



# State of Alaska Teachers' Retirement System

Actuarial Valuation Report  
As of June 30, 2016

May 2017

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May 23, 2017

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, 2016 performed by Conduent HR Services, LLC (Conduent), formerly known as Buck Consultants, LLC.

The actuarial valuation is based on financial information provided in the statements audited by KPMG LLP, member data provided by the Division of Retirement and Benefits, and medical enrollment data provided by the healthcare claims administrator (Aetna), all as summarized in this report. The benefits considered are those delineated in Alaska statutes effective June 30, 2016. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities and other factors under the System were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Conduent is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of the System as of June 30, 2016.

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

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

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

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 (other than the sensitivity analyses shown in Sections 3.2 and 4.7).

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the System and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the System. The actuary performs an analysis of System experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The last full experience analysis was performed for the period July 1, 2009 to June 30, 2013. Based on that experience study, the Board adopted new assumptions effective for the June 30, 2014 valuation to better reflect expected future experience. Based on our annual analysis of recent claims experience, changes were made to the per capita claim cost rates effective June 30, 2016 to better reflect expected future healthcare experience. Based on recent experience, the healthcare cost trend assumptions are still reasonable and were not changed. A summary of the actuarial assumptions and methods used in this actuarial valuation are shown in Section 6.

The assumptions and methods used to determine the healthcare Actuarial Required Contributions (ARC) of the Employers to TRS as outlined in this report and all supporting schedules meet the parameters and requirements for disclosure of Governmental Accounting Standards Board (GASB) Statement No. 43, Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans. Based on member data and asset information provided by the Division of Retirement and Benefits, we have prepared the trend data schedule under GASB No. 43 that is included in the Financial Section of the CAFR. 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 report for pension-related information needed for the CAFR.

David Kershner is a Fellow of the Society of Actuaries and Larry Langer is an Associate of the Society of Actuaries. Both are Fellows of the Conference of Consulting Actuaries and Members of the American Academy of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice. We are available to answer any questions on the material contained in the report, or to provide explanations or further details as may be appropriate.

Respectfully submitted,



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



Larry Langer, ASA, EA, MAAA, FCA  
Principal

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



Melissa A. Bissett, FSA, MAAA  
Senior Consultant, Health & Productivity

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# Executive Summary

## Overview

The State of Alaska Teachers' Retirement System (TRS) provides pension and postemployment healthcare benefits to teachers and other eligible participants. The Commissioner of the Department of Administration is responsible for administering the System. The Alaska Retirement Management Board has fiduciary responsibility over the assets of the System. This report presents the results of the actuarial valuation of the System as of the valuation date of June 30, 2016.

## Purpose

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

To determine the Employer/State contribution necessary to meet the Board's funding policy for the System;

To disclose the funding assets and liability measures as of the valuation date;

To disclose the healthcare accounting measures for the System required by GASB No. 43 for the last fiscal year;

To review the current funded status of the System and assess the funded status as an appropriate measure for determining future actuarially determined contributions;

To compare actual and expected experience under the System during the last fiscal year; and

To report trends in contributions, assets, liabilities, and funded status over the last several years.

The actuarial valuation provides a "snapshot" of the funded position of TRS based on the plan provisions, membership data, assets, and actuarial methods and assumptions as of the valuation date. Actuarial projections are also performed to provide a long-term view of the expected future funded status and contribution patterns (see Section 4). The sensitivity analysis shown in Section 4.7 is an example of differences which can occur in projected contribution amounts when actual investment returns are different than assumed, but does not include the impact of all possible future differences that can impact future measurements. Retiree group benefits models necessarily rely on the use of approximations and estimates and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements.



## Funded Status

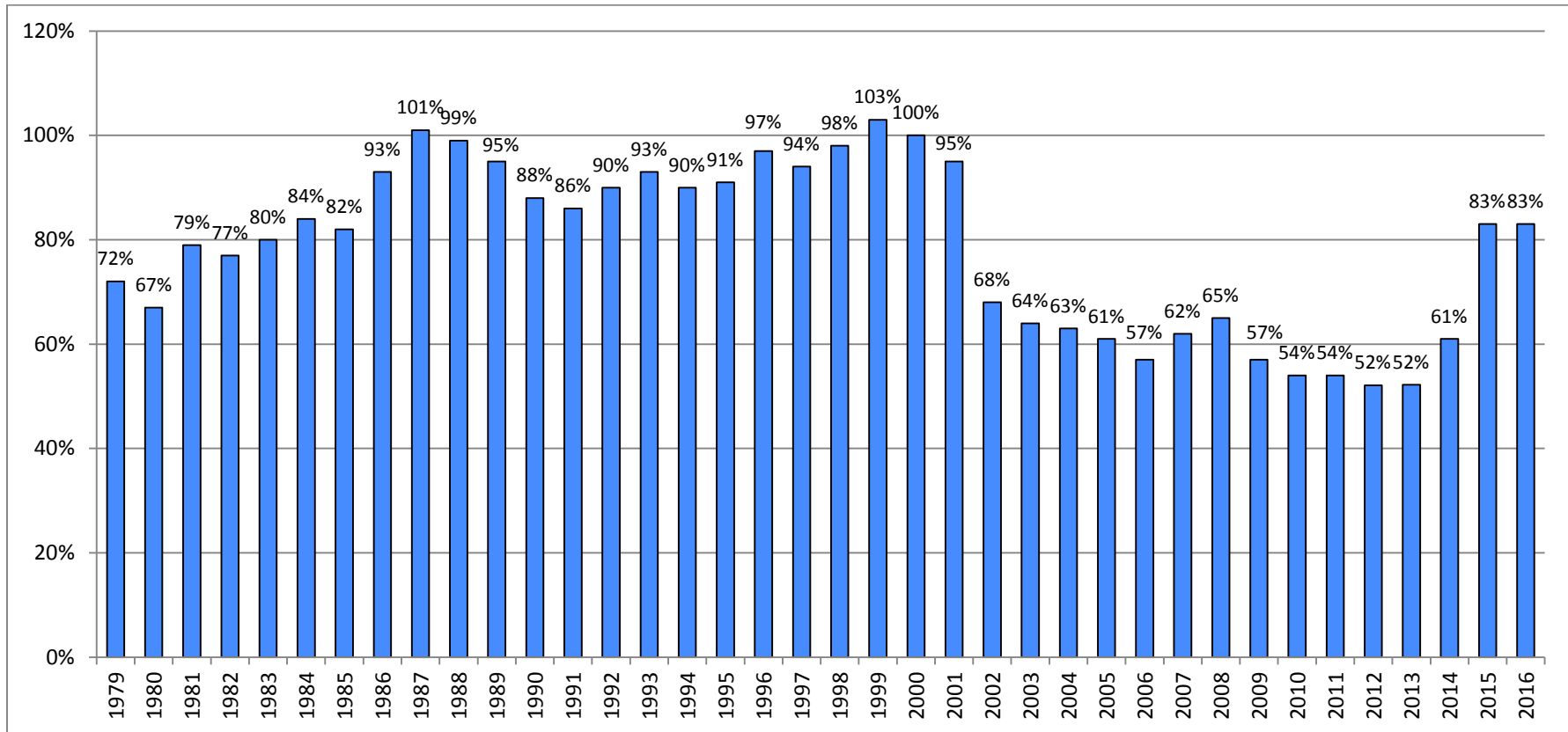
Where presented, references to “funded ratio” and “unfunded accrued liability” typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

| Funded Status as of June 30 (\$'s in 000's)              | 2015             | 2016             |
|--|------------------|------------------|
| <b>Pension</b>   |                  |                  |
| a. Actuarial Accrued Liability                           | \$ 7,051,724     | \$ 7,159,788     |
| b. Valuation Assets                                      | <u>5,422,651</u> | <u>5,428,687</u> |
| c. Unfunded Actuarial Accrued Liability, (a) – (b)       | \$ 1,629,073     | \$ 1,731,101     |
| d. Funded Ratio based on Valuation Assets, (b) ÷ (a)     | 76.9%            | 75.8%            |
| e. Fair Value of Assets                                  | \$ 5,246,955     | \$ 4,942,201     |
| f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 74.4%            | 69.0%            |
| <b>Healthcare</b>  |                  |                  |
| a. Actuarial Accrued Liability                           | \$ 2,677,393     | \$ 2,747,836     |
| b. Valuation Assets                                      | <u>2,686,272</u> | <u>2,771,704</u> |
| c. Unfunded Actuarial Accrued Liability, (a) – (b)       | \$ (8,879)       | \$ (23,868)      |
| d. Funded Ratio based on Valuation Assets, (b) ÷ (a)     | 100.3%           | 100.9%           |
| e. Fair Value of Assets                                  | \$ 2,588,966     | \$ 2,523,579     |
| f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 96.7%            | 91.8%            |
| <b>Total</b>   |                  |                  |
| a. Actuarial Accrued Liability                           | \$ 9,729,117     | \$ 9,907,624     |
| b. Valuation Assets                                      | <u>8,108,923</u> | <u>8,200,391</u> |
| c. Unfunded Actuarial Accrued Liability, (a) – (b)       | \$ 1,620,194     | \$ 1,707,233     |
| d. Funded Ratio based on Valuation Assets, (b) ÷ (a)     | 83.3%            | 82.8%            |
| e. Fair Value of Assets                                  | \$ 7,835,921     | \$ 7,465,780     |
| f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 80.5%            | 75.4%            |

The funded status of the plan decreased from June 30, 2015 to June 30, 2016. This decrease was primarily due to losses from lower than expected investment return and changes in the methods used to develop the per capita claims for the healthcare valuation (including use of the data warehouse to capture actual retiree medical coverage levels), additional data sources to identify dual coverage participants, and resultant changes in the aging factors. These losses were offset by gains on the claims experience.

The funded status for healthcare benefits is not necessarily an appropriate measure to confirm that assets are sufficient to settle health plan obligations as there are no available financial instruments for purchase. While the System is still currently fully funded for healthcare liabilities valuation purposes, it is not based upon fair value. Future experience is likely to vary from assumptions, thus there is a potential for actuarial losses.

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



## **1. Investment Experience**

The actuarial asset value was reinitialized to equal Fair Value of Assets as of June 30, 2014. Beginning in FY15, the asset valuation method recognizes 20% of the gain or loss each year, for a period of five years. The approximate FY16 investment return based on fair value was (0.7%) compared to the expected investment return of 8.00% (net of investment and administrative expenses of approximately 0.3%). This resulted in a loss of approximately \$662.3 million to the System. Due to the recognition of deferred investment gains and losses over a 5-year period, the approximate FY16 investment return based on actuarial value was 5.1%, compared to the expected investment return of 8.00% (net of investment and administrative expenses).

## **Salary Increases**

During the period June 30, 2015 to June 30, 2016, salary increases for continuing active members were less than anticipated in the valuation assumptions, which led to salary gains of approximately \$32.6 million.

## **Demographic Experience (Pension)**

Section 5 provides statistics on active and inactive participants. The number of active participants decreased 6.89% from 5,502 at June 30, 2015 to 5,123 at June 30, 2016 due to the closure of the plan to new entrants as of July 1, 2006. The average age of active participants increased from 50.09 to 50.50 and average credited service increased from 16.94 to 17.53 years.

The number of retirees and beneficiaries increased 2.48% from 12,418 to 12,726, and their average age increased from 69.35 to 69.85. There was a 1.69% decrease in the number of vested terminated participants from 890 to 875. Their average age increased from 50.09 to 50.25.

The overall effect of the demographic experience during FY16, combined with data and other miscellaneous changes, was an actuarial loss of approximately \$51.2 million to the System. As shown on page 7, there was a gain of approximately \$84.4 million due to COLA/PRPA increases during FY16.

## **Retiree Medical Experience**

As described in Section 6.2, recent claims experience and actual healthcare enrollment created an actuarial gain of approximately \$24.3 million (including health plan enrollment data and other miscellaneous changes). There were additional demographic experience gains of approximately \$9.3 million.

## **Effect of FY16 State Contribution**

The State contribution made in FY16 increased the funded ratio of the plan by approximately 1.4%.

## **Valuation Programming Refinements**

We refined our pension valuation programming for current disabled participants to adjust occupational and nonoccupational death benefits. The effect of the programming changes was an actuarial loss of \$1.0M for pension.

## **Actuarial Projections**

Several years ago, the Board approved the use of an enhanced actuarial projection system in the valuation report. The same actuarial cost method is used, but the enhanced system projects the associated liabilities 30 years into the future. By also projecting plan assets, this report in effect produces an actuarial valuation for each of the next 30 years. Section 4, Actuarial Funding Projections, contains the results of this analysis.

This type of information can be especially useful to multi-tiered systems, such as TRS. No new DB plan entrants are anticipated. The total active population is expected to grow at 0% per year and all future demographic assumptions are expected to be exactly realized. In Section 4.7, we illustrate the sensitivity of projected contributions due to potential changes in expected investment rates of return.

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

There have been no material changes in the asset or valuation methods since the prior valuation. Enhanced health plan enrollment data resulted in some offsetting cost increases and enrollment decreases.

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

Starting with the June 30, 2016 valuation, the Normal Cost used for determining contribution rates and in the projections includes a rehire assumption to account for anticipated rehires. This assumption was developed based on the 5 years of rehire loss experience through June 30, 2015. Healthcare claim costs are updated annually as described in Section 6.2.

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

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

## Comparative Summary of Key Actuarial Valuation Results

| Employer/State Contribution Rates for Pension for Fiscal Year:                   | 2018          | 2019          |
|--|---------------|---------------|
| a. Normal Cost Rate Net of Member Contributions                                  | 2.22%         | 3.26%         |
| b. Past Service Rate   | <u>16.94%</u> | <u>18.58%</u> |
| c. Total Employer/State Contribution Rate, (a) + (b)*                            | 19.16%        | 21.84%        |
| Employer/State Contribution Rates for Postemployment Healthcare for Fiscal Year: | 2018          | 2019          |
| a. Normal Cost Rate  | 1.77 %        | 2.03%         |
| b. Past Service Rate   | <u>0.82 %</u> | <u>1.30%</u>  |
| c. Total Employer/State Contribution Rate, (a) + (b)*                            | 2.59%         | 3.33%         |
| Total Employer/State Contribution Rates for Fiscal Year:                         | 2018          | 2019          |
| a. Normal Cost Rate Net of Member Contributions                                  | 3.99%         | 5.29%         |
| b. Past Service Rate   | <u>17.76%</u> | <u>19.89%</u> |
| c. Total Employer/State Contribution Rate, (a) + (b)*                            | 21.75%        | 25.18%        |
| d. Board Adopted Total Employer/State Contribution Rate                          | 21.75%        | TBD           |
| e. Defined Contribution Retirement (DCR) Rate Paid by Employers                  | <u>5.03%</u>  | <u>5.27%</u>  |
| f. Board Adopted Total Rate, Including DCR Rate Paid by Employers, (d) + (e)     | 26.78%        | TBD           |

\* Beginning with the June 30, 2014 valuation, contribution rates for FY17 and beyond are contribution rates are determined using new methodology in accordance with 2014 legislation under HB 385 and SB 119, 2014 Alaska Laws, which changed the amortization methodology to a closed 25-year period as a level percentage of pay, and eliminated the time lag on the contribution rate calculation by using a 2-year "roll-forward" approach and assuming 0% population growth. Investment gains and losses are recognized over a 5-year period beginning in FY15.

Contribution rates are based on salary for both DB plan members and DCR members, combined. The healthcare rates shown above are for funding purposes which differ from the healthcare Annual Required Contribution for GASB No. 43 reporting purposes. Under GASB No. 43, postemployment healthcare liabilities are gross of the retiree drug subsidy and are calculated with a discount rate for a partially funded plan. Under GASB No. 43, TRS calculates the amortization of the unfunded liabilities as a level dollar amount.

