

# State of Alaska

Public Employees' 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 Public Employees' Retirement System (PERS) 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 PERS were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. 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 PERS as of June 30, 2017.

PERS is funded by Employer, State, and Member Contributions in accordance with the funding policy adopted by the Alaska Retirement Management Board (Board) and as required by Alaska state statutes. The funding objective for PERS is to pay required contributions that remain level as a percent of total PERS compensation. The Board has also established a funding policy objective that the required contributions be sufficient to pay the Normal Costs of active plan members, plan expenses, and amortize the Unfunded Actuarial Accrued Liability as a level percentage of total PERS 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 PERS, including those hired after July 1, 2006 who are members of the Defined Contribution Retirement (DCR) Plan. This objective is currently being met and is projected to continue to be met.

The Board and staff of the State of Alaska may use this report for the review of the operations of PERS. Use of this report, for any other purpose or by anyone other than the Board or staff of the State of Alaska may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, you should ask 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 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 PERS 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,

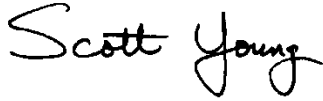
Conduent HR Consulting, LLC



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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, flowing style.

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Scott Young, FSA, EA, MAAA  
Director

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# Executive Summary

## Overview

The State of Alaska Public Employees' Retirement System (PERS) provides pension and postemployment healthcare benefits to eligible participants. The Commissioner of the Department of Administration is responsible for administering the plan. The Alaska Retirement Management Board has fiduciary responsibility over the assets of the plan. This report presents the results of the actuarial valuation of PERS as of the valuation date of June 30, 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 PERS based on the plan provisions, membership data, assets, and actuarial methods and assumptions as of the valuation date.

Actuarial projections are also performed to provide a long-term view of the expected future funded status and contribution patterns (see Section 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	\$ 13,633,033	\$ 13,832,130
b.	Valuation Assets	<u>9,056,662</u>	<u>9,229,703</u>
c.	Unfunded Actuarial Accrued Liability, (a) – (b)	\$ 4,576,371	\$ 4,602,427
d.	Funded Ratio based on Valuation Assets, (b) ÷ (a)	66.4%	66.7%
e.	Fair Value of Assets	\$ 8,227,687	\$ 8,943,127
f.	Funded Ratio based on Fair Assets, (e) ÷ (a)	60.4%	64.7%
<b>Healthcare</b>			
a.	Actuarial Accrued Liability	\$ 7,736,457	\$ 8,049,265
b.	Valuation Assets	<u>7,411,330</u>	<u>7,557,068</u>
c.	Unfunded Actuarial Accrued Liability, (a) – (b)	\$ 325,127	\$ 492,197
d.	Funded Ratio based on Valuation Assets, (b) ÷ (a)	95.8%	93.9%
e.	Fair Value of Assets	\$ 6,733,254	\$ 7,338,952
f.	Funded Ratio based on Fair Assets, (e) ÷ (a)	87.0%	91.2%
<b>Total</b>			
a.	Actuarial Accrued Liability	\$ 21,369,490	\$ 21,881,395
b.	Valuation Assets	<u>16,467,992</u>	<u>16,786,771</u>
c.	Unfunded Actuarial Accrued Liability, (a) – (b)	\$ 4,901,498	\$ 5,094,624
d.	Funded Ratio based on Valuation Assets, (b) ÷ (a)	77.1%	76.7%
e.	Fair Value of Assets	\$ 14,960,941	\$ 16,282,079
f.	Funded Ratio based on Fair Assets, (e) ÷ (a)	70.0%	74.4%

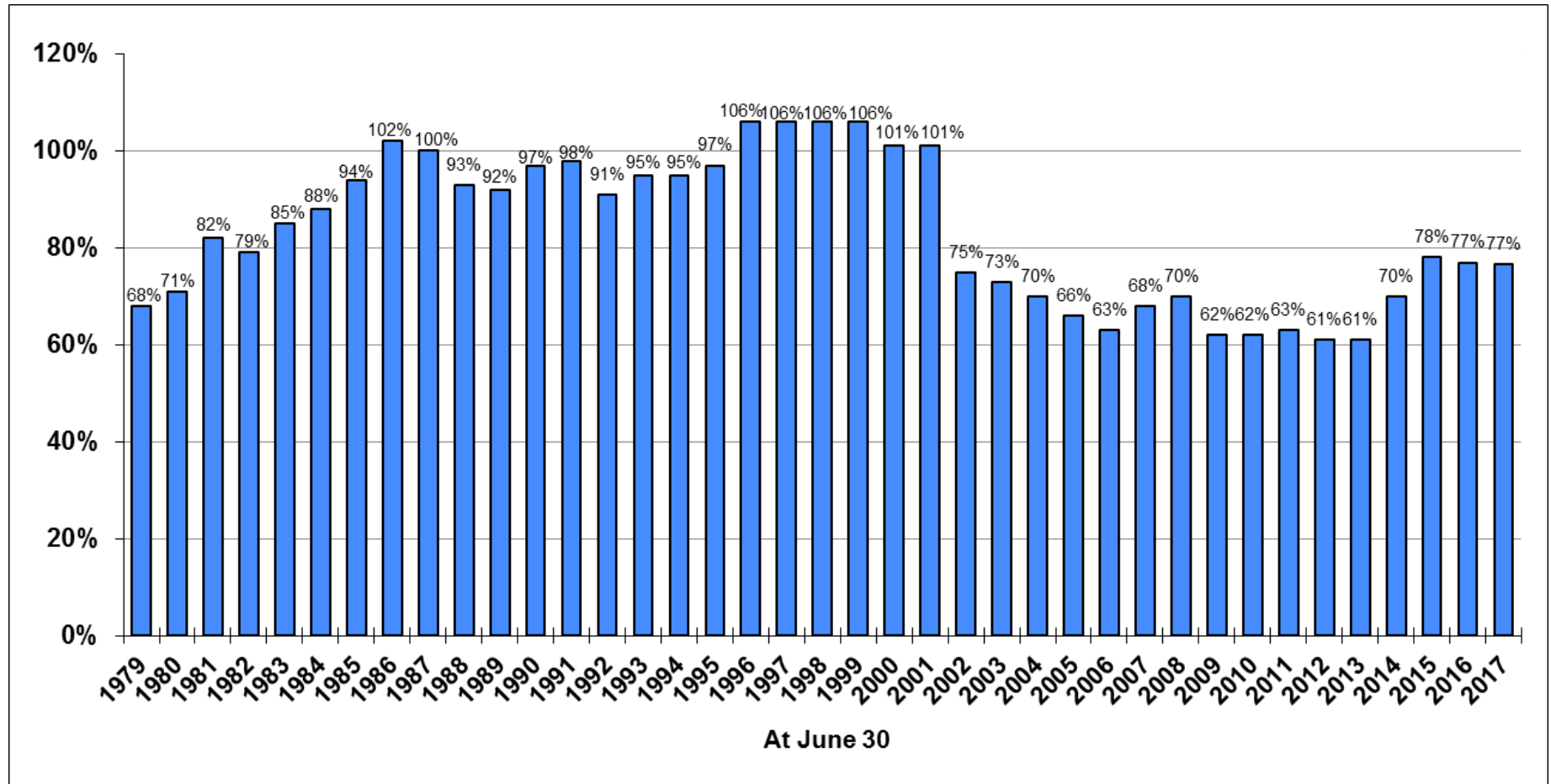
The funded status of the plan (on an Actuarial Value of Assets basis) decreased slightly from June 30, 2016 to June 30, 2017. This decrease was the net impact of various items. The single largest loss was due to the new healthcare trend assumptions. Part of that loss was offset by a gain due to medical 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)

### PERS 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 of assets was approximately 12.8% compared to the expected investment return of 8.00% (net of investment and administrative expenses of approximately 0.20%). This resulted in a market asset gain of approximately \$735 million. Due to the recognition of investment gains and losses over a 5-year period, the FY17 investment return based on actuarial value of assets was approximately 5.4%, which resulted in an actuarial asset loss of approximately \$388 million.

### 2. Salary Increases

Salary increases for continuing active members during FY17 were less than expected based on the valuation assumptions, resulting in a liability gain of approximately \$121 million.

### 3. Demographic Experience

Section 5 provides statistics on active participants. The number of active participants decreased 8.6%, from 16,105 at June 30, 2016 to 14,719 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 51.74 to 52.10 and average credited service increased from 15.95 to 16.57 years.

The number of benefit recipients increased 3.0%, from 33,353 to 34,347, and their average age increased from 69.02 to 69.42. The number of vested terminated participants decreased 3.2%, from 6,160 to 5,962. Their average age increased from 52.08 to 52.45.

The overall effect of the demographic experience during FY17 was an actuarial loss of approximately \$5.6 million (pension) and an actuarial gain of approximately \$32 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 \$146 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 \$831 million. As described in Section 6.3, updated trend rates and the projected impact of the Cadillac Tax generated an actuarial loss of approximately \$977 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 PERS 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	3.55%	3.29%
b. Past Service Rate	<u>14.72%</u>	<u>14.92%</u>
c. Total Employer/State Contribution Rate, (a) + (b) <sup>1</sup>	18.27%	18.21%

Healthcare Employer/State Contribution Rates for Fiscal Year:	2019	2020
a. Normal Cost Rate	2.56%	2.45%
b. Past Service Rate	<u>1.81%</u>	<u>2.51%</u>
c. Total Employer/State Contribution Rate, (a) + (b) <sup>1</sup>	4.37%	4.96%

Total Employer/State Contribution Rates for Fiscal Year:	2019	2020
a. Normal Cost Rate Net of Member Contributions	6.11%	5.74%
b. Past Service Rate	<u>16.53%</u>	<u>17.43%</u>
c. Total Employer/State Contribution Rate (a) + (b) <sup>1</sup>	22.64%	23.17%
d. Board Adopted Total Employer/State Contribution Rate	22.64%	TBD
e. Defined Contribution Retirement (DCR) Rate Paid by Employers	<u>4.94%</u>	<u>5.44%</u>
f. Board Adopted Total Rate, Including DCR Rate Paid by Employers, (d) + (e)	27.58%	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 and June 30, 2017 based on DB and DCR payroll combined:

	Pension	Healthcare	Total
1. Total Employer/State contribution rate as of June 30, 2016	17.34%	4.33%	21.67%
2. Change due to:			
a. Health claims experience	N/A	(2.46%)	(2.46%)
b. Salary increases	(0.36%)	N/A	(0.36%)
c. Investment experience	0.64%	0.51%	1.15%
d. Demographic experience and miscellaneous <sup>1</sup>	(0.19%)	(0.48%)	(0.67%)
e. FY17 Contribution shortfall/(excess)	0.15%	(0.12%)	0.03%
f. Assumption changes	0.00%	2.89%	2.89%
g. Total change, (a) + (b) + (c) + (d) + (e) + (f)	0.24%	0.34%	0.58%
3. Total Employer/State contribution rate as of June 30, 2017, (1) + (2g)	17.58%	4.67%	22.25%

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

	Pension	Healthcare	Total
Retirement Experience	\$ 1,448	\$ (640)	\$ 808
Termination Experience	(9,254)	(12,648)	(21,902)
Active Mortality Experience	6,765	(1,914)	4,851
Inactive Mortality Experience	(2,909)	24,386	21,477
Disability Experience	(1,612)	(1,155)	(2,767)
Rehires	(6,403)	1,089	(5,314)
Salary Increases	121,046	N/A	121,046
Alaska COLA	4,255	N/A	4,255
PRPA	141,762	N/A	141,762
Spousal Elections	N/A	24,000	24,000
New Trend Assumptions	N/A	(925,784)	(925,784)
Medical Claims Experience <sup>2</sup>	N/A	830,620	830,620
Cadillac Tax Impact	N/A	(50,835)	(50,835)
Programming Changes			
• Spouses of Disabled Participants <sup>3</sup>	N/A	12,638	12,638
• Temporary Benefits for Disabled Participants <sup>4</sup>	N/A	2,871	2,871
Elimination of Duplicate Dependent Records <sup>5</sup>	N/A	37,000	37,000
Miscellaneous <sup>6</sup>	25,341	27,999	53,340
Total	\$ 280,439	\$ (32,373)	\$ 248,066

<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> Some temporary benefits are no longer being applied to disabled retirees.

<sup>5</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>6</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

Peace Officer/Firefighter (\$'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	\$ 918,929	\$ 756,498
Termination Benefits	15,677	5,723
Disability Benefits	3,208	(1,025)
Death Benefits	8,748	5,344
Return of Contributions	2,730	(6,921)
Medical and Prescription Drug Benefits	402,236	354,438
Medicare Part D Subsidy	(17,472)	(15,481)
Indebtedness	<u>(4,902)</u>	<u>(4,902)</u>
Subtotal	\$ 1,329,154	\$ 1,093,674
<b>Inactive Members</b>		
Not Vested	\$ 2,384	\$ 2,384
Vested Terminations		
- Retirement Benefits	33,024	33,024
- Medical and Prescription Drug Benefits	41,947	41,947
- Medicare Part D Subsidy	(2,029)	(2,029)
- Indebtedness	(592)	(592)
Retirees & Beneficiaries		
- Retirement Benefits	1,386,090	1,386,090
- Medical and Prescription Drug Benefits	569,636	569,636
- Medicare Part D Subsidy	<u>(25,317)</u>	<u>(25,317)</u>
Subtotal	\$ 2,005,143	\$ 2,005,143
<b>Total</b>	<b>\$ 3,334,297</b>	<b>\$ 3,098,817</b>
<b>Total Pension</b>	<b>\$ 2,365,296</b>	<b>\$ 2,175,623</b>
<b>Total Medical, Net of Part D Subsidy</b>	<b>\$ 969,001</b>	<b>\$ 923,194</b>
<b>Total Medical, Gross of Part D Subsidy</b>	<b>\$ 1,013,819</b>	<b>\$ 966,021</b>

As of June 30, 2017	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
<b>By Tier</b>		
Tier 1		
- Pension	\$1,042,292	\$1,039,821
- Medical, Net of Part D Subsidy	382,932	382,004
Tier 2		
- Pension	604,185	573,066
- Medical, Net of Part D Subsidy	261,052	255,129
Tier 3		
- Pension	718,819	562,736
- Medical, Net of Part D Subsidy	<u>325,017</u>	<u>286,061</u>
<b>Total</b>	<b>\$3,334,297</b>	<b>\$3,098,817</b>
As of June 30, 2017		Normal Cost

#### Active Members

Retirement Benefits	\$ 23,241
Termination Benefits	1,486
Disability Benefits	632
Death Benefits	518
Return of Contributions	1,436
Medical and Prescription Drug Benefits	8,119
Medicare Part D Subsidy	(350)
Rehire Assumption (Pension)	3,887
Rehire Assumption (Medical)	<u>1,339</u>
Subtotal	\$ 40,308
<b>Total</b>	<b>\$ 40,308</b>
<b>Total Pension</b>	<b>\$ 31,200</b>
<b>Total Medical, Net of Part D Subsidy</b>	<b>\$ 9,108</b>
<b>Total Medical, Gross of Part D Subsidy</b>	<b>\$ 9,519</b>

#### By Tier

Tier 1	
- Pension	\$ 795
- Medical, Net of Part D Subsidy	334
Tier 2	
- Pension	7,118
- Medical, Net of Part D Subsidy	1,541
Tier 3	
- Pension	23,287
- Medical, Net of Part D Subsidy	<u>7,233</u>
<b>Total</b>	<b>\$ 40,308</b>

## Actuarial Liabilities and Normal Cost – Others (\$'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	\$ 4,112,885	\$ 3,511,196
Termination Benefits	244,870	118,588
Disability Benefits	12,640	1,251
Death Benefits	57,837	41,906
Return of Contributions	26,352	(51,505)
Medical and Prescription Drug Benefits	2,494,986	2,178,610
Medicare Part D Subsidy	(157,935)	(139,811)
Indebtedness	<u>(49,290)</u>	<u>(49,290)</u>
Subtotal	\$ 6,742,345	\$ 5,610,945
<b>Inactive Members</b>		
Not Vested	\$ 71,962	\$ 71,962
Vested Terminations		
- Retirement Benefits	611,428	611,428
- Medical and Prescription Drug Benefits	188,282	188,282
- Medicare Part D Subsidy	(53,186)	(53,186)
- Indebtedness	(13,790)	(13,790)
Retirees & Beneficiaries		
- Retirement Benefits	7,414,761	7,414,761
- Medical and Prescription Drug Benefits	4,553,219	4,553,219
- Medicare Part D Subsidy	<u>(355,929)</u>	<u>(355,929)</u>
Subtotal	\$ 13,171,633	\$ 13,171,633
<b>Total</b>	<b>\$ 19,913,978</b>	<b>\$ 18,782,578</b>
<b>Total Pension</b>	<b>\$ 12,489,655</b>	<b>\$ 11,656,507</b>
<b>Total Medical, Net of Part D Subsidy</b>	<b>\$ 7,424,323</b>	<b>\$ 7,126,071</b>
<b>Total Medical, Gross of Part D Subsidy</b>	<b>\$ 7,991,374</b>	<b>\$ 7,674,998</b>



As of June 30, 2017		Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
<b>By Tier</b>			
Tier 1			
- Pension		\$ 6,262,808	\$ 6,198,524
- Medical, Net of Part D Subsidy		3,390,025	3,352,718
Tier 2			
- Pension		3,334,307	3,125,457
- Medical, Net of Part D Subsidy		2,077,277	2,011,159
Tier 3			
- Pension		2,892,541	2,332,527
- Medical, Net of Part D Subsidy		<u>1,957,020</u>	<u>1,762,193</u>
<b>Total</b>		<b>\$ 19,913,978</b>	<b>\$ 18,782,578</b>
As of June 30, 2017		Normal Cost	

#### Active Members

Retirement Benefits	\$ 91,181
Termination Benefits	16,274
Disability Benefits	1,579
Death Benefits	2,361
Return of Contributions	10,829
Medical and Prescription Drug Benefits	58,330
Medicare Part D Subsidy	(3,391)
Rehire Assumption (Pension)	17,393
Rehire Assumption (Medical)	<u>9,471</u>
Subtotal	\$ 204,027
<b>Total</b>	<b>\$ 204,027</b>
<b>Total Pension</b>	<b>\$ 139,617</b>
<b>Total Medical, Net of Part D Subsidy</b>	<b>\$ 64,410</b>
<b>Total Medical, Gross of Part D Subsidy</b>	<b>\$ 68,386</b>

#### By Tier

Tier 1		
- Pension	\$ 18,133	
- Medical, Net of Part D Subsidy	\$ 12,013	
Tier 2		
- Pension	\$ 39,722	
- Medical, Net of Part D Subsidy	\$ 14,970	
Tier 3		
- Pension	\$ 81,762	
- Medical, Net of Part D Subsidy	\$ 37,427	
<b>Total</b>	<b>\$ 204,027</b>	

## Actuarial Liabilities and Normal Cost – All Members (\$'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	\$ 5,031,814	\$ 4,267,694
Termination Benefits	260,547	124,311
Disability Benefits	15,848	226
Death Benefits	66,585	47,250
Return of Contributions	29,082	(58,426)
Medical and Prescription Drug Benefits	2,897,222	2,533,048
Medicare Part D Subsidy	(175,407)	(155,292)
Indebtedness	<u>(54,192)</u>	<u>(54,192)</u>
Subtotal	\$ 8,071,499	\$ 6,704,619
<b>Inactive Members</b>		
Not Vested	\$ 74,346	\$ 74,346
Vested Terminations		
- Retirement Benefits	644,452	644,452
- Medical and Prescription Drug Benefits	1,004,168	1,004,168
- Medicare Part D Subsidy	(55,215)	(55,215)
- Indebtedness	(14,382)	(14,382)
Retirees & Beneficiaries		
- Retirement Benefits	8,800,851	8,800,851
- Medical and Prescription Drug Benefits	5,116,593	5,116,593
- Medicare Part D Subsidy	<u>(394,037)</u>	<u>(394,037)</u>
Subtotal	\$ 15,176,776	\$ 15,176,776
<b>Total</b>	<b>\$ 23,248,275</b>	<b>\$ 21,881,395</b>
<b>Total Pension</b>	<b>\$ 14,854,951</b>	<b>\$ 13,832,130</b>
<b>Total Medical, Net of Part D Subsidy</b>	<b>\$ 8,393,324</b>	<b>\$ 8,049,265</b>
<b>Total Medical, Gross of Part D Subsidy</b>	<b>\$ 9,005,193</b>	<b>\$ 8,641,019</b>

