

State of Alaska

Teachers' Retirement System Defined Contribution Retirement Plan

For Occupational Death and
Disability and Retiree Medical
Benefits

Actuarial Valuation
Report
As of June 30, 2018

August 2019

BUCK



August 9, 2019

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

Certification of Actuarial Valuation

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

This report summarizes the annual actuarial valuation results of the State of Alaska Teachers' Retirement System Defined Contribution Retirement (TRS DCR) Plan as of June 30, 2018 performed by Buck Global, LLC (Buck).

The actuarial valuation is based on financial information provided in the financial statements audited by KPMG LLP, member data provided by the Division of Retirement and Benefits, and medical enrollment data provided by the healthcare claims administrator (Aetna), as summarized in this report. The benefits considered are those delineated in Alaska statutes effective June 30, 2018. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities and other factors under TRS DCR were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Buck is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of TRS DCR as of June 30, 2018.

TRS DCR is funded by Employer Contributions in accordance with the funding policy adopted by the Alaska Retirement Management Board (Board). The funding objective for TRS DCR is to pay required contributions that remain level as a percent of TRS DCR 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 percent of TRS DCR compensation over a closed layered 25-year period. This objective is currently being met and is projected to continue to be met as required by the Alaska state statutes. Absent future gains/losses, actuarially determined contributions are expected to remain level as a percent of pay and the overall funded status is expected to remain at or above 100%.

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

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. In particular, retiree group benefits models necessarily rely on the use of approximations and estimates and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. An analysis of the potential range of such future differences is beyond the scope of this valuation.

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

Governmental Accounting Standards Board (GASB) Statement No. 74 (GASB 74) was effective for TRS DCR beginning with fiscal year ending June 30, 2017, and GASB 75 was effective beginning with fiscal year ending June 30, 2018. Separate GASB 74 and GASB 75 reports 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.

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

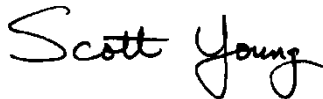
I am available to discuss this report with you at your convenience. I can be reached at 602-803-6174.

Respectfully submitted,



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

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



Scott Young, FSA, EA, MAAA
Director
Buck

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Executive Summary

Overview

The State of Alaska Teachers' Retirement System Defined Contribution Retirement (TRS DCR) Plan provides occupational death & disability and retiree medical benefits to teachers and other eligible members hired after June 30, 2006 or who have elected participation in this plan. The Commissioner of the Department of Administration is responsible for administering the plan. The Alaska Retirement Management Board has fiduciary responsibility over the assets of the plan. This report presents the results of the actuarial valuation of TRS DCR as of the valuation date of June 30, 2018.

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 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 actuarially determined contributions;
4. To compare actual and expected experience under the plan during the last fiscal year; and
5. To report trends in contributions, assets, liabilities, and funded status over the last several years.

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

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)	2017	2018
a. Actuarial Accrued Liability	\$ 33,707	\$ 32,459
b. Valuation Assets	<u>34,586</u>	<u>40,621</u>
c. Unfunded Actuarial Accrued Liability, (a) – (b)	\$ (879)	\$ (8,162)
d. Funded Ratio based on Valuation Assets, (b) ÷ (a)	102.6%	125.1%
e. Fair Value of Assets	\$ 34,379	\$ 40,461
f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a)	102.0%	124.7%

As shown above, the funded ratio based on valuation assets has increased from 102.6% to 125.1%. The total employer contribution rate has decreased from 1.17% of payroll for FY20 to 1.01% for FY21. The key reasons for the change in the funded status are explained below.

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

1. Investment Experience

The approximate FY18 investment return based on fair value of assets was 7.96% compared to the expected investment return of 8.00% (net of investment and administrative expenses of approximately 0.06%). This resulted in a loss of approximately \$11,000 to the plan from investment experience. The asset valuation method recognizes 20 percent of this loss (\$2,000) this year and an additional 20 percent in each of the next 4 years. In addition, 20 percent of the FY14 investment gain, 20 percent of the FY15 investment loss, 20 percent of the FY16 investment loss and 20 percent of the FY17 investment gain were recognized this year. The approximate FY18 asset return based on actuarial value of assets was 7.79% compared to the expected asset return of 8.00% (net of investment and administrative expenses).

2. Salary Increases

Salary increases for continuing active members during FY18 were less than anticipated in the valuation assumptions, resulting in a very small liability gain (less than \$1,000).

3. Demographic Experience

The number of active members increased 4.7% from 4,694 at June 30, 2017 to 4,915 at June 30, 2018. The average age of active members increased from 40.21 to 40.64 and average credited service increased from 4.88 to 5.30 years.

The demographic experience gains/losses are shown on page 4.

4. Retiree Medical Claims Experience

Please refer to the State of Alaska Teachers' Retirement System (TRS) Defined Benefit Plan Actuarial Valuation Report as of June 30, 2018 for a full description of the assumptions and costs of the retiree medical plan. Adjustments to these costs and assumptions are described in this report.

The recent claims experience described in Section 5.2 of this report (Section 6.2 of the TRS report) created an actuarial gain of approximately \$290,000.

5. Changes in Methods Since the Prior Valuation

As part of the experience study (see item #6), the actuarial cost method for the retiree healthcare plan was changed from the Entry Age Level Dollar method to the Entry Age Level Percent of Pay method. There were no other changes in actuarial methods since the prior valuation.

6. Changes in Assumptions Since the Prior Valuation

Effective for the June 30, 2018 valuation, the Board adopted changes to the demographic and economic assumptions recommended by the actuary, based on the results of an experience analysis performed on the population experience from July 1, 2013 to June 30, 2017. The changes in assumptions/methods were adopted by the Board during the January 2019 Board meeting. The effect of the new assumptions/methods was to decrease the Actuarial Accrued Liability as of June 30, 2018 by approximately \$9.5 million. Healthcare claim costs are updated annually as described in Section 5.2.

7. Changes in Benefit Provisions Since the Prior Valuation

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

Comparative Summary of Key Actuarial Valuation Results

Total Employer Contribution Rates for Occupational Death & Disability for Fiscal Year:			2020	2021
a.	Employer Normal Cost Rate		0.08%	0.08%
b.	Past Service Cost Rate		<u>(0.08)%</u>	<u>(0.09)%</u>
c.	Total Employer Contribution Rate, (a) + (b), not less than (a)		0.08%	0.08%

Total Employer Contribution Rates for Retiree Medical for Fiscal Year:			2020	2021
a.	Employer Normal Cost Rate		1.02%	0.93%
b.	Past Service Cost Rate		<u>0.07%</u>	<u>(0.07)%</u>
c.	Total Employer Contribution Rate, (a) + (b), not less than (a)		1.09%	0.93%

The exhibit below shows the historical Board adopted employer contribution rates for TRS DCR.

Valuation Date	Fiscal Year	Total Employer Contribution Rate		
		Occupational Death & Disability	Retiree Medical	Total
N/A	FY07	N/A	1.75%	1.75%
N/A	FY08	0.56%	0.99%	1.55%
N/A	FY09	0.62%	0.99%	1.61%
June 30, 2007	FY10	0.32%	1.03%	1.35%
June 30, 2008	FY11	0.28%	0.68%	0.96%
June 30, 2009	FY12	0.00%	0.58%	0.58%
June 30, 2010	FY13	0.00%	0.49%	0.49%
June 30, 2011	FY14	0.00%	0.47%	0.47%
June 30, 2012	FY15	0.00%	2.04%	2.04%
June 30, 2013	FY16	0.00%	2.04%	2.04%
June 30, 2014	FY17	0.00%	1.05%	1.05%
June 30, 2015	FY18	0.00%	0.91%	0.91%
June 30, 2016	FY19	0.08%	0.79%	0.87%
June 30, 2017	FY20	0.08%	1.09%	1.17%
June 30, 2018	FY21	TBD	TBD	TBD

Contribution rates are based on salary for TRS DCR members only.

