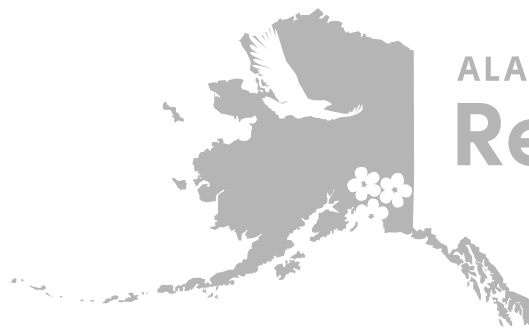




ACTUARIAL SECTION



ALASKA DIVISION OF
**Retirement
and Benefits**



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

TRS is funded by Employer, State, and Member Contributions in accordance with the funding policy adopted by the Alaska Retirement Management Board (Board) as required by Alaska state statutes. The funding objective for TRS is to pay required contributions that remain level as a percent of total TRS compensation. The Board has also established a funding policy objective that the required contributions be sufficient to pay the Normal Costs of active plan members, plan expenses, and amortize the Unfunded Actuarial Accrued Liability (UAAL) as a level percentage of total TRS compensation over a closed 25-year period as required by Alaska state statutes. The closed 25-year period was originally established effective June 30, 2014. Effective June 30, 2018, the Board adopted a layered UAAL amortization method: Layer #1 equals the sum of (i) the UAAL at June 30, 2018 based on the 2017 valuation, plus (ii) the FY18 experience gain/loss. Layer #1 is amortized over the remainder of the 25-year closed period that was established in 2014¹. Layer #2 equals the change in UAAL at June 30, 2018 due to the experience study and EGWP implementation. Layer #2 is amortized over a separate closed 25-year period starting in 2018. Future layers will be created each year based on the change in UAAL occurring that year, and will be amortized over separate closed 25-year periods. The UAAL amortization continues to be on a level percent of pay basis. The compensation used to determine required contributions is the total compensation of all active members in TRS, including those hired after July 1, 2006 who are members of the Defined Contribution Retirement (DCR) Plan. This objective is currently being met and is projected to continue to be met. Absent future gains/losses, actuarially determined contributions are expected to remain level as a percent of pay and the overall funded status is expected to increase to 100% after 25 years.

Actuarial Section

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

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

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the plan. The actuary performs an analysis of plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The last full experience analysis was performed for the period July 1, 2013 to June 30, 2017. Based on that experience study, the Board adopted new assumptions effective beginning with the June 30, 2018 valuation to better reflect expected future experience. Based on our annual analysis of recent claims experience, changes were made to the per capita claim cost rates effective June 30, 2018 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 is shown in Sections 6.2 and 6.3.

Governmental Accounting Standards Board (GASB) Statement No. 67 (GASB 67) was effective for TRS beginning with fiscal year ending June 30, 2014, and Statement No. 74 (GASB 74) was effective for TRS beginning with fiscal year ending June 30, 2017. Separate GASB 67 and GASB 74 reports as of June 30, 2018 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. 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.

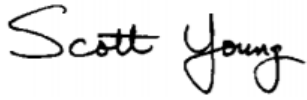
I am available to discuss this report with you at your convenience. I can be reached at 602-803-6174.

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

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

A. Actuarial Method – Entry Age Normal Cost

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

Effective June 30, 2018, the Board adopted a layered UAAL amortization method: Layer #1 equals the sum of (i) the UAAL at June 30, 2018 based on the 2017 valuation, plus (ii) the FY18 experience gain/loss. Layer #1 is amortized over the remainder of the 25-year closed period that was originally established in 2014¹. Layer #2 equals the change in UAAL at June 30, 2018 due to the experience study and EGWP implementation. Layer #2 is amortized over a separate closed 25-year period starting in 2018. Future layers will be created each year based on the change in UAAL occurring that year, and will be amortized over separate closed 25-year periods. The UAAL amortization continues to be on a level percent of pay basis. State statutes allow the contribution rate to be determined on payroll for all members, defined benefit and defined contribution member payroll combined.

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

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

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

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

(i) Layer #1 is referred to as "initial amount" in Section 1.2 of Valuation

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B. 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.

C. Valuation of Retiree Medical and Prescription Drug Benefits

This section outlines the detailed methodology used to develop the initial per capita claims cost rates for the TRS postemployment healthcare plan. Note that the methodology reflects the results of our annual experience rate update for the period from July 1, 2017 to June 30, 2018. Healthcare cost trend and retiree contribution increase assumptions for the period after June 30, 2018 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. Buck relies upon rates set by a third-party for the DVA benefits. Buck reviewed historical rate-setting information and views contribution rate adjustments made are not unreasonable.

Administration and Data Sources

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

Claims for the period from July 2016 through June 2018 (FY17 through FY18) were provided by the State of Alaska from reports extracted from their data warehouse, which separated claims by Medicare status. In reviewing the claims reports generated for this year's valuation, it was discovered that audio and vision claims were incorrectly included in the reports that were provided for the prior year valuation. These audio and vision claims accounted for approximately \$9.9M in claims during fiscal 2017 (which was less than 2% of the total gross claims for that fiscal year). The claims for fiscal 2017 used in this year's claims cost development exclude the audio and vision claims that were incorrectly included in last year's development. Monthly enrollment data for the same period was provided by Aetna.

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

Aetna provided a snapshot file as of July 1, 2018 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.

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

Methodology

Buck projected historical claim data to FY19 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 FY17 through FY18.
 - Costs for medical services and prescriptions were analyzed separately, and separate trend rates were developed to project expected future medical and prescription costs for the valuation year (e.g. from the experience period up through FY19).
 - Because the reports provided this year reflected incurred claims, no additional adjustment was needed to determine incurred claims to be used in the valuation.
 - An offset for costs expected to be reimbursed by Medicare was incorporated beginning at age 65. Alaska retirees who do not have 40 quarters of Medicare-covered compensation do not qualify for Medicare Part A coverage free of charge. This is a relatively small and closed group. Medicare was applied to State employment for all employees hired after March 31, 1986. For the “no-Part A” individuals who are required to enroll in Medicare Part B, the State is the primary payer for hospital bills and other Part A services. Claim experience is not available separately for participants with both Medicare Parts A and B and those with Part B only. For Medicare Part B only participants, a lower average claims cost was applied to retirees covered by both Medicare Part A and B vs. retirees covered only by Medicare Part B based upon manual rate models that estimate the Medicare covered proportion of medical costs. To the extent that no-Part A claims can be isolated and applied strictly to the appropriate closed group, actuarial accrued liability will be more accurate.