As of June 30, 2017		Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
<b>By Tier</b>			
Tier 1			
- Pension	\$	7,305,100	\$ 7,238,345
- Medical, Net of Part D Subsidy		3,772,957	3,734,721
Tier 2			
- Pension		3,938,492	3,698,523
- Medical, Net of Part D Subsidy		2,338,329	2,266,288
Tier 3			
- Pension		3,611,360	2,895,263
- Medical, Net of Part D Subsidy		<u>2,282,037</u>	<u>2,048,255</u>
<b>Total</b>	<b>\$</b>	<b>23,248,275</b>	<b>\$ 21,881,395</b>
As of June 30, 2017			<b>Normal Cost</b>

#### Active Members

Retirement Benefits		\$ 114,422
Termination Benefits		17,760
Disability Benefits		2,211
Death Benefits		2,879
Return of Contributions		12,265
Medical and Prescription Drug Benefits		66,449
Medicare Part D Subsidy		(3,741)
Rehire Assumption (Pension)		21,279
Rehire Assumption (Medical)		<u>10,811</u>
Subtotal		\$ 244,335
<b>Total</b>		<b>\$ 244,335</b>
<b>Total Pension</b>		<b>\$ 170,816</b>
<b>Total Medical, Net of Part D Subsidy</b>		<b>\$ 73,519</b>
<b>Total Medical, Gross of Part D Subsidy</b>		<b>\$ 77,906</b>
<b>By Tier</b>		
Tier 1		
- Pension	\$	18,927
- Medical, Net of Part D Subsidy		12,347
Tier 2		
- Pension		46,840
- Medical, Net of Part D Subsidy		16,511
Tier 3		
- Pension		105,049
- Medical, Net of Part D Subsidy		<u>44,661</u>
<b>Total</b>	<b>\$</b>	<b>244,335</b>

## Section 1.2: Actuarial Contributions as of June 30, 2017

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

Normal Cost Rate	Pension	Healthcare	Total
1. Total Normal Cost	\$ 31,200	\$ 9,108	\$ 40,308
2. DB Rate Payroll Projected for FY18	179,841	179,841	179,841
3. DCR Rate Payroll Projected for FY18	140,461	140,461	140,461
4. Total Rate Payroll Projected for FY18	320,302	320,302	320,302
5. Normal Cost Rate for Peace Officer/Firefighter			
a. Based on DB Rate Payroll, (1) ÷ (2)	17.35%	5.06%	22.41%
b. Based on Total Rate Payroll, (1) ÷ (4)	9.74%	2.84%	12.58%
6. Average Member Contribution Rate (Peace Officer/Firefighter) <sup>1</sup>	4.21%	0.00%	4.21%
7. Employer Normal Cost Rate For Peace Officer/Firefighter, (5)(b) – (6)	5.53%	2.84%	8.37%
Past Service Rate			
1. Actuarial Accrued Liability	\$ 2,175,623	\$ 923,194	\$ 3,098,817
2. Valuation Assets <sup>2</sup>	<u>1,451,718</u>	<u>866,743</u>	<u>2,318,461</u>
3. Unfunded Actuarial Accrued Liability, (1) – (2)	\$ 723,905	\$ 56,451	\$ 780,356
4. Funded Ratio, (2) ÷ (1)	66.7%	93.9%	74.8%
5. Past Service Cost Amortization Payment <sup>3</sup>	49,110	3,830	52,940
6. Total Rate Payroll Projected for FY18	320,302	320,302	320,302
7. Past Service Rate, (5) ÷ (6)	15.33%	1.20%	16.53%
<b>Total Employer/State Contribution Rate</b>	<b>20.86%</b>	<b>4.04%</b>	<b>24.90%</b>
<b>Normal Cost Rate by Tier (Total Employer and Member)<sup>4</sup></b>			
Tier 1	18.77%	7.89%	26.66%
Tier 2	17.25%	3.73%	20.98%
Tier 3	17.33%	5.38%	22.71%
Maturity Ratio	65.3%	63.3%	64.7%

<sup>1</sup> Assumes no member contributions from members in the DCR plan and 7.50% from Tiers 1, 2 and 3 for Peace Officer/Firefighter.

<sup>2</sup> Allocated between Peace Officer/Firefighter and Others in proportion to actuarial accrued liability.

<sup>3</sup> Calculated on a level percent of pay basis over a 22-year period as of June 30, 2017.

<sup>4</sup> Rate determined considering the pay for members of the plan in each tier. DCR payroll is excluded from these calculations.

**Actuarial Contributions as of June 30, 2017**  
**Others (\$'s in 000's)**

Normal Cost Rate	Pension	Healthcare	Total
1. Total Normal Cost	\$ 139,617	\$ 64,410	\$ 204,027
2. DB Rate Payroll Projected for FY18	979,758	979,758	979,758
3. DCR Rate Payroll Projected for FY18	990,980	990,980	990,980
4. Total Rate Payroll Projected for FY18	1,970,738	1,970,738	1,970,738
5. Normal Cost Rate for Others			
a. Based on DB Rate Payroll, (1) ÷ (2)	14.25%	6.57%	20.82%
b. Based on Total Rate Payroll, (1) ÷ (4)	7.08%	3.27%	10.35%
6. Average Member Contribution Rate (Others) <sup>1</sup>	3.39%	0.00%	3.39%
7. Employer/State Normal Cost Rate For Others, (5)(b) – (6)	3.69%	3.27%	6.96%
Past Service Rate			
1. Actuarial Accrued Liability	\$ 11,656,507	\$ 7,126,071	\$ 18,782,578
2. Valuation Assets <sup>2</sup>	<u>7,777,985</u>	<u>6,690,326</u>	<u>14,468,311</u>
3. Unfunded Actuarial Accrued Liability, (1) – (2)	\$ 3,878,522	\$ 435,745	\$ 4,314,267
4. Funded Ratio, (2) ÷ (1)	66.7%	93.9%	77.0%
5. Past Service Cost Amortization Payment <sup>3</sup>	263,122	29,561	292,683
6. Total Rate Payroll Projected for FY18	1,970,738	1,970,738	1,970,738
7. Past Service Rate, (5) ÷ (6)	13.35%	1.50%	14.85%
<b>Total Employer/State Contribution Rate</b>	<b>17.04%</b>	<b>4.77%</b>	<b>21.81%</b>
<b>Normal Cost Rate by Tier (Total Employer and Member)<sup>4</sup></b>			
Tier 1	16.95%	11.23%	28.18%
Tier 2	13.77%	5.19%	18.96%
Tier 3	13.99%	6.40%	20.39%
Maturity Ratio	69.4%	71.4%	70.1%

<sup>1</sup> Assumes no member contributions from members in the DCR plan and 6.75% from Tiers 1, 2 and 3 for Others.

<sup>2</sup> Allocated between Peace Officer/Firefighter and Others in proportion to actuarial accrued liability.

<sup>3</sup> Calculated on a level percent of pay basis over a 22-year period as of June 30, 2017.

<sup>4</sup> Rate determined considering the pay for members of the plan in each tier. DCR payroll is excluded from these calculations.

**Actuarial Contributions as of June 30, 2017**  
**All Members (\$'s in 000's)**

Normal Cost Rate	Pension	Healthcare	Total
1. Total Normal Cost	\$ 170,816	\$ 73,519	\$ 244,335
2. DB Rate Payroll Projected for FY18	1,159,59	1,159,599	1,159,599
3. DCR Rate Payroll Projected for FY18	1,131,441	1,131,441	1,131,441
4. Total Rate Payroll Projected for FY18	2,291,040	2,291,040	2,291,040
5. Normal Cost Rate for All Members			
a. Based on DB Rate Payroll, (1) ÷ (2)	14.73%	6.34%	21.07%
b. Based on Total Rate Payroll, (1) ÷ (4)	7.46%	3.21%	10.67%
6. Average Member Contribution Rate <sup>1</sup>	3.51%	0.00%	3.51%
7. Employer Normal Cost Rate For All Members, (5)(b) – (6)	3.95%	3.21%	7.16%
Past Service Rate			
1. Actuarial Accrued Liability	\$ 13,832,130	\$ 8,049,265	\$ 21,881,395
2. Valuation Assets	<u>9,229,703</u>	<u>7,557,068</u>	<u>16,786,771</u>
3. Unfunded Actuarial Accrued Liability, (1) – (2)	\$ 4,602,427	\$ 492,197	\$ 5,094,624
4. Funded Ratio, (2) ÷ (1)	66.7%	93.9%	76.7%
5. Past Service Cost Amortization Payment <sup>2</sup>	312,232	33,391	345,623
6. Total Rate Payroll Projected for FY18	2,291,040	2,291,040	2,291,040
7. Past Service Rate, (5) ÷ (6)	13.63%	1.46%	15.09%
<b>Total Employer/State Contribution Rate</b>	<b>17.58%</b>	<b>4.67%</b>	<b>22.25%</b>
<b>Normal Cost Rate by Tier (Total Employer and Member) <sup>3</sup></b>			
Tier 1	17.02%	11.10%	28.12%
Tier 2	14.21%	5.01%	19.22%
Tier 3	14.62%	6.21%	20.83%
Maturity Ratio	68.7%	70.5%	69.4%

<sup>1</sup> Assumes no member contribution from members in the DCR plan, 7.5% for Peace Officer/Firefighter and 6.75% for Others.

<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> (\$'s in 000's)

	Pension	Healthcare	Total
<b>1. Liability Roll Forward</b>			
a. Actuarial Accrued Liability as of June 30, 2017	\$ 13,832,130	\$ 8,049,265	\$ 21,881,395
b. Normal Cost	170,816	73,519	244,335
c. Interest on (a) and (b) at 8.00%	1,120,236	649,823	1,770,059
d. Estimated Benefit Payments	(820,891)	(404,573)	(1,225,464)
e. Interest on (d) at 8.00%, adjusted for timing	(34,944)	(17,222)	(52,166)
<b>f. Expected Actuarial Accrued Liability as of June 30, 2018</b>	<b>\$ 14,267,347</b>	<b>\$ 8,350,812</b>	<b>\$ 22,618,159</b>
g. Projected Normal Cost	161,216	65,851	227,067
h. Interest on (f) and (g) at 8.00%	1,154,285	673,333	1,827,618
i. Estimated Benefit Payments	(869,122)	(438,372)	(1,307,494)
j. Interest on (i) at 8.00%, adjusted for timing	(36,997)	(18,661)	(55,658)
<b>k. Expected Actuarial Accrued Liability as of June 30, 2019</b>	<b>\$ 14,676,729</b>	<b>\$ 8,632,963</b>	<b>\$ 23,309,692</b>
<b>2. Asset Roll Forward</b>			
a. Actuarial Value of Assets as of June 30, 2017	\$ 9,229,703	\$ 7,557,068	\$ 16,786,771
b. Interest on (a) at 8.00%	738,376	604,565	1,342,941
c. Employee Contributions	87,542	0	87,542
d. Employer Contributions	331,055	66,898	397,953
e. State Assistance Contributions	72,571	0	72,571
f. Interest on (c) – (e) at 8.00%, adjusted for timing*	21,726	2,624	24,350
g. Estimated Benefit payments	(820,891)	(404,573)	(1,225,464)
h. AVA Adjustments	(171,715)	(136,258)	(307,973)
i. Interest on (g) at 8.00%, adjusted for timing	(34,944)	(17,222)	(49,166)
<b>j. Expected Actuarial Value of Assets as of June 30, 2018</b>	<b>\$ 9,453,423</b>	<b>\$ 7,673,102</b>	<b>\$ 17,126,525</b>
k. Interest on (j) at 8.00%	756,274	613,848	1,370,122
l. Employee Contributions	83,874	0	83,874
m. Employer Contributions	311,803	88,149	399,952
n. State Assistance Contributions	135,219	0	135,219
o. Interest on (l) – (n) at 8.00%, adjusted for timing*	25,407	3,458	28,865
p. Estimated Benefit payments	(869,122)	(438,372)	(1,307,494)
q. AVA Adjustments	(159,815)	(126,754)	(286,569)
r. Interest on (p) at 8.00%, adjusted for timing	(36,997)	(18,661)	(55,658)
<b>s. Expected Actuarial Value of Assets as of June 30, 2019</b>	<b>\$ 9,700,066</b>	<b>\$ 7,794,770</b>	<b>\$ 17,494,836</b>
<b>3. Expected Unfunded Actuarial Accrued Liability as of June 30, 2019, 1(k)-2(s)</b>	<b>\$ 4,976,663</b>	<b>\$ 838,193</b>	<b>\$ 5,814,856</b>

\*Employee and Employer Contributions are paid throughout the year. State Assistance contributions are 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.

**4. Expected Annual Rate Payroll for FY20**

a. Defined Benefit Members	\$ 1,044,718
b. Defined Contribution Retirement Members	1,357,923
<b>c. Total Rate Payroll</b>	<b>\$ 2,402,641</b>

**5. Expected FY20 Contribution Rate Calculation**

a. Projected Normal Cost for FY20	\$ 151,581	\$ 58,890	\$ 210,471
b. Projected Normal Cost Rate for FY20	6.31%	2.45%	8.76%
c. Expected Member Contribution Rate for FY20	(3.02%)	0.00%	(3.02%)
<b>d. Expected Employer Normal Cost Rate for FY20</b>	<b>3.29%</b>	<b>2.45%</b>	<b>5.74%</b>
e. Expected Unfunded Liability as of June 30, 2019	\$ 4,976,663	\$ 838,193	\$ 5,814,856
f. 20 Year Amortization of Expected Unfunded Liability	358,438	60,370	418,808
<b>g. Expected Past Service Cost Contribution Rate for FY20</b>	<b>14.92%</b>	<b>2.51%</b>	<b>17.43%</b>
<b>h. Expected Total Contribution Rate for FY20</b>	<b>18.21%</b>	<b>4.96%</b>	<b>23.17%</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	\$ 13,633,033	\$ 7,736,457	\$ 21,369,490
b. Normal Cost	184,411	78,395	262,806
c. Interest on (a) and (b) at 8.00%	1,105,396	625,188	1,730,584
d. Benefit Payments	766,766	405,872	1,172,638
e. Refund of Contributions	10,421	0	10,421
f. Interest on (d) and (e) at 8.00%, adjusted for timing	33,084	17,277	50,361
g. Change in Assumptions and Healthcare Claims	0	(145,999)	(145,999)
h. Expected Actuarial Accrued Liability as of June 30, 2017, (a) + (b) + (c) – (d) – (e) – (f) + (g)	\$ 14,112,569	\$ 8,162,890	\$ 22,275,459
2. Actual Actuarial Accrued Liability, June 30, 2017	<u>13,832,130</u>	<u>8,049,265</u>	<u>21,881,395</u>
<b>3. Liability Gain/(Loss), (1)(h) – (2)</b>	<b>\$ 280,439</b>	<b>\$ 113,625</b>	<b>\$ 394,064</b>
4. Expected Actuarial Asset Value			
a. Actuarial Asset Value, June 30, 2016	\$ 9,056,662	\$ 7,411,330	\$ 16,467,992
b. Interest on (a) at 8.00%	724,533	592,906	1,317,439
c. Employee Contributions	89,345	0	89,345
d. Employer Contributions	263,597	124,541	388,138
e. State Assistance Contributions	99,167	0	99,167
f. Medicare Part D Subsidy	0	18,869	18,869
g. Interest on (c), (d), (e) and (f) at 8.00%, adjusted for timing	21,779	5,626	27,405
h. Benefit Payments	766,766	405,872	1,172,638
i. Refund of Contributions	10,421	0	10,421
j. Interest on (h) and (i) at 8.00%, adjusted for timing	<u>33,084</u>	<u>17,277</u>	<u>50,361</u>
k. Expected Actuarial Asset Value, June 30, 2017, (a) + (b) + (c) + (d) + (e) + (f) + (g) - (h) – (i) – (j)	\$ 9,444,812	\$ 7,730,123	\$ 17,174,935
5. Actuarial Asset Value, June 30, 2017	<u>9,229,703</u>	<u>7,557,068</u>	<u>16,786,771</u>
<b>6. Actuarial Asset Gain/(Loss), (5) – (4)(k)</b>	<b>\$ (215,109)</b>	<b>\$ (173,055)</b>	<b>\$ (388,164)</b>
<b>7. Total Actuarial Gain/(Loss), (3) + (6)</b>	<b>\$ 65,330</b>	<b>\$ (59,430)</b>	<b>\$ 5,900</b>
<b>8. Contribution Gain/(Loss)</b>	<b>\$ (51,671)</b>	<b>\$ 41,181</b>	<b>\$ (10,490)</b>
<b>9. FY17 Gain/(Loss), (7) + (8)</b>	<b>\$ 13,659</b>	<b>\$ (18,249)</b>	<b>\$ (4,590)</b>

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

	Pension	Healthcare	Total
1. 2016 Unfunded Liability	\$ 4,576,371	\$ 325,127	\$ 4,901,498
a. Interest on Unfunded Liability at 8.00%	\$ 366,110	\$ 26,010	\$ 392,120
b. Normal Cost	184,411	78,395	262,806
c. Employee Contributions	(89,345)	-	(89,345)
d. Employer Contributions	(263,597)	(124,541)	(388,138)
e. State Assistance Contributions	(99,167)	-	(99,167)
f. Medicare Part D Subsidy	-	(18,869)	(18,869)
g. Interest on (b)-(f) at 8.00%, adjusted for timing	(7,026)	646	(6,380)
h. Change in Assumptions and Healthcare Claims	<u>0</u>	<u>145,999</u>	<u>145,999</u>
i. Expected change in Unfunded Liability during FY17	\$ 91,386	\$ 107,640	\$ 199,026
2. Expected 2017 Unfunded Liability, (1) + (1)(i)	\$ 4,667,757	\$ 432,767	\$ 5,100,524
a. Liability (gain)/loss during FY17	\$ (280,439)	\$ (113,625)	\$ (394,064)
b. Actuarial Assets (gain)/loss during FY17	<u>215,109</u>	<u>173,055</u>	<u>388,164</u>
c. Total actuarial (gain)/loss during FY17	\$ (65,330)	\$ 59,430	\$ (5,900)
3. Actual 2017 Unfunded Liability, (2) + (2)(c)	\$ 4,602,427	\$ 492,197	\$ 5,094,624

## Section 1.6: Analysis of Financial Experience

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

Type of (Gain) or Loss	Change in Employer/State Contribution Rate During Fiscal Year				
	Pension				
	2013	2014	2015	2016	2017
1. Health Claims	N/A	N/A	N/A	N/A	N/A
2. Salary Experience	0.23%	(0.19)%	(0.32)%	(0.35)%	(0.42)%
3. Investment Experience	1.43%	(2.40)%	0.24%	0.77%	0.75%
4. Demographic Experience and Miscellaneous	(0.84)%	(0.04)%	0.34%	0.13%	(0.57)%
5. Contribution Shortfall	<u>0.78%</u>	<u>0.63%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.18%</u>
6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5)	1.60%	(2.00)%	0.26%	0.55%	(0.06)%
7. Assumption and Method Changes	0.00%	(6.86)%	0.00%	1.92%	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)	1.60%	(8.86)%	0.26%	2.47%	(0.06)%
10. Beginning Total Employer/State Contribution Rate	<u>23.24%</u>	<u>24.84%</u>	<u>15.98%</u>	<u>16.24%</u>	<u>18.27%</u>
11. Ending Valuation Year Employer/State Contribution Rate, (9) + (10)	24.84%	15.98%	16.24%	18.71%	18.21%
12. Fiscal Year Rates					
a. Fiscal Year Employer/State Contribution Rate	14.43%	15.98%	17.27%	18.27%	18.21%*
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				
	Healthcare				
	2013	2014	2015	2016	2017
1. Health Claims <sup>1</sup>	(1.51)%	(0.85)%	(3.65)%	1.02%	(2.90)%
2. Salary Experience	N/A	N/A	N/A	N/A	N/A
3. Investment Experience	0.33%	(2.23)%	0.21%	0.63%	0.61%
4. Demographic Experience and Miscellaneous	N/A	N/A	N/A	N/A	(0.39)%
5. Contribution Shortfall	<u>0.01%</u>	<u>0.04%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>(0.14)%</u>
6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5)	(1.17)%	(3.04)%	(3.44)%	1.65%	(2.82)%
7. Assumption and Method Changes	0.00%	(6.60)%	0.00%	0.93%	3.41%
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)	(1.17)%	(9.64)%	(3.44)%	2.58%	0.59%
10. Beginning Total Employer/State Contribution Rate	<u>16.61%</u>	<u>15.44%</u>	<u>5.80%</u>	<u>2.36%</u>	<u>4.37%</u>
11. Ending Valuation Year Employer/State Contribution Rate, (9) + (10)	15.44%	5.80%	2.36%	4.94%	4.96%
12. Fiscal Year Rates					
a. Fiscal Year Employer/State Contribution Rate	8.15%	5.80%	3.11%	4.37%	4.96%*
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.  
Conduent HR Consulting, LLC