Summary of Actuarial Accrued Liability Gain/(Loss)

The following table shows the FY18 gain/(loss) on actuarial accrued liability as of June 30, 2018 (\$'s in 000's):

	Occupational Death & Disability	Retiree Medical	Total
Retirement Experience	\$ 0	\$ 161	\$ 161
Termination Experience	(6)	871	865
Active Mortality Experience	73	(35)	38
Inactive Mortality Experience	0	(2)	(2)
Disability Experience	207	(108)	99
New Entrants	0*	(724)	(724)
Rehires	(1)	(2,974)	(2,975)
Salary Increases	0*	N/A	0*
Cadillac Tax	N/A	(375)	(375)
Medical Claims Costs	N/A	290	290
Miscellaneous	<u>(20)</u>	<u>(190)</u>	<u>(210)</u>
Total	\$ 253	\$ (3,086)	\$ (2,833)

* Impact was less than \$1,000.

Other items that increased/(decreased) the actuarial accrued liability as of June 30, 2018 are shown below (\$'s in 000's):

	Occupational Death & Disability	Retiree Medical	Total
Updated EGWP Estimates	\$ N/A	\$ (1,122)	\$ (1,122)
Experience Study Assumptions/Methods	0*	(9,505) ¹	(9,505)
Total	\$ 0*	\$ (10,627)	\$ (10,627)

* Impact was less than \$1,000.

¹ Includes decrease of \$5,308,000 for new demographic/economic assumptions, decrease of \$335,000 for updated trend rates, and decrease of \$3,862,000 for change from level dollar to level percent of pay.

Section 1: Actuarial Funding Results

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

As of June 30, 2018	Present Value of Projected Benefits	Actuarial Accrued (Past Service) Liability
Active Members		
Occupational Death Benefits	\$ 704	\$ 72
Occupational Disability Benefits	1,170	(42)
Medical and Prescription Drug Benefits	66,010	39,215
Medicare Part D Subsidy	<u>(12,322)</u>	<u>(7,320)</u>
Subtotal	\$ 55,562	\$ 31,925
Benefit Recipients		
Survivor Benefits	\$ 0	\$ 0
Disability Benefits	0	0
Medical and Prescription Drug Benefits	653	653
Medicare Part D Subsidy	<u>(119)</u>	<u>(119)</u>
Subtotal	\$ 534	\$ 534
Total	\$ 56,096	\$ 32,459
Total Occupational Death & Disability	\$ 1,874	\$ 30
Total Retiree Medical, Net of Part D Subsidy	\$ 54,222	\$ 32,429
Total Retiree Medical, Gross of Part D Subsidy	\$ 66,663	\$ 39,868

As of June 30, 2018	Normal Cost
Active Members	
Occupational Death Benefits	\$ 97
Occupational Disability Benefits	175
Medical and Prescription Drug Benefits	3,946
Medicare Part D Subsidy	<u>(737)</u>
Subtotal	\$ 3,481
Administrative Expense Load	
Occupational Death & Disability	\$ 6
Retiree Medical	<u>8</u>
Subtotal	\$ 14
Total	\$ 3,495
Total Occupational Death & Disability	\$ 278
Total Retiree Medical, Net of Part D Subsidy	\$ 3,217
Total Retiree Medical, Gross of Part D Subsidy	\$ 3,954

Section 1.2: Actuarial Contributions as of June 30, 2018 (for FY21) (\$'s in 000's)

Normal Cost Rate	Occupational Death & Disability	Retiree Medical	Total
1. Total Normal Cost	\$ 278	\$ 3,217	\$ 3,495
2. DCR Plan Rate Payroll Projected for FY19	346,044	346,044	346,044
3. Employer Normal Cost Rate, (1) ÷ (2)	0.08%	0.93%	1.01%
Past Service Rate			
1. Actuarial Accrued Liability	\$ 30	\$ 32,429	\$ 32,459
2. Valuation Assets	<u>3,845</u>	<u>36,776</u>	<u>40,621</u>
3. Total Unfunded Actuarial Accrued Liability, (1) – (2)	\$ (3,815)	\$ (4,347)	\$ (8,162)
4. Funded Ratio based on Valuation Assets	12,816.7%	113.4%	125.1%
5. Past Service Cost Amortization Payment	(296)	(229)	(525)
6. DCR Plan Rate Payroll Projected for FY19	346,044	346,044	346,044
7. Past Service Cost Rate, (5) ÷ (6)	(0.09)%	(0.07)%	(0.16)%
Total Employer Contribution Rate, not less than Normal Cost Rate	0.08%	0.93%	1.01%

The table below shows the total employer contribution rate based on total DB and DCR Plan payroll for informational purposes.

Total Employer Contribution Rate as Percent of Total Payroll	Occupational Death & Disability	Retiree Medical	Total
1. Total Normal Cost	\$ 278	\$ 3,217	\$ 3,495
2. Total DB and DCR Plan Rate Payroll Projected for FY19	738,653	738,653	738,653
3. Employer Normal Cost Rate, (1) ÷ (2)	0.04%	0.43%	0.47%
4. Past Service Cost Amortization Payment	\$ (296)	\$ (229)	\$ (525)
5. Past Service Cost Rate, (4) ÷ (2)	(0.04)%	(0.03)%	(0.07)%
6. Total Employer Contribution Rate, (3) + (5), not less than (3)	0.04%	0.43%	0.47%

Schedule of Past Service Cost Amortizations – Occupational Death & Disability (\$'s in 000's)

Charge	Amortization Period		Balances		Beginning-of-Year Payment
	Date Created	Years Left	Initial	Outstanding	
Initial Unfunded Liability	06/30/2007	14	\$ 16	\$ 15	\$ 1
FY08 Gain	06/30/2008	15	(392)	(400)	(36)
Change in Assumptions	06/30/2009	16	(82)	(83)	(7)
FY09 Gain	06/30/2009	16	(594)	(615)	(52)
Change in Assumptions	06/30/2010	17	(7)	(8)	(1)
FY10 Gain	06/30/2010	17	(479)	(499)	(41)
FY11 Gain	06/30/2011	18	(560)	(584)	(46)
FY12 Gain	06/30/2012	19	(129)	(136)	(10)
FY13 Gain	06/30/2013	20	(149)	(154)	(11)
Change in Assumptions	06/30/2014	21	(50)	(53)	(4)
PRPA Modification	06/30/2014	21	(25)	(25)	(2)
FY14 Gain	06/30/2014	21	(255)	(264)	(19)
FY15 Gain	06/30/2015	22	(275)	(284)	(20)
FY16 Gain	06/30/2016	23	(209)	(214)	(14)
FY17 Gain	06/30/2017	24	(251)	(254)	(17)
Change in Assumptions ¹	06/30/2018	25	0	0	0
FY18 Gain	06/30/2018	25	(257)	(257)	(17)
Total				\$ (3,815)	\$ (296)

¹ The net effect of changing assumptions was less than \$1,000.

Schedule of Past Service Cost Amortizations – Retiree Medical (\$'s in 000's)

Charge	Amortization Period		Balances		Beginning-of-Year Payment
	Date Created	Years Left	Initial	Outstanding	
Initial Unfunded Liability	06/30/2007	14	\$ (239)	\$ (245)	\$ (23)
Change in Assumptions	06/30/2008	15	84	90	8
FY08 Gain	06/30/2008	15	(393)	(400)	(36)
Change in Assumptions	06/30/2009	16	(69)	(69)	(6)
FY09 Gain	06/30/2009	16	(281)	(293)	(25)
Change in Assumptions ¹	06/30/2010	17	0	0	0
FY10 Gain	06/30/2010	17	(545)	(567)	(46)
FY11 Gain	06/30/2011	18	(94)	(97)	(8)
Change in Assumptions	06/30/2012	19	11,518	12,043	916
FY12 Gain	06/30/2012	19	(60)	(60)	(5)
FY13 Loss	06/30/2013	20	3,439	3,590	264
Change in Assumptions	06/30/2014	21	(9,736)	(10,111)	(722)
FY14 Loss	06/30/2014	21	1,616	1,677	120
FY15 Gain	06/30/2015	22	(3,485)	(3,595)	(250)
EGWP Impact	06/30/2016	23	(6,400)	(6,545)	(443)
FY16 Loss	06/30/2016	23	958	981	66
Change in Assumptions	06/30/2017	24	7,645	7,737	511
FY17 Gain	06/30/2017	24	(1,451)	(1,469)	(97)
Change in Assumptions/Methods	06/30/2018	25	(9,505)	(9,505)	(614)
FY18 Loss	06/30/2018	25	2,491	2,491	161
Total				\$ (4,347)	\$ (229)

¹ The net effect of changing assumptions was less than \$1,000. The demographic assumption changes decreased liability by \$133,000 and the economic assumption changes increased the liability by \$133,000. Therefore, the net effect of all assumption changes is \$0 for amortization purposes.