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- Based on census data received from Aetna, less than 1% of the current retiree population was identified as having coverage only under Medicare Part B. We assume that 5% of actives hired before 4/1/1986 and current retirees who are not yet Medicare eligible will not be eligible for Medicare Part A.
 - Based upon a reconciliation of valuation census data to the snapshot eligibility files provided by Aetna as of July 1, 2017, and July 1, 2018, Buck 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.
 - Buck understands that pharmacy claims reported do not reflect rebates. Based upon reported rebates in proportion to incurred claims for State of Alaska retiree plans, Buck reduced reported pharmacy incurred claims by 12% to estimate the rebates for the retiree population. These estimates were based upon reported rebates for retirees from Aetna.
2. Develop estimated Retiree Drug Subsidy reimbursement - actual subsidy payments to the State were received for claims incurred during the 2009 through 2017 calendar years. Buck obtained this information based upon recorded and available information in the RDS Subsidy website and as provided by the State. The projected subsidy for FY19 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. Buck compared data utilized to lag reports and quarterly plan experience presentations provided by the State and Aetna to assess accuracy and reasonableness of data.
 4. Trend all data points to the projection period – project prior years' experience forward to FY19 for retiree benefits on an incurred claim basis. Trend factors derived from historical Alaska-specific experience and national trend factors are shown in the table in item 5 below.
 5. Apply credibility to prior experience – adjust prior year's data by assigning weight to recent periods, as shown at the right of the table below. The Board approved a change in the weighting of experience periods beginning with the prior valuation as outlined below. Note also that we averaged projected plan costs using Alaska-specific trend factors and national trend factors, assigning 75% weight to Alaska-specific trends and 25% to national trends:

Experience Period	Alaska-Specific and National Average Weighted Trend from Experience Period to Valuation Year		
	Medical	Prescription	Weighting Factors
FY17 to FY18	7.0% Pre-Medicare / 4.5% Medicare	6.2%	50%
FY18 to FY19	6.2% Pre-Medicare / 4.0% Medicare	8.0%	50%

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

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particularly for prescription drugs, the Board has approved our recommendation to update to the valuation healthcare cost trend assumption.

6. Develop separate administration costs – no adjustments were made for internal administrative costs. Third party retiree plan administration fees for FY19 are based upon total fees projected to 2019 by Segal based on actual FY 2018 fees. The annual per participant per year administrative cost rate for medical and prescription benefits is \$300.

D. Healthcare Reform

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

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

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

The Plan will be subject to the high cost plan excise tax (Cadillac tax). Based upon guidance available at the valuation date, Buck 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 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 0.25% 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.

Buck determined the impact to be approximately \$31.6 million of the projected June 30, 2018 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 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.

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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.

E. Healthcare Reform

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

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

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

- Some records provided on the Aetna data were associated with a participant social security number not listed on the RIN-to-SSN translation file. We reconciled those participants with the pension valuation data as either a surviving spouse or a retiree in the appropriate plan based on account structure information in the Aetna data.
- All records provided with retiree medical coverage on the Aetna data were included in this valuation and we relied on the Aetna data as the source of medical coverage for current retirees and their dependents.
- Some records in the Aetna data were duplicates due to the dual coverage (i.e. coverage as a retiree and as a spouse of another retiree) allowed under the plan. Records were adjusted for these members so that each member was only valued once. Any additional value of the 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 disabled. We assumed that those dependents over 23 were only eligible and valued due to being disabled.
- For individuals included in the pension data expecting a future pension, we valued health benefits starting at the same point that the pension benefit is assumed to start.

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

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

	Medical		Prescription Drugs (Rx)	
	Pre-Medicare	Medicare	Pre-Medicare	Medicare
A. Fiscal 2017				
1. Incurred Claims	\$ 230,671,216	\$ 66,265,130	\$ 64,442,324	\$ 160,756,912
2. Adjustments for Rx Rebates	-	-	(7,733,079)	(19,290,829)
3. Net incurred claims	\$ 230,671,216	\$ 66,265,130	\$ 56,709,245	\$ 141,466,082
4. Average Enrollment	23,342	38,502	23,342	38,502
5. Claim Cost Rate (3) / (4)	9,882	1,721	2,430	3,674
6. Trend to Fiscal 2019	1.136	1.087	1.147	1.147
7. Fiscal 2019 Incurred Cost Rate (5) x (6)	\$ 11,230	\$ 1,870	\$ 2,787	\$ 4,214
B. Fiscal 2018				
1. Incurred Claims	\$ 228,572,782	\$ 72,875,570	\$ 65,406,973	\$ 178,763,430
2. Adjustments for Rx Rebates	-	-	(7,848,837)	(21,451,612)
3. Net incurred claims	\$ 228,572,782	\$ 72,875,570	\$ 57,558,136	\$ 157,311,819
4. Average Enrollment	21,920	40,560	21,920	40,560
5. Claim Cost Rate (3) / (4)	10,428	1,797	2,626	3,878
6. Trend to Fiscal 2019	1.062	1.040	1.080	1.080
7. Fiscal 2019 Incurred Cost Rate (5) x (6)	\$ 11,074	\$ 1,869	\$ 2,836	\$ 4,189
C. Incurred Cost Rate by Fiscal Year				
1. Fiscal 2017 A. (7)	11,230	1,870	2,787	4,214
2. Fiscal 2018 B. (7)	11,074	1,869	2,836	4,189
D. Weighting by Fiscal Year				
1. Fiscal 2017	50%	50%	50%	50%
2. Fiscal 2018	50%	50%	50%	50%
E. Fiscal 2019 Incurred Cost Rate				
1. Rate at Average Age C x D	\$ 11,152	\$ 1,870	\$ 2,811	\$ 4,201
2. Average Aging Factor	0.824	1.251	0.837	1.116
3. Rate at Age 65 (1) / (2)	\$ 13,535	\$ 1,494	\$ 3,360	\$ 3,764
F. Development of Part A&B and Part B Only Cost from Pooled Rate Above				
1. Part A&B Average Enrollment		40,223		
2. Part B Only Average Enrollment		338		
3. Total Medicare Average Enrollment B(4)		40,560		
4. Cost ratio for those with Part B only to those with Part A&B		3.180		
5. Factor to determine cost for those with Parts A&B (2) / (3) x (4) + (1) / (3) x 1.00		1.018		
6. Medicare per capita cost for all participants: E(3)		\$ 1,494		
7. Cost for those eligible for Parts A&B: (6) / (5)		\$ 1,468		
8. Cost for those eligible for Part B only: (7) x (4)		\$ 4,667		

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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, 2018 through June 30, 2019**

Age	Medical and Medicare Parts A & B	Medical and Medicare Part B Only	Prescription Drug	Medicare Retiree Drug Subsidy	Medicare EGWP Subsidy
45	\$ 8,260	\$ 8,260	\$ 2,053	\$ —	\$ —
50	9,346	9,346	2,438	—	—
55	10,574	10,574	2,896	—	—
60	11,963	11,963	3,119	—	—
65	1,468	4,667	3,764	527	1,039
70	1,701	5,410	4,155	582	1,147
75	1,972	6,272	4,588	642	1,266
80	2,178	6,925	4,474	626	1,235

Changes in Methods Since the Prior Valuation

Prior to the June 30, 2018 valuation: (i) the total UAAL was amortized over the remainder of the 25-year closed period that was established in 2014; and (ii) the actuarial cost method for the retiree healthcare plan was on a level dollar basis (it is now on a level percent of pay method). There were no other changes in the asset or valuation methods since the prior valuation.

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Summary of Actuarial Assumptions and Changes in 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.

1. Investment Return 7.38% per year, net of investment expenses.
2. 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.
3. Payroll Growth 2.75% per year. (Inflation + Productivity).
4. 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.
5. Mortality (Pre-termination) Mortality rates based upon the 2013-2017 actual experience. 100% of RP-2014 white-collar employee table with MP-2017 generational improvement
6. 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.

Deaths are assumed to result from occupational causes 15% of the time.
7. Turnover Based upon the 2013-2017 actual experience (see Table 2).
8. Disability Incidence rates based upon the 2013-2017 actual experience (see Table 3).