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

Type of (Gain) or Loss	Change in Employer/State Contribution Rate During Fiscal Year				
	Total				
	2013	2014	2015	2016	2017
1. Health Claims <sup>1</sup>	(1.51)%	(0.85)%	(3.65)%	1.02%	(2.90)%
2. Salary Experience	0.23%	(0.19)%	(0.32)%	(0.35)%	(0.42)%
3. Investment Experience	1.76%	(4.63)%	0.45%	1.40%	1.36%
4. Demographic Experience and Miscellaneous	(0.84)%	(0.04)%	0.34%	0.13%	(0.96)%
5. Contribution Shortfall	<u>0.79%</u>	<u>0.67%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.04%</u>
6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5)	0.43%	(5.04)%	(3.18)%	2.20%	(2.88)%
7. Assumption and Method Changes	0.00%	(13.46)%	0.00%	2.85%	3.41%
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)	0.43%	(18.50)%	(3.18)%	5.05%	0.53%
10. Beginning Total Employer/State Contribution Rate	<u>39.85%</u>	<u>40.28%</u>	<u>21.78%</u>	<u>18.60%</u>	<u>22.64%</u>
11. Ending Valuation Year Employer/State Contribution Rate, (9) + (10)	40.28%	21.78%	18.60%	23.65%	23.17%
12. Fiscal Year Rates					
a. Fiscal Year Employer/State Contribution Rate	22.58%	21.78%	20.38%	22.64%	23.17%*
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.  
Conduent HR Consulting, LLC

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

Valuation Date	Total Actuarial Accrued Liability	Valuation Assets	Assets as a Percent of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)
June 30, 2003	10,561,653	7,687,281	72.8%	2,874,372
June 30, 2004	11,443,916	8,030,414	70.2%	3,413,502
June 30, 2005	12,844,841	8,442,919	65.7%	4,401,922
June 30, 2006	14,388,413	9,040,908	62.8%	5,347,505
June 30, 2007	14,570,933	9,900,960	68.0%	4,669,973
June 30, 2008	15,888,141	11,040,106	69.5%	4,848,035
June 30, 2009	16,579,371	10,242,978	61.8%	6,336,393
June 30, 2010	18,132,492	11,157,464	61.5%	6,975,028
June 30, 2011	18,740,550	11,813,774	63.0%	6,926,776
June 30, 2012	19,292,361	11,832,030	61.3%	7,460,331
June 30, 2013	19,992,759	12,162,626	60.8%	7,830,133
June 30, 2014	20,897,372	14,644,598	70.1%	6,252,774
June 30, 2015	20,648,663	16,173,459	78.3%	4,475,204
June 30, 2016	21,369,490	16,467,992	77.1%	4,901,498
June 30, 2017	21,881,395	16,786,771	76.7%	5,094,624

## 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	\$ 234,628	\$ 190,385	\$ 425,013	2.6%
- Subtotal	\$ 234,628	\$ 190,385	\$ 425,013	2.6%
Fixed Income Investments				
- Domestic Fixed Income Pool	\$ 754,499	\$ 623,628	\$ 1,378,127	8.5%
- International Fixed Income Pool	65,104	53,811	118,915	0.7%
- Tactical Fixed Income Pool	79,218	65,478	144,696	0.9%
- High Yield Pool	228,471	188,841	417,312	2.5%
- Treasury Inflation Protection Pool	19,633	16,227	35,860	0.2%
- Emerging Debt Pool	<u>58,858</u>	<u>48,649</u>	<u>107,507</u>	<u>0.7%</u>
- Subtotal	\$ 1,205,783	\$ 996,634	\$ 2,202,417	13.4%
Equity Investments				
- Domestic Equity Pool	\$ 2,280,001	\$ 1,884,655	\$ 4,164,656	25.4%
- International Equity Pool	1,832,309	1,514,487	3,346,796	20.3%
- Private Equity Pool	751,778	621,378	1,373,156	8.4%
- Emerging Markets Equity Pool	277,737	229,562	507,299	3.1%
- Alternative Equity Strategies	<u>342,234</u>	<u>282,872</u>	<u>625,106</u>	<u>3.7%</u>
- Subtotal	\$ 5,484,059	\$ 4,532,954	\$ 10,017,013	61.1%
Other Investments				
- Real Estate Pool	\$ 634,840	\$ 524,362	\$ 1,159,202	7.1%
- Other Investments Pool	857,949	709,135	1,567,084	9.5%
- Absolute Return Pool	565,357	467,294	1,032,651	6.3%
- Other Assets	<u>15</u>	<u>967</u>	<u>982</u>	<u>nil</u>
- Subtotal	\$ 2,058,161	\$ 1,701,758	\$ 3,759,919	22.9%
Total Cash and Investments	\$ 8,982,631	\$ 7,421,731	\$ 16,404,362	100.0%
Net Accrued Receivables	<u>(39,504)</u>	<u>(82,779)</u>	<u>(122,283)</u>	
Net Assets	\$ 8,943,127	\$ 7,338,952	\$ 16,282,079	

## 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	\$ 8,227,687	\$ 6,733,254	\$ 14,960,941
2. Additions:			
a. Employee Contributions	\$ 89,345	\$ 0	\$ 89,345
b. Employer Contributions	263,597	124,541	388,138
c. State Assistance Contributions	99,167	0	99,167
d. Interest and Dividend Income	148,414	122,241	270,655
e. Net Appreciation/(Depreciation) in Fair Value of Investments	904,353	741,697	1,646,050
f. Medicare Part D Subsidy	0	18,869	18,869
g. Other	<u>38</u>	<u>24,140</u>	<u>24,178</u>
h. Total Additions	\$ 1,504,914	\$ 1,031,488	\$ 2,536,402
3. Deductions:			
a. Medical Benefits	\$ 0	\$ 405,872	\$ 405,872
b. Retirement Benefits	766,766	0	766,766
c. Refunds of Contributions	10,421	0	10,421
d. Investment Expenses	4,760	3,958	8,718
e. Administrative Expenses	<u>7,527</u>	<u>15,960</u>	<u>23,487</u>
f. Total Deductions	\$ 789,474	\$ 425,790	\$ 1,215,264
4. Fair Value of Assets, June 30, 2017	\$ 8,943,127	\$ 7,338,952	\$ 16,282,079
Approximate Fair Value Investment Return Rate During FY17 Net of All Expenses	12.9%	12.8%	12.8%
Liquidity Factor	11.0	17.3	13.2



### 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. Deferral of Investment Gain/(Loss) for FY17			
a. Fair Value, June 30, 2016	\$ 8,227,687	\$ 6,733,254	\$ 14,960,941
b. Contributions	452,109	124,541	576,650
c. Medicare Part D Subsidy	0	18,869	18,869
d. Benefit Payments	777,187	405,872	1,183,059
e. Actual Investment Return (net of expenses)	1,040,518	868,160	1,908,678
f. Expected Return Rate	8.00%	8.00%	8.00%
g. Expected Return - Weighted for Timing	646,911	527,009	1,173,920
h. Investment Gain/(Loss) for the Year, (e) – (g)	393,607	341,151	734,758
2. Actuarial Value, June 30, 2017			
a. Fair Value, June 30, 2017	\$ 8,943,127	\$ 7,338,952	\$ 16,282,079
b. Deferred Investment Gain/(Loss)	(286,576)	(218,116)	(504,692)
c. Actuarial Value, June 30, 2017, (a) – (b)	\$ 9,229,703	\$ 7,557,068	\$ 16,786,771
3. Ratio of Actuarial Value of Assets to Fair Value of Assets	103.2%	103.0%	103.1%
4. Approximate Actuarial Value Investment Return Rate During FY17 Net of All Expenses	5.6%	5.3%	5.4%

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	(405,373)	(162,150)	(81,075)	(162,148)
6/30/2016	(732,190)	(146,438)	(146,438)	(439,314)
6/30/2017	<u>393,607</u>	<u>0</u>	<u>78,721</u>	<u>314,886</u>
<b>Total</b>	<b>\$ (743,956)</b>	<b>\$ (308,588)</b>	<b>\$ (148,792)</b>	<b>\$ (286,576)</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	(350,420)	(140,168)	(70,084)	(140,168)
6/30/2016	(584,781)	(116,956)	(116,956)	(350,869)
6/30/2017	<u>341,151</u>	<u>0</u>	<u>68,230</u>	<u>272,921</u>
<b>Total</b>	<b>\$ (594,050)</b>	<b>\$ (257,124)</b>	<b>\$ (118,810)</b>	<b>\$ (218,116)</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
6/30/2012	\$ 0	\$ 0	\$ 0	\$ 0
6/30/2013	0	0	0	0
6/30/2014	(755,793)	(302,318)	(151,159)	(302,316)
6/30/2016	(1,316,971)	(263,394)	(263,394)	(790,183)
6/30/2017	<u>734,758</u>	<u>0</u>	<u>146,951</u>	<u>587,807</u>
<b>Total</b>	<b>\$ (1,338,006)</b>	<b>\$ (565,712)</b>	<b>\$ (267,602)</b>	<b>\$ (504,692)</b>

## Section 2.4: Historical Asset Rates of Return

Year Ending	Actuarial Value		Fair Value	
	Annual	Cumulative*	Annual	Cumulative*
June 30, 2005	8.7%	8.7%	8.5%	8.5%
June 30, 2006	9.3%	9.0%	11.4%	9.9%
June 30, 2007	11.6%	9.9%	18.5%	12.7%
June 30, 2008	10.0%	9.9%	(3.1)%	8.5%
June 30, 2009	(7.3)%	6.2%	(20.5)%	2.0%
June 30, 2010	7.2%	6.4%	10.2%	3.3%
June 30, 2011	7.2%	6.5%	20.4%	5.6%
June 30, 2012	1.2%	5.8%	0.2%	4.9%
June 30, 2013	4.0%	5.6%	12.1%	5.7%
June 30, 2014	21.9%	7.1%	18.2%	6.9%
June 30, 2015	7.0%	7.1%	2.9%	6.5%
June 30, 2016	5.0%	6.9%	(0.7)%	5.9%
June 30, 2017	5.4%	7.4%	12.8%	6.9%

\*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

This exhibit below 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	\$ 382,889	47.0%	42.9%	89.9%
2012	351,674	52.0%	37.2%	89.2%
2011	220,419	63.1%	29.6%	92.7%
2010	217,080	65.5%	20.5%	86.0%
2009	166,016	68.1%	48.0%	116.1%
2008	140,729	71.2%	36.2%	107.4%
2007	268,742	73.2%	4.1%	77.3%

<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 (\$' 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	\$ 12,844,841	\$ 8,442,919	65.7%	\$ 4,401,922	\$ 1,513,117	290.9%
June 30, 2004 <sup>2 3</sup>	11,443,916	8,030,414	70.2%	3,413,502	1,472,987	231.7%
June 30, 2003	10,561,653	7,687,281	72.8%	2,874,372	1,460,783	196.8%
June 30, 2002 <sup>1 2 3</sup>	9,859,591	7,412,833	75.2%	2,446,758	1,402,687	174.4%
June 30, 2001	7,868,574	7,941,756	100.9%	N/A	1,360,401	N/A
June 30, 2000 <sup>2 3</sup>	7,376,912	7,454,758	101.1%	N/A	1,324,278	N/A
June 30, 1999	6,648,673	7,016,340	105.5%	N/A	1,279,359	N/A
June 30, 1998 <sup>1 2 3</sup>	6,203,991	6,571,562	105.9%	N/A	1,232,488	N/A
June 30, 1997	5,534,116	5,885,488	106.3%	N/A	1,227,795	N/A

<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 (\$ 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 – 4.30%	\$ 13,527,347	\$ 7,411,330	54.8%	\$ 6,116,017	\$ 1,346,541	454.2%
June 30, 2015 – 4.55%	12,283,190	7,242,299	59.0%	5,040,891	1,420,479	354.9%
June 30, 2014 <sup>2</sup> – 4.90%	12,758,985	6,913,160	54.2%	5,845,825	1,491,583	391.9%
June 30, 2013 – 5.41%	12,281,372	5,651,877	46.0%	6,629,495	1,534,665	432.0%
June 30, 2012 <sup>2</sup> – 6.88%	9,812,274	5,301,609	54.0%	4,510,665	1,522,399	296.3%
June 30, 2011 – 7.43%	9,091,034	5,051,625	55.6%	4,039,409	1,559,938	258.9%
June 30, 2010 <sup>2</sup> – 7.48%	9,304,504	4,687,632	50.4%	4,616,872	1,586,697	291.0%
June 30, 2009 – 4.70%	12,770,990	4,134,450	32.4%	8,636,540	1,585,490	544.7%
June 30, 2008 <sup>2</sup> – 4.50%	13,013,450	3,829,334	29.4%	9,184,116	1,577,846	582.1%
June 30, 2007 – 4.50%	11,108,553	3,161,956	28.5%	7,946,597	1,605,819	494.9%

<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)

This exhibit below 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	\$ 790,824	19.7%	8.8%	28.5 %
2015	782,258	21.9%	6.0%	27.9%
2014	783,827	26.1%	19.5%	45.6%
2013	612,792	37.5%	25.1%	62.6%
2012	498,433	44.8%	28.8%	73.6%
2011	525,075	49.8%	21.6%	71.4%
2010*	790,793	31.6%	54.8%	86.4%
2009	391,321	68.1%	41.4%	109.5%
2008	370,456	71.2%	36.2%	107.4%
2007	189,495	73.2%	4.1%	77.3%

\* The ARC and percentage contributed are based on Conduent HR Consulting'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.

Valuation Date	Fiscal Year	ARC (% of Pay)	
		Healthcare	Healthcare Discount Rate
June 30, 2005	FY08	53.96%	4.50%
June 30, 2006	FY09	55.87%	4.50%
June 30, 2007	FY10	49.98%	4.70%
June 30, 2008	FY11	33.66%	7.48%
June 30, 2009	FY12	32.74%	7.43%
June 30, 2010*	FY13	39.93%	6.88%
June 30, 2011	FY14	52.55%	5.41%
June 30, 2012	FY15	55.07%	4.90%
June 30, 2013	FY16	58.73%	4.55%

\* 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:			Pension 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, 2016	\$ 1,458,830	\$ 9,147,818	\$ 3,026,385	\$ 9,056,662	100.0%	83.1%	0.0%
June 30, 2015	1,475,852	8,762,863	3,099,214	8,931,160	100.0%	85.1%	0.0%
June 30, 2014 <sup>1 2</sup>	1,486,335	8,264,683	3,196,741	7,731,438	100.0%	75.6%	0.0%
June 30, 2013	1,479,538	7,514,255	2,952,088	6,510,749	100.0%	67.0%	0.0%
June 30, 2012	1,459,943	7,057,967	2,911,034	6,530,421	100.0%	71.8%	0.0%
June 30, 2011	1,421,967	6,657,517	2,839,563	6,762,149	100.0%	80.2%	0.0%
June 30, 2010 <sup>1</sup>	1,388,029	6,268,461	2,715,182	6,469,832	100.0%	81.1%	0.0%
June 30, 2009	1,315,924	5,914,959	2,471,203	6,108,528	100.0%	81.0%	0.0%
June 30, 2008	1,242,288	5,606,402	2,305,592	7,210,772	100.0%	100.0%	15.7%
June 30, 2007	1,203,007	5,282,132	2,177,185	6,739,004	100.0%	100.0%	11.7%
June 30, 2006 <sup>1 2</sup>	1,157,755	4,933,609	2,002,679	6,331,065	100.0%	100.0%	12.0%
June 30, 2005	1,104,821	4,627,467	1,354,903	6,016,713 <sup>3</sup>	100.0%	100.0%	21.0%

<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	\$ 5,393,537	\$ 2,342,920	\$ 7,411,330	100.0%	100.0%	86.1%
June 30, 2015	0	5,159,283	2,151,451	7,242,299	100.0%	100.0%	96.8%
June 30, 2014 <sup>1</sup>	0	5,455,114	2,494,499	6,913,160	100.0%	100.0%	58.5%
June 30, 2013 <sup>1</sup>	0	5,298,380	2,748,498	5,651,877	100.0%	100.0%	12.9%
June 30, 2012 <sup>1</sup>	0	5,026,080	2,837,337	5,301,609	100.0%	100.0%	9.7%
June 30, 2011	0	4,812,845	3,008,658	5,051,625	100.0%	100.0%	7.9%
June 30, 2010 <sup>1</sup>	0	4,581,806	3,179,014	4,687,632	100.0%	100.0%	3.3%
June 30, 2009	0	4,232,394	2,644,891	4,134,450	100.0%	97.7%	0.0%
June 30, 2008 <sup>1</sup>	0	4,166,270	2,567,589	3,829,334	100.0%	91.9%	0.0%
June 30, 2007	0	3,684,906	2,223,703	3,161,956	100.0%	85.8%	0.0%
June 30, 2006 <sup>1 2</sup>	0	3,990,202	2,304,168	2,709,843	100.0%	67.9%	0.0%
June 30, 2005	0	4,039,591	1,718,059	2,426,206 <sup>3</sup>	100.0%	60.1%	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>	\$ 1,388,029	\$ 10,850,267	\$ 5,894,196	\$ 11,157,464	100.0%	90.0%	0.0%
June 30, 2009	1,315,924	10,147,353	5,116,094	10,242,978	100.0%	88.0%	0.0%
June 30, 2008 <sup>1</sup>	1,242,288	9,772,672	4,873,181	11,040,106	100.0%	100.0%	0.5%
June 30, 2007	1,203,007	8,967,038	4,400,888	9,900,960	100.0%	97.0%	0.0%
June 30, 2006 <sup>1 2</sup>	1,157,755	8,923,811	4,306,847	9,040,908	100.0%	88.3%	0.0%
June 30, 2005	1,104,821	8,667,058	3,072,962	8,442,919	100.0%	84.7%	0.0%
June 30, 2004 <sup>1</sup>	1,070,268	7,650,156	2,723,492	8,030,414	100.0%	91.0%	0.0%
June 30, 2003	1,026,730	6,860,834	2,674,089	7,687,281	100.0%	97.1%	0.0%
June 30, 2002 <sup>1 2 3</sup>	967,045	6,301,095	2,591,451	7,412,833	100.0%	100.0%	5.6%
June 30, 2001	920,702	5,059,386	1,888,486	7,941,756	100.0%	100.0%	100.0%