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

Charge	Amortization Period		Balances		Beginning-of-Year Payment
	Date Created	Years Left	Initial	Outstanding	
Initial Unfunded Liability	06/30/2007	14	\$ (223)	\$ (230)	\$ (22)
Change in Assumptions	06/30/2008	15	84	90	8
FY08 Gain	06/30/2008	15	(785)	(800)	(72)
Change in Assumptions	06/30/2009	16	(151)	(152)	(13)
FY09 Gain	06/30/2009	16	(875)	(908)	(77)
Change in Assumptions	06/30/2010	17	(7)	(8)	(1)
FY10 Gain	06/30/2010	17	(1,024)	(1,066)	(87)
FY11 Gain	06/30/2011	18	(654)	(681)	(54)
Change in Assumptions	06/30/2012	19	11,518	12,043	916
FY12 Gain	06/30/2012	19	(189)	(196)	(15)
FY13 Loss	06/30/2013	20	3,290	3,436	253
Change in Assumptions	06/30/2014	21	(9,786)	(10,164)	(726)
PRPA Modification	06/30/2014	21	(25)	(25)	(2)
FY14 Loss	06/30/2014	21	1,361	1,413	101
FY15 Gain	06/30/2015	22	(3,760)	(3,879)	(270)
EGWP Impact	06/30/2016	23	(6,400)	(6,545)	(443)
FY16 Loss	06/30/2016	23	749	767	52
Change in Assumptions	06/30/2017	24	7,645	7,737	511
FY17 Gain	06/30/2017	24	(1,702)	(1,723)	(114)
Change in Assumptions/Methods	06/30/2018	25	(9,505)	(9,505)	(614)
FY18 Loss	06/30/2018	25	2,234	2,234	144
Total				\$ (8,162)	\$ (525)

The amortization method is level percentage of pay.

Section 1.3: Actuarial Gain/(Loss) for FY18 (\$'s in 000's)

	Occupational Death & Disability	Retiree Medical	Total
1. Expected Actuarial Accrued Liability			
a. Actuarial Accrued Liability, June 30, 2017	\$ 26	\$ 33,681	\$ 33,707
b. Normal Cost for FY18	259	3,358	3,617
c. Interest on (a) and (b) at 8.00%	23	2,963	2,986
d. Benefit Payments for FY18	(24)	(31)	(55)
e. Interest on (d) at 8.00%, adjusted for timing	(1)	(1)	(2)
f. Assumption/Method Changes	<u>0</u>	<u>(9,505)</u>	<u>(9,505)</u>
g. Expected Actuarial Accrued Liability as of June 30, 2018, (a) + (b) + (c) + (d) + (e) + (f)	\$ 283	\$ 30,465	\$ 30,748
2. Actual Actuarial Accrued Liability, June 30, 2018	<u>30</u>	<u>32,429</u>	<u>32,459</u>
3. Liability Gain/(Loss), (1)(g) – (2)	\$ 253	\$ (1,964)¹	\$ (1,711)
4. Expected Actuarial Asset Value			
a. Actuarial Asset Value, June 30, 2017	\$ 3,588	\$ 30,998	\$ 34,586
b. Interest on (a) at 8.00%	287	2,480	2,767
c. Employer Contributions for FY18	0	3,271	3,271
d. Interest on (c) at 8.00%, adjusted for timing	0	128	128
e. Benefit Payments for FY18	(24)	(31)	(55)
f. Interest on (e) at 8.00%, adjusted for timing	<u>(1)</u>	<u>(1)</u>	<u>(2)</u>
g. Expected Actuarial Asset Value, June 30, 2018, (a) + (b) + (c) + (d) + (e) + (f)	\$ 3,850	\$ 36,845	\$ 40,695
5. Actuarial Asset Value, June 30, 2018	<u>3,845</u>	<u>36,776</u>	<u>40,621</u>
6. Actuarial Asset Gain/(Loss), (5) – (4)(g)	\$ (5)	\$ (69)	\$ (74)
7. Actuarial Gain/(Loss), (3) + (6)	\$ 248	\$ (2,033)	\$ (1,785)
8. Contribution Gain/(Loss)	\$ 9	\$ (458)	\$ (449)
9. FY18 Gain/(Loss), (7) + (8)	\$ 257	\$ (2,491)	\$ (2,234)

¹ Includes effect of updated EGWP estimates.

Section 1.4: History of Unfunded Liability and Funded Ratio (\$'s in 000's)

Valuation Date	Actuarial Accrued Liability	Valuation Assets	Assets as a Pct. of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (UAAL)
June 30, 2007	\$ 374	\$ 597	159.7%	\$ (223)
June 30, 2008	801	1,728	215.7%	(927)
June 30, 2009	1,460	3,424	234.5%	(1,964)
June 30, 2010	2,448	5,472	223.5%	(3,024)
June 30, 2011	3,858	7,566	196.1%	(3,708)
June 30, 2012	16,874	9,285	55.0%	7,589
June 30, 2013	22,138	11,146	50.3%	10,992
June 30, 2014	16,296	13,611	83.5%	2,685
June 30, 2015	19,797	20,847	105.3%	(1,050)
June 30, 2016	22,007	28,733	130.6%	(6,726)
June 30, 2017	33,707	34,586	102.6%	(879)
June 30, 2018	32,459	40,621	125.1%	(8,162)

Section 2: Plan Assets

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

As of June 30, 2018	Occupational Death & Disability	Retiree Medical	Total	Allocation Percent
Cash and Short-Term Investments				
- Cash and Cash Equivalents	\$ 37	\$ 364	\$ 401	1.0%
- Subtotal	\$ 37	\$ 364	\$ 401	1.0%
Fixed Income Investments				
- Domestic Fixed Income Pool	\$ 472	\$ 4,517	\$ 4,989	12.4%
- International Fixed Income Pool	0	0	0	0.0%
- Tactical Fixed Income Pool	49	469	518	1.3%
- High Yield Pool	0	0	0	0.0%
- Treasury Inflation Protection Pool	8	79	87	0.2%
- Emerging Debt Pool	<u>0</u>	<u>0</u>	<u>0</u>	<u>0.0%</u>
- Subtotal	\$ 529	\$ 5,065	\$ 5,594	13.9%
Equity Investments				
- Domestic Equity Pool	\$ 889	\$ 8,506	\$ 9,395	23.3%
- International Equity Pool	646	6,181	6,827	16.9%
- International Equity Small Cap Pool	59	563	622	1.6%
- Private Equity Pool	351	3,356	3,707	9.2%
- Emerging Markets Equity Pool	110	1,054	1,164	2.9%
- Alternative Equity	<u>192</u>	<u>1,840</u>	<u>2,032</u>	<u>5.0%</u>
- Subtotal	\$ 2,247	\$ 21,500	\$ 23,747	58.9%
Other Investments				
- Real Estate Pool	\$ 269	\$ 2,575	\$ 2,844	7.1%
- Other Investments Pool	447	4,286	4,733	11.7%
- Absolute Return Pool	282	2,695	2,977	7.4%
- Other Assets	<u>0</u>	<u>0</u>	<u>0</u>	<u>0.0%</u>
- Subtotal	\$ 998	\$ 9,556	\$ 10,554	26.2%
Total Cash and Investments	\$ 3,811	\$ 36,485	\$ 40,296	100.0%
Net Accrued Receivables	<u>(14)</u>	<u>179</u>	<u>165</u>	
Net Assets	\$ 3,797	\$ 36,664	\$ 40,461	

Section 2.2: Changes in Fair Value of Assets During FY18 (\$'s in 000's)

Fiscal Year 2018	Occupational Death & Disability	Retiree Medical	Total
1. Fair Value of Assets, June 30, 2017	\$ 3,531	\$ 30,848	\$ 34,379
2. Additions:			
a. Member Contributions	\$ 0	\$ 0	\$ 0
b. Employer Contributions	0	3,271	3,271
c. Interest and Dividend Income	63	567	630
d. Net Appreciation (Depreciation) in Fair Value of Investments	229	2,024	2,253
e. Other	<u>0</u>	<u>5</u>	<u>5</u>
f. Total Additions	\$ 292	\$ 5,867	\$ 6,159
3. Deductions:			
a. Medical Benefits	\$ 0	\$ 31	\$ 31
b. Death & Disability Benefits	24	0	24
c. Investment Expenses	2	17	19
d. Administrative Expenses	<u>0</u>	<u>3</u>	<u>3</u>
e. Total Deductions	\$ 26	\$ 51	\$ 77
4. Fair Value of Assets, June 30, 2018	\$ 3,797	\$ 36,664	\$ 40,461
Approximate Fair Value Investment Return Rate During FY18 Net of All Expenses	8.24%	7.93%	7.96%

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

The actuarial value of assets and the fair value were \$0 at June 30, 2006. Investment gains and losses are recognized 20% per year over 5 years. In no event may valuation assets be less than 80% or more than 120% of fair value as of the current valuation date.