Post-disability mortality in accordance with the RP-2014 disabled table with MP-2017 generational improvement. Deaths are assumed to be from non-occupational causes 85% of the time.
9. Retirement Retirement rates based upon the 2013-2017 actual experience (see Table 4).

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

The modified cash refund annuity is valued as a three-year certain and life annuity.
10. Spouse Age Difference Males are assumed to be three years older than their wives. Females are assumed to be two years younger than husbands.
11. Percent Married for Pension 85% of male members and 75% of female members are assumed to be married at termination from active service.

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12. 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.
13. 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).
14. Contribution Refunds	0% of terminating members with vested benefits are assumed to have their contributions refunded. 100% of those with non-vested benefits are assumed to have their contributions refunded.
15. 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.
16. Active Rehire Assumption	The Normal Cost used for determining contribution rates and in the projections includes a rehire assumption to account for anticipated rehires. The Normal Cost shown in the report includes the following assumptions (which were developed based on the 5 years of rehire loss experience through June 30, 2017). For projections, these assumptions were assumed to grade to zero uniformly over a 20-year period. – Pension: 15.57% – Healthcare: 12.03%
17. 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.
18. COLA	Alaska Cost-of-Living Adjustment. Of those benefit recipients who are eligible for the COLA, 60% are assumed to remain in Alaska and receive the COLA.
19. Sick Leave	4.5 days of unused sick leave for each year of service are assumed to be available to be credited once the member is retired, terminates or dies.
20. Post-Retirement Pension Adjustment	50% and 75% of assumed inflation, or 1.25% and 1.875% respectively, is valued for the annual automatic Postretirement Pension Adjustment (PRPA) as specified in the statute.
21. Expenses	The investment return assumption is net of investment expenses. The Normal Cost as of June 30, 2018 was increased by the following amounts for administrative expenses (for projections, the % increase was assumed to remain constant in future years): – Pension: \$2,869,850 – Healthcare: \$1,651,600

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Teachers' Retirement System
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Summary of Actuarial Assumptions and Changes in Assumptions

22. Part-Time Status Part-time employees are assumed to earn 0.75 years of credited service per year.
23. Re-Employment Option All re-employed retirees are assumed to return to work under the Standard Option.
24. Service Total credited service is provided by the State. This service is assumed to be the only service that should be used to calculate benefits. Additionally, the State provides claimed service (including Bureau of Indian Affairs Service). Claimed service is used for vesting and eligibility purposes as described in Section 6.1.
25. 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.
26. Per Capita Claims Cost Sample claims cost rates adjusted to age 65 for FY19 medical and prescription drugs are shown below:

	<u>Medical</u>	<u>Prescription Drugs</u>
Pre-Medicare	\$ 13,535	\$ 3,360
Medicare Parts A & B	1,468	3,764
Medicare Part B Only	4,667	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 below. 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.

27. Third Party Administrator Fees \$300 per person per year; assumed trend rate of 4.5% per year.
28. Medicare Part B Only We assume that 5% of actives hired before 4/1/1986 and current retirees who are not yet Medicare eligible will not be eligible for Medicare Part A.

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29. Health Cost
Trend

The table below shows the rate used to project the cost from the shown fiscal year to the next fiscal year. For example, 7.5% 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
2019	7.5%	5.5%	8.5%	4.7%
2020	7.0	5.4	8.0	4.7
2021	6.5	5.4	7.5	4.6
2022	6.3	5.4	7.1	4.6
2023	6.1	5.4	6.8	4.6
2024	5.9	5.4	6.4	4.6
2025	5.8	5.4	6.1	4.6
2026	5.6	5.4	5.7	4.6
2027-2040	5.4	5.4	5.4	4.5
2041	5.3	5.3	5.3	4.5
2042	5.2	5.2	5.2	4.5
2043	5.1	5.1	5.1	4.5
2044	5.1	5.1	5.1	4.5
2045	5.0	5.0	5.0	4.5
2046	4.9	4.9	4.9	4.5
2047	4.8	4.8	4.8	4.5
2048	4.7	4.7	4.7	4.5
2049	4.6	4.6	4.6	4.5
2050+	4.5	4.5	4.5	4.5

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

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

Fiscal year	Pre-65	Post-65	Fiscal year	Pre-65	Post-65
2018-2030	—%	—%	2070	0.21%	0.46%
2031	—	0.15	2071	0.21	0.45
2032	—	0.34	2072	0.20	0.44
2033	—	0.30	2073	0.20	0.43
2034	—	0.28	2074	0.20	0.42
2035	—	0.26	2075	0.19	0.41
2036	—	0.26	2076	0.19	0.40
2037	—	0.21	2077	0.18	0.39
2038	0.10	0.22	2078	0.18	0.38
2039	0.09	0.20	2079	0.17	0.37
2040	0.08	0.16	2080	0.17	0.36
2041	0.07	0.14	2081	0.17	0.35
2042	0.06	0.12	2082	0.16	0.34
2043	0.04	0.06	2083	0.16	0.33
2044	0.04	0.07	2084	0.15	0.32
2045	0.04	0.06	2085	0.15	0.31
2046	0.03	0.05	2086	0.15	0.31
2047	0.04	0.10	2087	0.14	0.30
2048	0.04	0.43	2088	0.14	0.29
2049	0.05	0.57	2089	0.14	0.29
2050	0.05	0.52	2090	0.13	0.28
2051	0.06	0.60	2091	0.13	0.27
2052	0.06	0.63	2092	0.13	0.27
2053	0.07	0.69	2093	0.13	0.26
2054	0.10	0.69	2094	0.12	0.25
2055	0.30	0.68	2095	0.12	0.25
2056	0.30	0.67	2096	0.12	0.24
2057	0.29	0.66	2097	0.11	0.24
2058	0.29	0.64	2098	0.11	0.23
2059	0.28	0.62	2099	0.11	0.22
2060	0.27	0.60	2100	0.11	0.22
2061	0.27	0.58	2101	0.10	0.21
2062	0.26	0.57	2102	0.10	0.21
2063	0.25	0.56	2103	0.10	0.20
2064	0.25	0.54	2104	0.10	0.20
2065	0.24	0.53	2105	0.10	0.19
2066	0.24	0.51	2106	0.09	0.19
2067	0.23	0.50	2107	0.09	0.19
2068	0.23	0.49	2108	0.09	0.18

30. 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)
85–95	0.3	(2.5)
96 +	—	—

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Summary of Actuarial Assumptions and Changes in Assumptions

31. Retired Member Contributions for Medical Benefits Currently contributions are required for TRS members who are under age 60 and have less than 25 years of service. Eligible Tier 1 members are exempt from contribution requirements. Annual FY19 contributions based on monthly rates shown below for calendar 2018 and 2019 are assumed based on the coverage category for current retirees. The composite rate shown is used for current active and inactive members in Tier 2 who are assumed to retire prior to age 60 with less than 25 years of service and who are not disabled. For dependent children, we value 1/3 of the annual retiree contribution to estimate the per child rate based upon the assumed number of children in rates where children are covered.