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

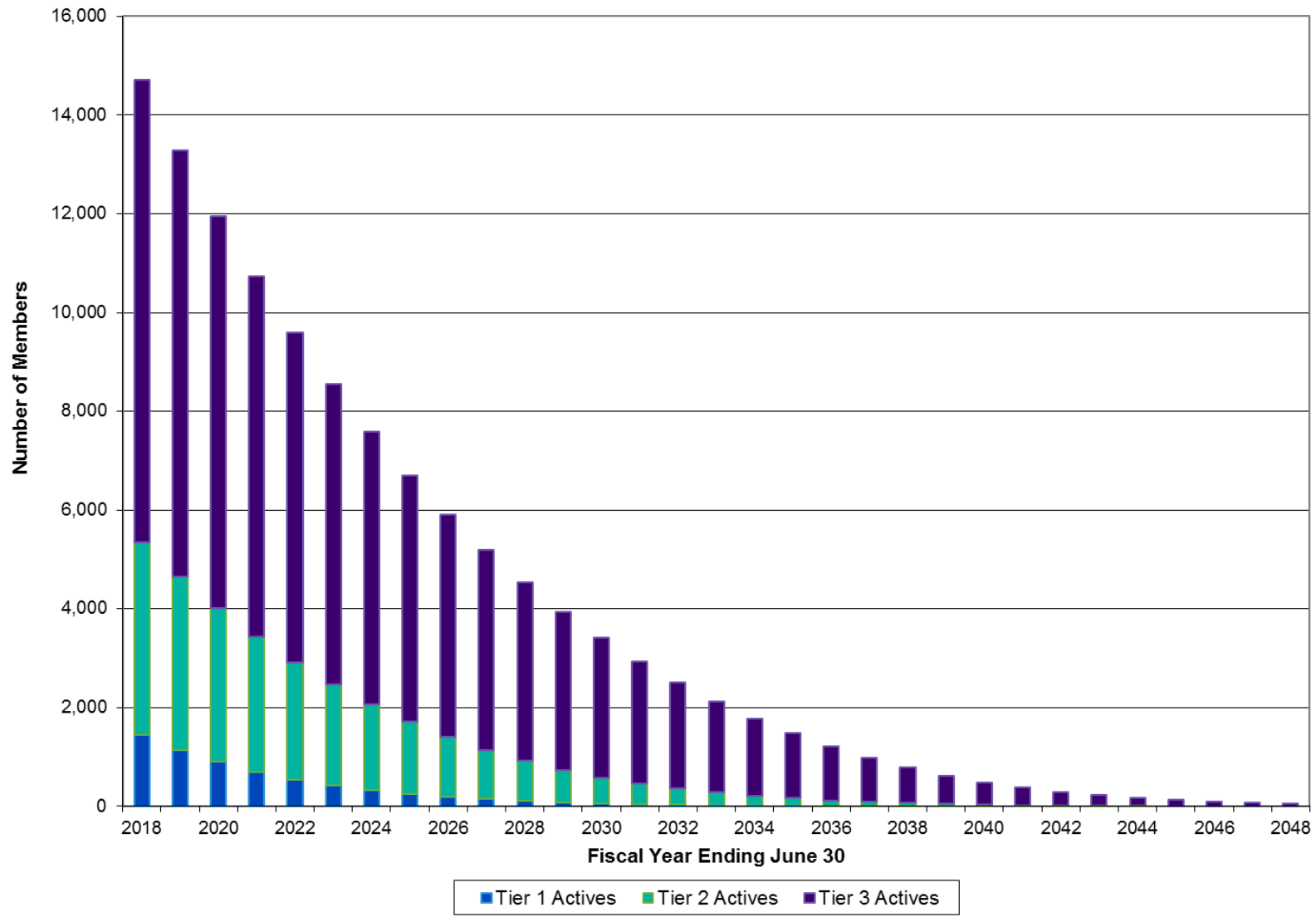
### Section 4.1: Projection Assumptions and Methods

#### Key Assumptions

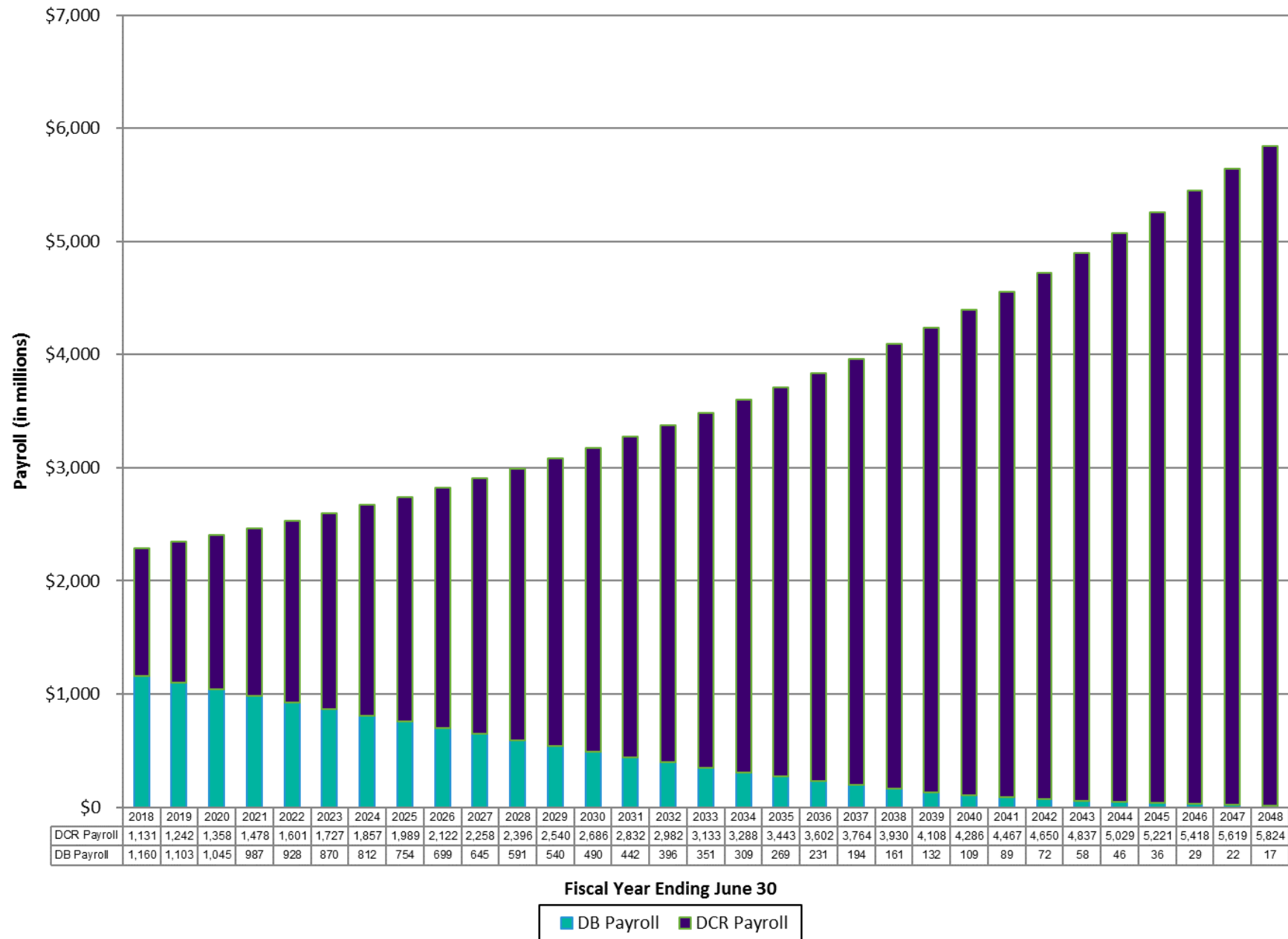
- 8.00% investment return on the Fair Value of Assets in all future years.
- The Actuarial Value of Assets is re-initialized to Fair Value as of June 30, 2014. The Actuarial Value of Assets after June 30, 2014 reflects the deferred gains and losses generated by the smoothing method. The current deferred 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 roll-forward approach is adopted each year.
- No new DB Plan members enter into Tiers 1, 2 or 3.
- 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