	Occupational Death & Disability	Retiree Medical	Total
1. Investment Gain/(Loss) for FY18			
a. Fair Value, June 30, 2017	\$ 3,531	\$ 30,848	\$ 34,379
b. Contributions for FY18	0	3,271	3,271
c. Benefit Payments	24	31	55
d. Actual Investment Return (<i>net of expenses</i>)	290	2,576	2,866
e. Expected Return Rate (<i>net of expenses</i>)	8.00%	8.00%	8.00%
f. Expected Return	282	2,595	2,877
g. Investment Gain/(Loss) for the Year (d) – (f)	8	(19)	(11)
2. Actuarial Value, June 30, 2018			
a. Fair Value, June 30, 2018	\$ 3,797	\$ 36,664	\$ 40,461
b. Deferred Investment Gain/(Loss)	(48)	(112)	(160)
c. Preliminary Actuarial Value, June 30, 2018, (a) – (b)	3,845	36,776	40,621
d. Upper Limit: 120% of Fair Value, June 30, 2018	4,556	43,996	48,552
e. Lower Limit: 80% of Fair Value, June 30, 2018	3,038	29,332	32,370
f. Actuarial Value, June 30, 2018, (c) limited by (d) and (e)	\$ 3,845	\$ 36,776	\$ 40,621
3. Ratio of Actuarial Value of Assets to Fair Value of Assets			
	101.3%	100.3%	100.4%
4. Approximate Actuarial Value Investment Return Rate During FY18 Net of All Expenses			
	7.86%	7.78%	7.79%

The tables below show the development of the investment gain/(loss) to be recognized in the current year.

Occupational Death & Disability					
Fiscal Year Ended	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years	
6/30/2014	\$ 272	\$ 216	\$ 56	\$ 0	
6/30/2015	(168)	(102)	(34)	(32)	
6/30/2016	(269)	(108)	(54)	(107)	
6/30/2017	143	29	29	85	
6/30/2018	8	0	2	6	
Total	\$ (14)	\$ 35	\$ (1)	\$ (48)	

Retiree Medical					
Fiscal Year Ended	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years	
6/30/2014	\$ 928	\$ 744	\$ 184	\$ 0	
6/30/2015	(694)	(417)	(139)	(138)	
6/30/2016	(1,674)	(670)	(335)	(669)	
6/30/2017	1,184	237	237	710	
6/30/2018	(19)	0	(4)	(15)	
Total	\$ (275)	\$ (106)	\$ (57)	\$ (112)	

Total					
Fiscal Year Ended	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years	
6/30/2014	\$ 1,200	\$ 960	\$ 240	\$ 0	
6/30/2015	(862)	(519)	(173)	(170)	
6/30/2016	(1,943)	(778)	(389)	(776)	
6/30/2017	1,327	266	266	795	
6/30/2018	(11)	0	(2)	(9)	
Total	\$ (289)	\$ (71)	\$ (58)	\$ (160)	

Section 2.4: Historical Asset Rates of Return

Year Ending	Actuarial Value		Fair Value	
	Annual	Cumulative ¹	Annual	Cumulative ¹
June 30, 2008	6.4%	6.4%	(0.3)%	(0.3)%
June 30, 2009	3.2%	4.8%	(12.0)%	(6.3)%
June 30, 2010	4.2%	4.6%	6.4%	(2.3)%
June 30, 2011	7.4%	5.3%	18.9%	2.6%
June 30, 2012	6.9%	5.6%	1.6%	2.4%
June 30, 2013	7.7%	6.0%	11.9%	3.9%
June 30, 2014	10.9%	6.6%	18.0%	5.8%
June 30, 2015	9.5%	7.0%	3.1%	5.5%
June 30, 2016	6.5%	6.9%	(0.1)%	4.9%
June 30, 2017	7.6%	7.1%	12.6%	6.3%
June 30, 2018	7.8%	7.1%	8.0%	6.5%

¹ Cumulative since FYE June 30, 2008

Section 3: Accounting Information¹

Section 3.1: Schedule of Funding Progress (\$'s in 000's)

Schedule of Funding Progress

The exhibit below shows the death and disability plan disclosure under GASB No. 25 for fiscal years 2007 through 2013.

	Actuarial Accrued Liabilities (AAL)	Actuarial Value of Assets	Funded Ratio	Unfunded AAL (UAAL)	Covered Payroll	UAAL as a Pct. of Covered Payroll
June 30, 2013	\$ 80	\$ 2,532	3,165.0%	\$ (2,452)	\$ 206,771	(1.2)%
June 30, 2012	63	2,348	3,727.0%	(2,285)	200,043	(1.1)%
June 30, 2011	57	2,193	3,847.4%	(2,136)	170,606	(1.3)%
June 30, 2010	18	1,577	8,761.1%	(1,559)	118,813	(1.3)%
June 30, 2009	14	1,071	7,650.0%	(1,057)	89,708	(1.2)%
June 30, 2008	44	420	954.5%	(376)	56,369	(0.7)%
June 30, 2007	16	0	0.0%	16	28,410	0.1%

¹ Figures for fiscal years after 2016 are contained in separate GASB 74 reports.

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

	Actuarial Accrued Liabilities (AAL)	Actuarial Value of Assets	Funded Ratio	Unfunded AAL (UAAL)	Covered Payroll	UAAL as a Pct. of Covered Payroll
June 30, 2016 ¹	53,070	25,410	47.9%	27,660	289,714	9.5%
June 30, 2015	42,743	17,733	41.5%	25,010	255,186	9.8%
June 30, 2014	18,290	10,791	59.0%	7,499	229,971	3.3%
June 30, 2013	25,152	8,614	34.2%	16,538	206,771	8.0%
June 30, 2012	19,427	6,937	35.7%	12,490	200,043	6.2%
June 30, 2011	4,386	5,373	122.5%	(987)	170,606	(0.6)%
June 30, 2010	2,809	3,895	138.7%	(1,086)	118,813	(0.9)%
June 30, 2009	1,690	2,353	139.2%	(663)	89,708	(0.7)%
June 30, 2008	899	1,308	145.5%	(409)	56,369	(0.7)%
June 30, 2007	403	597	148.1%	(194)	28,410	(0.7)%

¹ Based on the partially funded discount rate of 5.5%. As of June 30, 2016, neither EGWP (adopted July 1, 2017 effective January 1, 2019) nor RDS are reflected for GASB 43.

Section 3.2: Schedule of Employer Contributions (\$'s in 000's)

Schedule of Employer Contributions

The following shows the death and disability disclosure under GASB No. 25 for fiscal years ending 2007 through 2013.

Fiscal Year Ending	Annual Required Contribution (ARC)	Percentage of ARC Contributed
June 30, 2013	\$ 0	100%
June 30, 2012	0	100%
June 30, 2011	474	100%
June 30, 2010	442	100%
June 30, 2009	623	100%
June 30, 2008	408	100%
June 30, 2007	72	0%

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

Fiscal Year Ending	Annual Required Contribution (ARC)	Percentage of ARC Contributed
June 30, 2016	\$6,837	92%
June 30, 2015	6,099	93%
June 30, 2014	1,334	89%
June 30, 2013	1,241	89%
June 30, 2012	1,420	82%
June 30, 2011	1,422	81%
June 30, 2010	1,628	87%
June 30, 2009	1,162	85%
June 30, 2008	763	85%
June 30, 2007	575	100%

The exhibit below shows the annual required contribution (ARC) as a percentage of pay for fiscal years 2007 through 2016.

