000104	55	0.001615	0.000985
23	0.000209	0.000105	56	0.001766	0.001054
24	0.000216	0.000105	57	0.001901	0.001132
25	0.000222	0.000106	58	0.002117	0.001221
26	0.000226	0.000107	59	0.002409	0.001344
27	0.000228	0.000109	60	0.002643	0.001501
28	0.000228	0.000111	61	0.002917	0.001659
29	0.000229	0.000114	62	0.003229	0.001837
30	0.000231	0.000118	63	0.003599	0.002080
31	0.000238	0.000123	64	0.004021	0.002367
32	0.000249	0.000130	65	0.004504	0.002723
33	0.000269	0.000137	66	0.005057	0.003118
34	0.000302	0.000146	67	0.005594	0.003582
35	0.000340	0.000169	68	0.006202	0.004036
36	0.000382	0.000193	69	0.007017	0.004546
37	0.000425	0.000217	70	0.007828	0.005130
38	0.000468	0.000240	71	0.008702	0.005696
39	0.000509	0.000262	72	0.009643	0.006297
40	0.000547	0.000283	73	0.010813	0.006959
41	0.000584	0.000305	74	0.011964	0.007841
42	0.000618	0.000330	75	0.013285	0.008701
43	0.000653	0.000357	76	0.014797	0.009678
44	0.000692	0.000389	77	0.016508	0.010757
45	0.000736	0.000427	78	0.018423	0.011923
46	0.000787	0.000470	79	0.020534	0.013163
47	0.000846	0.000517	80	0.022841	0.014502
48	0.000913	0.000567	81	0.025382	0.015972
49	0.000979	0.000620	82	0.028208	0.017607
50	0.001050	0.000674	83	0.031344	0.019438
51	0.001126	0.000731	84	0.035081	0.021486
52	0.001208	0.000791	85	0.039193	0.023782

### Table 3: Alaska TRS Mortality Table (Post-termination)

Age	Male	Female	Age	Male	Female
50	0.001544	0.001124	85	0.057637	0.039636
51	0.001656	0.001219	86	0.064248	0.043940
52	0.001777	0.001318	87	0.072770	0.048789
53	0.001904	0.001424	88	0.082264	0.054261
54	0.002181	0.001513	89	0.092884	0.060450
55	0.002375	0.001641	90	0.104794	0.068659
56	0.002597	0.001756	91	0.118129	0.077983
57	0.002795	0.001887	92	0.132941	0.088452
58	0.003113	0.002035	93	0.149196	0.100021
59	0.003543	0.002240	94	0.165479	0.112560
60	0.003887	0.002501	95	0.182705	0.125866
61	0.004289	0.002765	96	0.200693	0.139699
62	0.004749	0.003062	97	0.219249	0.153813
63	0.005293	0.003466	98	0.233940	0.164973
64	0.005913	0.003946	99	0.252821	0.178741
65	0.006624	0.004538	100	0.267022	0.188730
66	0.007436	0.005196	101	0.285888	0.201393
67	0.008227	0.005970	102	0.299408	0.209540
68	0.009121	0.006727	103	0.318102	0.220440
69	0.010318	0.007576	104	0.331094	0.226232
70	0.011511	0.008550	105	0.349384	0.237489
71	0.012798	0.009494	106	0.360058	0.246863
72	0.014180	0.010494	107	0.368483	0.258063
73	0.015902	0.011599	108	0.374013	0.270683
74	0.017595	0.013068	109	0.376000	0.284323
75	0.019536	0.014502	110	0.376000	0.298577
76	0.021760	0.016130	111	0.376000	0.313043
77	0.024276	0.017929	112	0.376000	0.327318
78	0.027093	0.019871	113	0.376000	0.340998
79	0.030198	0.021938	114	0.376000	0.353678
80	0.033590	0.024170	115	0.376000	0.364959
81	0.037326	0.026620	116	0.376000	0.374435
82	0.041482	0.029345	117	0.376000	0.381702
83	0.046095	0.032397	118	0.376000	0.386359
84	0.051589	0.035811	119	0.376000	0.388000

**Table 4: Alaska TRS Turnover Assumptions  
Select Rates of Turnover During the First 8 Years of  
Employment**

Service	Male	Female
0	0.204	0.170
1	0.204	0.170
2	0.168	0.140
3	0.144	0.120
4	0.120	0.100
5	0.108	0.090
6	0.090	0.075
7	0.072	0.060

**Ultimate Rates of Turnover After the First 8 Years of  
Employment**

Age	Male	Female	Age	Male	Female
15	0.031209	0.037185	40	0.030159	0.036224
16	0.031170	0.037157	41	0.030085	0.036155
17	0.031138	0.037138	42	0.030010	0.036086
18	0.031107	0.037129	43	0.029866	0.035976
19	0.031091	0.037120	44	0.029721	0.035867
20	0.030847	0.036848	45	0.029577	0.035757
21	0.030831	0.036848	46	0.029432	0.035648
22	0.030799	0.036839	47	0.029288	0.035538
23	0.030776	0.036839	48	0.029046	0.035380
24	0.030736	0.036830	49	0.028805	0.035221
25	0.030705	0.036830	50	0.028563	0.035063
26	0.030673	0.036820	51	0.028248	0.034847
27	0.030642	0.036762	52	0.027878	0.034595
28	0.030610	0.041480	53	0.027468	0.034296
29	0.030579	0.046198	54	0.046305	0.059961
30	0.030555	0.050917	55	0.045414	0.059285
31	0.030540	0.055635	56	0.044334	0.058410
32	0.030516	0.060353	57	0.043012	0.057288
33	0.030500	0.055569	58	0.041567	0.056018
34	0.030455	0.050784	59	0.039826	0.054401
35	0.030431	0.046000	60	0.037868	0.052569
36	0.030407	0.041215	61	0.035694	0.050523
37	0.030383	0.036431	62	0.033170	0.048197
38	0.030308	0.036362	63	0.030294	0.045540
39	0.030234	0.036293	64	0.027176	0.042653
			65+	0.054000	0.066000