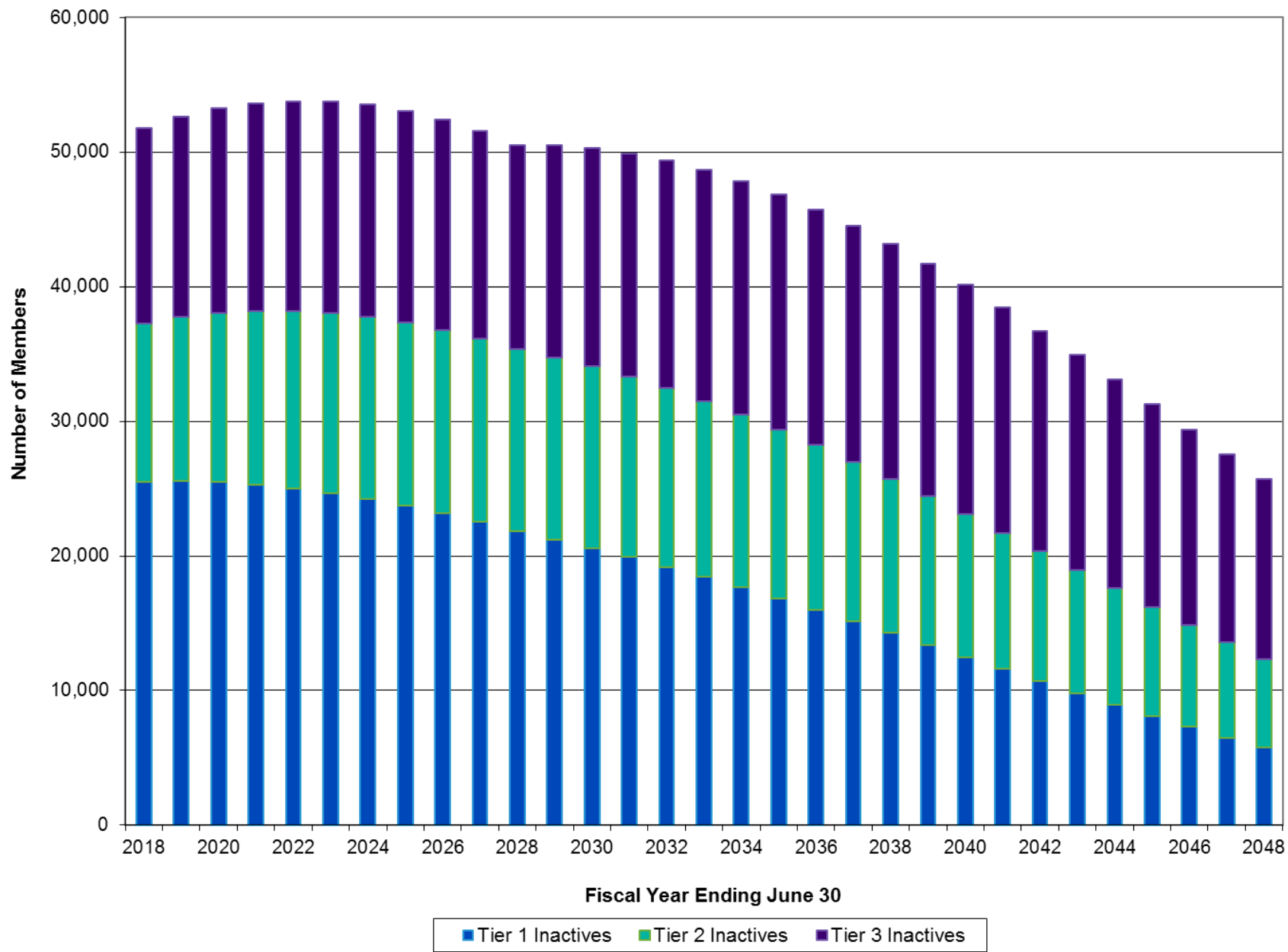
### Projected Active Member Count



## Projected DB and DCR Payroll

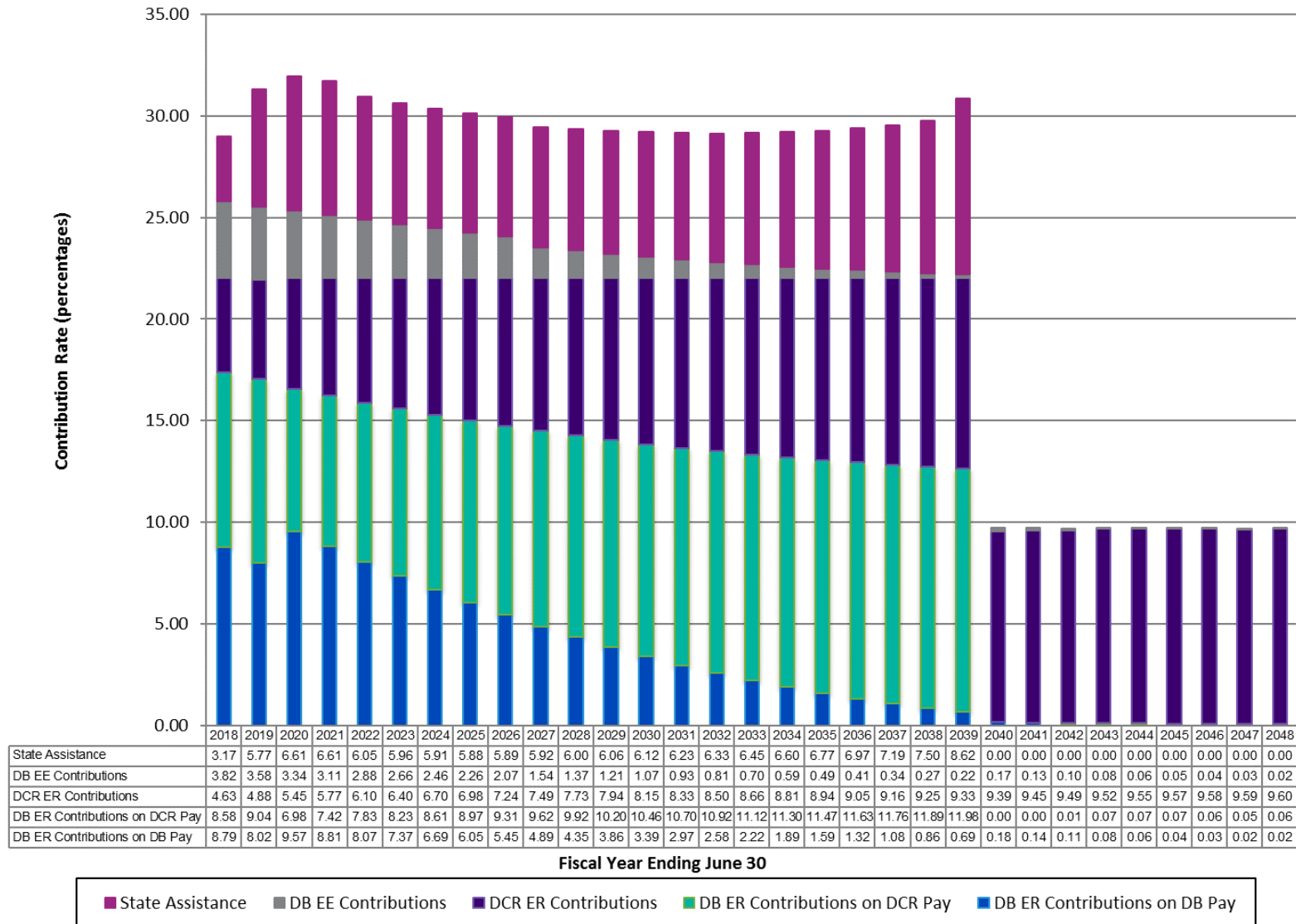


Projected Inactive Member Count

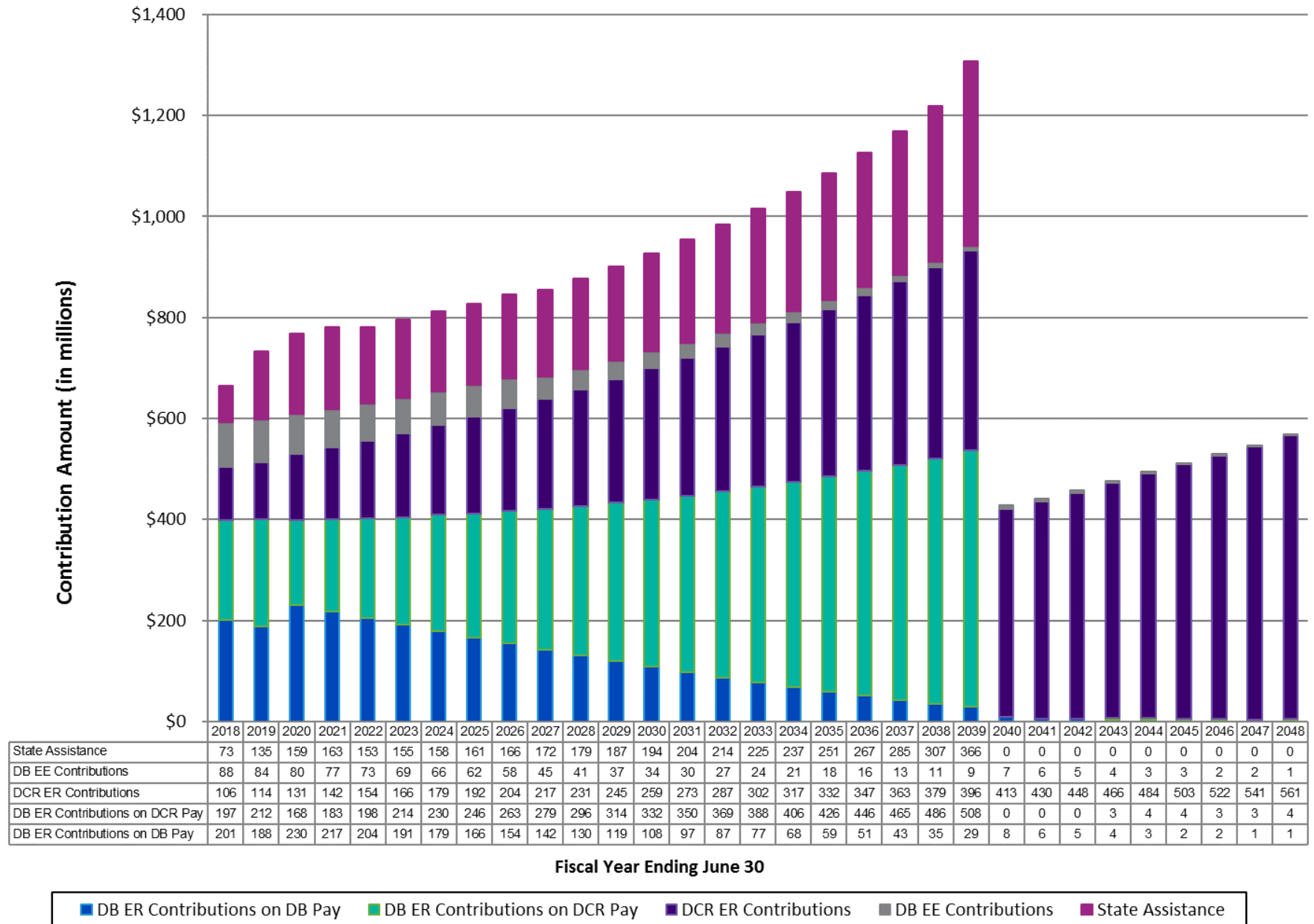


## Section 4.3: Projected Employer/State Contribution Rates

Based on Total DB and DCR Payroll

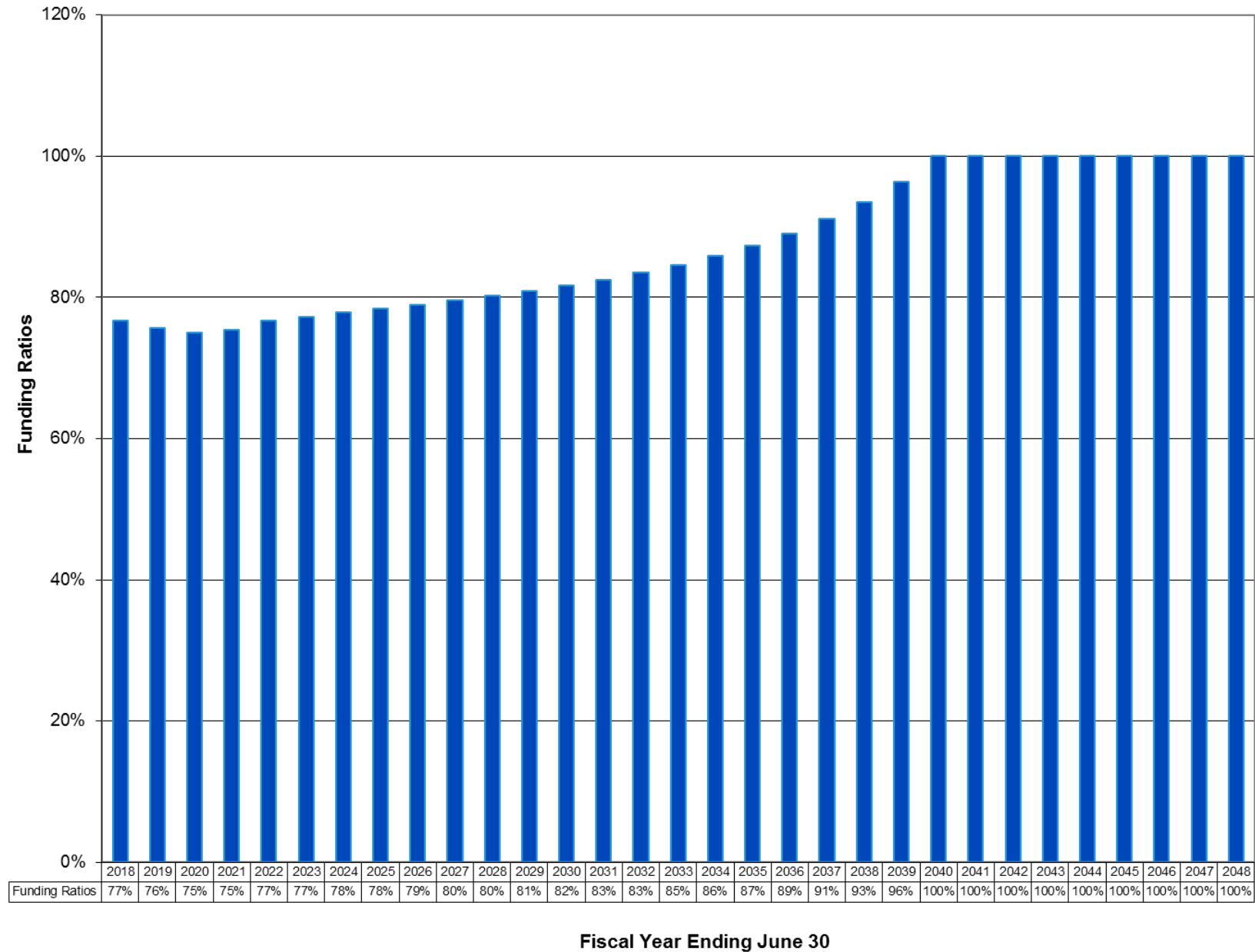


## Section 4.4: Projected Employer/State Contribution Amounts





## Section 4.5: Projection of Funded Ratios



## Section 4.6: Table of Projected Actuarial Results

### State of Alaska PERS 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% Valuation Amounts on July 1 (Beginning of Fiscal Year)				Investment Return of 8.00% for FY 18 and beyond.												Deferred Asset Gain/(Loss)	Ending Actuarial Assets
	Actuarial Assets	Accrued Liability	Funding Ratio	Surplus (Deficit)	Total Salaries	Er/State Ctb Rate	DCR Ctb Rate	Total Ctb Rate	Flow Amounts During Following 12 Months				Benefit Payments	Net Contribs	Investment Earnings			
									Employer	State Assistance	Employee	Total						
2018	\$16,786,771	\$21,881,394	76.7%	(\$5,094,623)	\$2,291,040	20.54%	4.63%	25.17%	\$397,954	\$72,571	\$87,542	\$558,067	\$1,225,464	(\$667,397)	\$1,274,751	(\$237,092)	\$17,126,525	
2019	17,126,525	22,618,158	75.7%	(5,491,633)	2,344,387	22.83%	4.88%	27.71%	399,952	135,219	83,874	619,045	1,307,493	(688,448)	1,324,361	30,509	17,494,838	
2020	17,494,838	23,309,691	75.1%	(5,814,853)	2,402,641	23.16%	5.45%	28.61%	397,637	158,815	80,342	636,794	1,389,282	(752,488)	1,374,345	146,952	18,000,252	
2021	18,000,252	23,870,589	75.4%	(5,870,336)	2,464,880	22.84%	5.77%	28.61%	400,050	162,928	76,656	639,634	1,470,018	(830,384)	1,420,936	0	18,737,755	
2022	18,737,755	24,438,716	76.7%	(5,700,961)	2,529,699	21.95%	6.10%	28.05%	402,222	153,047	72,752	628,021	1,550,995	(922,974)	1,463,874	0	19,278,656	
2023	19,278,656	24,954,622	77.3%	(5,675,966)	2,596,642	21.56%	6.40%	27.96%	405,076	154,760	69,123	628,959	1,633,086	(1,004,127)	1,503,759	0	19,778,287	
2024	19,778,287	25,412,881	77.8%	(5,634,594)	2,668,198	21.21%	6.70%	27.91%	408,234	157,691	65,579	631,504	1,714,623	(1,083,119)	1,540,477	0	20,235,646	
2025	20,235,646	25,810,476	78.4%	(5,574,830)	2,743,099	20.90%	6.98%	27.88%	412,013	161,294	62,091	635,398	1,794,795	(1,159,397)	1,573,953	0	20,650,202	
2026	20,650,202	26,144,404	79.0%	(5,494,202)	2,821,153	20.65%	7.24%	27.89%	416,402	166,167	58,376	640,945	1,871,994	(1,231,049)	1,604,248	0	21,023,400	
2027	21,023,400	26,413,803	79.6%	(5,390,403)	2,902,812	20.43%	7.49%	27.92%	421,198	171,847	44,703	637,748	1,945,309	(1,307,561)	1,631,089	0	21,346,928	
2028	21,346,928	26,617,457	80.2%	(5,270,529)	2,987,407	20.27%	7.73%	28.00%	426,303	179,245	40,927	646,475	2,003,787	(1,357,312)	1,655,126	0	21,644,742	
2029	21,644,742	26,755,319	80.9%	(5,110,577)	3,080,100	20.12%	7.94%	28.06%	433,062	186,654	37,269	656,985	2,072,162	(1,415,177)	1,676,754	0	21,906,319	
2030	21,906,319	26,822,673	81.7%	(4,916,354)	3,175,557	19.97%	8.15%	28.12%	439,815	194,344	33,978	668,137	2,139,061	(1,470,924)	1,695,584	0	22,130,979	
2031	22,130,979	26,816,025	82.5%	(4,685,046)	3,274,610	19.90%	8.33%	28.23%	447,639	204,009	30,454	682,102	2,205,587	(1,523,485)	1,711,667	0	22,319,161	
2032	22,319,161	26,730,081	83.5%	(4,410,920)	3,377,343	19.83%	8.50%	28.33%	455,941	213,786	27,356	697,083	2,269,895	(1,572,812)	1,724,970	0	22,471,319	
2033	22,471,319	26,563,056	84.6%	(4,091,737)	3,484,601	19.79%	8.66%	28.45%	464,846	224,757	24,392	713,995	2,330,606	(1,616,611)	1,735,669	0	22,590,377	
2034	22,590,377	26,311,727	85.9%	(3,721,350)	3,596,474	19.79%	8.81%	28.60%	474,375	237,367	21,219	732,961	2,383,519	(1,650,558)	1,744,199	0	22,684,018	
2035	22,684,018	25,978,121	87.3%	(3,294,103)	3,711,676	19.83%	8.94%	28.77%	484,745	251,280	18,187	754,212	2,430,598	(1,676,386)	1,751,088	0	22,758,720	
2036	22,758,720	25,562,178	89.0%	(2,803,458)	3,832,479	19.92%	9.05%	28.97%	496,306	267,124	15,713	779,143	2,471,703	(1,692,560)	1,756,938	0	22,823,098	
2037	22,823,098	25,063,669	91.1%	(2,240,571)	3,957,843	20.03%	9.16%	29.19%	508,187	284,569	13,457	806,213	2,506,096	(1,699,883)	1,762,397	0	22,885,612	
2038	22,885,612	24,485,229	93.5%	(1,599,617)	4,090,357	20.25%	9.25%	29.50%	521,521	306,776	11,044	839,341	2,528,088	(1,688,747)	1,768,667	0	22,965,532	
2039	22,965,532	23,832,822	96.4%	(867,290)	4,240,180	21.29%	9.33%	30.62%	537,231	365,504	9,328	912,063	2,541,545	(1,629,482)	1,779,735	0	23,115,786	
2040	23,115,786	23,110,013	100.0%	5,773	4,394,870	0.18%	9.39%	9.57%	7,910	0	7,471	15,381	2,541,064	(2,525,683)	1,741,697	0	22,331,800	
2041	22,331,800	22,326,426	100.0%	5,374	4,555,353	0.14%	9.45%	9.59%	6,377	0	5,922	12,299	2,531,569	(2,519,270)	1,679,262	0	21,491,792	
2042	21,491,792	21,486,997	100.0%	4,795	4,721,738	0.12%	9.49%	9.61%	5,667	0	4,722	10,389	2,508,097	(2,497,708)	1,612,985	0	20,607,069	
2043	20,607,069	20,602,379	100.0%	4,690	4,894,715	0.15%	9.52%	9.67%	7,342	0	3,916	11,258	2,473,502	(2,462,244)	1,543,714	0	19,688,539	
2044	19,688,539	19,680,954	100.0%	7,585	5,074,604	0.13%	9.55%	9.68%	6,597	0	3,045	9,642	2,424,057	(2,414,415)	1,472,273	0	18,746,398	
2045	18,746,398	18,735,562	100.0%	10,836	5,257,336	0.11%	9.57%	9.68%	5,783	0	2,629	8,412	2,363,825	(2,355,413)	1,399,418	0	17,790,402	
2046	17,790,402	17,775,830	100.0%	14,572	5,446,467	0.09%	9.58%	9.67%	4,902	0	2,179	7,081	2,294,346	(2,287,265)	1,325,843	0	16,828,981	
2047	16,828,981	16,810,500	100.0%	18,481	5,640,874	0.07%	9.59%	9.66%	3,948	0	1,692	5,640	2,215,651	(2,210,011)	1,252,223	0	15,871,193	
Totals:									\$9,799,235	\$4,409,754	\$1,015,938	\$15,224,927						

The FY18 Employer/State contribution rates don't match the September 16, 2016 Allocation of Additional State Contributions letter due to updated projected Total Salaries

The FY18 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 % of DCR pay for Occupational Death & Disability and Retiree Medical is 1.78% for Peace/Fire and 1.61% for Others, 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	20,955	19,297	17,660	16,105	14,719
2. Average Age	50.39	50.90	51.34	51.74	52.10
3. Average Credited Service	14.00	14.64	15.29	15.95	16.57
4. Average Entry Age	36.39	36.26	36.05	35.79	35.53
5. Average Annual Earnings	\$ 69,211	\$ 71,651	\$ 73,248	\$ 75,717	\$ 76,902
6. Number Vested	19,670	18,381	16,996	15,607	14,314
7. Percent Who Are Vested	93.9%	95.3%	96.2%	96.9%	97.2%
<b>Retirees, Disabilitants and Beneficiaries</b>					
1. Number	29,865	31,099	32,145	33,353	34,347
2. Average Age	67.76	68.15	68.60	69.02	69.42
3. Average Years Since Retirement	N/A	N/A	11.27	11.48	11.71
4. Average Monthly Pension Benefit					
Base	\$ 1,415	\$ 1,454	\$ 1,490	\$ 1,529	\$ 1,574
COLA <sup>2</sup>	90	91	92	93	93
P.R.P.A. <sup>2</sup>	242	255	258	245	230
Adjustment	0	0	1	1	1
Total	\$ 1,747	\$ 1,800	\$ 1,841	\$ 1,868	\$ 1,898
<b>Vested Terminations (vested at time of termination, not refunded contributions or commenced benefits)</b>					
1. Number	6,230	6,167	6,304	6,160	5,962
2. Average Age	50.84	51.15	51.80	52.08	52.45
3. Average Monthly Pension Benefit	\$ 863	\$ 897	\$ 991	\$ 1,042	\$ 1,080
<b>Non-Vested Terminations With Account Balances (not vested at termination, not refunded contributions)</b>					
1. Number	13,162	12,713	12,339	11,880	11,506
2. Average Account Balance	\$ 5,578	\$ 5,765	\$ 5,981	\$ 6,212	\$ 6,462
<b>Total Number of Members</b>	<b>70,212</b>	<b>69,276</b>	<b>68,448</b>	<b>67,498</b>	<b>66,534</b>

<sup>1</sup> 3 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.

## Summary of Members Included

As of June 30, 2017	DB				DCR	
	Tier 1	Tier 2	Tier 3	Total	Tier 4	Grand Total
Active Members						
1. Number	1,447	3,901	9,371	14,719	19,171	33,890
2. Average Age	60.31	54.83	49.69	52.10	40.72	45.66
3. Average Credited Service	21.66	21.32	13.81	16.57	3.90	9.40
4. Average Entry Age	38.65	33.51	35.88	35.53	36.82	36.26
5. Annual Earnings						
(a) Amount (000's)	\$ 109,509	\$ 321,177	\$ 701,240	\$ 1,131,926	\$ 1,112,398	\$ 2,244,324
(b) Average	\$ 75,680	\$ 82,332	\$ 74,831	\$ 76,902	\$ 58,025	\$ 66,224

As of June 30, 2017	Tier 1	Tier 2	Tier 3	Total
<b>Retirees, Disabilitants and Beneficiaries</b>				
1. Number	23,831	7,210	3,306	34,347
2. Average Age	70.33	67.93	66.13	69.42
3. Average Years Since Retirement	13.98	7.58	4.35	11.71
4. Average Monthly Pension Benefit				
Base	\$ 1,670	\$ 1,484	\$ 1,077	\$ 1,574
COLA	115	46	36	93
P.R.P.A.	302	85	31	230
Adjustment	0	2	1	1
Total	2,087	1,617	1,145	1,898

## 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	14,654	17,056	0	0	17,056
2. Retiree + Spouse	0	12,250	12,250	0	24,500
3. Retiree + Children / Other Dependent	0	424	0	512	936
4. Family	<u>0</u>	<u>968</u>	<u>968</u>	<u>1,281</u>	<u>3,217</u>
5. Total	14,654	30,698	13,218	1,793	45,709

Retiree Medical Participants as of June 30, 2017				
	Retirees	Spouses	Kids	All Members
Pre-Medicare	9,617	5,865	1,793	17,275
Medicare Part A & B	20,954	7,308	0	28,262
Medicare Part B Only	<u>127</u>	<u>45</u>	<u>0</u>	<u>172</u>
Total	30,698	13,218	1,793	45,709

As of June 30, 2017	Retiree
<b>Summary of Retiree Medical Data Received</b>	
1. Retiree records on pension data	34,347
2. Records valued in a different retiree healthcare plan <sup>1</sup>	(2,021)
3. Records without medical coverage	(1,642)
4. Records with only medical coverage (no pension)	<u>14</u>
5. Total	30,698

<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

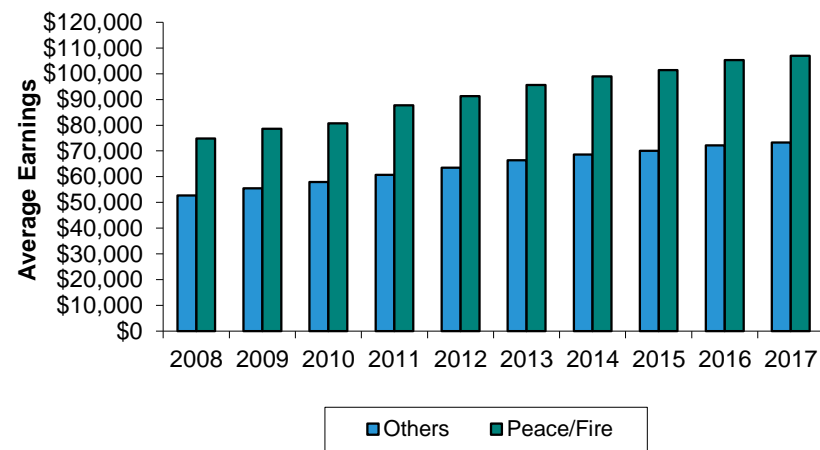
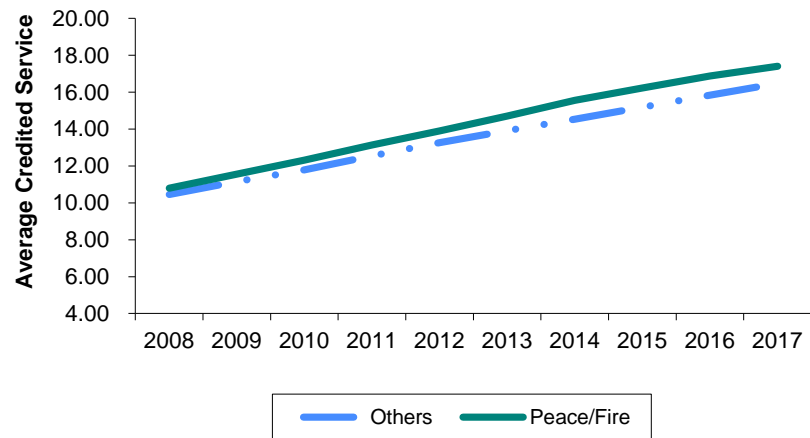
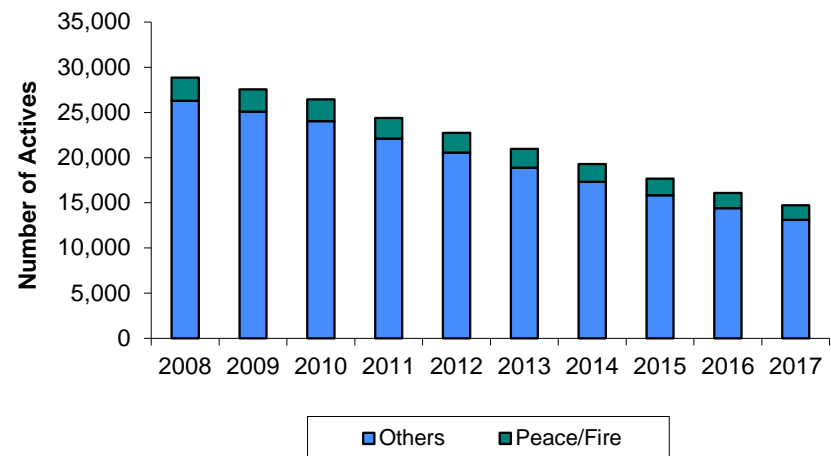
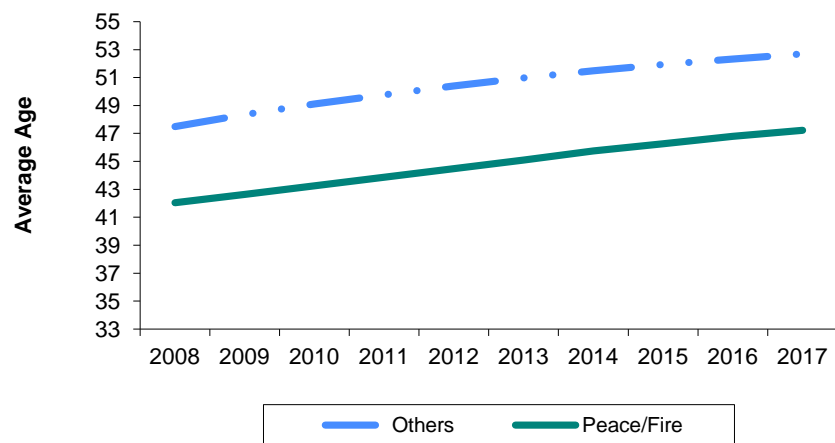
### Active Members – DB Only

As of June 30	2013	2014	2015	2016	2017 <sup>1</sup>
<b>Peace Officer/Firefighter</b>					
1. Number	2,065	1,958	1,827	1,704	1,606
2. Average Age	45.09	45.74	46.26	46.80	47.22
3. Average Credited Service	14.71	15.55	16.23	16.87	17.41
4. Average Entry Age	30.38	30.19	30.03	29.93	29.81
5. Average Annual Earnings	\$ 95,658	\$ 98,946	\$ 101,450	\$ 105,317	\$ 106,987
6. Number Vested	2,018	1,934	1,817	1,695	1,599
7. Percent Who Are Vested	97.7%	98.8%	99.5%	99.5%	99.6%
<b>Others</b>					
1. Number	18,890	17,339	15,833	14,401	13,113
2. Average Age	50.97	51.48	51.93	52.32	52.70
3. Average Credited Service	13.92	14.54	15.18	15.84	16.47
4. Average Entry Age	37.05	36.94	36.75	36.48	36.23
5. Average Annual Earnings	\$ 66,320	\$ 68,569	\$ 69,994	\$ 72,214	\$ 73,218
6. Number Vested	17,652	16,447	15,179	13,912	12,715
7. Percent Who Are Vested	93.4%	94.9%	95.9%	96.6%	97.0%
<b>Total</b>					
1. Number	20,955	19,297	17,660	16,105	14,719
2. Average Age	50.39	50.90	51.34	51.74	52.10
3. Average Credited Service	14.00	14.64	15.29	15.95	16.57
4. Average Entry Age	36.39	36.26	36.05	35.79	35.53
5. Average Annual Earnings	\$ 69,211	\$ 71,651	\$ 73,248	\$ 75,717	\$ 76,902
6. Number Vested	19,670	18,381	16,996	15,607	14,314
7. Percent Who Are Vested	93.9%	95.3%	96.2%	96.9%	97.3%

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

<sup>1</sup> 3 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.