Valuation Date	Fiscal Year	Total Employer Contribution Rate		
		Occupational Death & Disability	Retiree Medical	Total
N/A	FY07	N/A	1.75%	1.75%
N/A	FY08	0.56%	1.16%	1.72%
N/A	FY09	0.62%	1.16%	1.78%
June 30, 2007	FY10	0.32%	1.18%	1.50%
June 30, 2008	FY11	0.28%	0.84%	1.12%
June 30, 2009	FY12	0.00%	0.71%	0.71%
June 30, 2010	FY13	0.00%	0.60%	0.60%
June 30, 2011	FY14	0.00%	0.58%	0.58%
June 30, 2012	FY15	0.00%	2.39%	2.39%
June 30, 2013	FY16	0.00%	2.36%	2.36%

GASB 74 accounting is effective beginning in FY17 and is provided in a separate report.

GASB 43 ARC is based on DCR 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 combined occupational death & disability and retiree medical solvency test for valuation dates June 30, 2010 and before.

Valuation Date	Actuarial Accrued Liability (AAL)			Valuation Assets	Portion of AAL Covered by Assets		
	(1)	(2)	(3)		(1)	(2)	(3)
	Active Member Contributions	Inactive Members	Active Members (Employer-Financed Portion)				
June 30, 2010 ¹	\$ 0	\$ 0	\$ 2,448	\$ 5,472	100.0%	100.0%	100.0%
June 30, 2009 ¹	0	0	1,460	3,424	100.0%	100.0%	100.0%
June 30, 2008 ¹	0	0	801	1,728	100.0%	100.0%	100.0%
June 30, 2007	0	0	374	597	100.0%	100.0%	100.0%
June 30, 2006	0	0	0	0	100.0%	100.0%	100.0%

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

¹ Change in Assumptions

The exhibit below shows the occupational death & disability solvency test for valuation dates June 30, 2006 through June 30, 2016.

Valuation Date	Occupational Death & Disability Actuarial Accrued Liability (AAL)				Portion of AAL Covered by Assets		
	(1)	(2)	(3)	Occupational Death & Disability Valuation Assets	(1)	(2)	(3)
	Active Member Contributions	Inactive Members	Active Members (Employer-Financed Portion)				
June 30, 2016	\$ 0	\$ 0	\$ 19	\$ 3,323	100.0%	100.0%	100.0%
June 30, 2015	0	0	29	3,114	100.0%	100.0%	100.0%
June 30, 2014 ¹	0	0	23	2,820	100.0%	100.0%	100.0%
June 30, 2013	0	0	80	2,532	100.0%	100.0%	100.0%
June 30, 2012	0	0	63	2,348	100.0%	100.0%	100.0%
June 30, 2011	0	0	57	2,193	100.0%	100.0%	100.0%
June 30, 2010 ¹	0	0	18	1,577	100.0%	100.0%	100.0%
June 30, 2009 ¹	0	0	14	1,071	100.0%	100.0%	100.0%
June 30, 2008	0	0	44	420	100.0%	100.0%	100.0%
June 30, 2007	0	0	16	0	100.0%	100.0%	0.0%
June 30, 2006	0	0	0	0	N/A	N/A	N/A

¹ Change in Assumptions

The exhibit below shows the retiree medical solvency test for valuation dates June 30, 2006 through June 30, 2016.

Valuation Date	Retiree Medical Actuarial Accrued Liability (AAL)				Portion of AAL Covered by Assets		
	(1)	(2)	(3)	Retiree Medical Valuation Assets	(1)	(2)	(3)
	Active Member Contributions	Inactive Members	Active Members (Employer-Financed Portion)				
June 30, 2016	\$ 0	\$ 0	\$ 21,988	\$ 25,410	100.0%	100.0%	100.0%
June 30, 2015	0	0	19,768	17,733	100.0%	100.0%	89.7%
June 30, 2014 ¹	0	0	16,273	10,791	100.0%	100.0%	66.3%
June 30, 2013	0	0	22,058	8,614	100.0%	100.0%	39.1%
June 30, 2012 ¹	0	0	16,811	6,937	100.0%	100.0%	41.3%
June 30, 2011	0	0	3,801	5,373	100.0%	100.0%	100.0%
June 30, 2010 ¹	0	0	2,430	3,895	100.0%	100.0%	100.0%
June 30, 2009 ¹	0	0	1,446	2,353	100.0%	100.0%	100.0%
June 30, 2008 ¹	0	0	757	1,308	100.0%	100.0%	100.0%
June 30, 2007	0	0	358	597	100.0%	100.0%	100.0%
June 30, 2006	0	0	0	0	N/A	N/A	N/A

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

¹ Change in Assumptions

Section 4: Member Data

Section 4.1: Summary of Members Included

As of June 30	2014	2015	2016	2017 ¹	2018 ²
Active Members					
1. Number	3,547	4,095	4,383	4,694	4,915
2. Average Age	38.52	39.15	39.57	40.21	40.64
3. Average Credited Service	3.90	4.19	4.50	4.88	5.30
4. Average Entry Age	34.62	34.96	35.07	35.33	35.34
5. Average Annual Earnings	\$ 61,940	\$ 63,635	\$ 65,219	\$ 66,542	\$ 68,119
Disabilitants and Beneficiaries (Occupational Death & Disability)					
1. Number	0	0	0	0	0
2. Average Age	N/A	N/A	N/A	N/A	N/A
3. Average Monthly Death & Disability Benefit	N/A	N/A	N/A	N/A	N/A
Retirees, Surviving Spouses, and Dependent Spouses (Retiree Medical)					
1. Number	0	0	0	4	9
2. Average Age	N/A	N/A	N/A	69.72	68.59
Total Number of Members	3,547	4,095	4,383	4,698	4,924

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

¹ 142 members who were terminated before the valuation date were subsequently rehired, per client data as of October 1, 2017. These members were valued as active as of the valuation date.

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

Section 4.2: Age and Service Distribution of Active Members

Annual Earnings by Age				Annual Earnings by Credited Service			
Age	Number	Total Annual Earnings	Average Annual Earnings	Years of Service	Number	Total Annual Earnings	Average Annual Earnings
0 – 19	1	\$ 55,383	\$ 55,383	0	125	\$ 7,006,524	\$ 56,052
20 – 24	127	6,720,236	52,915	1	656	39,219,262	59,785
25 – 29	635	36,576,545	57,601	2	611	38,888,349	63,647
30 – 34	992	64,338,689	64,858	3	517	33,084,054	63,992
35 – 39	967	66,273,879	68,536	4	516	33,688,921	65,289
40 – 44	614	43,541,204	70,914	0 – 4	2,425	151,887,110	62,634
45 – 49	561	40,392,354	72,001	5 – 9	1,808	129,461,035	71,605
50 – 54	416	30,822,128	74,092	10 – 14	678	53,055,921	78,254
55 – 59	347	26,223,380	75,572	15 – 19	3	279,842	93,281
60 – 64	188	14,735,691	78,381	20 – 24	1	119,155	119,155
65 – 69	56	4,302,557	76,831	25 – 29	0	0	0
70 – 74	11	821,017	74,638	30 – 34	0	0	0
75+	0	0	0	35 – 39	0	0	0
				40+	0	0	0
Total	4,915	\$ 334,803,063	\$ 68,119	Total	4,915	\$ 334,803,063	\$ 68,119

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	1	0	0	0	0	0	0	0	0	1
20 – 24	126	1	0	0	0	0	0	0	0	127
25 – 29	550	85	0	0	0	0	0	0	0	635
30 – 34	473	454	65	0	0	0	0	0	0	992
35 – 39	364	415	187	1	0	0	0	0	0	967
40 – 44	258	230	126	0	0	0	0	0	0	614
45 – 49	229	237	95	0	0	0	0	0	0	561
50 – 54	177	155	83	0	1	0	0	0	0	416
55 – 59	139	134	73	1	0	0	0	0	0	347
60 – 64	80	71	36	1	0	0	0	0	0	188
65 – 69	22	23	11	0	0	0	0	0	0	56
70 – 74	6	3	2	0	0	0	0	0	0	11
75+	0	0	0	0	0	0	0	0	0	0
Total	2,425	1,808	678	3	1	0	0	0	0	4,915