Coverage category	Calendar 2019		Calendar 2018
	Annual contribution	Monthly contribution	Monthly contribution
Retiree only	\$ 9,876	823	823
Retiree and spouse	19,764	1,647	1,647
Retiree and child(ren)	13,956	1,163	1,163
Retiree and family	23,844	1,987	1,987
Composite	14,676	1,223	1,223

32. Trend Rate for Retired Member Medical Contribution The table below shows the rate used to project the retired member medical contributions from the shown fiscal year to the next fiscal year. For example, 7.6% is applied to the FY19 retired member medical contributions to get the FY20 retired member medical contributions.

Trend Assumptions	
Fiscal year:	
2019	7.6%
2020	7.2
2021	6.8
2022	6.5
2023	6.3
2024	6.0
2025	5.9
2050	4.5
2100	4.5

Graded trend rates for retired member medical contributions were updated to the rates shown above for the June 30, 2018 valuation to reflect the updated ultimate trend assumption of 4.5% used for gross cost components. Actual FY19 retired member medical contributions are reflected in the valuation.

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

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Summary of Actuarial Assumptions and Changes in Assumptions

34. 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 were adopted by the Board during the January 2019 Board meeting.

State of Alaska
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Summary of Actuarial Assumptions and Changes in Assumptions

Table 1
Alaska TRS
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

Actuarial Section

State of Alaska
Teachers' Retirement System
Defined Benefit Retirement Plan
Summary of Actuarial Assumptions and Changes in Assumptions

Table 2
Alaska TRS
Turnover Rates

Select Rates of Turnover During the First 8 Years of Employment

Years of Service	Male	Female
0	20.4%	17.0%
1	20.4	17.0
2	16.8	14.0
3	14.4	12.0
4	12.0	10.0
5	10.8	9.0
6	9.0	7.5
7	7.2	6.0

Ultimate Rates of Turnover
After the First 8 Years of Employment

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

State of Alaska
Teachers' Retirement System
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Summary of Actuarial Assumptions and Changes in Assumptions

Table 3
Alaska TRS Disability Table

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

Actuarial Section

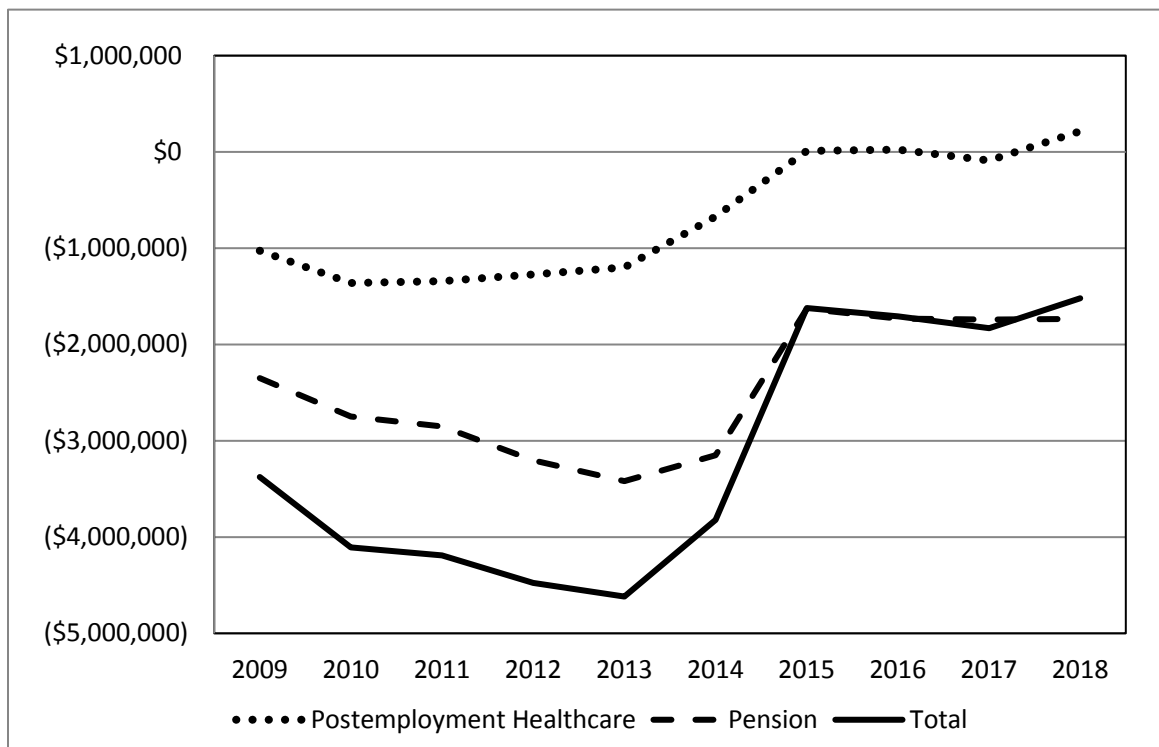
State of Alaska
Teachers' Retirement System
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Summary of Actuarial Assumptions and Changes in Assumptions

Table 4
Alaska TRS Retirement Table

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

Teachers' Retirement System Defined Benefit Retirement Plan Funding Excess/(Unfunded Liability) (In thousands)				
Actuarial Valuation Year Ended June 30	Postemployment Healthcare	Pension	Total Funding Excess/ (Unfunded Liability)	Funded Ratio
2009	\$ (1,026,288)	\$ (2,348,268)	\$ (3,374,556)	57.0%
2010	(1,361,547)	(2,747,113)	(4,108,660)	53.6
2011	(1,340,703)	(2,850,155)	(4,190,858)	54.1
2012	(1,272,507)	(3,204,783)	(4,477,290)	52.1
2013	(1,198,791)	(3,419,240)	(4,618,031)	51.9
2014	(671,535)	(3,150,223)	(3,821,758)	61.2
2015	8,879	(1,629,073)	(1,620,194)	83.3
2016	23,868	(1,731,101)	(1,707,233)	82.8
2017	(90,291)	(1,740,690)	(1,830,981)	82.0
2018	214,559	(1,734,690)	(1,520,131)	84.7

10-YEAR TREND OF UNFUNDED LIABILITY
(In thousands)