## Summary of Members Included – Active Members as of June 30



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

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

### Peace Officer/Firefighter

#### Annual Earnings by Age

Age	Number	Total Annual Earnings	Average Annual Earnings
0 – 19	0	\$ 0	\$ 0
20 – 24	0	0	0
25 – 29	0	0	0
30 – 34	61	6,004,707	98,438
35 – 39	201	21,437,482	106,654
40 – 44	374	40,584,438	108,515
45 – 49	434	47,189,494	108,732
50 – 54	301	32,745,889	108,790
55 – 59	158	16,569,520	104,870
60 – 64	60	5,636,367	93,939
65 – 69	15	1,497,461	99,831
70 – 74	2	155,218	77,609
75+	0	0	0
<b>Total</b>	<b>1,606</b>	<b>\$ 171,820,576</b>	<b>\$ 106,987</b>

#### Annual Earnings by Credited Service

Years of Service	Number	Total Annual Earnings	Average Annual Earnings
0	0	\$ 0	\$ 0
1	2	160,122	80,061
2	2	105,511	52,756
3	0	0	0
4	3	178,728	59,576
0 – 4	7	444,361	63,480
5 – 9	47	3,745,085	79,683
10 – 14	503	51,238,260	101,865
15 – 19	604	64,406,912	106,634
20 – 24	313	36,468,014	116,511
25 – 29	118	13,852,872	117,397
30 – 34	9	1,019,273	113,253
35 – 39	3	389,788	129,929
40+	2	256,011	128,006
<b>Total</b>	<b>1,606</b>	<b>\$ 171,820,576</b>	<b>\$ 106,987</b>

#### 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	2	6	53	0	0	0	0	0	0	61
35 – 39	2	8	132	58	1	0	0	0	0	201
40 – 44	0	11	116	190	57	0	0	0	0	374
45 – 49	1	8	86	164	147	28	0	0	0	434
50 – 54	2	6	54	116	67	54	2	0	0	301
55 – 59	0	3	40	57	31	22	4	1	0	158
60 – 64	0	3	15	14	10	12	3	2	1	60
65 – 69	0	2	6	5	0	2	0	0	0	15
70 – 74	0	0	1	0	0	0	0	0	1	2
75+	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>7</b>	<b>47</b>	<b>503</b>	<b>604</b>	<b>313</b>	<b>118</b>	<b>9</b>	<b>3</b>	<b>2</b>	<b>1,606</b>

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



## Age and Service Distribution of Active Members

### Others

#### Annual Earnings by Age

Age	Number	Total Annual Earnings	Average Annual Earnings
0 – 19	0	\$ 0	\$ 0
20 – 24	0	0	0
25 – 29	6	381,688	63,615
30 – 34	288	19,333,469	67,130
35 – 39	970	69,947,865	72,111
40 – 44	1,411	106,575,265	75,532
45 – 49	1,947	147,803,442	75,913
50 – 54	2,750	202,840,774	73,760
55 – 59	3,189	233,899,422	73,346
60 – 64	1,796	126,476,784	70,421
65 – 69	582	41,138,645	70,685
70 – 74	144	10,212,554	70,921
75+	30	1,495,765	49,859

Total 13,113 \$ 960,105,673 \$ 73,218

#### Annual Earnings by Credited Service

Years of Service	Number	Total Annual Earnings	Average Annual Earnings
0	23	\$ 1,456,452	\$ 63,324
1	37	1,790,525	48,393
2	66	3,478,826	52,709
3	103	5,613,777	54,503
4	130	7,632,721	58,713
0 – 4	359	19,972,301	55,633
5 – 9	1,288	74,762,991	58,046
10 – 14	4,480	307,926,123	68,734
15 – 19	3,525	265,645,283	75,360
20 – 24	1,856	149,447,356	80,521
25 – 29	1,249	109,299,777	87,510
30 – 34	285	26,440,462	92,774
35 – 39	56	5,375,881	95,998
40+	15	1,235,499	82,367

Total 13,113 \$ 960,105,673 \$ 73,218

#### 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	2	4	0	0	0	0	0	0	6
30 – 34	32	94	158	4	0	0	0	0	0	288
35 – 39	67	161	596	146	0	0	0	0	0	970
40 – 44	57	169	628	459	96	2	0	0	0	1,411
45 – 49	52	183	717	648	255	89	3	0	0	1,947
50 – 54	49	246	826	734	485	367	42	1	0	2,750
55 – 59	48	233	850	861	588	487	114	8	0	3,189
60 – 64	36	138	494	501	312	226	68	21	0	1,796
65 – 69	14	49	163	124	104	59	40	21	8	582
70 – 74	2	8	35	40	16	19	15	5	4	144
75+	2	5	9	8	0	0	3	0	3	30
Total	359	1,288	4,480	3,525	1,856	1,249	285	56	15	13,113

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	Beneficiaries	
<b>As of June 30, 2016</b>	<b>16,105</b>	<b>11,880</b>	<b>6,160</b>	<b>29,491*</b>	<b>204</b>	<b>3,670</b>	<b>67,510</b>
Vested Terminations	(646)	(6)	655	0	(2)	0	1
Non-vested Terminations	(81)	92	(11)	0	0	0	0
Cash-outs	(35)	(298)	(58)	0	0	(14)	(406)
Converted to DCR Plan	(3)	(2)	0	0	0	0	(5)
Disability Retirements	(9)	0	(9)	0	18	0	0
Age Retirements	(927)	(20)	(562)	1,531	(22)	N/A	0
Deaths With Beneficiary	(13)	0	(9)	(225)	(4)	251	0
Deaths Without Beneficiary	(18)	(19)	(15)	(411)	(2)	(159)	(624)
Expired Benefits	0	0	0	0	(1)	(4)	(5)
Data Corrections	0	3	2	(6)	(4)	4	(1)
Transfers Out	(38)	(2)	(7)	0	0	0	(47)
Rehires	338	(122)	(184)	(30)	(2)	0	0
Pick Ups***	47	0	1	1	0	77	126
<b>Net Change</b>	<b>(1,386)</b>	<b>(374)</b>	<b>(198)</b>	<b>860</b>	<b>(19)</b>	<b>155</b>	<b>(962)</b>
<b>As of June 30, 2017</b>	<b>14,719</b>	<b>11,506</b>	<b>5,962</b>	<b>30,351**</b>	<b>185</b>	<b>3,825</b>	<b>66,548</b>

\* Includes 12 medical only retirees

\*\* Includes 14 medical only retirees

\*\*\* Pickup beneficiaries are primarily new QDROs

## Healthcare

	Active	Inactive Members			
		Inactive Individuals	Covered Spouses	Covered Children	Total Inactive Members
<b>As of June 30, 2016</b>	<b>15,981</b>	<b>29,756</b>	<b>13,026</b>	<b>1,927</b>	<b>44,709</b>
Vested Terminations	(641)	147	0	0	145
Non-vested Terminations	(74)	0	(1)	(1)	0
Disability	(9)	9	0	0	9
Rehires	250	(46)	(13)	(5)	(64)
Rehired Retiree (no 2016 medical coverage)	130	0	0	0	0
Retirement	(850)	850	449	34	1,333
Retired without medical coverage	(93)	0	0	0	0
Deceased	(30)	(646)	(207)	(19)	(872)
New Beneficiaries	0	193	0	2	195
Added Dependent Coverage	N/A	0	134	45	179
Dropped Dependent Coverage	N/A	0	(431)	(200)	(631)
Added Retiree Medical Coverage	0	548	284	13	845
Dropped Retiree Medical Coverage	0	(105)	(31)	(10)	(146)
Transfer to/from another plan	(10)	(8)	8	7	7
<b>Net Change</b>	<b>(1,327)</b>	<b>942</b>	<b>192</b>	<b>(134)</b>	<b>1,000</b>
<b>As of June 30, 2017</b>	<b>14,654</b>	<b>30,698</b>	<b>13,218</b>	<b>1,793</b>	<b>45,709</b>

## Section 5.4: Schedule of Active Member Data

### Peace Officer/Firefighter

Valuation Date	Number	Annual Earnings (000's)	Annual Average Earnings	Percent Increase/ (Decrease) in Average Earnings	Number of Participating Employers
June 30, 2017	1,606	\$ 171,821	\$ 106,987	1.6%	155
June 30, 2016	1,704	179,461	105,317	3.8%	155
June 30, 2015	1,827	185,350	101,450	2.5%	159
June 30, 2014	1,958	193,737	98,946	3.4%	159
June 30, 2013	2,065	197,534	95,658	4.8%	159
June 30, 2012	2,164	197,544	91,286	4.1%	160
June 30, 2011	2,275	199,537	87,709	8.6%	160
June 30, 2010	2,388	192,895	80,777	2.8%	160
June 30, 2009	2,476	194,519	78,562	5.0%	159
June 30, 2008	2,549	190,729	74,825	4.9%	160

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

### Others

Valuation Date	Number	Annual Earnings (000's) <sup>1</sup>	Annual Average Earnings	Percent Increase/ (Decrease) in Average Earnings	Number of Participating Employers
June 30, 2017	13,113	\$ 960,106	\$ 73,218	1.4%	155
June 30, 2016	14,401	1,039,960	72,214	3.2%	155
June 30, 2015	15,833	1,108,218	69,994	2.1%	159
June 30, 2014	17,339	1,188,918	68,569	3.4%	159
June 30, 2013	18,890	1,252,786	66,320	4.5%	159
June 30, 2012	20,566	1,305,337	63,471	4.6%	160
June 30, 2011	22,118	1,342,122	60,680	4.7%	160
June 30, 2010	24,054	1,393,803	57,945	4.5%	160
June 30, 2009	25,089	1,390,971	55,441	5.1%	159
June 30, 2008	26,301	1,387,117	52,740	6.9%	160

Total and average 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	\$ 2,206,479
b) DRB actual reported salaries FY17 – valuation data	2,036,229
c) Include October data adjustment for rehires	2,036,923
d) Annualized valuation data	2,244,324
e) Valuation payroll as of June 30, 2017	2,376,466
f) Rate payroll for FY18	2,291,041
g) Rate payroll for FY20	2,402,641

- 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

### Peace Officer/Firefighter

During the Year Ending June 30	2013	2014	2015	2016	2017
<b>Service</b>					
1. Number	85	74	97	108	119
2. Average Age at Commencement	56.66	57.16	55.29	55.91	56.65
3. Average Monthly Pension Benefit	\$ 3,400	\$ 3,765	\$ 4,146	\$ 4,614	\$ 4,166
<b>Survivor (including surviving spouse and DROs)</b>					
1. Number	23	30	36	27	42
2. Average Age at Commencement	61.25	59.60	63.51	61.48	62.88
3. Average Monthly Pension Benefit	\$ 1,868	\$ 2,076	\$ 1,546	\$ 1,745	\$ 1,797
<b>Disability Retirements</b>					
1. Number	5	5	3	2	4
2. Average Age at Commencement	45.41	43.62	40.50	42.07	49.33
3. Average Monthly Pension Benefit	\$ 3,000	\$ 2,992	\$ 3,433	\$ 3,096	\$ 2,427
<b>Total</b>					
1. Number	113	109	136	137	165
2. Average Age at Commencement	57.10	57.21	57.14	56.81	58.06
3. Average Monthly Pension Benefit	\$ 3,070	\$ 3,265	\$ 3,442	\$ 4,026	\$ 3,521

## Summary of New Pension Benefit Recipients

### Average Pension Benefit Payments – Peace Officer/Firefighter

	Years of Credited Service						
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+
Period 7/1/16 - 6/30/17:							
Average Monthly Pension Benefit	\$ 0	\$ 686	\$ 2,075	\$ 3,234	\$ 4,462	\$ 5,151	\$ 6,376
Number of Recipients	0	8	9	28	41	23	14
Period 7/1/15 - 6/30/16:							
Average Monthly Pension Benefit	\$ 0	\$ 958	\$ 1,742	\$ 3,347	\$ 4,622	\$ 5,778	\$ 7,221
Number of Recipients	0	6	11	19	30	28	16
Period 7/1/14 - 6/30/15:							
Average Monthly Pension Benefit	\$ 0	\$ 1,173	\$ 1,621	\$ 3,632	\$ 4,436	\$ 5,457	\$ 6,863
Number of Recipients	0	8	9	26	24	25	7
Period 7/1/13 - 6/30/14:							
Average Monthly Pension Benefit	\$ 290	\$ 1,423	\$ 2,002	\$ 2,902	\$ 4,014	\$ 5,464	\$ 6,299
Number of Recipients	1	9	10	14	22	16	7
Period 7/1/12 - 6/30/13:							
Average Monthly Pension Benefit	\$ 0	\$ 865	\$ 1,779	\$ 2,762	\$ 3,793	\$ 4,983	\$ 4,911
Number of Recipients	0	9	8	19	31	18	4
Period 7/1/11 - 6/30/12:							
Average Monthly Pension Benefit	\$ 0	\$ 1,159	\$ 1,161	\$ 3,142	\$ 3,504	\$ 4,673	\$ 5,079
Number of Recipients	0	13	13	12	20	17	7
Period 7/1/10 - 6/30/11:							
Average Monthly Pension Benefit	\$ 525	\$ 880	\$ 1,469	\$ 2,666	\$ 3,743	\$ 4,806	\$ 5,661
Number of Recipients	1	8	18	10	24	16	8
Period 7/1/09 - 6/30/10:							
Average Monthly Pension Benefit	\$ 1,902	\$ 1,242	\$ 1,459	\$ 2,284	\$ 3,179	\$ 4,527	\$ 4,695
Number of Recipients	4	7	16	14	28	14	7
Period 7/1/08 - 6/30/09:							
Average Monthly Pension Benefit	\$ 489	\$ 820	\$ 979	\$ 2,466	\$ 3,152	\$ 4,213	\$ 4,894
Number of Recipients	2	17	11	18	23	7	5

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

## Summary of New Pension Benefit Recipients

### Others

During the Year Ending June 30 Service	2013	2014	2015	2016	2017
1. Number	1,547	1,495	1,281	1,472	1,393
2. Average Age at Commencement	59.94	60.41	60.70	61.28	61.40
3. Average Monthly Pension Benefit	\$ 2,141	\$ 2,290	\$ 2,310	\$ 2,269	\$ 2,404
<b>Survivor (including surviving spouse and DROs)</b>					
1. Number	231	263	275	286	292
2. Average Age at Commencement	66.07	67.55	69.00	66.30	67.12
3. Average Monthly Pension Benefit	\$ 1,025	\$ 1,064	\$ 1,159	\$ 1,093	\$ 1,150
<b>Disability Retirements</b>					
1. Number	30	20	27	22	14
2. Average Age at Commencement	52.43	49.66	51.39	53.04	52.43
3. Average Monthly Pension Benefit	\$ 1,809	\$ 1,391	\$ 1,858	\$ 2,209	\$ 2,405
<b>Total</b>					
1. Number	1,808	1,778	1,583	1,780	1,699
2. Average Age at Commencement	60.60	61.35	61.98	61.98	62.31
3. Average Monthly Pension Benefit	\$ 1,993	\$ 2,101	\$ 2,103	\$ 2,079	\$ 2,189



## Summary of New Pension Benefit Recipients

### Average Pension Benefit Payments – Others

	Years of Credited Service						
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+
Period 7/1/16 - 6/30/17:							
Average Monthly Pension Benefit	\$ 381	\$ 640	\$ 1,271	\$ 2,067	\$ 3,119	\$ 4,579	\$ 6,224
Number of Recipients	27	254	375	233	212	191	115
Period 7/1/15 - 6/30/16:							
Average Monthly Pension Benefit	\$ 434	\$ 660	\$ 1,240	\$ 2,017	\$ 3,059	\$ 4,158	\$ 6,583
Number of Recipients	30	323	387	266	192	161	135
Period 7/1/14 - 6/30/15:							
Average Monthly Pension Benefit	\$ 430	\$ 685	\$ 1,260	\$ 2,008	\$ 3,086	\$ 4,544	\$ 6,195
Number of Recipients	42	284	304	213	198	169	98
Period 7/1/13 - 6/30/14:							
Average Monthly Pension Benefit	\$ 503	\$ 700	\$ 1,189	\$ 2,065	\$ 3,021	\$ 4,439	\$ 5,490
Number of Recipients	48	347	319	241	214	224	121
Period 7/1/12 - 6/30/13:							
Average Monthly Pension Benefit	\$ 414	\$ 650	\$ 1,179	\$ 1,925	\$ 2,879	\$ 4,356	\$ 5,208
Number of Recipients	59	349	365	257	206	209	132
Period 7/1/11 - 6/30/12:							
Average Monthly Pension Benefit	\$ 407	\$ 610	\$ 1,147	\$ 1,931	\$ 2,805	\$ 4,214	\$ 5,076
Number of Recipients	67	351	314	204	208	188	106
Period 7/1/10 - 6/30/11:							
Average Monthly Pension Benefit	\$ 409	\$ 633	\$ 1,150	\$ 1,876	\$ 2,690	\$ 4,294	\$ 5,226
Number of Recipients	73	352	270	227	172	205	105
Period 7/1/09 - 6/30/10:							
Average Monthly Pension Benefit	\$ 485	\$ 579	\$ 1,116	\$ 1,763	\$ 2,674	\$ 4,008	\$ 5,039
Number of Recipients	93	367	273	217	218	200	74
Period 7/1/08 - 6/30/09:							
Average Monthly Pension Benefit	\$ 534	\$ 554	\$ 988	\$ 1,708	\$ 2,693	\$ 3,718	\$ 4,723
Number of Recipients	71	341	216	171	154	159	47

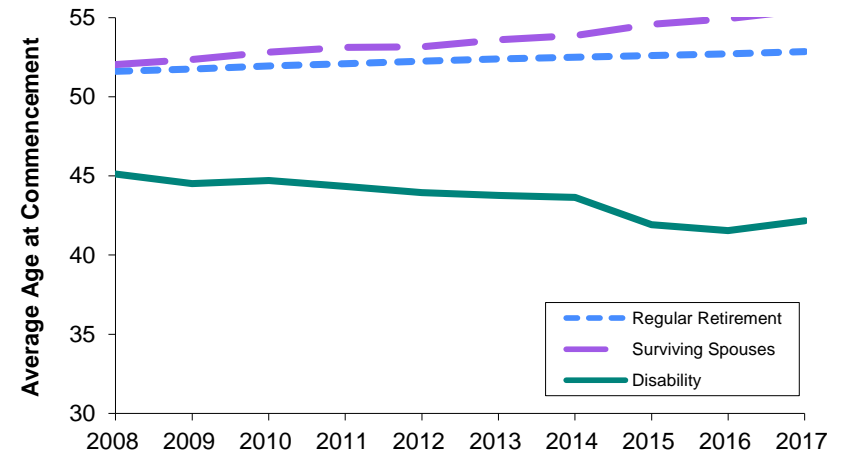
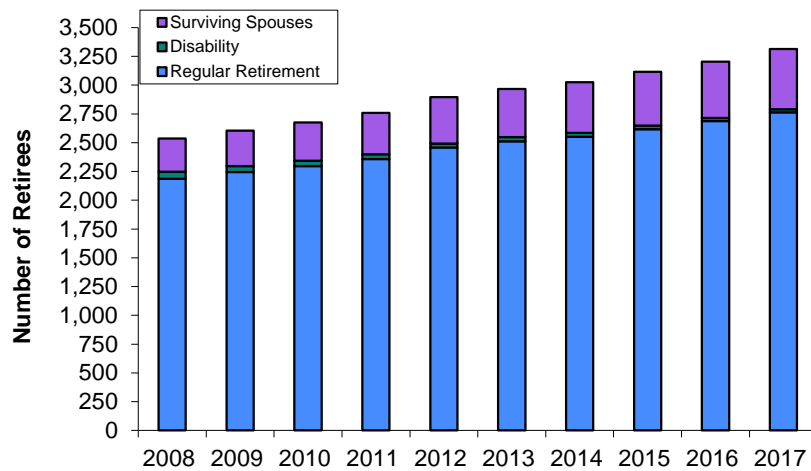
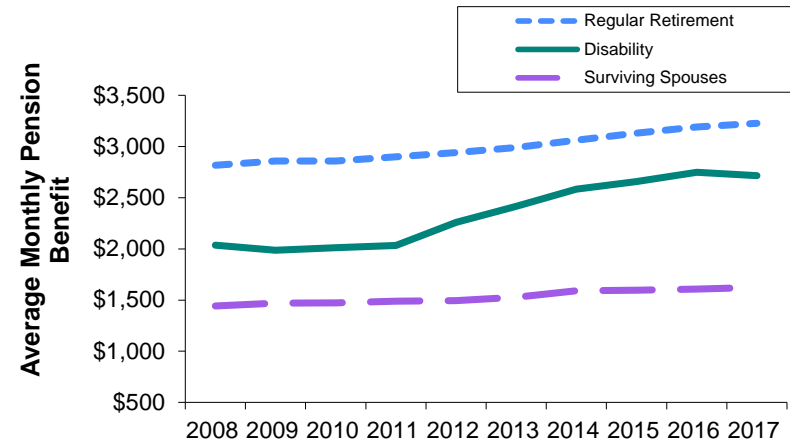
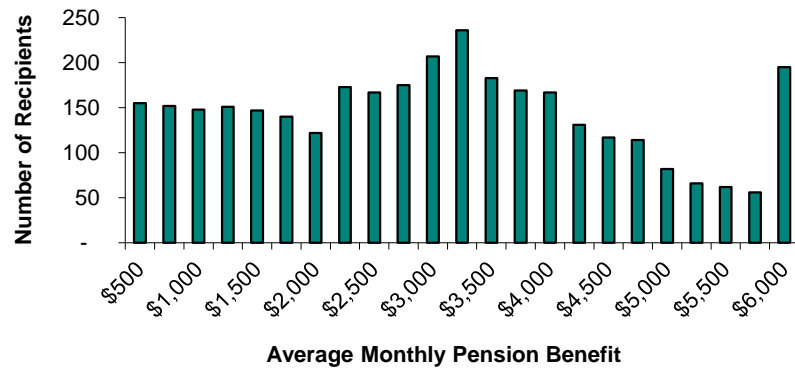
"Average Monthly Benefit" includes post-retirement pension adjustments and cost-of-living increases.