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

Section 4.3: Member Data Reconciliation

	Actives	Retirees and Surviving Spouses	Dependent Spouses	OD&D Disabilitants	OD&D Beneficiaries	Total
As of June 30, 2017	4,694	4	0	0	0	4,698
Vested Termination	(179)	0	0	0	0	(179)
Non-vested Termination	(338)	0	0	0	0	(338)
Refund of Contributions	(30)	0	0	0	0	(30)
Disabled	0	0	0	0	0	0
Retired	(1)	1	0	0	N/A	0
Deceased, No Beneficiary	(2)	0	0	0	0	(2)
Deceased, With Beneficiary	0	0	0	0	0	0
Return to Active	99	N/A	N/A	N/A	N/A	99
Data Adjustment	0	2	1	0	0	3
New Entrant	672	0	1	0	0	673
As of June 30, 2018	4,915	7	2	0	0	4,924

Section 4.4: Schedule of Active Member Valuation Data

Valuation Date	Number	Annual Earnings (000's)	Annual Average Earnings	Percent Increase/ (Decrease) in Average Earnings	Number of Participating Employers
June 30, 2018	4,915	\$ 334,803	\$ 68,119	2.4%	57
June 30, 2017	4,694	312,347	66,542	2.0%	57
June 30, 2016	4,383	285,854	65,219	2.5%	58
June 30, 2015	4,095	260,584	63,635	2.7%	58
June 30, 2014	3,547	219,701	61,940	2.4%	58
June 30, 2013	3,272	197,944	60,496	3.5%	58
June 30, 2012	3,057	178,761	58,476	4.7%	58
June 30, 2011	2,708	151,269	55,860	5.6%	58
June 30, 2010	2,246	118,813	52,900	5.7%	58
June 30, 2009	1,792	89,708	50,061	6.4%	58
June 30, 2008	1,198	56,369	47,053	6.2%	58

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

Section 4.5: Active Member Payroll Reconciliation

Payroll Field	Payroll Data (000's)
a) DRB actual reported salaries FY18 – employer list	\$ 358,572
b) DRB actual reported salaries FY18 – valuation data	316,753
c) Include October data adjustment for rehires	326,751
d) Annualized valuation data	334,803
e) Valuation payroll as of June 30, 2018	350,803
f) Rate payroll for FY19	346,044

- a) Actual reported salaries from DRB employer listing showing all payroll paid during FY18, including those who were not active as of June 30, 2018
- b) Payroll from valuation data for people who are in active status as of June 30, 2018
- c) Payroll from (b) including additional people added who were listed as active as of October 1, 2018 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

Section 5: Basis of the Actuarial Valuation

Section 5.1: Summary of Plan Provisions

Effective Date

July 1, 2006, with amendments through June 30, 2018.

Administration of Plan

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

The Alaska Retirement Management Board prescribes policies, adopts regulations, invests the funds, and performs other activities necessary to carry out the provisions of the Plan.

Employers Included

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

Membership

An employee of a participating employer who first enters service on or after July 1, 2006, or a member of the defined benefit plan who works for an employer who began participation on or after July 1, 2006, and meets the following criteria is a member in the Plan:

- Permanent full-time or part-time elementary or secondary teachers, school nurses, or a person in a position requiring a teaching certificate as a condition of hire in a public school of the State of Alaska, the Department of Education and Early Development or in the Department of Labor and Workforce Development.
- Full-time or part-time teachers at the University of Alaska or persons occupying full-time administrative positions requiring academic standing who are not in the University's Optional Retirement Plan.

Members can convert to TRS DCR if they are an eligible non-vested member of the TRS defined benefit plan whose employer consents to transfers to the defined contribution plan and they elect to transfer his or her account balance to TRS DCR.

Member Contributions

Other than the member-paid premiums discussed later in this section, there are no member contributions for the occupational death & disability and retiree medical benefits.

Retiree Medical Benefits

- Member must retire directly from the plan to be eligible for retiree medical coverage. Normal retirement eligibility is the earlier of a) 30 years of service or b) Medicare eligible and 10 years of service.
- No subsidized retiree medical benefits are provided until normal retirement eligibility. The member's and any covered dependent premium is 100% until the member is Medicare eligible. Upon the member's Medicare-eligibility, the required contribution will follow the service based schedule shown below.
- Coverage cannot be denied except for failure to pay premium.
- Members who are receiving disability benefits or survivors who are receiving monthly survivor benefits are not eligible until the member meets, or would have met if he/she had lived, the normal retirement eligibility requirements.
- The following is a summary of the medical benefit design adopted in July 2016. The plan description below is used for valuation purposes and indicates participant cost-sharing. Please refer to the benefit handbook for more details.

Plan Design Feature	In-Network ¹	Out-of-Network ^{1 2}
Deductible (single / family)	\$300 / \$600	\$300 / \$600
Medical services (participant share)	20%	40%
Emergency Room Copay (non-emergent use)	\$100	\$100
Medical Out-of-Pocket Maximum (single / family, after deductible)	\$1,200 / \$2,400	\$2,400 / \$4,800
Medicare Coordination	Exclusion	Exclusion
Pharmacy	No Deductible	No Deductible
Retail Generic (per 30-day fill)	20% \$10 min / \$50 max	
Retail Non-Formulary Brand (per 30-day fill)	25% \$25 min / \$75 max	40%
Retail Formulary Brand (per 30-day fill)	35% \$80 min / \$150 max	
Mail-Order Generic	\$20 copay	
Mail-Order Non-Formulary Brand	\$50 copay	40%
Mail-Order Formulary Brand	\$100 copay	
Pharmacy Out-of-Pocket Max (single / family)	\$1,000 / \$2,000	\$1,000 / \$2,000
Medicare Pharmacy Arrangement	Retiree Drug Subsidy / Employer Group Waiver Plan effective 1/1/2019	
Wellness / Preventative	100%, Not subject to deductible	

¹ Assumed to increase annually to mitigate impact of healthcare cost trend.

² OON applies only to non-Medicare eligible participants.

- Buck used its manual rate models to determine relative plan values for the defined benefit (DB) retiree medical plan and the adopted DCR retiree medical plan outlined above. We applied the ratio of the DCR retiree medical plan value to the DB retiree medical plan value to the per capita costs determined for each of pre/post-Medicare medical and pharmacy benefits to estimate corresponding values for the adopted DCR retiree medical plan design. These factors are noted in Section 5.3. We further adjusted the Medicare medical manual rate to reflect the Medicare coordination method adopted. In the prior valuation, the RDS subsidy offset in 2019 was increased by 60% to reflect estimated Medicare reimbursements under the Employer Group Waiver Plan (EGWP) arrangement. For this year's valuation, the estimated 2019 reimbursements under EGWP were provided by Segal Consulting (who worked with the EGWP administrator, Optum, to develop those estimates). We reflect estimated discounts and pharmacy rebates in the defined benefit medical cost so no further adjustment was needed for the DCR retiree medical plan. The medical network differential is reflected in the relative plan value adjustments.
- The retiree medical plan's coverage is supplemental to Medicare. Medicare coordination is described in the 2018 DCR Plan Handbook, referred to in the industry as exclusion coordination: Medicare payment is deducted from the Medicare allowable expense and plan parameters are applied to the remaining amount. Starting in 2019, the prescription drug coverage will be through a Medicare Part D EGWP arrangement.
- The premium for Medicare-eligible retirees will be based on the member's years of service. The percentage of premium paid by the member is as follows:

Years of Service	Percent of Premium Paid by Member
Less than 15 years	30%
15 – 19	25%
20 – 24	20%
25 – 29	15%
30 years or more	10%

- The premium for dependents who are not eligible for Medicare aligns with the member's subsidy. While a member is not Medicare-eligible, premiums are 100% of the estimated cost.
- Members have a separate defined contribution Health Reimbursement Arrangement account, which is not reflected in this valuation, that can be used to pay for premiums or other medical expenses.
- For valuation purposes, retiree premiums were assumed to equal the percentages outlined in the table above times the age-related plan costs. Future premiums calculated and charged to DCR participants will need to be determined reflecting any appropriate adjustments to the defined benefit (DB) plan data because current DB premiums were determined using information based upon enrollment with dual coverage members.
- Coverage will continue for surviving spouses of covered retired members.

Occupational Disability Benefits

- Benefit is 40% of salary at date of disability.
- Disability Benefit Adjustment: The disability benefit is increased by 75% of the cost of living increase in the preceding calendar year or 9%, whichever is less.
- Member earns service while on occupational disability.
- Benefits cease when the member becomes eligible for normal retirement at Medicare-eligible age and 10 years of service, or at any age with 30 years of service.