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

## Summary of Actuarial Gain/(Loss) and Other Changes During the Year

The following table summarizes the sources of change in the total Employer/State contribution rate as of June 30, 2015 to June 30, 2016 based on DB and DCR member payroll combined:

|  | Pension | Healthcare | Total   |
|--|---------|------------|---------|
| 1. Total Employer/State contribution rate as of June 30, 2015            | 16.68%  | 2.16%      | 18.84%  |
| Change due to:   |         |            |         |
| a. FY16 Contribution   | 0.04%   | (0.50)%    | (0.46)% |
| b. Investment experience   | 1.29%   | 0.67%      | 1.96%   |
| c. Salary increases  | (0.29)% | 0.00%      | (0.29)% |
| d. Demographic and medical experience <sup>1</sup> & <sup>2</sup>        | 0.02%   | 0.00%      | 0.02%   |
| e. Addition of rehire assumption   | 1.42%   | 0.24%      | 1.66%   |
| f. Total change, (a) + (b) + (c) + (d) + (e)                             | 2.48%   | 0.41%      | 2.89%   |
| Total Employer/State contribution rate as of June 30, 2016, (1) + (2)(f) | 19.16%  | 2.57%      | 21.73%  |

The following table shows the FY16 gain/(loss) on total actuarial accrued liability as of June 30, 2016 (\$'s in 000's):

|   | Pension   | Healthcare | Total     |
|---|-----------|------------|-----------|
| Retirement Experience                     | \$ 7,046  | \$ 1,691   | \$ 8,737  |
| Termination Experience                    | (9,687)   | (3,040)    | (12,727)  |
| Active Mortality Experience               | 2,108     | (300)      | 1,808     |
| Inactive Mortality Experience             | (7,720)   | 5,540      | (2,180)   |
| Disability Experience                     | (369)     | 466        | 97        |
| Rehires                                   | (8,470)   | (584)      | (9,054)   |
| Other Demographic Experience <sup>2</sup> | (34,154)  | 5,597      | (28,557)  |
| Salary Increases                          | 32,576    | N/A        | 32,576    |
| Alaska COLA                               | 135       | N/A        | 135       |
| PRPA Other Than Expected                  | 84,291    | N/A        | 84,291    |
| Medical Claims Costs <sup>1</sup>         | N/A       | 24,266     | 24,266    |
| Total                                     | \$ 65,756 | \$ 33,636  | \$ 99,392 |

<sup>1</sup> Includes changes in assumed future healthcare claims costs and reflects healthcare enrollment.

<sup>2</sup> Includes the effects of data and programming changes.

- The pension loss includes:
  - o (\$1.0M): Programming refinements for current disabled participants (occupational and nonoccupational death benefits)
  - o (\$31.2M): Form of payment data corrections performed by Division
  - o (\$2.0M): Data and other miscellaneous changes
- The healthcare gain includes:
  - o 5.6M: Data and other miscellaneous changes

# Section 1 Actuarial Funding Results

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

| As of June 30, 2016                           | Present Value of<br>Projected Benefits | Actuarial Accrued<br>(Past Service)<br>Liability |
|---|--|--|
| <b>Active Members</b>                         |  |  |
| Retirement Benefits                           | \$ 2,170,829                           | \$ 1,889,575                                     |
| Termination Benefits                          | 50,630                                 | 20,279   |
| Disability Benefits                           | 4,523                                  | (1,506)  |
| Death Benefits                                | 11,786                                 | 9,429  |
| Return of Contributions                       | 4,822                                  | (54,746)   |
| Medical and Prescription Drug Benefits        | 1,048,422                              | 942,757  |
| Medicare Part D Subsidy                       | (53,083)                               | (48,005)   |
| Indebtedness                                  | <u>(32,916)</u>                        | <u>(32,916)</u>                                  |
| Subtotal                                      | \$ 3,205,013                           | \$ 2,724,867                                     |
| <b>Inactive Members</b>                       |  |  |
| Not Vested                                    | \$ 41,488                              | \$ 41,488  |
| Vested Terminations                           |  |  |
| - Retirement Benefits                         | 119,402                                | 119,402  |
| - Medical and Prescription Drug Benefits      | 186,334                                | 186,334  |
| - Medicare Part D Subsidy                     | (9,192)                                | (9,192)  |
| - Retirement Benefits                         | (3,527)                                | (3,527)  |
| Retirees & Beneficiaries                      |  |  |
| - Retirement Benefits                         | 5,172,310                              | 5,172,310  |
| - Medical and Prescription Drug Benefits      | 1,807,045                              | 1,807,045  |
| - Medicare Part D Subsidy                     | <u>(131,103)</u>                       | <u>(131,103)</u>                                 |
| Subtotal                                      | \$ 7,182,757                           | \$ 7,182,757                                     |
| <b>Total</b>                                  | <b>\$ 10,387,770</b>                   | <b>\$ 9,907,624</b>                              |
| <b>Total Pension</b>                          | <b>\$ 7,539,347</b>                    | <b>\$ 7,159,788</b>                              |
| <b>Total Medical, Net of Part D Subsidy</b>   | <b>\$ 2,848,423</b>                    | <b>\$ 2,747,836</b>                              |
| <b>Total Medical, Gross of Part D Subsidy</b> | <b>\$ 3,041,801</b>                    | <b>\$ 2,936,136</b>                              |

| As of June 30, 2016              | Present Value of<br>Projected Benefits | Actuarial Accrued<br>(Past Service)<br>Liability |
|----------------------------------|--|--|
| <b>By Tier</b>                   |  |  |
| Tier 1                           |  |  |
| - Pension                        | \$ 4,940,199                           | \$ 4,911,283                                     |
| - Medical, Net of Part D Subsidy | 1,548,724                              | 1,542,144  |
| Tier 2                           |  |  |
| - Pension                        | 2,599,148                              | 2,248,505  |
| - Medical, Net of Part D Subsidy | <u>1,299,699</u>                       | <u>1,205,692</u>                                 |
| <b>Total</b>                     | <b>\$ 10,387,770</b>                   | <b>\$ 9,907,624</b>                              |

| As of June 30, 2016                           | Normal<br>Cost   |
|---|------------------|
| <b>Active Members</b>                         |                  |
| Retirement Benefits                           | \$ 42,854        |
| Termination Benefits                          | 4,444            |
| Disability Benefits                           | 893              |
| Death Benefits                                | 373              |
| Return of Contributions                       | 9,142            |
| Medical and Prescription Drug Benefits        | 18,365           |
| Medicare Part D Subsidy                       | (918)            |
| Rehire (Pension)                              | 10,670           |
| Rehire (Medical)                              | <u>1,813</u>     |
| Subtotal                                      | \$ 87,636        |
| <b>Total</b>                                  | <b>\$ 87,636</b> |
| <b>Total Pension</b>                          | <b>\$ 68,376</b> |
| <b>Total Medical, Net of Part D Subsidy</b>   | <b>\$ 19,260</b> |
| <b>Total Medical, Gross of Part D Subsidy</b> | <b>\$ 20,273</b> |
| <b>By Tier</b>                                |                  |
| Tier 1  |                  |
| - Pension                                     | \$ 8,337         |
| - Medical, Net of Part D Subsidy              | 1,920            |
| Tier 2  |                  |
| - Pension                                     | 60,039           |
| - Medical, Net of Part D Subsidy              | <u>17,340</u>    |
| <b>Total</b>                                  | <b>\$ 87,636</b> |



## Section 1.2 Actuarial Contributions as of June 30, 2016 (\$'s in 000's)

| Normal Cost Rate   | Pension          | Healthcare       | Total            |
|--|------------------|------------------|------------------|
| 1. Total Normal Cost   | \$ 68,376        | \$ 19,260        | \$ 87,636        |
| DB Rate Payroll Projected for FY17                                       | 449,629          | 449,629          | 449,629          |
| DCR Rate Payroll Projected for FY17                                      | 300,750          | 300,750          | 300,750          |
| Total Rate Payroll Projected for FY17                                    | 750,379          | 750,379          | 750,379          |
| Normal Cost Rate   |                  |                  |                  |
| a. Based on DB Rate Payroll, (1) ÷ (2)                                   | 15.21%           | 4.28%            | 19.49%           |
| b. Based on Total Rate Payroll, (1) ÷ (4)                                | 9.11%            | 2.57%            | 11.68%           |
| Average Member Contribution Rate <sup>1</sup>                            | 5.18%            | 0.00%            | 5.18%            |
| Employer Normal Cost Rate, (5)(b) – (6)                                  | 3.93%            | 2.57%            | 6.50%            |
| Past Service Rate  |                  |                  |                  |
| 1. Actuarial Accrued Liability   | \$ 7,159,788     | \$ 2,747,836     | \$ 9,907,624     |
| 2. Valuation Assets  | <u>5,428,687</u> | <u>2,771,704</u> | <u>8,200,391</u> |
| 3. Total Unfunded Actuarial Accrued Liability,<br>(1) – (2)              | \$ 1,731,101     | \$ (23,868)      | \$ 1,707,233     |
| 4. Funded Ratio, (2) ÷ (1)   | 75.82%           | 100.87%          | 82.77%           |
| 5. Past Service Cost Amortization Payment <sup>2</sup>                   | 114,320          | (1,576)          | 112,744          |
| 6. Total Rate Payroll Projected for FY17                                 | 750,379          | 750,379          | 750,379          |
| 7. Past Service Rate, (5) ÷ (6), not less than 0%                        | 15.23%           | 0.00%            | 15.23%           |
| <b>Total Employer/State Contribution Rate</b>                            | <b>19.16%</b>    | <b>2.57%</b>     | <b>21.73%</b>    |
| <b>Normal Cost Rate by Tier (Total Employer and Member) <sup>3</sup></b> |                  |                  |                  |
| Tier 1   | 15.79%           | 3.63%            | 19.42%           |
| Tier 2   | 15.13%           | 4.37%            | 19.50%           |
| Maturity Ratio   | 74.40%           | 67.40%           | 72.50%           |

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

<sup>2</sup> Calculated on a level percent of pay over a 23-year period as of June 30, 2016.

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

## Section 1.3 Roll Forward Contribution Rate Calculation for FY19

|  | Pension             | Healthcare          | Total                |
|--|---------------------|---------------------|----------------------|
| <b>1. Liability Roll Forward</b>                                   |                     |                     |                      |
| <b>a. Actuarial Accrued Liability as of June 30, 2016</b>          | <b>\$ 7,159,788</b> | <b>\$ 2,747,836</b> | <b>\$ 9,907,624</b>  |
| b. Normal Cost   | 68,376              | 19,260              | 87,636               |
| c. Interest on (a) and (b) at 8.00%                                | 578,253             | 221,368             | 799,621              |
| d. Estimated Benefit Payments                                      | (459,072)           | (138,838)           | (597,910)            |
| e. Interest on (d) at 8.00%, adjusted for timing                   | <u>(19,542)</u>     | <u>(5,910)</u>      | <u>(25,452)</u>      |
| <b>f. Expected Actuarial Accrued Liability as of June 30, 2017</b> | <b>\$ 7,327,803</b> | <b>\$ 2,843,716</b> | <b>\$ 10,171,519</b> |
| g. Projected Normal Cost   | 64,245              | 17,524              | 81,769               |
| h. Interest on (f) and (g) at 8.00%                                | 591,364             | 228,899             | 820,263              |
| i. Estimated Benefit Payments                                      | (480,759)           | (147,397)           | (628,156)            |
| j. Interest on (i) at 8.00%, adjusted for timing                   | <u>(20,465)</u>     | <u>(6,274)</u>      | <u>(26,739)</u>      |
| <b>k. Expected Actuarial Accrued Liability as of June 30, 2018</b> | <b>\$ 7,482,188</b> | <b>\$ 2,936,468</b> | <b>\$ 10,418,656</b> |
| <b>2. Asset Roll Forward</b>                                       |                     |                     |                      |
| <b>a. Actuarial Value of Assets as of June 30, 2016</b>            | <b>\$ 5,428,687</b> | <b>\$ 2,771,704</b> | <b>\$ 8,200,391</b>  |
| b. Interest on (a) at 8.00%  | 434,295             | 221,736             | 656,031              |
| c. Employee Contributions  | 42,732              | 0                   | 42,732               |
| d. Employer Contributions  | 38,645              | 20,935              | 59,580               |
| e. State Assistance  | 116,700             | 0                   | 116,700              |
| f. Interest on (c) – (e) at 8.00%, adjusted for timing*            | 10,127              | 821                 | 10,948               |
| g. Estimated Benefit Payments                                      | (459,072)           | (138,838)           | (597,910)            |
| h. AVA Adjustments   | (171,521)           | (87,964)            | (259,485)            |
| i. Interest on (g) at 8.00%, adjusted for timing                   | <u>(19,542)</u>     | <u>(5,910)</u>      | <u>(25,452)</u>      |
| <b>j. Expected Actuarial Value of Assets as of June 30, 2017</b>   | <b>\$ 5,421,051</b> | <b>\$ 2,782,484</b> | <b>\$ 8,203,535</b>  |
| k. Interest on (j) at 8.00%  | 433,684             | 222,599             | 656,283              |
| l. Employee Contributions  | 40,682              | 0                   | 40,682               |
| m. Employer Contributions  | 42,934              | 14,796              | 57,730               |
| n. State Assistance  | 106,570             | 5,187               | 111,757              |
| o. Interest on (l) – (n) at 8.00%, adjusted for timing*            | 11,806              | 995                 | 12,801               |
| p. Estimated Benefit Payments                                      | (480,759)           | (147,397)           | (628,156)            |
| q. AVA Adjustments   | (160,914)           | (82,513)            | (243,427)            |
| r. Interest on (p) at 8.00%, adjusted for timing                   | <u>(20,465)</u>     | <u>(6,274)</u>      | <u>(26,739)</u>      |
| <b>s. Expected Actuarial Value of Assets as of June 30, 2018</b>   | <b>5,394,589</b>    | <b>2,789,877</b>    | <b>8,184,466</b>     |

|   | Pension             | Healthcare         | Total               |
|---|---------------------|--------------------|---------------------|
| <b>3. Unfunded Liability Roll Forward</b>                                   |                     |                    |                     |
| <b>a. Unfunded Actuarial Accrued Liability as of June 30, 2016</b>          | <b>\$ 1,731,101</b> | <b>\$ (23,868)</b> | <b>\$ 1,707,233</b> |
| b. Normal Cost  | 68,376              | 19,260             | 87,636              |
| c. Interest on (a) and (b) at 8.00%   | 143,958             | (368)              | 143,590             |
| d. Employee Contributions   | (42,732)            | 0                  | (42,732)            |
| e. Employer Contributions   | (38,645)            | (20,935)           | (59,580)            |
| f. State Assistance   | (116,700)           | 0                  | (116,700)           |
| g. AVA Adjustment   | 171,521             | 87,964             | 259,485             |
| h. Interest on (d) – (f) at 8.00%, adjusted for timing*                     | <u>(10,127)</u>     | <u>(821)</u>       | <u>(10,948)</u>     |
| <b>i. Expected Unfunded Actuarial Accrued Liability as of June 30, 2017</b> | <b>\$ 1,906,752</b> | <b>\$ 61,232</b>   | <b>\$ 1,967,984</b> |
| j. Projected Normal Cost  | 64,245              | 17,524             | 81,769              |
| k. Interest on (i) and (j) at 8.00%   | 157,680             | 6,300              | 163,980             |
| l. Employee Contributions   | (40,682)            | 0                  | (40,682)            |
| m. Employer Contributions   | (42,934)            | (14,796)           | (57,730)            |
| n. State Assistance   | (106,570)           | (5,187)            | (111,757)           |
| o. AVA Adjustment   | 160,914             | 82,513             | 243,427             |
| p. Interest on (l) – (n) at 8.00%, adjusted for timing*                     | <u>(11,806)</u>     | <u>(995)</u>       | <u>(12,801)</u>     |
| <b>q. Expected Unfunded Actuarial Accrued Liability as of June 30, 2018</b> | <b>\$ 2,087,599</b> | <b>\$ 146,591</b>  | <b>\$ 2,234,190</b> |
| <b>4. Expected Annual Rate Payroll for FY19</b>                             |                     |                    |                     |
| a. Defined Benefit Members  |                     |                    | \$ 399,217          |
| b. Defined Contribution Retirement Members                                  |                     |                    | <u>385,203</u>      |
| <b>c. Total Rate Payroll</b>  |                     |                    | <b>\$ 784,420</b>   |
| <b>5. Expected FY19 Contribution Rate Calculation</b>                       |                     |                    |                     |
| a. Projected Normal Cost for FY19   | \$ 60,185           | \$ 15,915          | \$ 76,100           |
| b. Projected Normal Cost Rate for FY19                                      | 7.67%               | 2.03%              | 9.70%               |
| c. Expected Member Contribution Rate for FY19                               | (4.41)%             | 0.00%              | (4.41)%             |
| <b>d. Expected Employer Normal Cost Rate for FY19</b>                       | <b>3.26%</b>        | <b>2.03%</b>       | <b>5.29%</b>        |
| e. Expected Unfunded Liability as of June 30, 2018                          | \$ 2,087,599        | \$ 146,591         | \$ 2,234,190        |
| f. 21 Year Amortization of Expected Unfunded Liability                      | 145,770             | 10,236             | 156,006             |
| <b>g. Expected Past Service Cost Contribution Rate for FY19</b>             | <b>18.58%</b>       | <b>1.30%</b>       | <b>19.89%</b>       |
| <b>h. Expected Total Contribution Rate for FY19</b>                         | <b>\$ 21.84%</b>    | <b>\$ 3.33%</b>    | <b>\$ 25.18%</b>    |

\* Employee and Employer Contributions are paid throughout the year. State Assistance was paid on October 1, 2016 for FY17 and is assumed to be paid at the beginning of each year thereafter.