## Section 5.7: Summary of All Pension Benefit Recipients

	Peace Officer/ Firefighter	Others
<b>Service Retirements</b>		
1. Number, June 30, 2016	2,688	26,791
2. Net Change During FY17	75	783
3. Number, June 30, 2017	2,763	27,574
4. Average Age At Commencement	52.85	57.86
5. Average Current Age	67.16	69.58
6. Average Monthly Pension Benefit	\$ 3,227	\$ 1,872
<b>Survivors (including surviving spouses and DROs)</b>		
1. Number, June 30, 2016	489	3,181
2. Net Change During FY17	36	119
3. Number, June 30, 2017	525	3,300
4. Average Age At Commencement	55.47	61.63
5. Average Current Age	66.53	71.36
6. Average Monthly Pension Benefit	\$ 1,625	\$ 1,043
<b>Disability Retirements</b>		
1. Number, June 30, 2016	27	177
2. Net Change During FY17	0	(19)
3. Number, June 30, 2017	27	158
4. Average Age At Commencement	42.17	46.12
5. Average Current Age	48.50	54.30
6. Average Monthly Pension Benefit	\$ 2,715	\$ 1,665
<b>Total</b>		
1. Number, June 30, 2016	3,204	30,149
2. Net Change During FY17	111	883
3. Number, June 30, 2017	3,315	31,032
4. Average Age At Commencement	53.18	58.20
5. Average Current Age	66.91	69.69
6. Average Monthly Pension Benefit	\$ 2,969	\$ 1,783

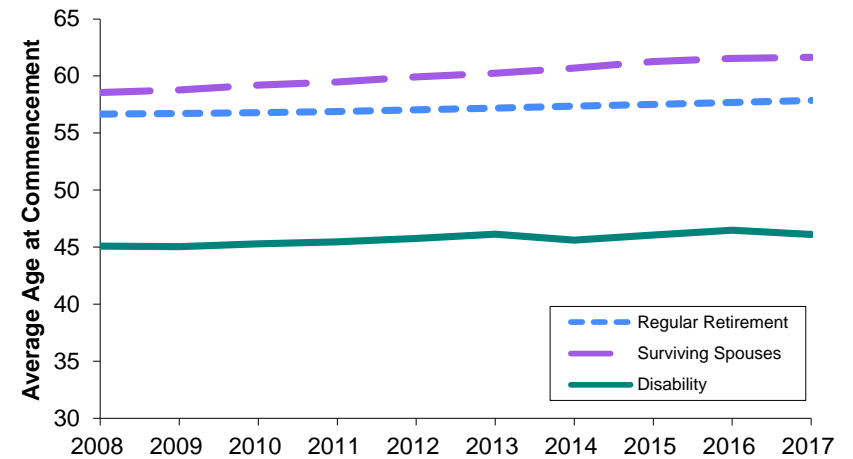
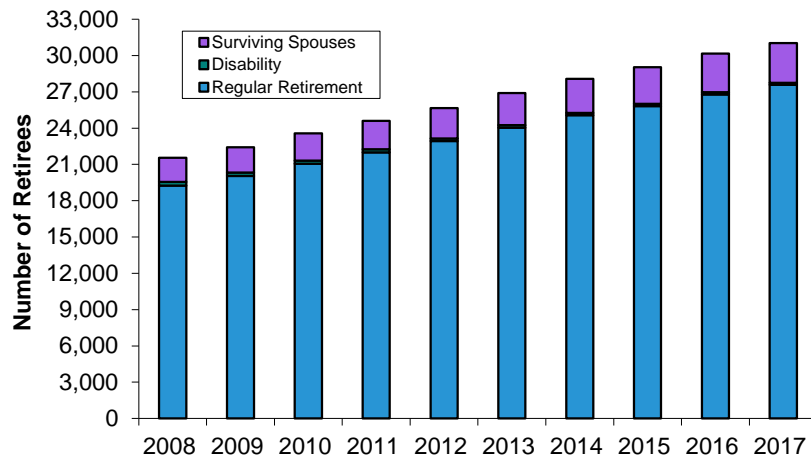
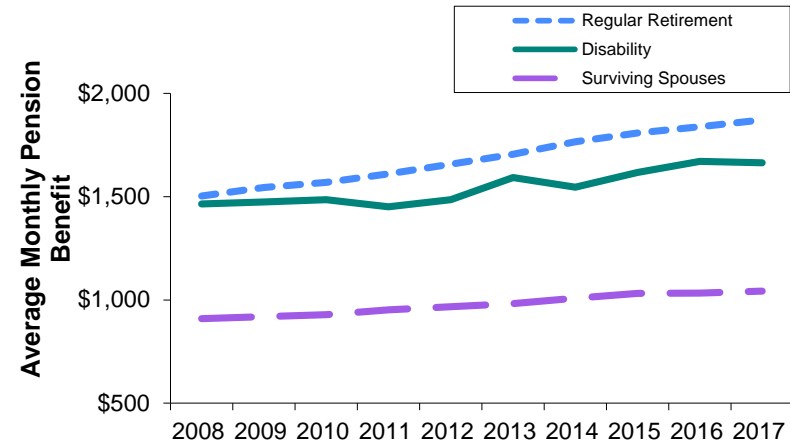
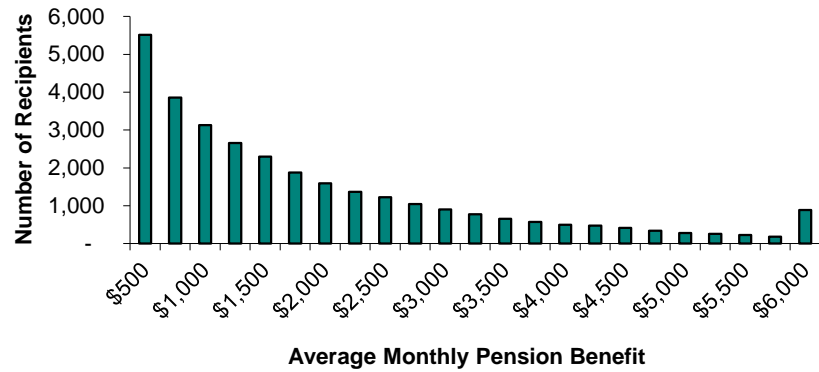
## Summary of All Pension Benefit Recipients

### Peace Officer/Firefighter



## Summary of All Pension Benefit Recipients

### Others



## Summary of All Pension Benefit Recipients

### Peace Officer/Firefighter

#### Annual Pension Benefit by Age

Age	Number	Total Annual Benefit	Average Annual Benefit
0 – 19	0	\$ 0	0
20 – 24	0	0	0
25 – 29	0	0	0
30 – 34	1	57,465	57,465
35 – 39	3	85,230	28,410
40 – 44	15	564,111	37,607
45 – 49	75	3,413,987	45,520
50 – 54	163	7,310,642	44,851
55 – 59	375	14,666,568	39,111
60 – 64	729	25,734,810	35,302
65 – 69	792	27,040,129	34,142
70 – 74	627	21,203,769	33,818
75+	535	18,034,362	33,709

Total 3,315 \$ 118,111,073 \$ 35,629

#### Annual Pension Benefit by Years Since Commencement

Years Since Commencement	Number	Total Annual Benefit	Average Annual Benefit
0	154	\$ 6,361,010	\$ 41,305
1	138	6,333,693	45,896
2	153	6,569,606	42,939
3	101	4,018,400	39,786
4	110	4,097,409	37,249
0 – 4	656	27,380,118	41,738
5 – 9	560	17,185,177	30,688
10 – 14	646	20,533,258	31,785
15 – 19	686	23,024,424	33,563
20 – 24	374	14,235,429	38,063
25 – 29	210	7,968,880	37,947
30 – 34	138	6,313,612	45,751
35 – 39	35	1,239,726	35,421
40+	10	230,449	23,045

Total 3,315 \$ 118,111,073 \$ 35,629

#### Years Since Benefit Commencement by Age

Age	Years Since Commencement									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
0 – 19	0	0	0	0	0	0	0	0	0	0
20 – 24	0	0	0	0	0	0	0	0	0	0
25 – 29	0	0	0	0	0	0	0	0	0	0
30 – 34	1	0	0	0	0	0	0	0	0	1
35 – 39	1	1	1	0	0	0	0	0	0	3
40 – 44	13	1	0	1	0	0	0	0	0	15
45 – 49	61	11	1	2	0	0	0	0	0	75
50 – 54	108	39	10	3	1	2	0	0	0	163
55 – 59	149	95	94	35	2	0	0	0	0	375
60 – 64	188	161	195	152	27	3	1	1	1	729
65 – 69	75	164	209	222	88	29	3	1	1	792
70 – 74	32	62	99	194	146	60	28	4	2	627
75+	28	26	37	77	110	116	106	29	6	535
Total	656	560	646	686	374	210	138	35	10	3,315

## Summary of All Benefit Recipients

### Others

**Annual Pension Benefit by Age**

Age	Number	Total Annual Pension Benefit	Average Annual Pension Benefit
0 – 19	0	\$ 0	\$ 0
20 – 24	0	0	0
25 – 29	0	0	
30 – 34	4	63,282	15,821
35 – 39	4	52,556	13,139
40 – 44	18	181,350	10,075
45 – 49	47	744,238	15,835
50 – 54	296	7,545,477	25,491
55 – 59	2,225	61,766,023	27,760
60 – 64	6,998	166,863,987	23,845
65 – 69	8,184	176,084,828	21,516
70 – 74	5,964	118,953,803	19,945
75+	7,292	131,722,742	18,064
<b>Total</b>	<b>31,032</b>	<b>\$ 663,978,286</b>	<b>\$ 21,397</b>

**Annual Pension Benefit by Years Since Commencement**

Years Since Commencement	Number	Total Annual Pension Benefit	Average Annual Pension Benefit
0	1,511	\$ 38,750,099	\$ 25,645
1	1,673	41,922,950	25,059
2	1,652	42,353,735	25,638
3	1,697	42,132,782	24,828
4	1,693	40,559,522	23,957
0 – 4	8,226	205,719,008	25,008
5 – 9	7,120	157,242,572	22,085
10 – 14	6,140	125,083,199	20,372
15 – 19	4,481	85,972,663	19,186
20 – 24	2,463	45,631,656	18,527
25 – 29	1,587	25,807,000	16,261
30 – 34	799	15,297,228	19,145
35 – 39	176	2,602,333	14,786
40+	40	622,547	15,564
<b>Total</b>	<b>31,032</b>	<b>\$ 663,978,286</b>	<b>\$ 21,398</b>

**Years Since Benefit Commencement by Age**

Age	Years Since Commencement									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
0 – 19	0	0	0	0	0	0	0	0	0	0
20 – 24	0	0	0	0	0	0	0	0	0	0
25 – 29	0	0	0	0	0	0	0	0	0	0
30 – 34	3	1	0	0	0	0	0	0	0	4
35 – 39	2	1	1	0	0	0	0	0	0	4
40 – 44	8	7	3	0	0	0	0	0	0	18
45 – 49	22	17	5	1	1	1	0	0	0	47
50 – 54	216	40	22	13	4	1	0	0	0	296
55 – 59	1,580	535	63	26	14	7	0	0	0	2,225
60 – 64	3,514	2,558	854	49	13	8	1	1	0	6,998
65 – 69	1,825	2,462	2,789	1,022	62	14	5	5	0	8,184
70 – 74	590	1,005	1,624	1,998	661	74	9	3	0	5,964
75+	466	494	779	1,372	1,708	1,482	784	167	40	7,292
<b>Total</b>	<b>8,226</b>	<b>7,120</b>	<b>6,140</b>	<b>4,481</b>	<b>2,463</b>	<b>1,587</b>	<b>799</b>	<b>176</b>	<b>40</b>	<b>31,032</b>

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

### Peace Officer/Firefighter

Amount of Monthly Pension Benefit	Number of Recipients	Type of Pension Benefit			Option Selected				
		1	2	3	1	2	3	4	5
\$ 1 – \$ 300	57	24	33	0	37	8	0	2	10
301 – 600	172	106	66	0	89	35	25	9	14
601 – 900	171	100	70	1	98	45	8	12	8
901 – 1,200	179	108	71	0	105	36	19	10	9
1,201 – 1,500	174	124	49	1	98	35	21	8	12
1,501 – 1,800	153	116	35	2	74	44	22	10	3
1,801 – 2,100	174	129	43	2	72	51	37	8	6
2,101 – 2,400	203	154	46	3	83	73	25	13	9
2,401 – 2,700	205	178	22	5	74	73	33	17	8
2,701 – 3,000	249	223	24	2	75	112	36	16	10
3,001 – 3,300	270	246	21	3	82	110	47	15	16
3,301 – 3,600	218	196	18	4	69	97	32	14	6
3,601 – 3,900	205	193	9	3	65	95	30	11	4
3,901 – 4,200	169	167	2	0	42	86	23	15	3
Over \$4,200	716	699	16	1	164	377	102	58	15
Totals	3,315	2,763	525	27	1,227	1,277	460	218	133

#### Type of Pension Benefit

1. Regular retirement
2. Survivor payment
3. Disability

#### Option Selected

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

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

### Others

Amount of Monthly Pension Benefit			Number of Recipients	Type of Pension Benefit			Option Selected					
				1	2	3	1	2	3	4	5	
\$ 1 – \$ 300			2,119	1,621	496	2	958	403	296	70	392	
301 – 600			5,074	4,310	750	14	2,580	1,230	843	254	167	
601 – 900			4,146	3,522	613	19	2,137	1,011	662	202	142	
901 – 1,200			3,289	2,859	409	13	1,539	841	621	165	115	
1,201 – 1,500			2,841	2,498	313	30	1,355	777	491	126	92	
1,501 – 1,800			2,193	1,972	199	22	959	647	416	98	73	
1,801 – 2,100			1,840	1,665	159	16	790	528	353	101	68	
2,101 – 2,400			1,549	1,439	96	14	648	450	308	92	51	
2,401 – 2,700			1,329	1,242	75	12	525	435	251	59	59	
2,701 – 3,000			1,089	1,018	67	4	435	354	220	46	34	
3,001 – 3,300			914	876	34	4	341	327	185	32	29	
3,301 – 3,600			779	750	26	3	277	273	156	56	17	
3,601 – 3,900			622	602	20	0	245	210	114	36	17	
3,901 – 4,200			569	552	15	2	179	195	147	34	14	
Over \$4,200			2,679	2,648	28	3	857	1,029	591	150	52	
Totals			31,032	27,574	3,300	158	13,825	8,710	5,654	1,521	1,322	

#### Type of Pension Benefit

4. Regular retirement
5. Survivor payment
6. Disability

#### Option Selected

6. Whole Life Annuity
7. 75% Joint and Contingent Annuity
8. 50% Joint and Contingent Annuity
9. 66 2/3% Joint and Survivor Annuity
10. Level Income Option



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

### Peace Officer/Firefighter

Year Ended	Added to Rolls		Removed from Rolls		Rolls – End of Year		Percent Increase in Annual Pension Benefits	Average Annual Pension Benefit
	No. <sup>1</sup>	Annual Pension Benefits <sup>1</sup>	No. <sup>1</sup>	Annual Pension Benefits <sup>1</sup>	No.	Annual Pension Benefits		
June 30, 2017	166	\$ 6,971,580	54	\$ 2,132,027	3,315	\$118,111,073	4.3%	\$ 35,629
June 30, 2016	137	6,618,744	49	1,594,392	3,204	113,271,520	4.6%	35,353
June 30, 2015	136	5,617,344	46	633,048	3,116	108,247,168	4.8%	34,739
June 30, 2014	109	4,270,620	50	(145,771)	3,026	103,262,870	4.5%	34,125
June 30, 2013	113	4,162,920	42	240,775	2,967	98,846,479	4.1%	33,315
June 30, 2012	179	5,246,271	41	(177,568)	2,896	94,924,334	6.1%	32,778
June 30, 2011	114	3,772,720	33	116,090	2,758	89,500,495	4.3%	32,451
June 30, 2010	118	3,593,724	46	1,413,071	2,677	85,843,865	2.6%	32,067
June 30, 2009	108	2,759,299	39	(518,134)	2,605	83,663,212	4.1%	32,116
June 30, 2008	125	3,556,519	28	191,073	2,536	80,385,779	4.4%	31,698

<sup>1</sup> Numbers are estimated, and include other internal transfers.  
Conduent HR Consulting, LLC

## Pension Benefit Recipients Added to and Removed from Rolls

### Others

Year Ended	Added to Rolls		Removed from Rolls		Rolls – End of Year		Percent Increase in Annual Pension Benefits	Average Annual Pension Benefit
	No. <sup>1</sup>	Annual Pension Benefits <sup>1</sup>	No. <sup>1</sup>	Annual Pension Benefits <sup>1</sup>	No.	Annual Pension Benefits		
June 30, 2017	1,699	\$ 44,619,382	816	\$ 14,610,212	31,032	\$ 663,978,286	4.7%	\$ 21,398
June 30, 2016	1,780	44,409,702	660	12,099,362	30,149	633,969,116	5.4%	21,028
June 30, 2014	1,583	39,939,292	627	7,232,812	29,029	601,658,776	5.7%	20,726
June 30, 2013	1,778	44,823,611	603	3,011,383	28,073	568,952,296	7.9%	20,267
June 30, 2012	1,808	43,247,667	554	4,861,626	26,898	527,140,068	7.9%	19,598
June 30, 2012	1,679	37,855,250	636	5,344,239	25,644	488,754,027	7.1%	19,059
June 30, 2011	1,595	37,100,217	554	6,897,899	24,601	456,243,016	7.1%	18,546
June 30, 2010	1,667	35,089,579	517	8,712,630	23,560	426,040,698	6.6%	18,083
June 30, 2009	1,340	25,402,811	476	28,773	22,410	399,663,749	6.8%	17,834
June 30, 2008	1,454	28,498,471	466	5,349,935	21,546	374,289,711	14.1%	17,372

<sup>1</sup> Numbers are estimated, and include other internal transfers.  
Conduent HR Consulting, LLC

## Section 6: Basis of the Actuarial Valuation

### Section 6.1: Summary of Plan Provisions

#### **Effective Date**

January 1, 1961, with amendments through June 30, 2017. Chapter 82, 1986 Session Laws of Alaska, created a two tier retirement system. Members who were first hired under PERS before July 1, 1986 (Tier 1) are eligible for different benefits than members hired after June 30, 1986 (Tier 2). Chapter 4, 1996 Session Laws of Alaska created a third tier for members who were first hired after June 30, 1996 (Tier 3). Chapter 9, 2005 Session Laws of Alaska, closed the plan to new members hired after June 30, 2006.

#### **Administration of Plan**

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

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

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

#### **Employers Included**

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

#### **Membership**

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

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

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

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

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

#### Credited Service

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

Members may claim other types of service, including:

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

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

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

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

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

#### Employer Contributions

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

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

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

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

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

Employer rates cannot be less than the normal cost rate.

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

#### **Additional State Contributions**

Pursuant to AS 39.35.280 effective July 1, 2008, the State shall contribute an amount (in addition to the State contribution as an employer) that when combined with the employer contribution (22%) will be sufficient to pay the total contribution rate adopted by The Alaska Retirement Management Board.