Actuarial Section

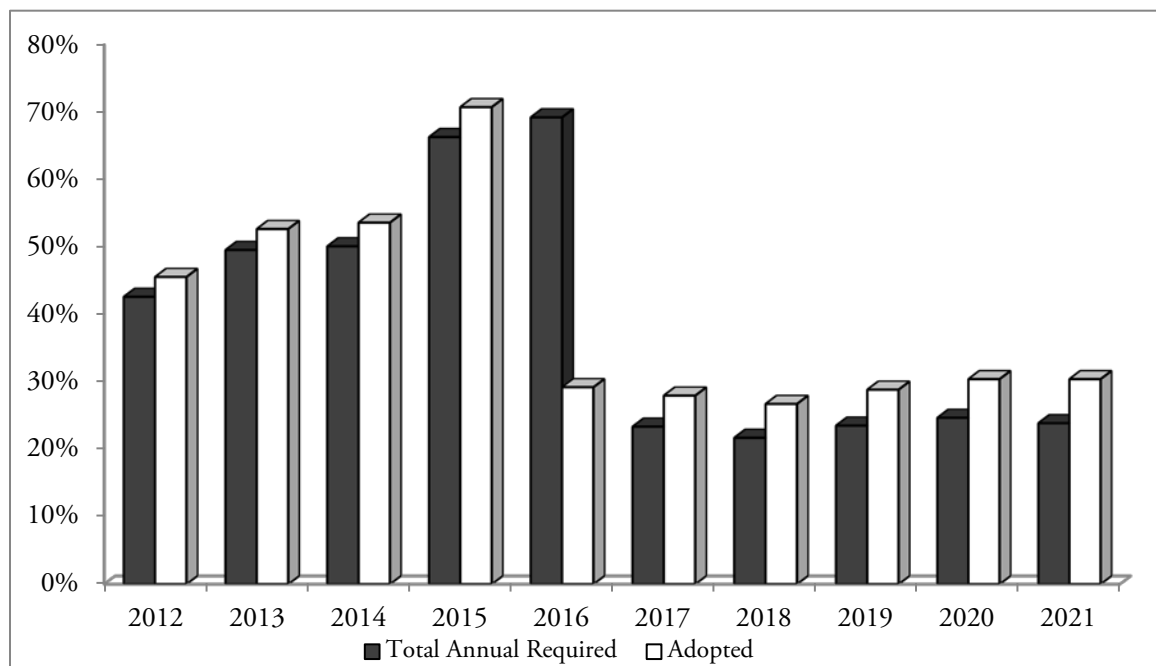
Teachers' Retirement System Defined Benefit Retirement Plan Employer Contribution Rates					
Year Ended June 30	Actuarially Determined				Adopted
	Actuarial Valuation Year Ended June 30	Normal Cost ¹	Past Service	Total Annual Required	
2012	2009	6.57%	36.04%	42.61%	45.55%
2013	2010	7.47	42.09	49.56	52.67
2014	2011	6.59	43.51	50.10	53.62
2015	2012	6.40	59.91	66.31	70.75
2016	2013	5.70	63.54	69.24	29.27
2017	2014	4.63	18.77	23.40	28.02
2018	2015	3.99	17.76	21.75	26.78
2019	2016	5.29	18.27	23.56	28.90
2020	2017	5.14	19.48	24.62	30.47
2021	2018	5.93	17.99	23.92	30.47

¹ Also referred to as the consolidated rate.

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 year "roll-forward" approach and assuming 0% population growth. Investment gains and losses are recognized over a 5-year period beginning in FY15. Beginning with the June 30, 2018 valuation, the UAAL amortization was changed as described in Section 6.2.

Valuations are used to set contribution rates in future years.

10-YEAR COMPARISON OF AVERAGE EMPLOYER CONTRIBUTION RATES



Teachers' Retirement System Defined Benefit Retirement Plan Schedule of Active Member Valuation Data					
Valuation Date	Number	Annual Earnings (In thousands)	Annual Average Earnings	Percent Increase In Average Earnings	Number of Participating Employers
June 30, 2018	4,418	\$ 386,016	\$ 87,374	1.2 %	56
June 30, 2017	4,772	411,951	86,327	1.6%	57
June 30, 2016	5,123	435,222	84,954	2.4	57
June 30, 2015	5,502	456,636	82,995	2.4	58
June 30, 2014	5,861	474,873	81,023	2.1	58
June 30, 2013	6,352	504,260	79,386	2.6	58
June 30, 2012	6,845	529,468	77,351	3.6	58
June 30, 2011	7,303	545,155	74,648	3.5	58
June 30, 2010	7,832	564,887	72,125	6.5	58
June 30, 2009	8,226	557,026	67,715	5.2	58

Teachers' Retirement System Defined Benefit Retirement Plan Schedule of Pension Benefit Recipients Added to and Removed from Rolls								
Year Ended	Added to Rolls		Removed from Rolls		Rolls – End of Year		Percent Increase/ (Decrease) In Annual Pension Allowances	Average Annual Pension Allowances
	No.*	Annual Pension Allowances*	No.*	Annual Pension Allowances*	No.	Annual Pension Allowances		
June 30, 2018	555	\$ 21,924,986	261	\$ 6,926,129	13,277	\$ 470,498,291	3.29%	\$ 35,437
June 30, 2017	487	17,151,684	230	7,736,025	12,983	455,499,434	2.11	35,084
June 30, 2016	530	18,364,581	222	6,144,109	12,726	446,083,775	2.82	35,053
June 30, 2015	888	34,120,658	220	3,531,501	12,418	433,863,303	7.59	34,938
June 30, 2014	226	5,964,256	181	(1,150,187)	11,750	403,274,146	1.80	34,321
June 30, 2013	576	19,387,542	172	1,652,575	11,705	396,159,703	4.69	33,845
June 30, 2012	473	17,104,564	188	(617,561)	11,301	378,424,736	4.91	33,486
June 30, 2011	564	19,546,369	146	1,464,766	11,016	360,702,611	5.28	32,744
June 30, 2010	533	16,980,817	190	5,495,399	10,598	342,621,008	3.47	32,329
June 30, 2009	368	9,788,639	139	(2,857,118)	10,255	331,135,590	3.97	32,290

*Numbers are estimated, and include other internal transfers.

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Teachers' Retirement System Defined Benefit Retirement Plan Pension Solvency Test (In thousands)							
Valuation Date	Pension Actuarial Accrued Liability For:			Pension Valuation Assets	Portion of Actuarial Accrued Liabilities Covered by Assets:		
	(1) Active Member Contributions	(2) Inactive Members	(3) Active Members (Employer-Financed Portion)		(1)	(2)	(3)
June 30, 2016	\$ 709,903	\$ 5,329,673	\$ 1,120,212	\$ 5,428,687	100.0%	88.5%	—%
June 30, 2015	714,422	5,192,935	1,144,367	5,442,651	100.0	90.7	—
June 30, 2014 ^{1,2}	718,694	5,042,250	1,160,418	3,771,139	100.0	60.5	—
June 30, 2013	726,139	4,726,282	1,137,132	3,170,313	100.0	51.7	—
June 30, 2012	727,435	4,532,982	1,139,360	3,194,994	100.0	54.4	—
June 30, 2011	717,819	4,352,035	1,126,250	3,345,949	100.0	60.4	—
June 30, 2010 ¹	716,675	4,153,119	1,137,187	3,259,868	100.0	61.2	—
June 30, 2009	692,105	3,815,020	956,862	3,115,719	100.0	63.5	—
June 30, 2008	654,662	3,700,812	876,180	3,670,086	100.0	81.5	—

¹ Change in Assumptions
² Change in Methods
³ The pension and postemployment healthcare valuation assets were allocated using a ratio of fair value of assets as of June 30, 2005

Teachers' Retirement System Defined Benefit Retirement Plan Postemployment Healthcare Solvency Test (In thousands)							
Valuation Date	Postemployment Healthcare Actuarial Accrued Liability For:			Post-Employment Healthcare Valuation Assets	Portion of Actuarial Accrued Liabilities Covered by Assets:		
	(1) Active Member Contributions	(2) Inactive Members	(3) Active Members (Employer-Financed Portion)		(1)	(2)	(3)
June 30, 2016	\$ —	\$ 1,853,084	\$ 894,752	\$ 2,771,704	100.0%	100.0%	100.0%
June 30, 2015	—	1,870,987	806,406	2,686,272	100.0	100.0	100.0
June 30, 2014 ^{1 2}	—	2,008,223	911,447	2,248,135	100.0	100.0	26.3
June 30, 2013	—	2,012,114	990,440	1,803,763	100.0	89.6	—
June 30, 2012	—	1,933,288	1,013,379	1,674,160	100.0	86.6	—
June 30, 2011	—	1,879,564	1,053,127	1,591,988	100.0	84.7	—
June 30, 2010 ¹	—	1,755,961	1,084,846	1,479,260	100.0	84.2	—
June 30, 2009	—	1,477,788	905,739	1,357,239	100.0	91.8	—
June 30, 2008 ¹	—	1,480,864	906,660	1,266,890	100.0	85.6	—
Healthcare liabilities are calculated using the funding assumptions (i.e., funding investment return and net of Medicare Part D subsidy).							
¹ Change in Assumptions							
² Change in Methods							
³ The pension and postemployment healthcare valuation assets were allocated using a ratio of fair value of assets as of June 30, 2005							