## Table 5: Alaska TRS Disability Table

Age	Unisex
20	0.000560
21	0.000563
22	0.000565
23	0.000574
24	0.000583
25	0.000593
26	0.000602
27	0.000611
28	0.000611
29	0.000612
30	0.000612
31	0.000613
32	0.000613
33	0.000622
34	0.000631
35	0.000641
36	0.000650
37	0.000659
38	0.000674
39	0.000689
40	0.000703
41	0.000718
42	0.000733
43	0.000770
44	0.000806
45	0.000843
46	0.000879
47	0.000916
48	0.000975
49	0.001034
50	0.001093
51	0.001152
52	0.001211
53	0.001356
54	0.001501



## Table 6: Alaska TRS Retirement Table

Age	Reduced	Unreduced	
	Unisex	Male	Female
< 45	N/A	0.03	0.03
46	N/A	0.05	0.05
47	N/A	0.05	0.08
48	N/A	0.05	0.08
49	N/A	0.05	0.08
50	0.08	0.05	0.13
51	0.08	0.08	0.12
52	0.08	0.15	0.12
53	0.08	0.15	0.13
54	0.16	0.15	0.14
55	0.08	0.20	0.16
56	0.08	0.17	0.16
57	0.08	0.15	0.16
58	0.08	0.20	0.16
59	0.16	0.20	0.22
60	N/A	0.25	0.22
61	N/A	0.18	0.22
62	N/A	0.18	0.20
63	N/A	0.18	0.20
64	N/A	0.18	0.25
65	N/A	0.30	0.20
66	N/A	0.25	0.20
67	N/A	0.25	0.20
68	N/A	0.25	0.25
69	N/A	0.35	0.25
70	N/A	0.30	0.25
71	N/A	0.30	0.35
72	N/A	0.30	0.35
73	N/A	0.30	0.35
74	N/A	0.30	0.35
75 – 84	N/A	0.50	
85+	N/A	1.00	

## Table 7: Alaska TRS Disabled Mortality Rates

Age	Male	Female	Age	Male	Female
≤45	0.0214	0.0071	80	0.0833	0.0582
46	0.0226	0.0078	81	0.0880	0.0621
47	0.0238	0.0085	82	0.0928	0.0662
48	0.0250	0.0093	83	0.0978	0.0707
49	0.0262	0.0101	84	0.1028	0.0755
50	0.0275	0.0109	85	0.1079	0.0806
51	0.0287	0.0118	86	0.1130	0.0862
52	0.0299	0.0127	87	0.1204	0.0921
53	0.0311	0.0137	88	0.1282	0.0985
54	0.0324	0.0144	89	0.1362	0.1054
55	0.0336	0.0151	90	0.1503	0.1148
56	0.0348	0.0158	91	0.1667	0.1249
57	0.0354	0.0164	92	0.1841	0.1359
58	0.0359	0.0171	93	0.2022	0.1475
59	0.0365	0.0176	94	0.2209	0.1611
60	0.0370	0.0182	95	0.2400	0.1745
61	0.0376	0.0188	96	0.2594	0.1877
62	0.0382	0.0194	97	0.2790	0.2003
63	0.0389	0.0204	98	0.2934	0.2084
64	0.0396	0.0214	99	0.3128	0.2192
65	0.0404	0.0226	100	0.3264	0.2250
66	0.0413	0.0238	101	0.3459	0.2362
67	0.0422	0.0252	102	0.3585	0.2455
68	0.0434	0.0267	103	0.3762	0.2613
69	0.0454	0.0284	104	0.3850	0.2741
70	0.0477	0.0303	105	0.3979	0.2931
71	0.0502	0.0323	106	0.4000	0.3078
72	0.0529	0.0345	107	0.4000	0.3227
73	0.0558	0.0368	108	0.4000	0.3374
74	0.0591	0.0393	109	0.4000	0.3515
75	0.0625	0.0420	110	0.4000	0.3646
76	0.0662	0.0449	111	0.4000	0.3762
77	0.0702	0.0479	112	0.4000	0.3860
78	0.0744	0.0511	113	0.4000	0.3935
79	0.0788	0.0546	114	0.4000	0.3983
			115+	0.4000	0.4000

## 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.

### **Annual Required Contribution (ARC)**

Disclosure measure of annual postretirement benefit cost under GASB 43 and 45.

### **GASB 25 and 27**

Governmental Accounting Standards Board Statement Number 25, which specifies how the Annual Required Contribution (ARC) is to be calculated, and Number 27, which specifies Employer reporting of Pension Cost.

### **GASB 43 and 45**

Governmental Accounting Standards Board Statement Number 43, which specifies how the ARC is to be calculated, and Number 45, which specifies Employer reporting of Other Postemployment Benefit (OPEB) Cost.

### **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.

**Liquidity Factor**

Is calculated as the average annual Fair Value of Assets divided by the total annual benefit payments. This measures the approximate number of years that assets will cover benefit payments without contributions or investment return. Trend shows solvency risk.

**Maturity Ratio**

The ratio of the actuarial accrued liability for members who are no longer active to the total actuarial accrued liability. A ratio of over 50% indicates a mature plan. The higher the maturity ratio, the more volatile the contribution rate will be from year to year given actuarial gains and losses.

**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

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