## Section 1.4 Actuarial Gain / (Loss) for FY16 (\$'s in 000's)

|  | Pension             | Healthcare         | Total               |
|--|---------------------|--------------------|---------------------|
| <b>1. Expected Actuarial Accrued Liability</b>   |                     |                    |                     |
| a. Actuarial Accrued Liability, June 30, 2015  | \$ 7,051,724        | \$ 2,677,393       | \$ 9,729,117        |
| b. Normal Cost for FY16  | 61,010              | 16,737             | 77,747              |
| c. Interest on (a) and (b) at 8.00%  | 569,019             | 215,530            | 784,549             |
| d. Actual Benefit Payments for FY16  | 435,699             | 122,954            | 558,653             |
| e. Refund of Contributions for FY16  | 1,883               | 0                  | 1,883               |
| f. Interest on (d) and (e) at 8.00%, adjusted for timing   | 18,627              | 5,234              | 23,861              |
| g. Change in Actuarial Assumptions   | 0                   | 0                  | 0                   |
| h. Change in Healthcare Cost Trend Rates   | N/A                 | 0                  | 0                   |
| i. Expected Actuarial Accrued Liability as of June 30, 2016,<br>(a) + (b) + (c) – (d) – (e) – (f) + (g) + (h)  | \$ 7,225,544        | \$ 2,781,472       | \$ 10,007,016       |
| <b>2. Actual Actuarial Accrued Liability, June 30, 2016</b>  | <u>7,159,788</u>    | <u>2,747,836</u>   | <u>9,907,624</u>    |
| <b>3. Liability Gain/(Loss), (1)(i) – (2)</b>  | <b>\$ 65,756</b>    | <b>\$ 33,636</b>   | <b>\$ 99,392</b>    |
| <b>4. Expected Actuarial Asset Value</b>   |                     |                    |                     |
| a. Actuarial Asset Value, June 30, 2015  | \$ 5,422,651        | \$ 2,686,272       | \$ 8,108,923        |
| b. Interest on (a) at 8.00%  | 433,812             | 214,902            | 648,714             |
| c. Employee Contributions for FY16   | 42,654              | 306                | 42,960              |
| d. Employer Contributions for FY16   | 33,478              | 26,580             | 60,058              |
| e. State Assistance for FY16   | 90,590              | 39,519             | 130,109             |
| f. Medicare Part D Subsidy   | 0                   | 5,003              | 5,003               |
| g. Interest on (c), (d), (e) and (f) at 8.00%, adjusted for timing   | 8,369               | 3,207              | 11,576              |
| h. Benefit Payments for FY16   | 435,699             | 122,954            | 558,653             |
| i. Refund of Contributions for FY16  | 1,883               | 0                  | 1,883               |
| j. Interest on (h) and (i) at 8.00%, adjusted for timing   | <u>18,627</u>       | <u>5,234</u>       | <u>23,861</u>       |
| k. Expected Actuarial Asset Value, June 30, 2016,<br>(a) + (b) + (c) + (d) + (e) + (f) + (g) – (h) – (i) – (j) | \$ 5,575,345        | \$ 2,847,601       | \$ 8,422,946        |
| <b>5. Actuarial Asset Value, June 30, 2016</b>   | <u>5,428,687</u>    | <u>2,771,704</u>   | <u>8,200,391</u>    |
| <b>6. Actuarial Asset Gain/(Loss), (5) – (4)(k)</b>  | <b>\$ (146,658)</b> | <b>\$ (75,897)</b> | <b>\$ (222,555)</b> |
| <b>7. Actuarial Gain/(Loss), (3) + (6)</b>   | <b>\$ (80,902)</b>  | <b>\$ (42,261)</b> | <b>\$ (123,163)</b> |
| <b>8. Contribution Gain/(Loss)</b>   | <b>\$ (4,102)</b>   | <b>\$ 57,157</b>   | <b>\$ 53,055</b>    |
| <b>9. FY16 Gain/(Loss), (7) + (8)</b>  | <b>\$ (85,004)</b>  | <b>\$ 14,896</b>   | <b>\$ (70,108)</b>  |

## Section 1.5 Development of Change in Unfunded Liability During FY16 (\$'s in 000's)

|  | Pension        | Healthcare    | Total          |
|--|----------------|---------------|----------------|
| 1. 2015 Unfunded Liability                           | \$ 1,629,073   | \$ (8,879)    | \$ 1,620,194   |
| a. Interest on Unfunded Liability                    | \$ 130,326     | \$ (710)      | \$ 129,616     |
| b. Normal Cost                                       | 61,010         | 16,737        | 77,747         |
| c. Employee Contributions                            | (42,654)       | (306)         | (42,960)       |
| d. Employer Contributions                            | (33,478)       | (26,580)      | (60,058)       |
| e. State Assistance Contributions                    | (90,590)       | (39,519)      | (130,109)      |
| f. Medicare Part D Subsidy                           | 0              | (5,003)       | (5,003)        |
| g. Interest on (b), (c), (d), (e), and (f)           | (3,488)        | (1,869)       | (5,357)        |
| h. Change in Actuarial Assumptions                   | 0              | 0             | 0              |
| i. Change in Healthcare Cost Trend Rates             | <u>N/A</u>     | <u>0</u>      | <u>0</u>       |
| j. Expected change in Unfunded Liability during FY16 | \$ 21,126      | \$ (57,250)   | \$ (36,124)    |
| Expected 2016 Unfunded Liability, (1) + (1)(j)       | \$ 1,650,199   | \$ (66,129)   | \$ 1,584,070   |
| a. Liability (gains)/losses during FY16              | \$ (65,756)    | \$ (33,636)   | \$ (99,392)    |
| b. Assets (gains)/losses during FY16                 | <u>146,658</u> | <u>75,897</u> | <u>222,555</u> |
| c. Total (gains)/losses during FY16                  | \$ 80,902      | \$ 42,261     | \$ 123,163     |
| Actual 2016 Unfunded Liability, (2) + (2)(c)         | \$ 1,731,101   | \$ (23,868)   | \$ 1,707,233   |

## Section 1.6 Analysis of Financial Experience

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

| Type of (Gain) or Loss   | Change in Employer/State Contribution Rate During Fiscal Year |               |               |               |               |
|--|---|---------------|---------------|---------------|---------------|
|  | 2012  | 2013          | 2014          | 2015          | 2016          |
| 1. Health Claims and Demographic Experience                                      | N/A   | N/A           | N/A           | N/A           | N/A           |
| Salary Experience  | 0.00%   | (0.30)%       | (0.43)%       | (0.34)%       | (0.42)%       |
| Investment Experience  | 3.47%   | 2.09%         | (3.97)%       | 0.40%         | 1.36%         |
| Demographic Experience   | (0.36)%   | 0.38%         | 1.75%         | (0.52)%       | (0.98)%       |
| Normal Cost Rehire Assumption  | 0.00%   | 0.00%         | 0.00%         | 0.00%         | 2.73%         |
| Contribution Shortfall   | <u>0.52%</u>  | <u>1.34%</u>  | <u>1.10%</u>  | <u>0.00%</u>  | <u>0.00%</u>  |
| (Gain) or Loss During Year From Experience,<br>(1) + (2) + (3) + (4) + (5) + (6) | 3.63%   | 3.51%         | (1.55)%       | (0.46)%       | 2.69%         |
| Assumption and Method Changes  | 9.52%   | 0.00%         | (28.73)%      | 0.00%         | 0.00%         |
| System Benefit Changes   | <u>0.00%</u>  | <u>0.00%</u>  | <u>0.00%</u>  | <u>0.00%</u>  | <u>0.00%</u>  |
| Composite (Gain) or Loss During Year,<br>(7) + (8) + (9)                         | 13.15%  | 3.51%         | (30.28)%      | (0.46)%       | 2.69%         |
| Beginning Total Employer/State Contribution Rate                                 | <u>31.40%</u>   | <u>44.55%</u> | <u>48.06%</u> | <u>17.78%</u> | <u>19.16%</u> |
| Ending Valuation Year Total Employer/State Contribution Rate,<br>(10) + (11)     | 44.55%  | 48.06%        | 17.78%        | 17.32%        | 21.85%        |
| Fiscal Year Rates  |   |               |               |               |               |
| a. Fiscal Year Employer/State Contribution Rates                                 | 29.90%  | 15.85%        | 17.78%        | 19.16%        | 21.85%*       |
| b. Fiscal Year for Which Rate Applies  | FY15  | FY16          | FY17          | FY18          | FY19          |

\*Expected. Actual Rate to be determined.

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

| Type of (Gain) or Loss   | Change in Employer/State Contribution Rate During Fiscal Year |               |               |              |              |
|--|---|---------------|---------------|--------------|--------------|
|  | 2012  | 2013          | 2014          | 2015         | 2016         |
| 1. Health Claims and Demographic Experience                                      | (2.02)%   | (1.21)%       | (8.59)%       | (4.07)%      | (0.43)%      |
| Salary Experience  | N/A   | N/A           | N/A           | N/A          | N/A          |
| Investment Experience  | 0.71%   | 0.35%         | (2.34)%       | 0.22%        | 0.71%        |
| Demographic Experience   | N/A   | N/A           | N/A           | N/A          | N/A          |
| Normal Cost Rehire Assumption  | 0.00%   | 0.00%         | 0.00%         | 0.00%        | 0.46%        |
| Contribution Shortfall   | <u>0.19%</u>  | <u>0.28%</u>  | <u>0.14%</u>  | <u>0.00%</u> | <u>0.00%</u> |
| (Gain) or Loss During Year From Experience,<br>(1) + (2) + (3) + (4) + (5) + (6) | (1.12)%   | (0.58)%       | (10.79)%      | (3.85)%      | 0.74%        |
| Assumption and Method Changes  | 4.18%   | 0.00%         | (4.77)%       | 0.00%        | 0.00%        |
| System Benefit Changes   | <u>0.00%</u>  | <u>0.00%</u>  | <u>0.00%</u>  | <u>0.00%</u> | <u>0.00%</u> |
| Composite (Gain) or Loss During Year,<br>(7) + (8) + (9)                         | 3.06%   | (0.58)%       | (15.56)%      | (3.85)%      | 0.74%        |
| Beginning Total Employer/State Contribution Rate                                 | <u>18.70%</u>   | <u>21.76%</u> | <u>21.18%</u> | <u>5.62%</u> | <u>2.59%</u> |
| Ending Valuation Year Total Employer/State Contribution Rate,<br>(10) + (11)     | 21.76%  | 21.18%        | 5.62%         | 1.77%        | 3.33%        |
| Fiscal Year Rates  |   |               |               |              |              |
| a. Fiscal Year Employer/State Contribution Rates                                 | 14.35%  | 8.63%         | 5.62%         | 2.59%        | 3.33%*       |
| b. Fiscal Year for Which Rate Applies  | FY15  | FY16          | FY17          | FY18         | FY19         |

\*Expected. Actual Rate to be determined.

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

| Type of (Gain) or Loss   | Change in Employer/State Contribution Rate During Fiscal Year |               |               |               |               |
|--|---|---------------|---------------|---------------|---------------|
|  | 2012  | 2013          | 2014          | 2015          | 2016          |
| 1. Health Claims and Demographic Experience                                      | (2.02)%   | (1.21)%       | (8.59)%       | (4.07)%       | (0.43)%       |
| Salary Experience  | 0.00%   | (0.30)%       | (0.43)%       | (0.34)%       | (0.42)%       |
| Investment Experience  | 4.18%   | 2.44%         | (6.31)%       | 0.62%         | 2.07%         |
| Demographic Experience   | (0.36)%   | 0.38%         | 1.75%         | (0.52)%       | (0.98)%       |
| Normal Cost Rehire Assumption  | 0.00%   | 0.00%         | 0.00%         | 0.00%         | 3.19%         |
| Contribution Shortfall   | <u>0.71%</u>  | <u>1.62%</u>  | <u>1.24%</u>  | <u>0.00%</u>  | <u>0.00%</u>  |
| (Gain) or Loss During Year From Experience,<br>(1) + (2) + (3) + (4) + (5) + (6) | 2.51%   | 2.93%         | (12.34)%      | (4.31)%       | 3.43%         |
| Assumption and Method Changes  | 13.70%  | 0.00%         | (33.50)%      | 0.00%         | 0.00%         |
| System Benefit Changes   | <u>0.00%</u>  | <u>0.00%</u>  | <u>0.00%</u>  | <u>0.00%</u>  | <u>0.00%</u>  |
| Composite (Gain) or Loss During Year,<br>(7) + (8) + (9)                         | 16.21%  | 2.93%         | (45.84)%      | (4.31)%       | 3.43%         |
| Beginning Total Employer/State Contribution Rate                                 | <u>50.10%</u>   | <u>66.31%</u> | <u>69.24%</u> | <u>23.40%</u> | <u>21.75%</u> |
| Ending Valuation Year Total Employer/State Contribution Rate,<br>(10) + (11)     | 66.31%  | 69.24%        | 23.40%        | 19.09%        | 25.18%        |
| Fiscal Year Rates  |   |               |               |               |               |
| a. Fiscal Year Employer/State Contribution Rates                                 | 44.25%  | 24.48%        | 23.40%        | 21.75%        | 25.18%*       |
| b. Fiscal Year for Which Rate Applies  | FY15  | FY16          | FY17          | FY18          | FY19          |

\*Expected. Actual Rate to be determined.