Actuarial Section

Teachers' Retirement System Defined Benefit Retirement Plan Analysis of Financial Experience					
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				
	2018	2017	2016	2015	2014
Health Claims ⁽¹⁾	(1.69)%	(2.75)%	(0.43)%	(4.07)%	(8.59)%
Salary Experience	(0.48)	(0.39)	(0.42)	(0.34)	(0.43)
Investment Experience	1.65	1.99	2.07	0.62	(6.31)
Demographic Experience and Miscellaneous	1.35	(1.51)	(0.98)	(0.52)	1.75
Contribution Shortfall	0.04	(0.22)	—	—	1.24
(Gain) or Loss During Year from Experience	0.87	(2.88)	0.24	(4.31)	(12.34)
Assumption/Method Changes and EGWP	(1.57)	4.04	3.19	—	(33.50)
System Benefit Changes	—	—	—	—	—
Composite (Gain) or Loss During Year	(0.70)	1.16	3.43	(4.31)	(45.84)
Beginning Total Employer/State Contribution Rate	24.62	23.56	21.75	23.40	69.24
Ending Valuation Year Total Employer/State Contribution Rate	<u>23.92%</u>	<u>24.72%</u>	<u>25.18%</u>	<u>19.09%</u>	<u>23.40%</u>
Fiscal Year Employer/State Contribution Rates	24.34%	24.62%	23.56%	21.75%	23.40%
Fiscal Year for Which Rate Applies	FY21	FY20	FY19	FY18	FY17

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

NOTE: In the second session of the 28th Alaska legislature, the legislature changed the actuarial methodology from level dollar amortization to level percent of pay. The June 30, 2013 PERS actuarial valuation report was not updated for this change, but specific revisions for the amortization change were presented to reflect the change in amortization. The change in the amortization resulted in an adjusted FY16 employer/state contribution rate of 24.48%.

Teachers' Retirement System Defined Benefit Retirement Plan Analysis of Financial Experience						
Change in Employer/State Contribution Rate Due to (Gains) and Losses in Actuarial Accrued Liabilities During the Last Three 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			Healthcare		
	2018	2017	2016	2018	2017	2016
Health Claims ⁽¹⁾	N/A	N/A	N/A	(1.69)%	(2.75)%	(0.43)%
Salary Experience	(0.48)%	(0.39)%	(0.42)%	N/A	N/A	N/A
Investment Experience	1.10	1.32	1.36	0.55	0.67	0.71
Demographic Experience and Miscellaneous	(0.94)	(0.98)	(0.98)	2.29	(0.53)	N/A
Contribution Shortfall	(0.03)	(0.09)	—	0.07	(0.13)	—
(Gain) or Loss During Year From Experience	(0.35)	(0.14)	(0.04)	1.22	(2.74)	0.28
Assumption and Method Changes	0.16	—	2.73	(1.73)	4.04	0.46
System Benefit Changes	—	—	—	—	—	—
Composite (Gain) or Loss During Year	(0.19)	(0.14)	(2.69)	(0.51)	1.30	0.74
Beginning Total Employer/State Contribution Rate	20.71	20.86	19.16	3.91	2.70	2.59
Ending Valuation Year Total Employer/State Contribution Rate	<u>20.52%</u>	<u>20.72%</u>	<u>21.85%</u>	<u>3.40%</u>	<u>4.00%</u>	<u>3.33%</u>
Fiscal Year Employer/State Contribution Rates	20.94%	20.71%	20.86%	3.40%	3.91%	2.70%
Fiscal Year for Which Rate Applies	FY21	FY20	FY19	FY21	FY20	FY19

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

Actuarial Section

State of Alaska Teachers' Retirement System Defined Benefit Retirement Plan Summary of Plan Provisions and Changes in Plan Provisions

1. Effective Date

July 1, 1955, with amendments through June 30, 2018. Chapter 97, 1990 Session Laws of Alaska, created a two-tier retirement system. Members who were first hired under the TRS before July 1, 1990 (Tier 1) are eligible for different benefits than members hired after June 30, 1990 (Tier 2). Chapter 9, 2005 Session Laws of Alaska, closed the plan to new members hired after June 30, 2006.

2. Administration of Plan

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

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

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

3. Employers Included

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

4. Membership

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

- certificated full-time and part-time elementary and secondary teachers, certificated school nurses, and certificated employees in positions requiring teaching certificates;
- positions requiring a teaching certificate as a condition of employment in the Department of Education and Early Development and the Department of Labor and Workforce Development;
- University of Alaska full-time and part-time teachers, and full-time administrative employees in positions requiring academic standing if approved by the TRS administrator;
- certain full-time or part-time teachers of Alaska Native language or culture who have elected to be covered under the TRS;
- members on approved sabbatical leave under AS 14.20.310;
- certain State legislators who have elected to be covered under the TRS; and

State of Alaska
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Summary of Plan Provisions and Changes in Plan Provisions

- a teacher who has filed for worker's compensation benefits due to an on-the-job assault and who, as a result of the physical injury, is placed on leave without pay.

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

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

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

5. Credited Service

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

Members may claim other types of service, including:

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

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

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

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

Actuarial Section

State of Alaska Teachers' Retirement System Defined Benefit Retirement Plan Summary of Plan Provisions and Changes in Plan Provisions

6. Employer Contributions

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

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

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

Employer rates cannot be less than the normal cost rate.

7. Additional State Contributions

Pursuant to AS14.25.070 effective July 1, 2008, the State shall contribute an amount (in addition to the State contribution as an employer) that when combined with the employer contribution (12.56%) will be sufficient to pay the total contribution rate adopted by The State of Alaska Retirement Management Board.

8. Member Contributions

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

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

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

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

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

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

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Summary of Plan Provisions and Changes in Plan Provisions

9. Retirement Benefits

Eligibility:

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

10. Benefit Type

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

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

Actuarial Section

State of Alaska Teachers' Retirement System Defined Benefit Retirement Plan Summary of Plan Provisions and Changes in Plan Provisions

11. Benefit Calculation

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

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

12. Indebtedness

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

13. Reemployment of Retired Members

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

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

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

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

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

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14. Postemployment Healthcare Benefits

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

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

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

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

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

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

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

15. Disability Benefits

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

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

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

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16. Death Benefits

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

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

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

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

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

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

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

17. Postretirement Pension Adjustments

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

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

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

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

18. Alaska Cost of Living Allowance

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

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

19. Changes in Benefit Provisions Valued Since the Prior Valuation

The TRS medical benefit provisions were changed since the prior valuation to reflect the implementation of EGWP as of January 1, 2019.