#### **Member Contributions**

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

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

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

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

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

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

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

## 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, 1986 (Tier 1), and 60 or early retirement at age 55 if they were hired after July 1, 1986 (Tiers 2 & 3). Additionally, they must have at least:
  - (i) five years of paid-up PERS service;
  - (ii) 60 days of paid-up PERS service as employees of the legislature during each of five legislative sessions and they were first hired by the legislature before May 30, 1987;
  - (ii) 80 days of paid-up PERS service as employees of the legislature during each of five legislative sessions and they were first hired by the legislature after May 29, 1987;
  - (iii) two years of paid-up PERS service and they are vested in TRS; or
  - (iv) two years of paid-up PERS service and a minimum three years of TRS service to qualify for a public service benefit.
- b. Members may retire at any age when they have:
  - (i) 20 paid-up years of PERS Peace Officer/Firefighter service; or
  - (ii) 30 paid-up years of PERS "all other" or "elected official" service.

#### Benefit Type

Lifetime benefits are paid to members. Eligible members may receive normal, unreduced benefits when they (1) reach normal retirement age and complete the service required; or (2) satisfy the minimum service requirements under the "20 and out" or "30 and out" provisions. Members may receive early, actuarially reduced benefits when they reach early retirement age and complete the service required.

Members may elect an early retirement or a joint and survivor option. Members who entered PERS prior to July 1, 1996 may also select a 66-2/3 last survivor option and a level income option. Under these options and early retirement, benefits are actuarially adjusted so that members receive the actuarial equivalents of their normal benefit amounts.

#### Benefit Calculations

Retirement benefits are calculated by multiplying the average monthly compensation (AMC) times credited PERS service times the percentage multiplier. The AMC is determined by averaging the salaries earned during the five highest (three highest for Peace Officer/Firefighter members or members hired prior to July 1, 1996) consecutive payroll years. Members must earn at least 115 days of credit in the last year worked to include it in the AMC calculation. PERS pays a minimum benefit of \$25.00 per month for each year of service when the calculated benefit is less.

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

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

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

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

#### **Indebtedness**

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

#### **Reemployment of Retired Members**

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

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

- a. forfeit the three years of incentive credits that they received;
- b. owe PERS 150% of the benefits that they received for state and political subdivision members, and 110% for school district employees, under the 1996-2000 RIP, which may include costs for health insurance, excluding amounts that they paid to participate for the 1986 and 1989 RIPs. Under prior RIPs, the penalty is 110% of the benefits received; and
- c. be charged 7% interest from the date that they are reemployed until their indebtedness is paid in full or they retire again. If the indebtedness is not completely paid, future benefits will be actuarially reduced for life.

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

#### **Postemployment Healthcare Benefits**

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

Medical, prescription drug, dental, vision and audio coverage is provided through the AlaskaCare Retiree Health Plan. Health plan provisions do not vary by retirement tier or age, except for Medicare coordination.

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

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

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

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

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

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

The plan coordinates with Medicare on a traditional Coordination of Benefits Method.

#### Disability Benefits

Monthly disability benefits are paid to permanently disabled members until they die, recover or become eligible for normal retirement. Members are appointed to normal retirement on the first of the month after they become eligible.

##### Occupational Disability

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

##### Non-occupational Disability

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

#### Death Benefits

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

##### Occupational Death

When an active member (vested or non-vested) dies from occupational causes, a monthly survivor's pension may be paid to the spouse. The pension equals 40% of the member's gross monthly compensation on the date of death or disability, if earlier. If there is no spouse, the pension may be paid to the member's dependent children. On the member's normal retirement date, the benefit converts to a normal retirement benefit. The normal benefit is based on the member's salary on the date of death and service, including service accumulated from the date of the member's death to the normal retirement date. Survivors of Peace



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

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

Officer/Firefighter members receive the greater of 50% of the member's gross monthly compensation on the date of death or disability, or 75% of the member's monthly normal retirement benefit (including service projected to Normal Retirement). If the member is unmarried with no children, a refund of contributions is payable to the estate.

#### **Death after Occupational Disability**

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

#### **Non-occupational Death**

When a vested member dies from non-occupational causes, the surviving spouse may elect to receive a monthly 50% joint and survivor benefit or a lump sum benefit. The monthly benefit is calculated on the member's average monthly compensation and PERS service at the time of termination or death.

#### **Lump Sum Non-occupational Death Benefit**

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

#### **Death After Retirement**

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

### **Postretirement Pension Adjustments**

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

- a. 75% of the CPI increase in the preceding calendar year or 9%, whichever is less, if the recipient is at least age 65 or on PERS disability; or
- b. 50% of the CPI increase in the preceding calendar year or 6%, whichever is less, if the recipient is at least age 60, or has been receiving benefits for at least five years.

Ad-hoc PRPAs, up to a maximum of 4%, may be granted to eligible recipients who first entered PERS before July 1, 1986 (Tier 1) if the CPI increases and the funded ratio is at least 105%.

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

### **Alaska Cost of Living Allowance**

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

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

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

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

#### **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 PERS 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 used 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 \$50.8 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	0	0	(6,045,856)	(13,148,061)	(19,193,917)
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	0	0	(7,774,675)	(19,383,893)	(27,158,568)
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	
	Medical		Prescription Drugs (Rx)		
	Pre-Medicare	Medicare	Pre-Medicare	Medicare	Total
<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)	\$ 13,682	\$ 1,508	\$ 3,493	\$ 3,706	
<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)		\$ 1,485			
8. Cost for those eligible for Part B only: (7) x (4)		\$ 4,722			

## 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 noted otherwise, 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 2010-2013 actual mortality experience (see Table 2) .

60% of male rates and 65% of female rates of post-termination mortality rates.

Deaths are assumed to be occupational 70% of the time for Peace Officer/Firefighters, 50% of the time for Others.

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

96% of all rates of the RP-2000 table, 2000 Base Year projected to 2018 with Projection Scale BB.

#### Total Turnover

Based upon the 2010-2013 actual withdrawal experience. (See Tables 4 and 5.)

#### Disability

Incidence rates based on 2010-2013 actual experience, in accordance with Table 6.

Post-disability mortality in accordance with the RP-2000 Disabled Retiree Mortality Table, 2000 Base Year projected to 2018 with Projection Scale BB.

Disabilities are assumed to be occupational 70% of the time for Peace Officer/Firefighters, 50% of the time for Others.

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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 Tables 7 and 8.  
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.  
For Others, 75% of male members and 70% female members are assumed to be married.  
For Peace Officer/Firefighters, 85% of male members and 60% 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

For others, 10% of terminating members with vested benefits are assumed to have their contributions refunded.  
For Peace Officers/Firefighters, 15% 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: 14.23%
- Healthcare: 17.24%

#### 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.

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

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

#### COLA

Of those benefit recipients who are eligible for the COLA, 70% of Others and 65% of Peace Officers/Firefighters are assumed to remain in Alaska and receive the COLA.

#### 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 1.00 years of credited service per year for Peace Officer/Firefighter and 0.65 years of credited service per year for Other members.

#### 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

#### 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.

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

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

#### 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 costs to get the FY19 medical claims costs.

	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 PERS members who are under age 60 and have less than 30 years of service (25 for Peace Officer/Firefighter). Eligible Tier 1 members are exempt from contribution requirements. Annual 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 or 3 who are assumed to retire prior to age 60 with less than 30 years of service and who are not disabled. For dependent children, we value 1/3 of the annual retiree contribution to estimate the per child rate based upon the assumed number of children in rates where children are covered.

Coverage Category	Calendar 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 Contributions

The table below shows the rate used to project the retired member medical contributions from the shown fiscal year to the next fiscal year. For example, 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% system paid of members and their spouses are assumed to elect the 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 PERS Salary Scale

### Peace Officer/Firefighter:

Years of Service	% Increase
0	9.66%
1	8.66%
2	7.16%
3	7.03%
4	6.91%
5	6.41%
6	5.66%
7	4.92%
8	4.92%
9	4.92%
10	4.92%
11	4.92%
12	4.92%
13	4.92%
14	4.92%
15	4.92%
16	4.92%
17	4.92%
18	4.92%
19	4.92%
20+	4.92%

### Others:

Years of Service		% Increase	
0		8.55	
1		7.36	
2		6.35	
3		6.11	
4		5.71	
5+		Age based	
Age	% Increase	Age	% Increase
20	7.91%	45	5.44%
21	7.83%	46	5.40%
22	7.75%	47	5.36%
23	7.51%	48	5.31%
24	7.27%	49	5.27%
25	7.03%	50	5.22%
26	6.79%	51	5.18%
27	6.55%	52	5.13%
28	6.52%	53	5.09%
29	6.49%	54	5.05%
30	6.47%	55	5.01%
31	6.44%	56	4.97%
32	6.41%	57	4.93%
33	6.33%	58	4.85%
34	6.24%	59	4.77%
35	6.16%	60	4.69%
36	6.07%	61	4.60%
37	5.99%	62	4.52%
38	5.90%	63	4.46%
39	5.82%	64	4.40%
40	5.73%	65+	4.34%
41	5.64%		
42	5.55%		
43	5.52%		
44	5.48%		

**Table 2: Alaska PERS Mortality Table (Pre-termination)**

Age	Male	Female	Age	Male	Female
20	0.000188	0.000113	55	0.001978	0.001549
21	0.000195	0.000114	56	0.002292	0.001730
22	0.000200	0.000115	57	0.002515	0.001912
23	0.000204	0.000116	58	0.002775	0.002118
24	0.000205	0.000119	59	0.003073	0.002355
25	0.000205	0.000122	60	0.003425	0.002632
26	0.000206	0.000127	61	0.003826	0.002973
27	0.000208	0.000132	62	0.004287	0.003343
28	0.000214	0.000139	63	0.004813	0.003840
29	0.000225	0.000147	64	0.005324	0.004328
30	0.000242	0.000156	65	0.005904	0.004874
31	0.000272	0.000181	66	0.006558	0.005500
32	0.000307	0.000207	67	0.007184	0.006107
33	0.000344	0.000233	68	0.007842	0.006751
34	0.000383	0.000257	69	0.008689	0.007462
35	0.000422	0.000281	70	0.009744	0.008407
36	0.000459	0.000304	71	0.010782	0.009329
37	0.000493	0.000327	72	0.011971	0.010376
38	0.000526	0.000354	73	0.013334	0.011534
39	0.000557	0.000383	74	0.014876	0.012783
40	0.000589	0.000417	75	0.016602	0.014113
41	0.000623	0.000458	76	0.018504	0.015549
42	0.000663	0.000504	77	0.020583	0.017125
43	0.000709	0.000554	78	0.022872	0.018877
44	0.000762	0.000608	79	0.025419	0.020841
45	0.000823	0.000664	80	0.028245	0.023037
46	0.000882	0.000723	81	0.031612	0.025498
47	0.000946	0.000784	82	0.035318	0.028266
48	0.001015	0.000848	83	0.039369	0.031386
49	0.001089	0.000916	84	0.043784	0.034906
50	0.001167	0.000991	85	0.048601	0.038887
51	0.001336	0.001095	86	0.053884	0.043371
52	0.001455	0.001193	87	0.060797	0.048373
53	0.001591	0.001305	88	0.068537	0.053879
54	0.001744	0.001407	89	0.077135	0.059830
			90	0.086571	0.067336

**Table 3: Alaska PERS Mortality Table (Post-termination)**

Age	Male	Female	Age	Male	Female
50	0.001944	0.001524	85	0.081002	0.059827
51	0.002227	0.001684	86	0.089807	0.066725
52	0.002426	0.001835	87	0.101329	0.074420
53	0.002652	0.002007	88	0.114229	0.082891
54	0.002907	0.002165	89	0.128559	0.092046
55	0.003296	0.002383	90	0.144286	0.103593
56	0.003820	0.002662	91	0.160042	0.115847
57	0.004192	0.002942	92	0.176712	0.128589
58	0.004625	0.003259	93	0.194120	0.141591
59	0.005121	0.003623	94	0.212080	0.154643
60	0.005708	0.004050	95	0.230428	0.167558
61	0.006377	0.004574	96	0.249035	0.180154
62	0.007144	0.005143	97	0.267822	0.192248
63	0.008021	0.005908	98	0.281616	0.200025
64	0.008874	0.006658	99	0.300310	0.210437
65	0.009839	0.007498	100	0.313360	0.215967
66	0.010930	0.008462	101	0.332097	0.226721
67	0.011973	0.009396	102	0.344188	0.235671
68	0.013070	0.010386	103	0.361155	0.250844
69	0.014482	0.011479	104	0.369606	0.263111
70	0.016240	0.012933	105	0.381971	0.281391
71	0.017969	0.014352	106	0.384000	0.295499
72	0.019952	0.015964	107	0.384000	0.309816
73	0.022223	0.017744	108	0.384000	0.323943
74	0.024793	0.019666	109	0.384000	0.337482
75	0.027670	0.021712	110	0.384000	0.350032
76	0.030840	0.023921	111	0.384000	0.361196
77	0.034305	0.026346	112	0.384000	0.370574
78	0.038120	0.029042	113	0.384000	0.377767
79	0.042365	0.032063	114	0.384000	0.382376
80	0.047075	0.035441	115	0.384000	0.384000
81	0.052687	0.039227	116	0.384000	0.384000
82	0.058863	0.043487	117	0.384000	0.384000
83	0.065615	0.048286	118	0.384000	0.384000
84	0.072973	0.053702	119	1.000000	1.000000

## Table 4: Alaska PERS Total Turnover Assumptions

### Peace Officer/Firefighter:

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

### Members with 5 or more years of service

Age	Male	Female	Age	Male	Female
20	0.040894	0.080000	45	0.019012	0.033802
21	0.040894	0.080000	46	0.019506	0.033527
22	0.040894	0.080000	47	0.020000	0.033251
23	0.038801	0.080000	48	0.023333	0.032862
24	0.036708	0.080000	49	0.026667	0.032474
25	0.034616	0.080000	50	0.030000	0.032085
26	0.032523	0.080000	51	0.040000	0.031581
27	0.030430	0.080000	52	0.040000	0.030941
28	0.028877	0.078000	53	0.040000	0.030201
29	0.027324	0.076000	54+	0.040000	0.060402
30	0.025771	0.074000			
31	0.024218	0.072000			
32	0.022665	0.070000			
33	0.021722	0.063077			
34	0.020779	0.056154			
35	0.019836	0.049231			
36	0.018893	0.042308			
37	0.017950	0.035385			
38	0.017866	0.035234			
39	0.017782	0.035082			
40	0.017699	0.034930			
41	0.017615	0.034779			
42	0.017531	0.034627			
43	0.018025	0.034352			
44	0.018519	0.034077			

## Table 5: Alaska PERS Total Turnover Assumptions

Others:

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

Members with 5 or more years of service

Age	Male	Female	Age	Male	Female
20	0.095000	0.136735	45	0.039880	0.045685
21	0.095000	0.136735	46	0.039357	0.043828
22	0.095000	0.136735	47	0.038834	0.041972
23	0.090250	0.128522	48	0.038701	0.041891
24	0.085500	0.120309	49	0.038568	0.041809
25	0.080750	0.112096	50	0.038170	0.041566
26	0.076000	0.103883	51	0.037844	0.041365
27	0.071250	0.095670	52	0.037460	0.041121
28	0.069160	0.091756	53	0.037023	0.040844
29	0.067060	0.087842	54+	0.043859	0.057924
30	0.064960	0.083927			
31	0.062870	0.080013			
32	0.060770	0.076099			
33	0.058280	0.072399			
34	0.055780	0.068699			
35	0.053290	0.064999			
36	0.050790	0.061299			
37	0.048300	0.057599			
38	0.046930	0.056330			
39	0.045560	0.055061			
40	0.044190	0.053792			
41	0.042820	0.052523			
42	0.041450	0.051254			
43	0.040930	0.049398			
44	0.040400	0.047541			

## Table 6: Alaska PERS Disability Table

Age	Peace Officer/ Firefighter Rate	Other Member Rate	
		Male	Female
20	0.000224	0.000218	0.000188
21	0.000224	0.000218	0.000188
22	0.000224	0.000218	0.000188
23	0.000305	0.000240	0.000200
24	0.000387	0.000261	0.000212
25	0.000468	0.000283	0.000224
26	0.000550	0.000304	0.000236
27	0.000631	0.000326	0.000248
28	0.000658	0.000334	0.000255
29	0.000685	0.000342	0.000262
30	0.000712	0.000349	0.000269
31	0.000739	0.000357	0.000277
32	0.000765	0.000365	0.000284
33	0.000793	0.000377	0.000293
34	0.000821	0.000389	0.000303
35	0.000849	0.000401	0.000312
36	0.000877	0.000413	0.000322
37	0.000905	0.000425	0.000331
38	0.000946	0.000446	0.000348
39	0.000986	0.000467	0.000364
40	0.001027	0.000489	0.000381
41	0.001068	0.000510	0.000397
42	0.001108	0.000531	0.000413
43	0.001221	0.000586	0.000454
44	0.001333	0.000641	0.000495
45	0.001446	0.000695	0.000536
46	0.001559	0.000750	0.000577
47	0.001671	0.000805	0.000618
48	0.001828	0.000886	0.000680
49	0.001985	0.000967	0.000742
50	0.002142	0.001048	0.000804
51	0.002299	0.001129	0.000867
52	0.002456	0.001210	0.000929
53	0.002868	0.001421	0.001084
54	0.003280	0.001633	0.001239

**Table 7: Alaska PERS Peace Officer/Firefighter Retirement Table**

Age at Retirement	Reduced	Unreduced	
	Unisex Rates	Male	Female
<47	N/A	0.080000	0.060000
47	N/A	0.080000	0.150000
48	N/A	0.130000	0.150000
49	N/A	0.130000	0.150000
50	0.087041	0.150000	0.150000
51	0.085580	0.150000	0.150000
52	0.072383	0.185000	0.150000
53	0.076688	0.185000	0.150000
54	0.075561	0.185000	0.250000
55	0.077429	0.250000	0.200000
56	0.077106	0.250000	0.150000
57	0.076730	0.250000	0.150000
58	0.076820	0.250000	0.150000
59	0.200000	0.250000	0.150000
60	N/A	0.300000	0.250000
61	N/A	0.250000	0.200000
62	N/A	0.250000	0.300000
63	N/A	0.250000	0.500000
64	N/A	0.200000	0.500000
65	N/A	0.200000	0.500000
66	N/A	0.250000	0.500000
67	N/A	0.500000	0.500000
68	N/A	0.500000	0.500000
69	N/A	0.500000	0.500000
70	N/A	1.000000	1.000000
71	N/A	1.000000	1.000000
72	N/A	1.000000	1.000000
73	N/A	1.000000	1.000000
74	N/A	1.000000	1.000000
75	N/A	1.000000	1.000000



**Table 8: Alaska PERS Others Retirement Table**

Age at Retirement	Reduced		Unreduced	
	Male	Female	Male	Female
<50	N/A	N/A	0.10	0.10
50	0.04	0.06	0.30	0.35
51	0.04	0.06	0.33	0.35
52	0.06	0.08	0.33	0.35
53	0.06	0.08	0.33	0.35
54	0.14	0.14	0.35	0.35
55	0.05	0.06	0.30	0.30
56	0.05	0.06	0.20	0.20
57	0.05	0.06	0.20	0.18
58	0.05	0.06	0.20	0.18
59	0.14	0.16	0.20	0.18
60	N/A	N/A	0.20	0.21
61	N/A	N/A	0.20	0.20
62	N/A	N/A	0.20	0.20
63	N/A	N/A	0.20	0.20
64	N/A	N/A	0.20	0.20
65	N/A	N/A	0.23	0.26
66	N/A	N/A	0.25	0.26
67	N/A	N/A	0.20	0.22
68	N/A	N/A	0.23	0.22
69	N/A	N/A	0.25	0.22
70	N/A	N/A	0.25	0.22
71	N/A	N/A	0.25	0.22
72	N/A	N/A	0.25	0.25
73	N/A	N/A	0.25	0.25
74	N/A	N/A	0.25	0.35
75 – 89	N/A	N/A	0.50	0.50
90+	N/A	N/A	1.00	1.00

**Table 9: Alaska PERS Disability 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 pension or postretirement benefit cost under GASB 25, 27, 43 and 45.

## **GASB 25 and 27**

Governmental Accounting Standards Board Statement Number 25, which specifies how the ARC was to have been 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.

## Glossary of Terms (continued)

### **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.