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

| Valuation Date | Total Actuarial Accrued Liability | Valuation Assets | Assets as a Percent of Actuarial Accrued Liability | Unfunded Actuarial Accrued Liability (UAAL) |
|----------------|-----------------------------------|------------------|--|---|
| June 30, 2003  | \$ 5,835,609                      | \$ 3,752,285     | 64.3%  | \$ 2,083,324                                |
| June 30, 2004  | \$ 6,123,600                      | \$ 3,845,370     | 62.8%  | \$ 2,278,230                                |
| June 30, 2005  | \$ 6,498,556                      | \$ 3,958,939     | 60.9%  | \$ 2,539,617                                |
| June 30, 2006  | \$ 7,229,851                      | \$ 4,141,700     | 57.3%  | \$ 3,088,151                                |
| June 30, 2007  | \$ 7,189,403                      | \$ 4,424,399     | 61.5%  | \$ 2,765,004                                |
| June 30, 2008  | \$ 7,619,178                      | \$ 4,936,976     | 64.8%  | \$ 2,682,202                                |
| June 30, 2009  | \$ 7,847,514                      | \$ 4,472,958     | 57.0%  | \$ 3,374,556                                |
| June 30, 2010  | \$ 8,847,788                      | \$ 4,739,128     | 53.6%  | \$ 4,108,660                                |
| June 30, 2011  | \$ 9,128,795                      | \$ 4,937,937     | 54.1%  | \$ 4,190,858                                |
| June 30, 2012  | \$ 9,346,444                      | \$ 4,869,154     | 52.1%  | \$ 4,477,290                                |
| June 30, 2013  | \$ 9,592,107                      | \$ 4,974,076     | 51.9%  | \$ 4,618,031                                |
| June 30, 2014  | \$ 9,841,032                      | \$ 6,019,274     | 61.2%  | \$ 3,821,758                                |
| June 30, 2015  | \$ 9,729,117                      | \$ 8,108,923     | 83.3%  | \$ 1,620,194                                |
| June 30, 2016  | \$ 9,907,624                      | \$ 8,200,391     | 82.8%  | \$ 1,707,233                                |

## Section 2 Plan Assets

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

| As of June 30, 2016                  | Pension        | Healthcare      | Total Fair Value | Allocation Percent |
|--------------------------------------|----------------|-----------------|------------------|--------------------|
| Cash and Short-Term Investments      |                |                 |                  |                    |
| – Cash and Cash Equivalents          | \$ 37,839      | \$ 24,703       | \$ 62,542        | 0.8%               |
| – Subtotal                           | \$ 37,839      | \$ 24,703       | \$ 62,542        | 0.8%               |
| Fixed Income Investments             |                |                 |                  |                    |
| – Domestic Fixed Income Pool         | \$ 283,491     | \$ 145,170      | \$ 428,661       | 5.7%               |
| – International Fixed Income Pool    | 78,664         | 40,282          | 118,946          | 1.6%               |
| – High Yield Pool                    | 173,939        | 89,071          | 263,010          | 3.5%               |
| – Treasury Inflation Protection Pool | 11,923         | 6,105           | 18,028           | 0.2%               |
| – Emerging Debt Pool                 | 33,705         | 17,260          | 50,965           | 0.7%               |
| – Tactical Fixed Income Pool         | <u>33,088</u>  | <u>19,816</u>   | <u>52,904</u>    | <u>0.7%</u>        |
| – Subtotal                           | \$ 614,810     | \$ 317,704      | \$ 932,514       | 12.6%              |
| Equity Investments                   |                |                 |                  |                    |
| – Domestic Equity Pool               | \$ 1,288,741   | \$ 659,940      | \$ 1,948,681     | 26.1%              |
| – International Equity Pool          | 1,050,408      | 537,894         | 1,588,302        | 21.3%              |
| – Private Equity Pool                | 394,247        | 201,887         | 596,134          | 8.0%               |
| – Emerging Markets Equity Pool       | 141,355        | 72,385          | 213,740          | 2.9%               |
| – Alternative Equity Strategies      | <u>210,350</u> | <u>107,716</u>  | <u>318,066</u>   | <u>4.3%</u>        |
| – Subtotal                           | \$ 3,085,101   | \$ 1,579,822    | \$ 4,664,923     | 62.4%              |
| Other Investments                    |                |                 |                  |                    |
| – Real Estate Pool                   | \$ 389,650     | \$ 199,286      | \$ 588,936       | 7.9%               |
| – Other Investments Pool             | 487,041        | 249,405         | 736,446          | 9.8%               |
| – Absolute Return Pool               | 325,343        | 166,602         | 491,945          | 6.6%               |
| – Other Assets                       | <u>0</u>       | <u>711</u>      | <u>711</u>       | <u>0.0%</u>        |
| – Subtotal                           | \$ 1,202,034   | \$ 616,004      | \$ 1,818,038     | 24.3%              |
| Total Cash and Investments           | \$ 4,939,784   | \$ 2,538,233    | \$ 7,478,017     | 100.0%             |
| Net Accrued Receivables              | <u>2,417</u>   | <u>(14,654)</u> | <u>(12,237)</u>  |                    |
| Net Assets                           | \$ 4,942,201   | \$ 2,523,579    | \$ 7,465,780     |                    |

## Section 2.2 Changes in Fair Value of Assets During FY16 (\$'s in 000's)

| Fiscal Year 2016   | Pension      | Healthcare   | Total Fair Value |
|--|--------------|--------------|------------------|
| 1. Net Assets, June 30, 2015<br>(fair value)                                     | \$ 5,246,955 | \$ 2,588,966 | \$ 7,835,921     |
| Additions:   |              |              |                  |
| a. Employee Contributions  | \$ 42,654    | \$ 306       | \$ 42,960        |
| b. Employer Contributions  | 33,478       | 26,580       | 60,058           |
| c. State Assistance Contributions  | 90,590       | 39,519       | 130,109          |
| d. Interest and Dividend Income  | 92,261       | 46,644       | 138,905          |
| e. Net Appreciation/(Depreciation) in<br>Fair Value of Investments               | (112,741)    | (54,159)     | (166,900)        |
| f. Medicare Part D Subsidy   | 0            | 5,003        | 5,003            |
| g. Other   | <u>95</u>    | <u>4,740</u> | <u>4,835</u>     |
| h. Total Additions   | \$ 146,337   | \$ 68,633    | \$ 214,970       |
| Deductions:  |              |              |                  |
| a. Medical Benefits  | \$ 0         | \$ 122,954   | \$ 122,954       |
| b. Retirement Benefits   | 435,699      | 0            | 435,699          |
| c. Refunds of Contributions  | 1,883        | 0            | 1,883            |
| d. Investment Expenses   | 10,861       | 5,555        | 16,416           |
| e. Administrative Expenses   | <u>2,648</u> | <u>5,511</u> | <u>8,159</u>     |
| f. Total Deductions  | \$ 451,091   | \$ 134,020   | \$ 585,111       |
| Net Assets, June 30, 2016<br>(fair value)  | \$ 4,942,201 | \$ 2,523,579 | \$ 7,465,780     |
| Approximate Fair Value Investment Return<br>Rate During FY16 Net of All Expenses | (0.7)%       | (0.7)%       | (0.7)%           |
| Liquidity Factor   | 11.6         | 20.8         | 13.6             |

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

The actuarial value of assets was set equal to the fair value at June 30, 2014 and the 20% corridor was eliminated. Investment gains and losses after June 30, 2014 are recognized 20% per year over 5 years.

|   | Pension      | Healthcare   | Total        |
|---|--------------|--------------|--------------|
| 1. Deferral of Investment Gain/(Loss) for FY16  |              |              |              |
| a. Fair Value, June 30, 2015  | \$ 5,246,955 | \$ 2,588,966 | \$ 7,835,921 |
| b. Contributions for FY16   | 166,722      | 66,405       | 233,127      |
| c. Medicare Part D Subsidy  | 0            | 5,003        | 5,003        |
| d. Benefit Payments   | 437,582      | 122,954      | 560,536      |
| e. Actual Investment Return (net of expenses)   | (33,894)     | (13,841)     | (47,735)     |
| f. Expected Return Rate   | 8.00%        | 8.00%        | 8.00%        |
| g. Expected Return - Weighted for Timing  | 409,499      | 205,090      | 614,589      |
| h. Investment Gain/(Loss) for the Year, (e) – (g)                                     | (443,393)    | (218,931)    | (662,324)    |
| i. Deferred Investment Gain/(Loss)  | \$ (354,714) | \$ (175,145) | \$ (529,859) |
| 2. Actuarial Value, June 30, 2016   |              |              |              |
| a. Fair Value, June 30, 2016  | \$ 4,942,201 | \$ 2,523,579 | \$ 7,465,780 |
| b. Deferred Investment Gain/(Loss)  | (486,486)    | (248,125)    | (734,611)    |
| c. Actuarial Value, June 30, 2016, (a) – (b)  | \$ 5,428,687 | \$ 2,771,704 | \$ 8,200,391 |
| 3. Ratio of Actuarial Value of Assets to Fair Value of Assets                         |              |              |              |
|   | 109.8%       | 109.8%       | 109.8%       |
| 4. Approximate Actuarial Value Investment Return Rate During FY16 Net of All Expenses |              |              |              |
|   | 5.2%         | 5.0%         | 5.1%         |

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

| Pension         |                     |   |  |   |
|-----------------|---------------------|---|--|---|
| Plan Year Ended | Asset Gain/(Loss)   | Gain/(Loss)<br>Recognized in Prior<br>Years | Gain/(Loss)<br>Recognized This<br>Year | Gain/(Loss) Deferred<br>to Future Years |
| 6/30/2012       | \$ 0                | \$ 0  | \$ 0                                   | \$ 0                                    |
| 6/30/2013       | 0                   | 0   | 0                                      | 0                                       |
| 6/30/2014       | 0                   | 0   | 0                                      | 0                                       |
| 6/30/2015       | (219,620)           | (43,924)                                    | (43,924)                               | (131,772)                               |
| 6/30/2016       | <u>(443,393)</u>    | <u>0</u>                                    | <u>(88,679)</u>                        | <u>(354,714)</u>                        |
| <b>Total</b>    | <b>\$ (663,013)</b> | <b>\$ (43,924)</b>                          | <b>\$ (132,603)</b>                    | <b>\$ (486,486)</b>                     |

| Healthcare      |                     |   |  |   |
|-----------------|---------------------|---|--|---|
| Plan Year Ended | Asset Gain/(Loss)   | Gain/(Loss)<br>Recognized in Prior<br>Years | Gain/(Loss)<br>Recognized This<br>Year | Gain/(Loss) Deferred<br>to Future Years |
| 6/30/2012       | \$ 0                | \$ 0  | \$ 0                                   | \$ 0                                    |
| 6/30/2013       | 0                   | 0   | 0                                      | 0                                       |
| 6/30/2014       | 0                   | 0   | 0                                      | 0                                       |
| 6/30/2015       | (121,632)           | (24,326)                                    | (24,326)                               | (72,980)                                |
| 6/30/2016       | <u>(218,931)</u>    | <u>0</u>                                    | <u>(43,786)</u>                        | <u>(175,145)</u>                        |
| <b>Total</b>    | <b>\$ (340,563)</b> | <b>\$ (24,326)</b>                          | <b>\$ (68,112)</b>                     | <b>\$ (248,125)</b>                     |

| Total           |                       |   |  |   |
|-----------------|-----------------------|---|--|---|
| Plan Year Ended | Asset Gain/(Loss)     | Gain/(Loss)<br>Recognized in Prior<br>Years | Gain/(Loss)<br>Recognized This<br>Year | Gain/(Loss) Deferred<br>to Future Years |
| 6/30/2012       | \$ 0                  | \$ 0  | \$ 0                                   | \$ 0                                    |
| 6/30/2013       | 0                     | 0   | 0                                      | 0                                       |
| 6/30/2014       | 0                     | 0   | 0                                      | 0                                       |
| 6/30/2015       | (341,252)             | (68,250)                                    | (68,250)                               | (204,752)                               |
| 6/30/2016       | <u>(662,324)</u>      | <u>0</u>                                    | <u>(132,465)</u>                       | <u>(529,859)</u>                        |
| <b>Total</b>    | <b>\$ (1,003,576)</b> | <b>\$ (68,250)</b>                          | <b>\$ (200,715)</b>                    | <b>\$ (734,611)</b>                     |

## Section 2.4 Historical Asset Rates of Return

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

\*Cumulative since FYE June 30, 2005.

## Section 3 Accounting Information

### Section 3.1 Historical Exhibits

(\$'s in 000's)

#### Schedule of Employer Contributions

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

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

\* Pension accounting figures for fiscal years after 2013 are contained in separate GASB 67 reports.

## Schedule of Funding Progress

(\$'s in 000's)

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

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

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

<sup>2</sup> Change of Assumptions

<sup>3</sup> Change in Methods



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

The exhibit below shows postemployment healthcare disclosure without regard to the Medicare Part D subsidy under GASB No. 43.

| Valuation Date                     | Total Actuarial Accrued Liability | Valuation Assets | Assets as a Percent of Actuarial Accrued Liability | Unfunded Actuarial Accrued Liability (UAAL) | Annual Active Member Payroll <sup>1</sup> | UAAL as a Percent of Annual Active Member Payroll |
|------------------------------------|-----------------------------------|------------------|--|---|---|---|
| June 30, 2016 – 4.43%              | \$ 4,898,395                      | \$ 2,771,704     | 56.6%  | \$ 2,126,691                                | \$ 474,291                                | 448.4%  |
| June 30, 2015 – 4.31%              | 4,840,935                         | 2,686,272        | 55.5%  | 2,154,663                                   | 503,163                                   | 428.2%  |
| June 30, 2014 <sup>2</sup> – 4.25% | 5,373,322                         | 2,248,135        | 41.8%  | 3,125,187                                   | 523,580                                   | 596.9%  |
| June 30, 2013 – 5.08%              | 5,002,345                         | 1,803,763        | 36.1%  | 3,198,582                                   | 550,044                                   | 581.5%  |
| June 30, 2012 <sup>2</sup> – 5.01% | 5,046,942                         | 1,674,160        | 33.2%  | 3,372,782                                   | 561,971                                   | 600.2%  |
| June 30, 2011 – 7.08%              | 3,635,492                         | 1,591,988        | 43.8%  | 2,043,504                                   | 584,068                                   | 349.9%  |
| June 30, 2010 <sup>2</sup> – 8.00% | 3,076,388                         | 1,479,260        | 48.1%  | 1,597,128                                   | 564,887                                   | 282.7%  |
| June 30, 2009 – 4.50%              | 4,604,820                         | 1,357,239        | 29.5%  | 3,247,581                                   | 557,026                                   | 583.0%  |
| June 30, 2008 <sup>2</sup> – 4.50% | 4,648,055                         | 1,266,890        | 27.3%  | 3,381,165                                   | 549,148                                   | 615.7%  |
| June 30, 2007 – 4.50%              | 4,059,573                         | 982,532          | 24.2%  | 3,077,041                                   | 554,245                                   | 552.2%  |
| June 30, 2006 <sup>2</sup> – 4.50% | 4,288,707                         | 844,766          | 19.7%  | 3,443,941                                   | 574,409                                   | 599.6%  |

For illustration, the exhibit below shows the postemployment healthcare disclosure without regard to the Medicare Part D subsidy discounted at 8.00% and at 4.25% per annum under GASB No. 43 for the current year. These values show the minimum and maximum accrued liability amounts depending on the portion of ARC actually contributed.

| Valuation Date        | Total Actuarial Accrued Liability | Valuation Assets | Assets as a Percent of Actuarial Accrued Liability | Unfunded Actuarial Accrued Liability (UAAL) | Annual Active Member Payroll <sup>1</sup> | UAAL as a Percent of Annual Active Member Payroll |
|-----------------------|-----------------------------------|------------------|--|---|---|---|
| June 30, 2016 – 8.00% | \$ 2,936,136                      | \$ 2,771,704     | 94.4%  | \$ 164,432                                  | \$ 474,291                                | 34.7%   |
| June 30, 2016 – 4.25% | 5,046,551                         | 2,771,704        | 54.9%  | 2,274,847                                   | 474,291                                   | 479.6%  |

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

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

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

The following shows postemployment healthcare disclosure without regard to the Medicare Part D subsidy under GASB No. 43 for fiscal year ending 2007 and later.