- No subsidized retiree medical benefits are provided until normal retirement eligibility. The member's premium is 100% of the estimated cost until they are Medicare eligible. Medicare-eligible premiums follow the service-based schedule above.

Occupational Death Benefits

- Benefit is 40% of salary.
- Survivor's Pension Adjustment: A survivor's pension is increased by 50% of the cost of living increase in the preceding calendar year or 6%, whichever is less, if the recipient is at least age 60 on July 1, or under age 60 if the recipient has been receiving TRS benefits for at least 8 years as of July 1.
- Benefits cease when the member would have become eligible for normal retirement.
- The period during which the survivor is receiving benefits is counted as service credit toward retiree medical benefits.
- No subsidized retiree medical benefits are provided until the member would have been eligible for normal retirement. The surviving spouse's premium is 100% of the estimated cost until the member would have been Medicare eligible. Medicare-eligible premiums follow the service-based schedule above.

Changes Since the Prior Valuation

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

Section 5.2: Description of Actuarial Methods and Valuation Procedures

The funding method used in this valuation was adopted by the Board in October 2006, and was modified as part of the experience study for the period July 1, 2013 to June 30, 2017. The asset smoothing method used to determine valuation assets was implemented effective June 30, 2006.

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 surplus or unfunded actuarial accrued liability is amortized over 25 years as a level percentage of expected payroll. However, in keeping with GASB requirements in effect when the plan was adopted, the net amortization period will not exceed 30 years. Under the new accounting standards (GASB 74 and 75), the GASB requirements will not directly control amortization periods used for funding of the plan.

Cost factors designed to produce annual costs as a constant percentage of each member's expected compensation in each year for death and disability benefits and retiree medical benefits, from the assumed entry age to the last age with a future benefit 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 DCR Plan 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 beneficiaries and disabled members currently receiving benefits (if any) 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

Effective June 30, 2006, the asset valuation method recognizes 20% of the investment gain or loss in each of the current and preceding four years. This method was phased in over five years. Fair Value of Assets was \$0 as of June 30, 2006. 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. Valuation assets are constrained to a range of 80% to 120% of the fair value of assets.

Changes in Methods Since the Prior Valuation

The actuarial cost method for the retiree healthcare plan was changed from the Entry Age Level Dollar method to the Entry Age Level Percent of Pay method. There were no other changes in the asset or valuation methods since the prior valuation.

Valuation of Retiree Medical and Prescription Drug Benefits

The methodology used for the valuation of the retiree medical benefits is described in Section 6.2 of the State of Alaska Teachers' Retirement System Defined Benefit Plan Actuarial Valuation Report as of June 30, 2018.

Due to the lack of experience for the DCR retiree medical plan only, base claims costs are based on those described in the actuarial valuation as of June 30, 2018 for the Defined Benefit (DB) retiree medical plan covering TRS and PERS. The DB rates were used with some adjustments. The claims costs were adjusted to reflect the differences between the DCR medical plan and the DB medical plan. These differences include network steerage, different coverage levels, different Medicare coordination for medical benefits, and an indexing of the retiree out-of-pocket dollar amounts. To account for higher initial copays, deductibles and out-of-pocket limits, projected FY19 claims costs were reduced 2.1% for medical claims, and 10.4% for prescription drugs. In addition, to account for the difference in Medicare coordination, projected FY19 medical claims costs for Medicare eligible retirees were further reduced 29.3%. The medical and prescription drug percentages mentioned above were reduced 0.2% in each future year for the DCR medical benefits to reflect the fact that the medical benefit to be offered to DCR members will have annual indexing of member cost sharing features such as deductibles and out-of-pocket amounts.

No implicit subsidies are assumed. Employees projected to retire with 30 years of service prior to Medicare are valued with commencement deferred to Medicare eligibility, because those members will be required to pay the full plan premium prior to Medicare. Explicit subsidies for disabled and normal retirement are determined using the plan-defined percentages of age-related total projected plan costs, again with no implicit subsidy assumed.

The State transitioned to an Employer Group Waiver Program (EGWP) for DCR participants effective January 1, 2019. In the prior valuation, the impact of transitioning to the EGWP was valued by increasing the RDS subsidy offset in 2019 by 60% to reflect estimated Medicare reimbursements under the EGWP arrangement. For this year's valuation, the estimated 2019 reimbursements under EGWP were provided by Segal Consulting (who worked with the EGWP administrator, Optum, to develop those estimates).

Healthcare Reform

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

Because the State plan is retiree-only, not all provisions are required. Unlimited lifetime benefits and dependent coverage to age 26 are two of these provisions. The adopted DCR plan does not place lifetime limits on benefits, but does restrict dependent child coverage.

The Plan will be subject to the high cost plan excise tax (Cadillac tax) and the value of the Health Reimbursement Account must be included along with projected plan costs. Based upon guidance available at the valuation date, Buck estimated the tax based upon a blend 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 current enrollment data provided by Aetna, and valuation headcount projections for future years.
- We included administrative fees and applied Retiree Drug Subsidy / EGWP reimbursements to the Medicare rates.

We assumed claim costs would increase according to valuation trend assumptions from the June 30, 2018 valuation, and that the tax cost thresholds would increase at 2.25% (the CPI assumption of 2.50% less .25% 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 3.25% to reflect the additional 1.0% over inflation assumption.

We determined the impact to be approximately \$0.4M of the projected June 30, 2018 healthcare actuarial accrued liability for the DCR 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 to use chained CPI. It is our understanding the law does not directly impact other provisions of the ACA. While the nullification of the ACA's individual mandate penalty does not directly impact employer group health plans, it could contribute to the destabilization of the individual market and increase the number of uninsured. Such destabilization could translate to increased costs for employers. We have considered this when setting our healthcare cost trend assumptions and will continue to monitor this issue.

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

Section 5.3: Summary of Actuarial Assumptions

The demographic and economic assumptions used in the June 30, 2018 valuation are described below. Unless noted otherwise, these assumptions were adopted by the Board in January 2019 based on the experience study for the period July 1, 2013 to June 30, 2017.

Investment Return

7.38% per year, net of investment expenses.

Salary Scale

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

Inflation – 2.50% per year.

Productivity – 0.25% per year.

Payroll Growth

2.75% per year (inflation + productivity).

Total Inflation

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

Mortality (Pre-Termination)

Mortality rates based upon the 2013-2017 actual experience.

RP-2014 white-collar employee table with MP-2017 generational improvement.

Mortality (Post-Termination)

Mortality rates based upon the 2013-2017 actual experience.

93% of male and 90% of female rates of RP-2014 white-collar healthy annuitant table with MP-2017 generational improvement.

Turnover

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

Disability

Incidence rates based upon the 2013-2017 actual experience (see Table 3).

Disabilities are assumed to be occupational 15% of the time.

Post-disability mortality in accordance with the RP-2014 disabled table with MP-2017 generational improvement.

Retirement

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

Spouse Age Difference

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

Percent Married for Occupational Death & Disability

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

Dependent Spouse Medical Coverage Election

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

Part-Time Status

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

Per Capita Claims Cost

Sample claims cost rates (before base claims cost adjustments described below) adjusted to age 65 for FY19 medical and prescription drugs are shown below:

	Medical	Prescription Drugs
Pre-Medicare	\$ 13,535	\$ 3,360
Medicare Parts A & B	\$ 1,468	\$ 3,764
Medicare Part D – RDS	N/A	\$ 527
Medicare Part D – EGWP	N/A	\$ 1,039

Members are assumed to attain Medicare eligibility at age 65. The EGWP cost shown above is for calendar year 2019. All other costs are for the 2019 fiscal year (July 1, 2018 – June 30, 2019).

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

Third Party Administrator Fees

\$300 per person per year; assumed trend rate of 4.5% per year.

Base Claims Cost Adjustments

Due to higher initial copays, deductibles, out-of-pocket limits and member cost sharing compared to the DB medical plan, the following cost adjustments are applied to the per capita claims cost rates above:

- 0.979 for the pre-Medicare plan.
- 0.686 for both the Medicare medical plan and Medicare coordination method (2.1% reduction for the medical plan and 29.3% reduction for the coordination method).
- 0.896 for the prescription drug plan.