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.

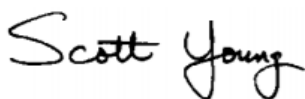
I am available to discuss this report with you at your convenience. I can be reached at 602-803-6174.

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

Actuarial Section

State of Alaska Teachers' Retirement System Defined Contribution Retirement Plan 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.

Valuation of Liabilities

A. 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.

B. 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

State of Alaska
Teachers' Retirement System
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Description of Actuarial Methods and Valuation Procedures

financial statements audited by KPMG LLP. Valuation assets are constrained to a range of 80% to 120% of the fair value of assets.

C. 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).

D. 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.

State of Alaska
Teachers' Retirement System
Defined Contribution Retirement Plan
Description of Actuarial Methods and Valuation Procedures

- 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.

E. 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.

State of Alaska
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Summary of Actuarial Assumptions and Changes in 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.

- | | | |
|-----|---|---|
| 1. | Investment Return | 7.38% per year, net of investment expenses. |
| 2. | 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. |
| 3. | Payroll Growth | 2.75% per year. (Inflation + Productivity). |
| 4. | 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. |
| 5. | Mortality
(Pre-termination) | Mortality rates based upon the 2013-2017 actual experience.

RP-2014 white-collar employee table with MP-2017 generational improvement. |
| 6. | 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. |
| 7. | Turnover | Select and ultimate rates based upon the 2013-2017 actual experience (see Table 2). |
| 8. | 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. |
| 9. | Retirement | Retirement rates based upon the 2013-2017 actual experience (see Table 4). |
| 10. | Spouse Age Difference | Males are assumed to be three years older than their wives. Females are assumed to be two years younger than husbands. |
| 11. | Percent Married for
Occupational Death &
Disability | 85% of male members and 75% female members are assumed to be married at termination from active service. |
| 12. | 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. |
| 13. | Part-Time Status | Part-time employees are assumed to earn 0.75 years of service per year. |

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Summary of Actuarial Assumptions and Changes in Assumptions

14. 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.

15. Third Party Administrator Fees \$300 per person per year; assumed trend rate of 4.5% per year.
16. 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.
17. 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.
18. 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.

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Summary of Actuarial Assumptions and Changes in Assumptions

19. 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.

<u>Fiscal year</u>	<u>Medical pre-65</u>	<u>Medical post-65</u>	<u>Prescription Drugs / EGWP</u>	<u>RDS</u>
2019	7.5%	5.5%	8.5%	4.7%
2020	7.0	5.4	8.0	4.7
2021	6.5	5.4	7.5	4.6
2022	6.3	5.4	7.1	4.6
2023	6.1	5.4	6.8	4.6
2024	5.9	5.4	6.4	4.6
2025	5.8	5.4	6.1	4.6
2026	5.6	5.4	5.7	4.6
2027-2040	5.4	5.4	5.4	4.5
2041	5.3	5.3	5.3	4.5
2042	5.2	5.2	5.2	4.5
2043	5.1	5.1	5.1	4.5
2044	5.1	5.1	5.1	4.5
2045	5.0	5.0	5.0	4.5
2046	4.9	4.9	4.9	4.5
2047	4.8	4.8	4.8	4.5
2048	4.7	4.7	4.7	4.5
2049	4.6	4.6	4.6	4.5
2050+	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.

Actuarial Section

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

<u>Fiscal year</u>	<u>Pre-65</u>	<u>Post-65</u>	<u>Fiscal year</u>	<u>Pre-65</u>	<u>Post-65</u>
2019-2044	—%	—%	2077	0.20%	0.50%
2045	—	0.12	2078	0.20	0.49
2046	—	0.29	2079	0.19	0.48
2047	—	0.27	2080	0.19	0.46
2048	—	0.25	2081	0.18	0.45
2049	—	0.25	2082	0.18	0.44
2050	—	0.20	2083	0.18	0.43
2051	—	0.20	2084	0.17	0.42
2052	0.06	0.16	2085	0.17	0.41
2053	0.06	0.16	2086	0.16	0.40
2054	0.06	0.15	2087	0.16	0.39
2055	0.06	0.15	2088	0.16	0.38
2056	0.05	0.14	2089	0.15	0.37
2057	0.06	0.14	2090	0.15	0.37
2058	0.05	0.13	2091	0.15	0.36
2059	0.05	0.12	2092	0.15	0.35
2060	0.05	0.15	2093	0.14	0.34
2061	0.05	0.61	2094	0.14	0.33
2062	0.05	0.59	2095	0.14	0.33
2063	0.05	0.61	2096	0.13	0.32
2064	0.05	0.64	2097	0.13	0.31
2065	0.05	0.65	2098	0.13	0.30
2066	0.05	0.64	2099	0.13	0.30
2067	0.14	0.64	2100	0.12	0.29
2068	0.24	0.63	2101	0.12	0.28
2069	0.24	0.61	2102	0.12	0.28
2070	0.23	0.60	2103	0.12	0.27
2071	0.23	0.58	2104	0.11	0.27
2072	0.22	0.57	2105	0.11	0.26
2073	0.22	0.55	2106	0.11	0.25
2074	0.21	0.54	2107	0.11	0.25
2075	0.21	0.53	2108	0.10	0.24
2076	0.20	0.51	2109	0.10	0.24

20. Aging Factors

<u>Age</u>	<u>Medical</u>	<u>Prescription Drugs</u>
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 +	—	—

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Summary of Actuarial Assumptions and Changes in Assumptions

21. Retiree Medical Participation

<u>Decrement Due to Disability</u>	<u>Decrement Due to Retirement</u>
<u>Age</u>	<u>Age</u>
<u>Percent Participation</u>	<u>Percent Participation *</u>
< 56	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65+	65+
	<u>Years of Service</u>
	< 15
	15-19
	20-24
	25-29
	30+

* 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.

22. 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.

23. 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.

State of Alaska
Teachers' Retirement System
Defined Contribution Retirement Plan
Summary of Actuarial Assumptions and Changes in Assumptions

Table 1
Alaska TRS DCR Plan
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

State of Alaska
Teachers' Retirement System
Defined Contribution Retirement Plan
Summary of Actuarial Assumptions and Changes in Assumptions

Table 2
Alaska TRS DCR Plan
Turnover Rates

Select Rates during the First 6 Years of Employment

<u>Years of Service</u>	<u>Male</u>	<u>Female</u>
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 of Turnover
After the First 6 Years of Employment

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>
< 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

State of Alaska
Teachers' Retirement System
Defined Contribution Retirement Plan
Summary of Actuarial Assumptions and Changes in Assumptions

Table 3
Alaska TRS DCR Plan
Disability Table

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

State of Alaska
Teachers' Retirement System
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Summary of Actuarial Assumptions and Changes in Assumptions