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

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

The exhibit below shows the healthcare annual required contribution (ARC) as a percentage of pay.

| ARC (% of Pay) |             |            |                                |
|----------------|-------------|------------|--------------------------------|
| Valuation Date | Fiscal Year | Healthcare | Healthcare<br>Discount<br>Rate |
| June 30, 2005  | FY08        | 54.45%     | 4.50%                          |
| June 30, 2006  | FY09        | 52.20%     | 4.50%                          |
| June 30, 2007  | FY10        | 52.42%     | 4.50%                          |
| June 30, 2008  | FY11        | 28.71%     | 8.25%                          |
| June 30, 2009  | FY12        | 34.29%     | 7.08%                          |
| June 30, 2010* | FY13        | 60.07%     | 5.01%                          |
| June 30, 2011  | FY14        | 61.27%     | 5.08%                          |
| June 30, 2012  | FY15        | 70.04%     | 4.25%                          |
| June 30, 2013  | FY16        | 70.97%     | 4.31%                          |
| June 30, 2014  | FY17        | N/A**      | 4.43%                          |
| June 30, 2015  | FY18        | N/A**      | N/A**                          |
| June 30, 2016  | FY19        | N/A**      | N/A**                          |

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

\*\* GASB 74 accounting will be in effect beginning in FY17 (replacing ARC) and will be provided in a separate report.

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

## Section 3.3 Notes to Trend Data

### Actuarial Assumptions, Methods and Additional Information under GASB

|                             |  |
|-----------------------------|--|
| Valuation Date              | June 30, 2016  |
| Actuarial Cost Method       | Entry Age Normal<br>Level Percentage of Pay Normal Cost Basis for Pension<br>Level Dollar Normal Cost Basis for Healthcare |
| Amortization Method         | Level Percentage of Pay, Closed for Pension<br>Level Dollar, Closed for Healthcare   |
| Amortization Period         | 25 years as of June 30, 2014   |
| Asset Valuation Method      | 5-year smoothed market starting in FY15  |
| Actuarial Assumptions:      |  |
| Investment rate of return*  | 8.00% for pension (net of expenses), 4.43% for healthcare  |
| Projected salary increases* | 8.11% grading down to 3.87% after 22 years   |
| Cost-of-living adjustment   | Postretirement Pension Adjustment as described in<br>Section 6.1, item (14)  |

\*Includes price inflation at 3.12%

GASB 43 requires that the discount rate used in the valuation be the estimated long-term yield on investments that are expected to finance postemployment benefits. Depending on the method by which a plan is financed, the relevant investments could be plan assets, employer assets or a combination of plan and employer assets. The investment return should reflect the nature and the mix of both current and expected investments and the basis used to determine the actuarial value of assets.

TRS retiree healthcare benefits are partially funded. GASB 43 outlines two reasonable methods of developing a blended discount rate when a plan is partially funded. These methods base the proportion of assumed plan and employer asset returns on 1) the funded ratio and 2) the percentage of the annual required contribution (ARC) actually being contributed to the plan. The State of Alaska has utilized the second methodology to develop a discount rate of 4.43% as of June 30, 2014, to be used for June 30, 2016 disclosure under GASB 43. FY17 information will be developed separately in compliance with GASB 74.

The development of the discount rate used for June 30, 2016 healthcare liabilities valuation disclosure purposes is summarized below:

**Investment Returns**

|   |   |       |
|---|---|-------|
| Plan Assets (Long-Term Return)                | = | 8.00% |
| Employer Assets (Estimated Short-Term Return) | = | 4.25% |

**Based on Percentage of ARC Contributed during FY14\***

|  |   |        |
|--|---|--------|
| 1. Contribution Allocated to Healthcare  | = | 25.59% |
| 2. Annual Required Contribution, Funding Assumptions                                       | = | 61.27% |
| 3. Pay-as-you-go Contribution  | = | 23.78% |
| 4. Portion of ARC Contributed: $[(1-3) \div (2-3)]$ , not less than 0%, not more than 100% | = | 4.82%  |
| 5. Multiplied by long-term investment return   | = | 0.39%  |
| 6. Portion of ARC not Contributed: $[100\% - (4)]$   | = | 95.18% |
| 7. Multiplied by short-term investment return  | = | 4.04%  |
| 8. Total: $(5) + (7)$  | = | 4.43%  |

\*It is assumed that FY12 contributions allocated to healthcare ARC for funding purposes and pay-as-you-go contributions are used to derive the GASB 43 discount rate applied to the June 30, 2014 valuation (FY15), which in turn drives the June 30, 2016 GASB 43 discount rate.

## Section 3.4 Solvency Test (\$'s in 000's)

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

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

<sup>1</sup> Change in Assumptions

<sup>2</sup> Change in Methods

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

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

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

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

<sup>1</sup> Change in Assumptions

<sup>2</sup> Change in Methods

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

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

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

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

<sup>1</sup> Change in Assumptions

<sup>2</sup> Change in Methods

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

## Section 4 Projections

### Section 4.1 Projection Assumptions and Methods

#### Key Assumptions

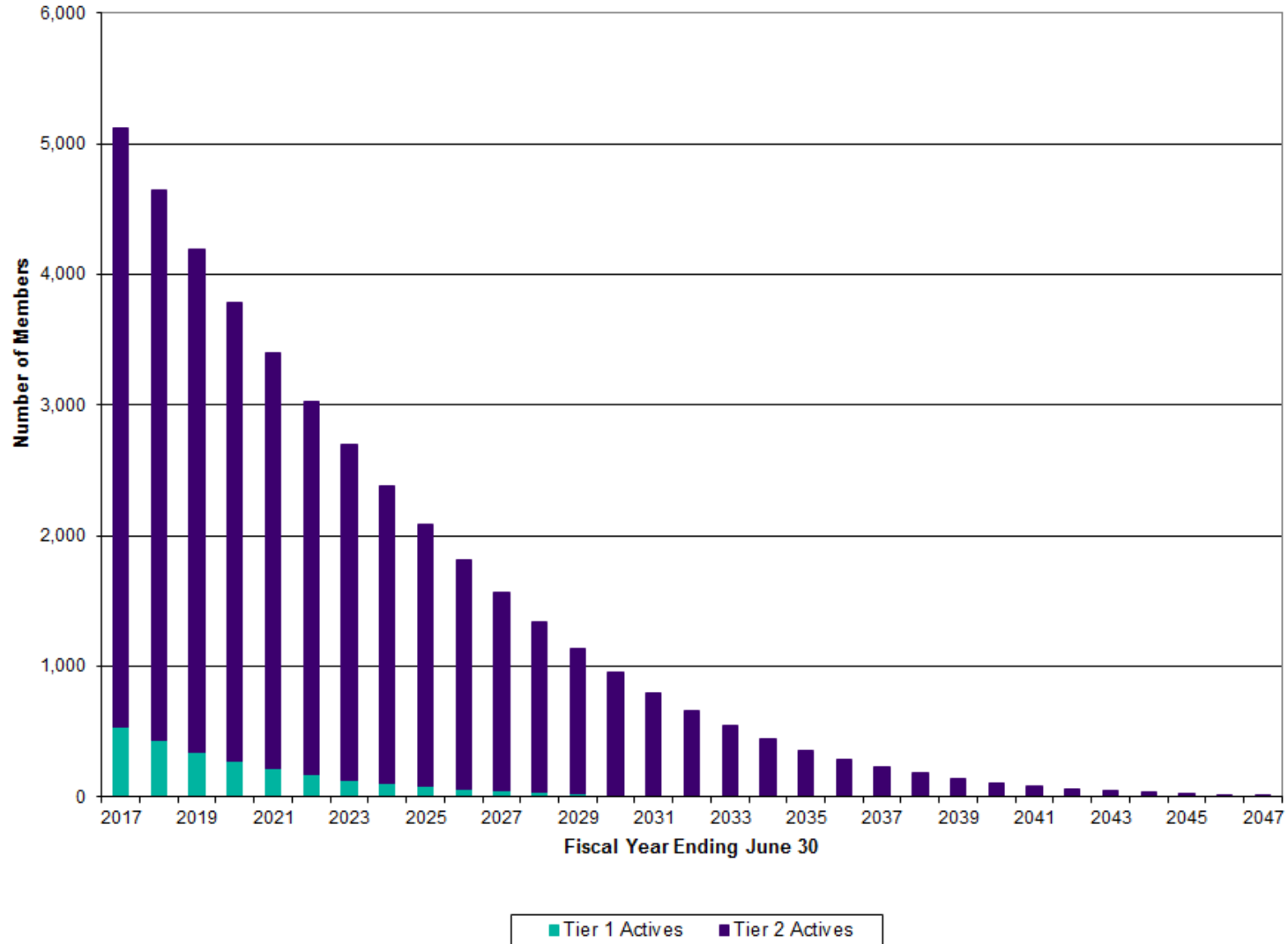
- 8.00% investment return on the Fair Value of Assets in all future years.
- The Actuarial Value of Assets was re-initialized to Fair Value as of June 30, 2014. The Actuarial Value of Assets after June 30, 2014 reflects the deferred gains and losses generated by the smoothing method. The current deferred amount is recognized in the first four years of the projections.
- Actuarial assumptions and methods as described in Section 6. All future demographic experience is assumed to be exactly realized.
- The actuarially calculated contribution rate using a two-year lag roll-forward approach adopted each year.
- No new DB Plan members enter Tiers 1 or 2.
- Projections assume a 0% increase in the total active member population. All new members are expected to enter the DCR plan and contribution rates are determined as a percent of total DB and DCR payroll, combined.
- For the Sensitivity Analysis, all assumptions and methods are the same except investment returns on the Fair Value of Assets are assumed as follows:
  - Base Case: 8.00% for all future years
  - Optimistic: 8.75% for all future years
  - Pessimistic: 7.25% for all future years

In each case, liabilities have been projected using 8.00% as the discount rate for future benefit payments. These scenarios are intended to illustrate the impact if investment rates of return are different than the 8.00% assumed investment return. They do not illustrate the effect of changing the assumed discount rate for determining liabilities.