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 client data but active in the October 1 client records are updated to active status.

Administrative Expenses

Beginning with the June 30, 2018 valuation, the Normal Cost is increased for administrative expenses expected to be paid from plan assets during the year. The amounts included in the June 30, 2018 Normal Cost, which are based on the average of actual administrative expenses during the last two fiscal years, are \$6,150 for occupational death & disability and \$7,700 for retiree medical.

Health Cost Trend

The table below shows the rates used to project the cost from the shown fiscal year to the next fiscal year. For example, 7.5% is applied to the FY19 pre-Medicare medical claims cost to get the FY20 medical claims cost.

Fiscal Year	Medical Pre-65	Medical Post-65	Prescription Drugs / EGWP	RDS
FY19	7.5%	5.5%	8.5%	4.7%
FY20	7.0%	5.4%	8.0%	4.7%
FY21	6.5%	5.4%	7.5%	4.6%
FY22	6.3%	5.4%	7.1%	4.6%
FY23	6.1%	5.4%	6.8%	4.6%
FY24	5.9%	5.4%	6.4%	4.6%
FY25	5.8%	5.4%	6.1%	4.6%
FY26	5.6%	5.4%	5.7%	4.6%
FY27-FY40	5.4%	5.4%	5.4%	4.5%
FY41	5.3%	5.3%	5.3%	4.5%
FY42	5.2%	5.2%	5.2%	4.5%
FY43	5.1%	5.1%	5.1%	4.5%
FY44	5.1%	5.1%	5.1%	4.5%
FY45	5.0%	5.0%	5.0%	4.5%
FY46	4.9%	4.9%	4.9%	4.5%
FY47	4.8%	4.8%	4.8%	4.5%
FY48	4.7%	4.7%	4.7%	4.5%
FY49	4.6%	4.6%	4.6%	4.5%
FY50+	4.5%	4.5%	4.5%	4.5%

For the June 30, 2014 valuations 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 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.

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

Fiscal Year	Pre-65	Post-65	Fiscal Year	Pre-65	Post-65
FY19-FY44	0.00%	0.00%	FY77	0.20%	0.50%
FY45	0.00%	0.12%	FY78	0.20%	0.49%
FY46	0.00%	0.29%	FY79	0.19%	0.48%
FY47	0.00%	0.27%	FY80	0.19%	0.46%
FY48	0.00%	0.25%	FY81	0.18%	0.45%
FY49	0.00%	0.25%	FY82	0.18%	0.44%
FY50	0.00%	0.20%	FY83	0.18%	0.43%
FY51	0.00%	0.20%	FY84	0.17%	0.42%
FY52	0.06%	0.16%	FY85	0.17%	0.41%
FY53	0.06%	0.16%	FY86	0.16%	0.40%
FY54	0.06%	0.15%	FY87	0.16%	0.39%
FY55	0.06%	0.15%	FY88	0.16%	0.38%
FY56	0.05%	0.14%	FY89	0.15%	0.37%
FY57	0.06%	0.14%	FY90	0.15%	0.37%
FY58	0.05%	0.13%	FY91	0.15%	0.36%
FY59	0.05%	0.12%	FY92	0.15%	0.35%
FY60	0.05%	0.15%	FY93	0.14%	0.34%
FY61	0.05%	0.61%	FY94	0.14%	0.33%
FY62	0.05%	0.59%	FY95	0.14%	0.33%
FY63	0.05%	0.61%	FY96	0.13%	0.32%
FY64	0.05%	0.64%	FY97	0.13%	0.31%
FY65	0.05%	0.65%	FY98	0.13%	0.30%
FY66	0.05%	0.64%	FY99	0.13%	0.30%
FY67	0.14%	0.64%	FY00	0.12%	0.29%
FY68	0.24%	0.63%	FY01	0.12%	0.28%
FY69	0.24%	0.61%	FY02	0.12%	0.28%
FY70	0.23%	0.60%	FY03	0.12%	0.27%
FY71	0.23%	0.58%	FY04	0.11%	0.27%
FY72	0.22%	0.57%	FY05	0.11%	0.26%
FY73	0.22%	0.55%	FY06	0.11%	0.25%
FY74	0.21%	0.54%	FY07	0.11%	0.25%
FY75	0.21%	0.53%	FY08	0.10%	0.24%
FY76	0.20%	0.51%	FY09	0.10%	0.24%

Aging Factors

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

Retiree Medical Participation

Decrement Due to Disability		Decrement Due to Retirement	
Age	Percent Participation	Age	Percent Participation*
<56	75.0%	55	50.0%
56	77.5%	56	55.0%
57	80.0%	57	60.0%
58	82.5%	58	65.0%
59	85.0%	59	70.0%
60	87.5%	60	75.0%
61	90.0%	61	80.0%
62	92.5%	62	85.0%
63	95.0%	63	90.0%
64	97.5%	64	95.0%
65+	100.0%	65+	Years of Service
			<15 75.0%
			15 – 19 80.0%
			20 – 24 85.0%
			25 – 29 90.0%
			30+ 95.0%

* Participation assumption is a combination of (i) the service-based rates for retirement from employment at age 65+ and (ii) the age-based rates for retirement from employment before age 65. These rates reflect the expected plan election rate that varies by reason for decrement, duration that a member may pay full cost prior to Medicare eligibility, and availability of alternative and/or lower cost options, particularly in the Medicare market. This assumption is based on observed trends in participation from a range of other plans.

Imputed Data

Data changes from the prior year which are deemed to have 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.

Changes in Assumptions Since the Prior Valuation

Effective for the June 30, 2018 valuation, the Board adopted the changes to the demographic and economic assumptions recommended by the actuary, based on the results of an experience study performed on the population experience from July 1, 2013 to June 30, 2017. The changes in assumptions were adopted at the January 2019 Board meeting.

Table 1: Salary Scale

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

Table 2: Turnover Rates**Select Rates during the First 6 Years of Employment**

Years of Service	Male	Female
0	20.70%	21.80%
1	19.55	18.70
2	16.10	15.40
3	13.80	13.20
4	11.50	11.00
5	7.32	8.05

Ultimate Rates After First 6 Years of Employment

Age	Male	Female	Age	Male	Female
< 26	9.41%	8.31%	45	9.05%	8.09%
26	9.41	8.32	46	8.99	8.07
27	9.40	8.33	47	8.94	8.04
28	9.39	8.32	48	8.86	8.00
29	9.39	8.32	49	8.78	7.95
30	9.38	8.31	50	8.70	7.91
31	9.37	8.31	51	8.62	7.86
32	9.36	8.30	52	8.54	7.82
33	9.35	8.29	53	8.37	7.73
34	9.35	8.28	54	8.20	7.64
35	9.34	8.27	55	8.03	7.55
36	9.34	8.26	56	7.86	7.46
37	9.33	8.25	57	7.69	7.36
38	9.31	8.24	58	7.76	7.50
39	9.29	8.22	59	7.82	7.64
40	9.26	8.21	60	7.89	7.78
41	9.24	8.19	61	7.95	7.92
42	9.22	8.17	62	8.02	8.05
43	9.16	8.15	63	8.59	8.29
44	9.11	8.12	64	9.17	8.52
			65+	9.75	8.75

Table 3: Disability Rates

Age	Male	Female
< 31	0.0337%	0.0612%
31	0.0337	0.0613
32	0.0337	0.0613
33	0.0342	0.0622
34	0.0347	0.0631
35	0.0353	0.0641
36	0.0357	0.0650
37	0.0362	0.0659
38	0.0371	0.0674
39	0.0379	0.0689
40	0.0387	0.0703
41	0.0395	0.0718
42	0.0403	0.0733
43	0.0423	0.0770
44	0.0443	0.0806
45	0.0464	0.0843
46	0.0483	0.0879
47	0.0504	0.0916
48	0.0536	0.0975
49	0.0569	0.1034
50	0.0601	0.1093
51	0.0634	0.1152
52	0.0666	0.1211
53	0.0746	0.1356
54	0.0826	0.1501

Table 4: Retirement Rates

Age	Rate
< 55	2.0%
55	3.0
56	3.0
57	3.0
58	3.0
59	3.0
60	5.0
61	5.0
62	10.0
63	5.0
64	5.0
65	25.0
66	25.0
67	25.0
68	20.0
69	20.0
70+	100.0

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.

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.