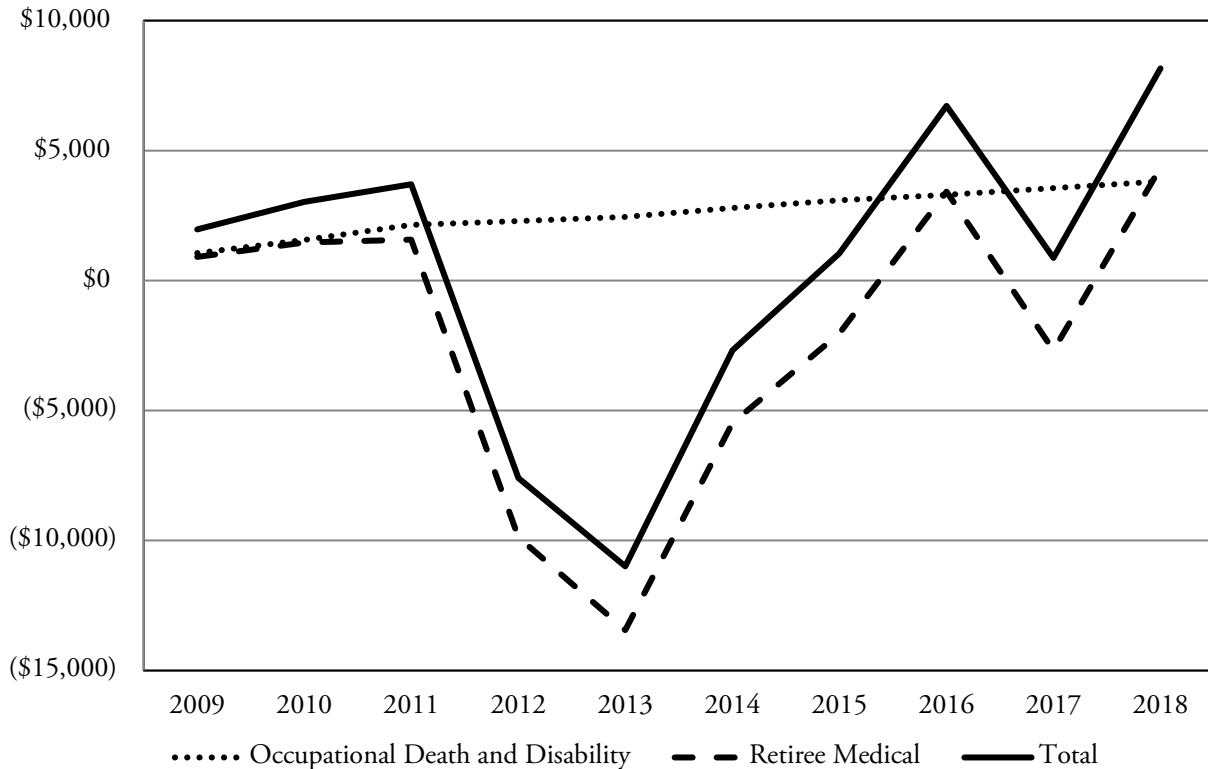
Table 4
Alaska TRS DCR Plan
Retirement Rates

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

Actuarial Section

Teachers' Retirement System Defined Contribution Retirement Plan Occupational Death and Disability and Retiree Medical Benefits Funding Excess/(Unfunded Liability) (In thousands)				
Actuarial Valuation Year Ended June 30	Occupational Death and Disability	Retiree Medical	Total Funding Excess/ (Unfunded Liability)	Funded Ratio
2009	\$ 1,057	\$ 907	\$ 1,964	234.5%
2010	1,559	1,465	3,024	223.5
2011	2,136	1,572	3,708	196.1
2012	2,285	(9,874)	(7,589)	55.0
2013	2,452	(13,444)	(10,992)	50.3
2014	2,797	(5,482)	(2,685)	83.5
2015	3,085	(2,035)	(1,050)	105.3
2016	3,304	3,422	6,726	130.6
2017	3,562	(2,683)	879	102.6
2018	3,815	4,347	8,162	125.1

**10-YEAR TREND OF FUNDING EXCESS/(UNFUNDED) LIABILITY
(In thousands)**



Teachers' Retirement System Defined Contribution Retirement Plan Occupational Death and Disability and Retiree Medical Benefits Employer Contribution Rates					
Fiscal Year	Actuarial Valuation Year Ended June 30	Occupational Death and Disability	Retiree Medical	Total Annual Required	Adopted
2012	2009	— %	0.58%	0.58%	0.58%
2013	2010	—	0.49	0.49	0.49
2014	2011	—	0.47	0.47	0.47
2015	2012	—	2.04	2.04	2.04
2016	2013	—	2.04	2.04	2.04
2017	2014	—	1.05	1.05	1.05
2018	2015	—	0.91	0.91	0.91
2019	2016	0.08	0.79	0.87	0.87
2020	2017	0.08	1.09	1.17	1.17
2021	2018	0.08	0.93	1.01	1.01

Valuations are used to set contribution rates in future years.

Actuarial Section

**Teachers' Retirement System
Defined Contribution Retirement Plan
Occupational Death and Disability and Retiree Medical Benefits
Schedule of Active Member Valuation Data**

Valuation Date	Number	Annual Earnings (In thousands)	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

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

Actuarial Section

Teachers' Retirement System Defined Contribution Retirement Plan Occupational Death and Disability Solvency Test (In thousands)							
Valuation Date	Occupational Death and Disability Actuarial Accrued Liability For:			Occupational Death and Disability 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	\$ —	\$ —	\$ 19	\$ 3,323	100.0%	100.0%	100.0%
June 30, 2015	—	—	29	3,114	100.0	100.0	100.0
June 30, 2014 ¹	—	—	23	2,820	100.0	100.0	100.0
June 30, 2013	—	—	80	2,532	100.0	100.0	100.0
June 30, 2012	—	—	63	2,348	100.0	100.0	100.0
June 30, 2011	—	—	57	2,193	100.0	100.0	100.0
June 30, 2010 ¹	—	—	18	1,577	100.0	100.0	100.0
June 30, 2009 ¹	—	—	14	1,071	100.0	100.0	100.0
June 30, 2008	—	—	44	420	100.0	100.0	100.0

¹ Change in Assumptions

Actuarial Section

Teachers' Retirement System Defined Contribution Retirement Plan Retiree Medical Solvency Test (In thousands)							
Valuation Date	Retiree Medical Actuarial Accrued Liability For:			Retiree Medical 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	\$ —	\$ —	\$ 21,988	\$ 25,410	100.0%	100.0%	100.0%
June 30, 2015	—	—	19,768	17,733	100.0	100.0	89.7
June 30, 2014 ¹	—	—	16,273	10,791	100.0	100.0	66.3
June 30, 2013	—	—	22,058	8,614	100.0	100.0	39.1
June 30, 2012 ¹	—	—	16,811	6,937	100.0	100.0	41.3
June 30, 2011	—	—	3,801	5,373	100.0	100.0	100.0
June 30, 2010 ¹	—	—	2,430	3,895	100.0	100.0	100.0
June 30, 2009 ¹	—	—	1,446	2,353	100.0	100.0	100.0
June 30, 2008 ¹	—	—	757	1,308	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							

State of Alaska
Teachers' Retirement System
Defined Contribution Retirement Plan
Summary of Plan Provisions and Changes in Plan Provisions

1. Effective Date

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

2. 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.

3. Employers Included

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

4. 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.

5. 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.

6. 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.

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- 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

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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:

<u>Years of Service</u>	<u>Percent of Premium Paid by Member</u>
Less than 15 years	30.00%
15 – 19	25.00
20 – 24	20.00
25 – 29	15.00
30 years or more	10.00

- 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.

7. Occupational Disability Benefits

- Benefit is 40% of salary at date of disability.

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- **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.

8. 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.

9. Changes Since the Prior Valuation

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