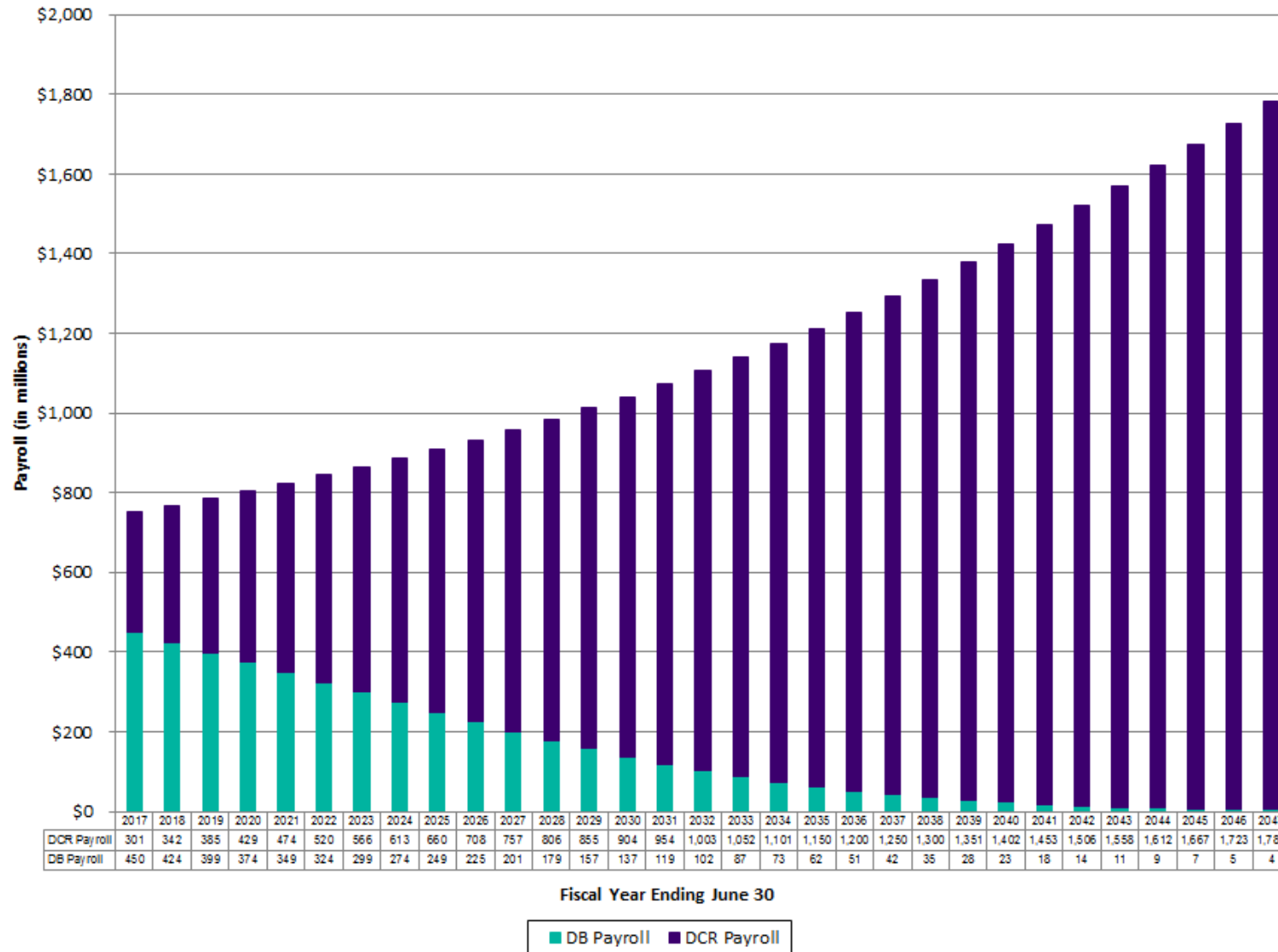


## Section 4.2 Membership Projection

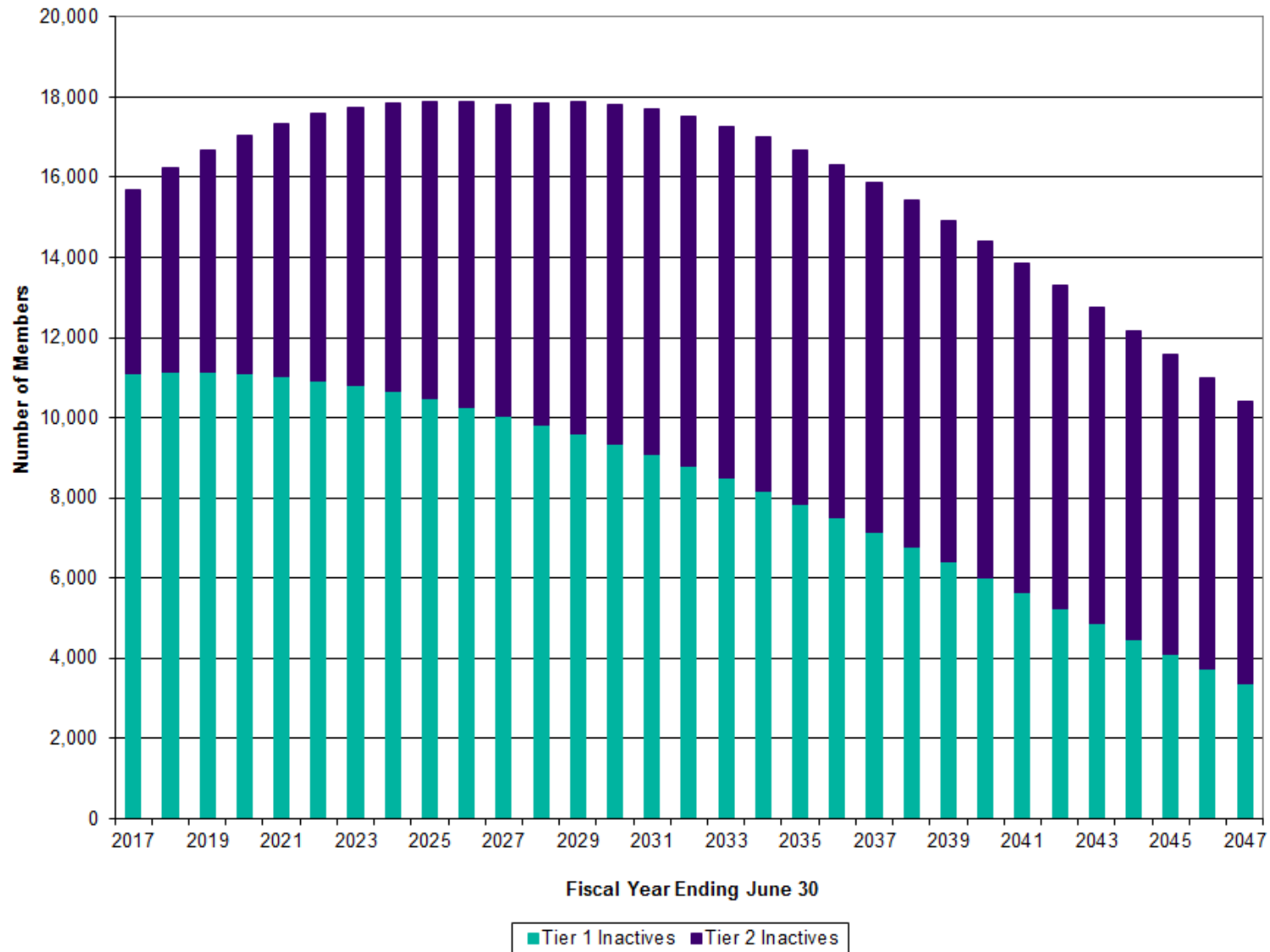
Projected Active Member Count



# Projected DB and DCR Payroll

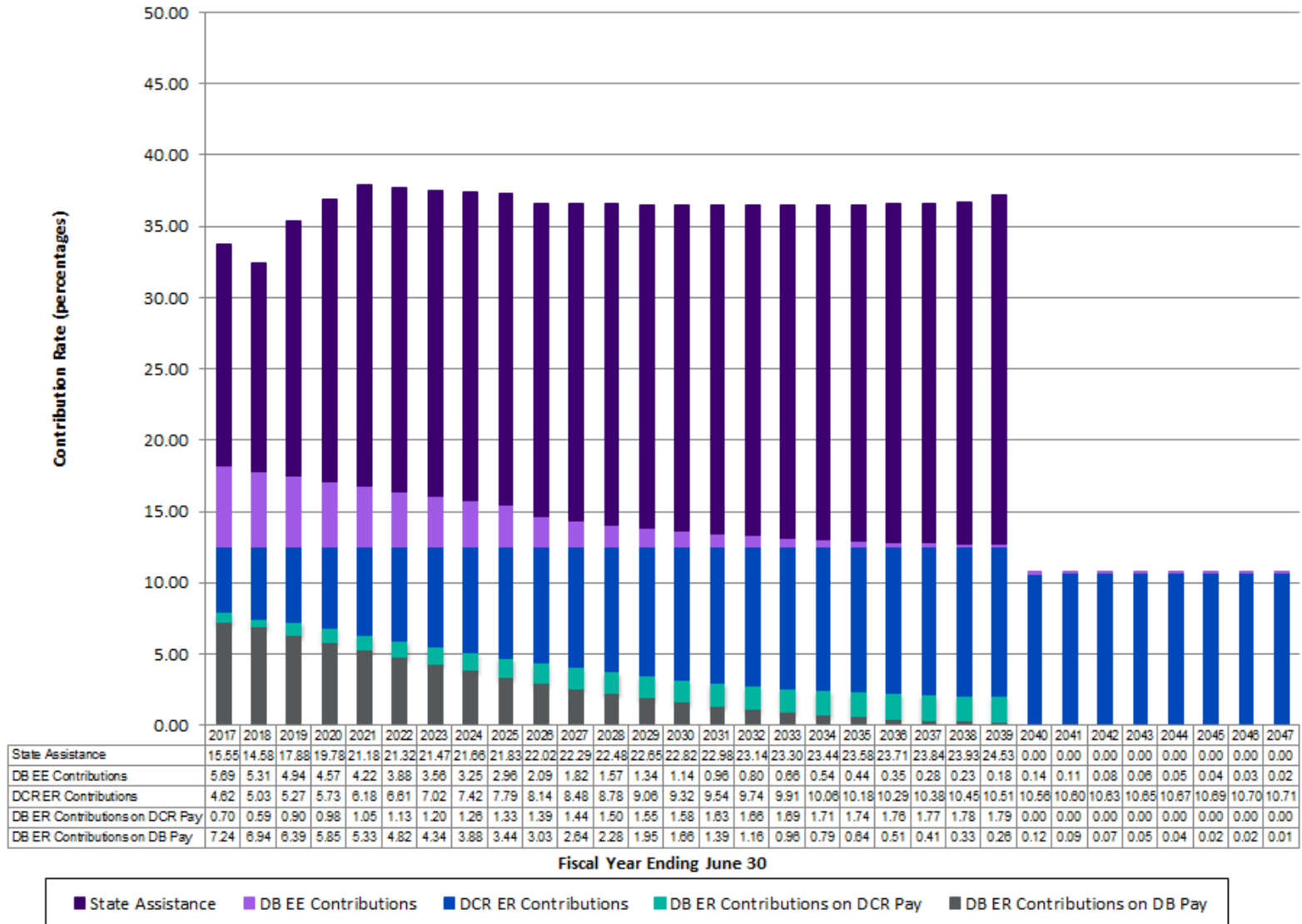


# Projected Inactive Member Count

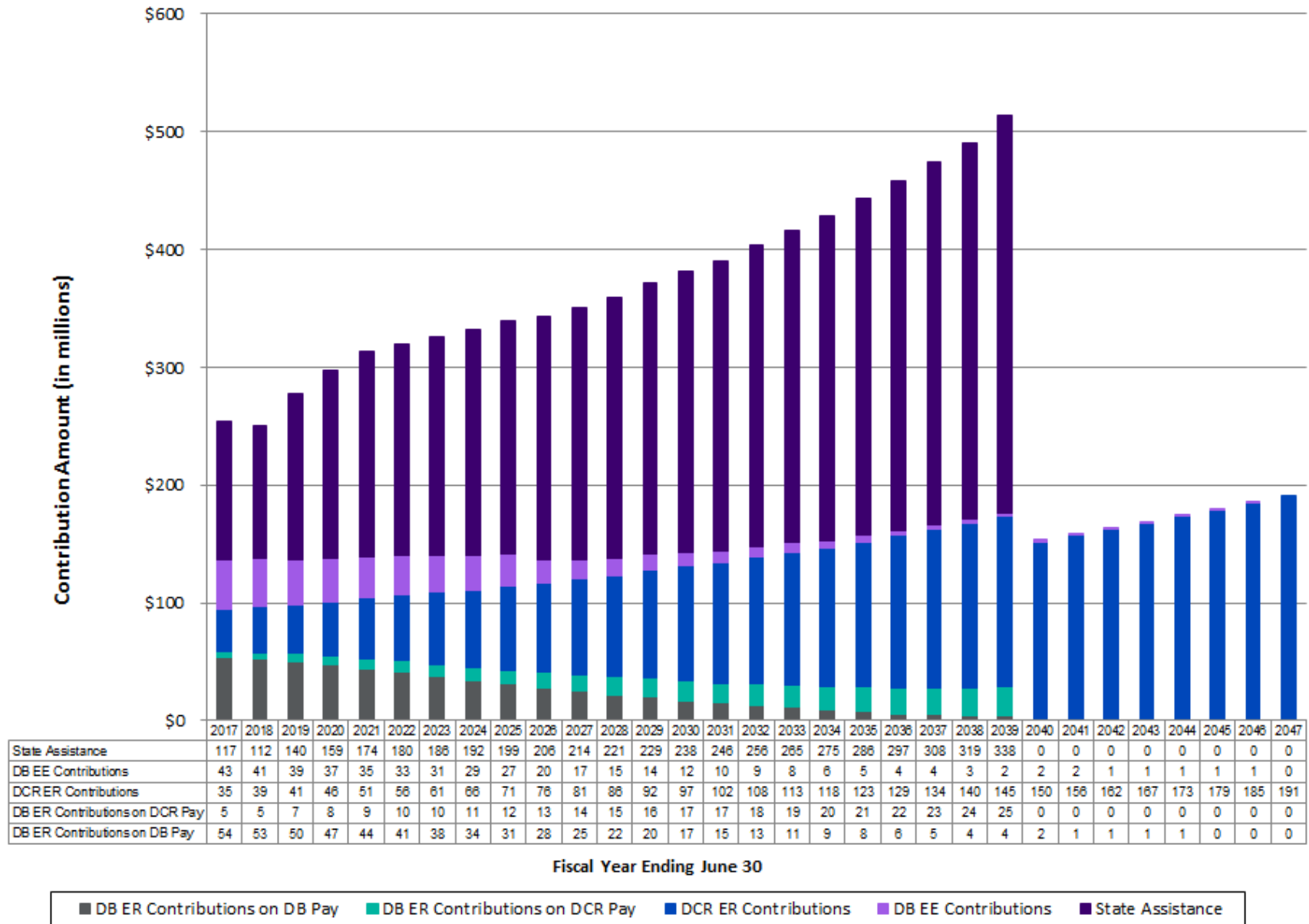


## Section 4.3 Projection of Employer/State Contribution Rates

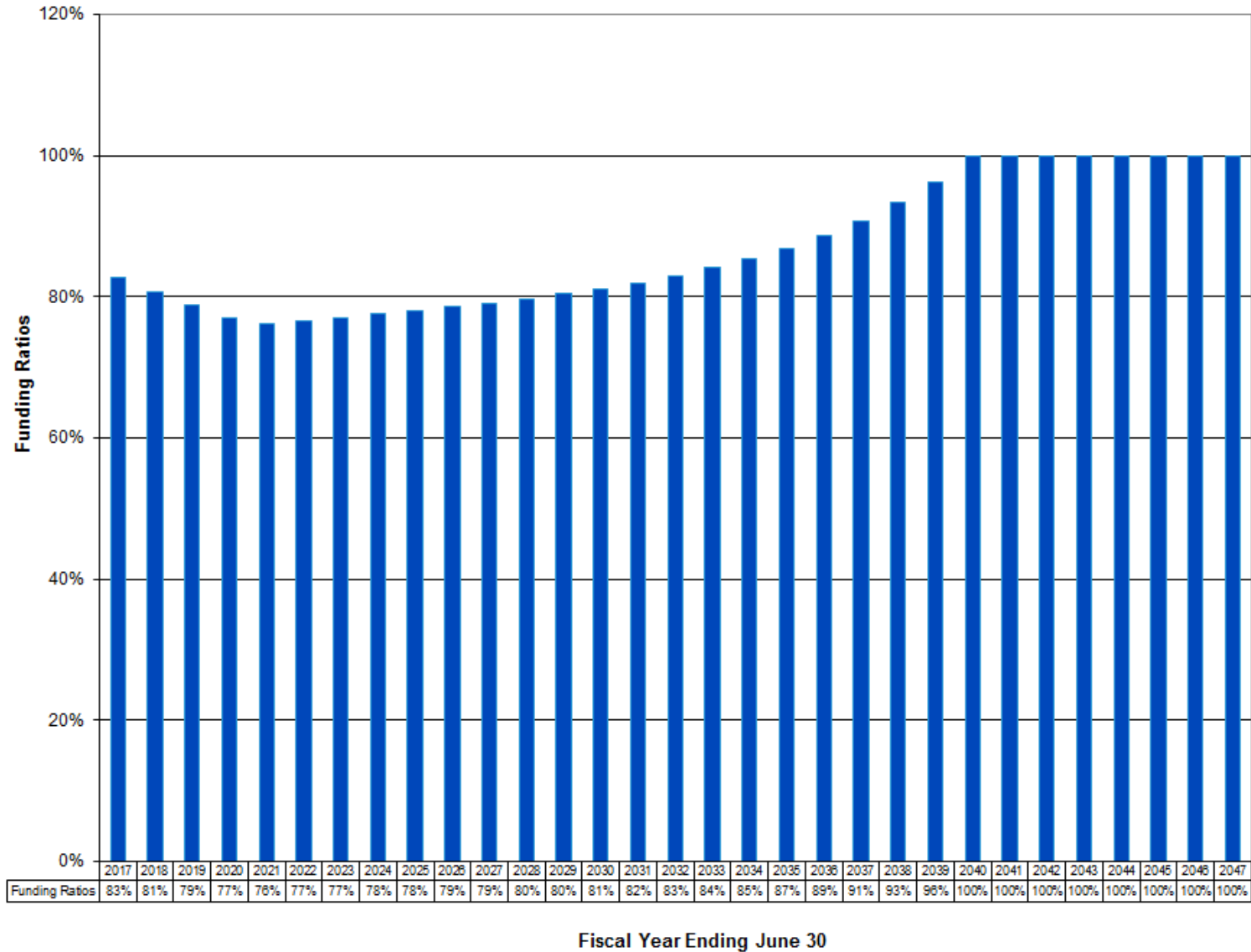
Based on Total DB and DCR Payroll



## Section 4.4 Projection of Employer/State Contribution Amounts



## Section 4.5 Projection of Funded Ratios



# Section 4.6 Table of Projected Actuarial Results

## State of Alaska TRS Financial Projections (\$ in Thousands) Based on 2016 Actuarial Valuation Results, 0% Population Growth for Payroll Baseline

| Fiscal Year End | FY 17 Investment Return 8.00% Investment Return of 8.00% for FY 17 and beyond. |                   |               |                   | Flow Amounts During Following 12 Months |                   |              |                |                  |                  |             |                  | Deferred Asset Gain/(Loss) | Ending Actuarial Assets |              |                     |             |
|-----------------|--|-------------------|---------------|-------------------|---|-------------------|--------------|----------------|------------------|------------------|-------------|------------------|----------------------------|-------------------------|--------------|---------------------|-------------|
|                 | Valuation Amounts on July 1 (Beginning of Fiscal Year)                         |                   |               |                   | Total Salaries                          | Er/State Ctb Rate | DCR Ctb Rate | Total Ctb Rate | DB Contributions |                  |             | Benefit Payments |                            |                         | Net Contribs | Investment Earnings |             |
|                 | Actuarial Assets   | Accrued Liability | Funding Ratio | Surplus (Deficit) |   |                   |              |                | Employer         | State Assistance | Employee    |                  |                            |                         |              |                     | Total       |
| 2017            | \$8,200,391  | \$9,907,624       | 82.8%         | (\$1,707,233)     | \$750,379                               | 23.49%            | 4.62%        | 28.11%         | \$59,580         | \$116,700        | \$42,732    | \$219,012        | \$597,910                  | (\$378,898)             | \$582,758    | (\$533,895)         | \$8,203,535 |
| 2018            | 8,203,535  | 10,171,519        | 80.7%         | (1,967,984)       | 766,672                                 | 22.11%            | 5.03%        | 27.14%         | 57,730           | 111,757          | 40,682      | 210,169          | 628,156                    | (417,987)               | 599,633      | (333,180)           | 8,184,466   |
| 2019            | 8,184,466  | 10,418,656        | 78.6%         | (2,234,190)       | 784,419                                 | 25.17%            | 5.27%        | 30.44%         | 57,184           | 140,254          | 38,729      | 236,167          | 658,306                    | (422,139)               | 615,063      | (132,465)           | 8,176,675   |
| 2020            | 8,176,675  | 10,614,298        | 77.0%         | (2,437,623)       | 803,325                                 | 26.61%            | 5.73%        | 32.34%         | 54,867           | 158,898          | 36,696      | 250,461          | 687,840                    | (437,379)               | 630,561      | 0                   | 8,237,392   |
| 2021            | 8,237,392  | 10,814,630        | 76.2%         | (2,577,238)       | 823,180                                 | 27.56%            | 6.18%        | 33.74%         | 52,519           | 174,350          | 34,727      | 261,596          | 717,281                    | (455,685)               | 645,829      | 0                   | 8,427,535   |
| 2022            | 8,427,535  | 10,995,667        | 76.6%         | (2,568,132)       | 843,788                                 | 27.27%            | 6.61%        | 33.88%         | 50,205           | 179,896          | 32,734      | 262,835          | 747,153                    | (484,318)               | 660,043      | 0                   | 8,603,260   |
| 2023            | 8,603,260  | 11,155,088        | 77.1%         | (2,551,828)       | 865,043                                 | 27.01%            | 7.02%        | 34.03%         | 47,923           | 185,726          | 30,797      | 264,446          | 776,449                    | (512,003)               | 673,155      | 0                   | 8,764,412   |
| 2024            | 8,764,412  | 11,292,040        | 77.6%         | (2,527,628)       | 886,885                                 | 26.80%            | 7.42%        | 34.22%         | 45,586           | 192,099          | 28,834      | 266,519          | 805,608                    | (539,089)               | 685,147      | 0                   | 8,910,471   |
| 2025            | 8,910,471  | 11,405,470        | 78.1%         | (2,494,999)       | 909,681                                 | 26.60%            | 7.79%        | 34.39%         | 43,392           | 198,583          | 26,945      | 268,920          | 836,025                    | (567,105)               | 695,895      | 0                   | 9,039,261   |
| 2026            | 9,039,261  | 11,492,490        | 78.7%         | (2,453,229)       | 933,474                                 | 26.44%            | 8.14%        | 34.58%         | 41,260           | 205,551          | 19,510      | 266,321          | 865,403                    | (599,082)               | 705,130      | 0                   | 9,145,309   |
| 2027            | 9,145,309  | 11,552,065        | 79.2%         | (2,406,756)       | 958,001                                 | 26.37%            | 8.48%        | 34.85%         | 39,086           | 213,539          | 17,436      | 270,061          | 886,928                    | (616,867)               | 713,170      | 0                   | 9,241,612   |
| 2028            | 9,241,612  | 11,583,597        | 79.8%         | (2,341,985)       | 984,505                                 | 26.26%            | 8.78%        | 35.04%         | 37,214           | 221,317          | 15,457      | 273,988          | 915,362                    | (641,374)               | 720,135      | 0                   | 9,320,374   |
| 2029            | 9,320,374  | 11,584,396        | 80.5%         | (2,264,022)       | 1,012,545                               | 26.15%            | 9.06%        | 35.21%         | 35,439           | 229,342          | 13,568      | 278,349          | 943,592                    | (665,243)               | 725,733      | 0                   | 9,380,863   |
| 2030            | 9,380,863  | 11,551,991        | 81.2%         | (2,171,128)       | 1,041,743                               | 26.06%            | 9.32%        | 35.38%         | 33,752           | 237,727          | 11,876      | 283,355          | 970,087                    | (686,732)               | 729,982      | 0                   | 9,424,113   |
| 2031            | 9,424,113  | 11,485,988        | 82.0%         | (2,061,875)       | 1,072,511                               | 26.00%            | 9.54%        | 35.54%         | 32,390           | 246,463          | 10,296      | 289,149          | 993,326                    | (704,177)               | 733,036      | 0                   | 9,452,973   |
| 2032            | 9,452,973  | 11,388,245        | 83.0%         | (1,935,272)       | 1,104,897                               | 25.96%            | 9.74%        | 35.70%         | 31,158           | 255,673          | 8,839       | 295,670          | 1,014,313                  | (718,643)               | 735,083      | 0                   | 9,469,413   |
| 2033            | 9,469,413  | 11,258,345        | 84.1%         | (1,788,932)       | 1,138,986                               | 25.95%            | 9.91%        | 35.86%         | 30,183           | 265,384          | 7,517       | 303,084          | 1,033,792                  | (730,708)               | 736,256      | 0                   | 9,474,961   |
| 2034            | 9,474,961  | 11,095,375        | 85.4%         | (1,620,414)       | 1,174,509                               | 25.94%            | 10.06%       | 36.00%         | 29,363           | 275,305          | 6,342       | 311,010          | 1,047,262                  | (736,252)               | 736,842      | 0                   | 9,475,551   |
| 2035            | 9,475,551  | 10,903,137        | 86.9%         | (1,427,586)       | 1,211,784                               | 25.96%            | 10.18%       | 36.14%         | 28,840           | 285,739          | 5,332       | 319,911          | 1,055,813                  | (735,902)               | 737,300      | 0                   | 9,476,948   |
| 2036            | 9,476,948  | 10,684,639        | 88.7%         | (1,207,691)       | 1,251,042                               | 25.98%            | 10.29%       | 36.27%         | 28,399           | 296,621          | 4,379       | 329,399          | 1,062,163                  | (732,764)               | 737,957      | 0                   | 9,482,141   |
| 2037            | 9,482,141  | 10,440,354        | 90.8%         | (958,213)         | 1,291,963                               | 26.02%            | 10.38%       | 36.40%         | 28,165           | 308,004          | 3,617       | 339,786          | 1,064,745                  | (724,959)               | 739,134      | 0                   | 9,496,316   |
| 2038            | 9,496,316  | 10,172,427        | 93.4%         | (676,111)         | 1,334,809                               | 26.04%            | 10.45%       | 36.49%         | 28,164           | 319,420          | 3,070       | 350,654          | 1,062,631                  | (711,977)               | 741,250      | 0                   | 9,525,589   |
| 2039            | 9,525,589  | 9,884,018         | 96.4%         | (358,429)         | 1,378,969                               | 26.58%            | 10.51%       | 37.09%         | 28,269           | 338,261          | 2,482       | 369,012          | 1,058,894                  | (689,882)               | 745,239      | 0                   | 9,580,946   |
| 2040            | 9,580,946  | 9,575,368         | 100.0%        | 5,578             | 1,424,452                               | 0.12%             | 10.56%       | 10.68%         | 1,709            | 0                | 1,994       | 3,703            | 1,051,489                  | (1,047,786)             | 721,861      | 0                   | 9,255,021   |
| 2041            | 9,255,021  | 9,248,855         | 100.0%        | 6,166             | 1,471,516                               | 0.09%             | 10.60%       | 10.69%         | 1,324            | 0                | 1,619       | 2,943            | 1,038,723                  | (1,035,780)             | 696,300      | 0                   | 8,915,541   |
| 2042            | 8,915,541  | 8,908,763         | 100.0%        | 6,778             | 1,519,945                               | 0.07%             | 10.63%       | 10.70%         | 1,064            | 0                | 1,216       | 2,280            | 1,021,786                  | (1,019,506)             | 669,837      | 0                   | 8,565,872   |
| 2043            | 8,565,872  | 8,558,482         | 100.0%        | 7,390             | 1,569,757                               | 0.05%             | 10.65%       | 10.70%         | 785              | 0                | 942         | 1,727            | 999,512                    | (997,785)               | 642,790      | 0                   | 8,210,877   |
| 2044            | 8,210,877  | 8,202,854         | 100.0%        | 8,023             | 1,620,927                               | 0.04%             | 10.67%       | 10.71%         | 648              | 0                | 810         | 1,458            | 973,867                    | (972,409)               | 615,471      | 0                   | 7,853,940   |
| 2045            | 7,853,940  | 7,845,062         | 100.0%        | 8,878             | 1,673,593                               | 0.02%             | 10.69%       | 10.71%         | 334              | 0                | 669         | 1,003            | 945,399                    | (944,396)               | 588,110      | 0                   | 7,497,654   |
| 2046            | 7,497,654  | 7,487,955         | 100.0%        | 9,699             | 1,727,946                               | 0.02%             | 10.70%       | 10.72%         | 346              | 0                | 518         | 864              | 916,225                    | (915,361)               | 560,844      | 0                   | 7,143,137   |
|                 |  |                   |               | <b>Totals:</b>    |   |                   |              |                |                  | \$926,879        | \$5,156,609 | \$450,365        | \$6,533,852                |                         |              |                     |             |

The FY17 Employer/State contribution rates don't match the October 7, 2015 Allocation of Additional Contribution letter due to updated projected Total Salaries

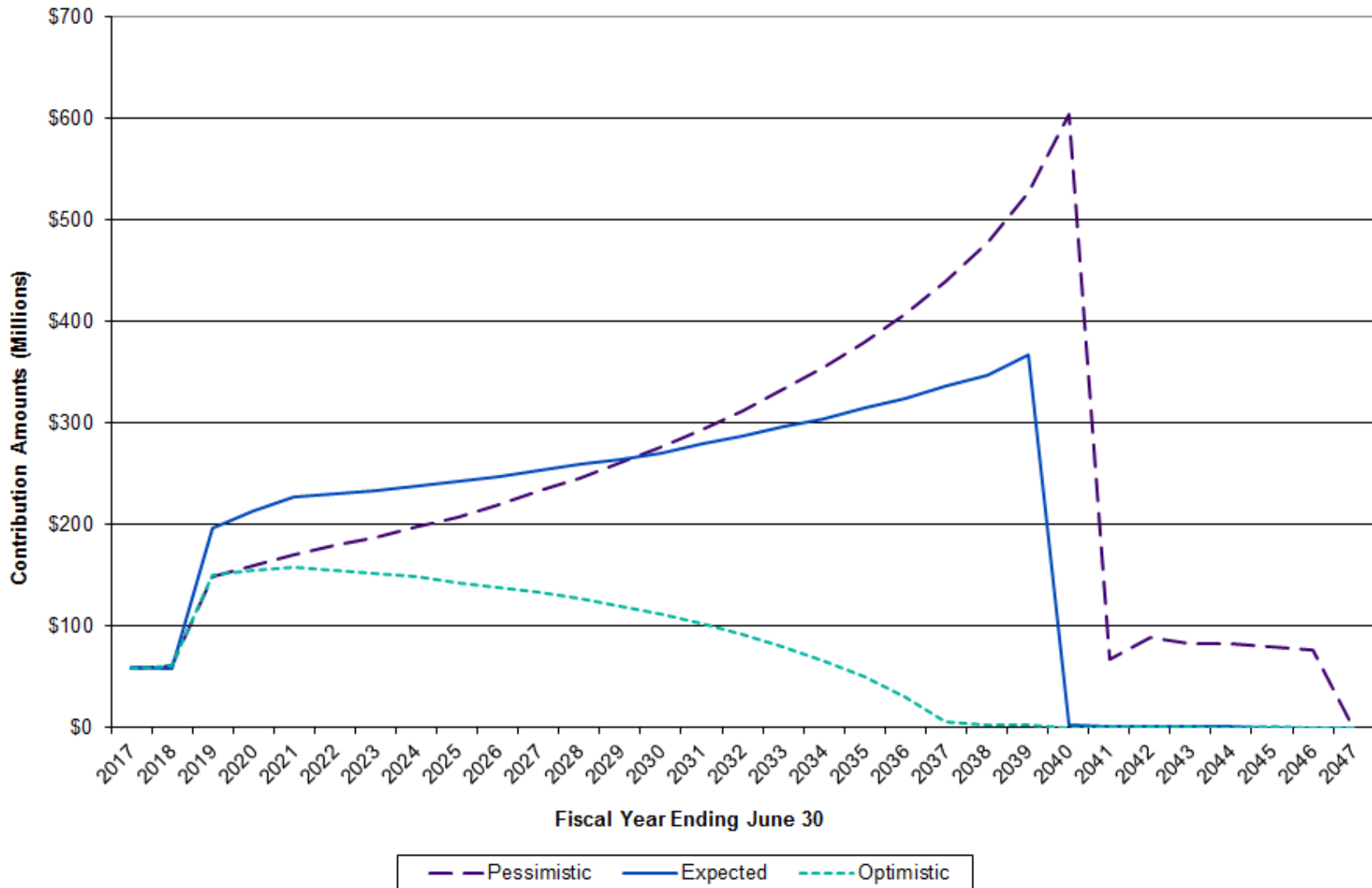
The FY17 State assistance contribution was allocated 100% to pension

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

The employer contribution rate for Occupational Death & Disability and Retiree Medical is 0.73%, determined as of June 30, 2016

## Section 4.7 Sensitivity Analysis

Impact Various Investment Rates of Return Have on the Employer/State Contribution Amount





## Section 5 Member Data

### Section 5.1 Summary of Members Included

| As of June 30   | 2012          | 2013          | 2014               | 2015          | 2016 <sup>1</sup> |
|---|---------------|---------------|--------------------|---------------|-------------------|
| <b>Active Members</b>   |               |               |                    |               |                   |
| 1. Number   | 6,845         | 6,352         | 5,861              | 5,502         | 5,123             |
| Average Age   | 49.03         | 49.45         | 49.79              | 50.09         | 50.50             |
| Average Credited Service  | 15.16         | 15.80         | 16.43              | 16.94         | 17.53             |
| Average Entry Age   | 33.87         | 33.65         | 33.36              | 33.15         | 32.97             |
| Average Annual Earnings   | \$ 77,351     | \$ 79,386     | \$ 81,023          | \$ 82,995     | \$ 84,954         |
| Number Vested   | 5,918         | 5,880         | 5,586              | 5,297         | 4,966             |
| Percent Who Are Vested  | 86.5%         | 92.6%         | 95.3%              | 96.3%         | 96.9%             |
| <b>Retirees, Disabilitants and Beneficiaries</b>  |               |               |                    |               |                   |
| 1. Number   | 11,301        | 11,705        | 11,750             | 12,418        | 12,726            |
| Average Age   | 67.88         | 68.38         | 69.09              | 69.35         | 69.85             |
| Average Years Since Retirement  | N/A           | N/A           | N/A                | 13.50         | 13.78             |
| Average Monthly Pension Benefit   |               |               |                    |               |                   |
| Base  | \$ 2,085      | \$ 2,111      | \$ 2,110           | \$ 2,175      | \$ 2,204          |
| C.O.L.A. <sup>2</sup>   | 127           | 127           | 126                | 129           | 260               |
| P.R.P.A. <sup>2</sup>   | 527           | 528           | 567                | 550           | 582               |
| Adjustment  | 0             | 0             | 0                  | -             | 0                 |
| Sick  | 52            | 54            | 57                 | 58            | 60                |
| Total   | \$ 2,791      | \$ 2,820      | \$ 2,860           | \$ 2,913      |                   |
| <b>Vested Terminations (vested at time of termination, not refunded contributions or commenced benefit)</b> |               |               |                    |               |                   |
| 1. Number   | 868           | 906           | 1,274 <sup>3</sup> | 890           | 875               |
| Average Age   | 49.70         | 49.68         | 52.56              | 50.09         | 50.25             |
| Average Monthly Pension Benefit   | \$ 1,188      | \$ 1,283      | \$ 1,916           | \$ 1,273      | \$ 1,352          |
| <b>Non-Vested Terminations (not vested at termination, not refunded contributions)</b>                      |               |               |                    |               |                   |
| 1. Number   | 2,559         | 2,448         | 2,328              | 2,218         | 2,103             |
| Average Account Balance   | \$ 17,266     | \$ 17,866     | \$ 18,452          | \$ 18,962     | \$ 19,728         |
| <b>Total Number of Members</b>  | <b>21,573</b> | <b>21,411</b> | <b>21,213</b>      | <b>21,028</b> | <b>20,827</b>     |

<sup>1</sup> 41 members who were terminated before the valuation date were subsequently rehired, per client data as of October 1, 2016.

These members were valued as active as of the valuation date.

<sup>2</sup> Beginning with 2016, calculated by taking the average of the data field, as provided by the State of Alaska, for all participants in the group.

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

## Summary of Members Included

| As of June 30, 2016         | DB            |               |               | DCR Tier 3    | Grand Total   |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|
|                             | Tier 1        | Tier 2        | Total         |               |               |
| <b>Active Members</b>       |               |               |               |               |               |
| 1. Numbers                  | 542           | 4,581         | 5,123         | 4,383         | 9,506         |
| 2. Average Age              | 59.55         | 49.43         | 50.50         | 39.57         | 45.46         |
| 3. Average Credited Service | 27.05         | 16.41         | 17.53         | 4.50          | 11.52         |
| 4. Average Entry Age        | 32.50         | 33.02         | 32.97         | 35.07         | 33.94         |
| 5. Annual Earnings          |               |               |               |               |               |
| a. Amount                   | \$ 51,053,929 | \$384,167,580 | \$435,221,508 | \$285,853,871 | \$721,075,379 |
| b. Average                  | \$ 94,195     | \$ 83,861     | \$ 84,954     | \$ 65,219     | \$ 75,855     |

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

| As of June 30, 2016                              | Tier 1   | Tier 2   | Total    |
|--|----------|----------|----------|
| <b>Retirees, Disabilitants and Beneficiaries</b> |          |          |          |
| 1. Numbers                                       | 10,718   | 2,008    | 12,726   |
| 2. Average Age                                   | 70.78    | 64.91    | 69.85    |
| 3. Average Years Since Retirement                | 15.51    | 4.56     | 13.78    |
| 4. Average Monthly Pension Benefit               |          |          |          |
| Base   | \$ 2,270 | \$ 1,847 | \$ 2,204 |
| C.O.L.A.   | 266      | 178      | 260      |
| P.R.P.A.   | 659      | 90       | 582      |
| Adjustment                                       | 0        | 0        | 0        |
| Sick   | 62       | 51       | 60       |

## Summary of Members Included

| As of June 30, 2016                     | Retiree    | Covered Spouse | Covered Children / Dependent | Total        |
|---|------------|----------------|------------------------------|--------------|
| <b>Retiree Medical Participants</b>     |            |                |                              |              |
| 1. Retiree Coverage Only                | 6,960      | 0              | 0                            | 6,960        |
| 2. Retiree + Spouse                     | 3,785      | 3,785          | 0                            | 7,570        |
| 3. Retiree + Children / Other Dependent | 123        | 0              | 165                          | 288          |
| 4. Family                               | <u>466</u> | <u>466</u>     | <u>681</u>                   | <u>1,613</u> |
| 5. Total                                | 11,334     | 4,251          | 846                          | 16,431       |

### Retiree Medical Participants as of June 30, 2016

|                      | Retirees   | All Members |
|----------------------|------------|-------------|
| Pre-Medicare         | 3,197      | 5,363       |
| Medicare Part A & B  | 7,964      | 10,867      |
| Medicare Part B Only | <u>173</u> | <u>201</u>  |
| Total                | 11,334     | 16,431      |

As of June 30, 2016

Retiree

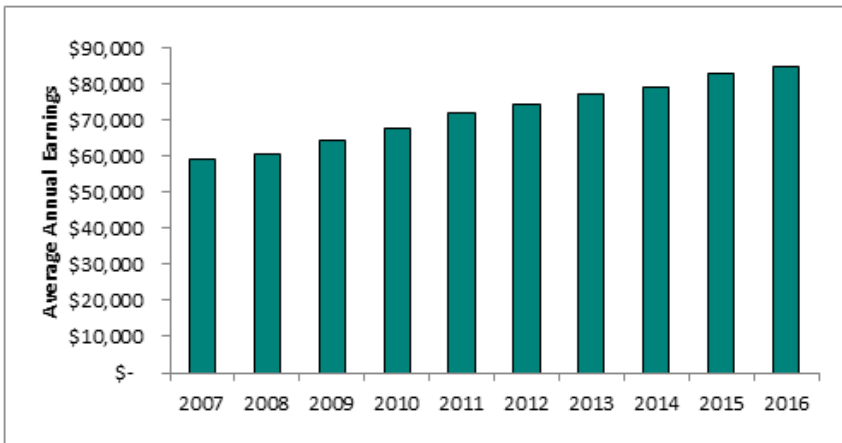
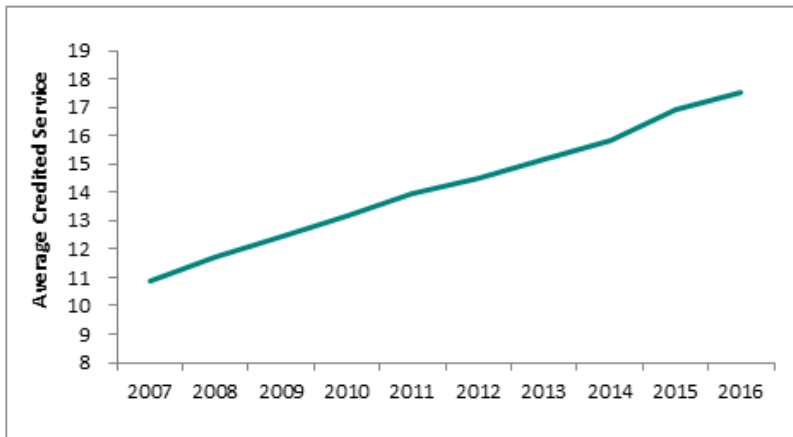
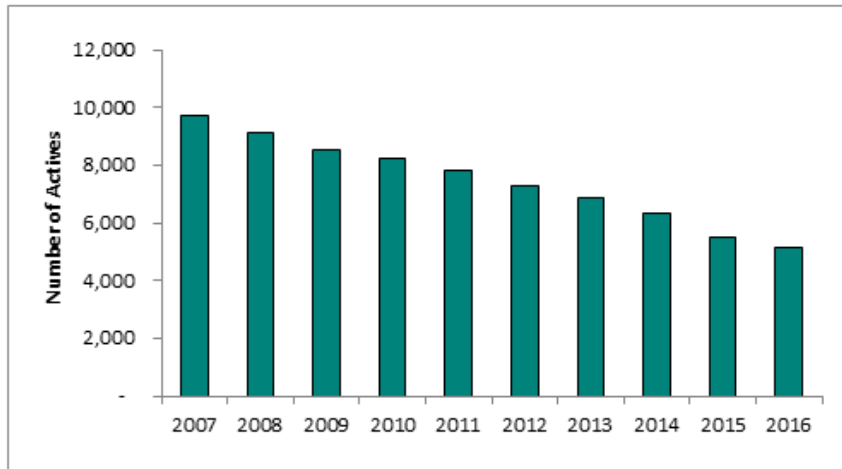
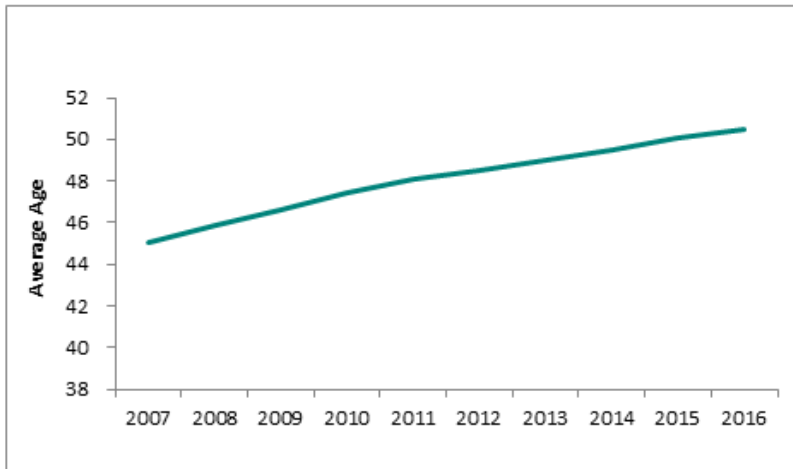
### Summary of Retiree Medical Data Received

|   |            |
|---|------------|
| 1. Retiree records on pension data                              | 21,135     |
| 2. Records closed / excluded for healthcare data*               | 3,727      |
| 3. Records closed as not eligible/participating in retiree plan | 2,372      |
| 4. Records with coverage decreases (due to duplicate coverage)  | 3,492      |
| 5. Records not in Aetna data **                                 | <u>210</u> |
| 6. Records valued for retiree medical                           | 11,334     |
| 7. Records in Aetna data but not on pension data **             | 585        |

\* Records closed for multiple pension benefits across all Alaska plans or ineligible pension status.

\*\* These represent a small portion of the total population. Where records did not appear with a medical enrollment (210), we deemed that member as not enrolled. Where enrolled members were not found on the census data (585), we considered that a data issue that is likely due to timing or a mismatch on unique identifiers that will resolve for the next valuation. These were not deemed to significantly impact valuation results. Note that in the above table, item 5 consists of the total PERS and TRS population.

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



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

## Section 5.2 Age and Service Distribution of Active Members

**Annual Earnings by Age**

| Age          | Number       | Total Annual Earnings | Average Annual Earnings |
|--------------|--------------|-----------------------|-------------------------|
| 0 – 19       | 0            | \$ 0                  | \$ 0                    |
| 20 – 24      | 0            | 0                     | 0                       |
| 25 – 29      | 0            | 0                     | 0                       |
| 30 – 34      | 56           | 4,012,893             | 71,659                  |
| 35 – 39      | 512          | 39,480,318            | 77,110                  |
| 40 – 44      | 907          | 73,989,225            | 81,576                  |
| 45 – 49      | 1,096        | 93,287,822            | 85,117                  |
| 50 – 54      | 988          | 85,802,718            | 86,845                  |
| 55 – 59      | 847          | 73,364,031            | 86,616                  |
| 60 – 64      | 467          | 42,120,746            | 90,194                  |
| 65 – 69      | 207          | 19,006,763            | 91,820                  |
| 70 – 74      | 33           | 3,158,392             | 95,709                  |
| 75+          | 10           | 998,600               | 99,860                  |
| <b>Total</b> | <b>5,123</b> | <b>\$ 435,221,508</b> | <b>\$ 84,954</b>        |

**Annual Earnings by Credited Service**

| Years of Service | Number       | Total Annual Earnings | Average Annual Earnings |
|------------------|--------------|-----------------------|-------------------------|
| 0                | 0            | \$ 0                  | \$ 0                    |
| 1                | 3            | 182,541               | 60,847                  |
| 2                | 7            | 475,310               | 67,901                  |
| 3                | 13           | 844,806               | 64,985                  |
| 4                | 12           | 759,813               | 63,318                  |
| 0 – 4            | 35           | 2,262,470             | 64,642                  |
| 5 – 9            | 242          | 17,373,865            | 71,793                  |
| 10 – 14          | 1,604        | 127,620,554           | 79,564                  |
| 15 – 19          | 1,685        | 143,790,002           | 85,335                  |
| 20 – 24          | 912          | 82,001,384            | 89,914                  |
| 25 – 29          | 467          | 43,842,117            | 93,880                  |
| 30 – 34          | 121          | 12,160,818            | 100,503                 |
| 35 – 39          | 37           | 3,927,829             | 106,158                 |
| 40+              | 20           | 2,242,470             | 112,124                 |
| <b>Total</b>     | <b>5,123</b> | <b>\$ 435,221,509</b> | <b>\$ 84,954</b>        |

**Years of Credited Service by Age**

| Age          | Years of Service |            |              |              |            |            |            |           |           | Total        |
|--------------|------------------|------------|--------------|--------------|------------|------------|------------|-----------|-----------|--------------|
|              | 0-4              | 5-9        | 10-14        | 15-19        | 20-24      | 25-29      | 30-34      | 35-39     | 40+       |              |
| 0 – 19       | 0                | 0          | 0            | 0            | 0          | 0          | 0          | 0         | 0         | 0            |
| 20 – 24      | 0                | 0          | 0            | 0            | 0          | 0          | 0          | 0         | 0         | 0            |
| 25 – 29      | 0                | 0          | 0            | 0            | 0          | 0          | 0          | 0         | 0         | 0            |
| 30 – 34      | 1                | 13         | 41           | 1            | 0          | 0          | 0          | 0         | 0         | 56           |
| 35 – 39      | 11               | 60         | 376          | 65           | 0          | 0          | 0          | 0         | 0         | 512          |
| 40 – 44      | 10               | 63         | 377          | 411          | 46         | 0          | 0          | 0         | 0         | 907          |
| 45 – 49      | 5                | 44         | 293          | 463          | 251        | 40         | 0          | 0         | 0         | 1,096        |
| 50 – 54      | 5                | 22         | 200          | 301          | 290        | 160        | 10         | 0         | 0         | 988          |
| 55 – 59      | 2                | 20         | 155          | 268          | 202        | 140        | 52         | 8         | 0         | 847          |
| 60 – 64      | 1                | 14         | 111          | 123          | 81         | 86         | 34         | 14        | 3         | 467          |
| 65 – 69      | 0                | 5          | 42           | 44           | 38         | 34         | 20         | 11        | 13        | 207          |
| 70 – 74      | 0                | 1          | 9            | 5            | 2          | 5          | 4          | 4         | 3         | 33           |
| 75+          | 0                | 0          | 0            | 4            | 2          | 2          | 1          | 0         | 1         | 10           |
| <b>Total</b> | <b>35</b>        | <b>242</b> | <b>1,604</b> | <b>1,685</b> | <b>912</b> | <b>467</b> | <b>121</b> | <b>37</b> | <b>20</b> | <b>5,123</b> |

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

## Section 5.3 Member Data Reconciliation

|                            | Inactive Members |              |                        |                 |                  |                  | Total         |
|----------------------------|------------------|--------------|------------------------|-----------------|------------------|------------------|---------------|
|                            | Active Members   | Due a Refund | With Deferred Benefits | Retired Members | Disabled Members | Beneficiaries    |               |
| <b>As of June 30, 2015</b> | <b>5,502</b>     | <b>2,218</b> | <b>890</b>             | <b>11,287</b>   | <b>29</b>        | <b>1,102</b>     | <b>21,028</b> |
| Vested Terminations        | (146)            | (1)          | 147                    | 0               | 0                | 0                | 0             |
| Non-vested Terminations    | (17)             | 19           | (2)                    | 0               | 0                | 0                | 0             |
| Cash-outs                  | (2)              | (73)         | (4)                    | 0               | 0                | 0                | (79)          |
| Disability Retirements     | (1)              | (2)          | (1)                    | 0               | 4                | 0                | 0             |
| Age Retirements            | (304)            | (16)         | (102)                  | 425             | (3)              | N/A              | 0             |
| Deaths With Beneficiary    | (3)              | 0            | 0                      | (75)            | (1)              | 79               | 0             |
| Deaths Without Beneficiary | (2)              | (5)          | (2)                    | (101)           | (1)              | (33)             | (144)         |
| Data Corrections           | (1)              | 0            | 0                      | 0               | 0                | (3) <sup>1</sup> | (4)           |
| Transfers Out              | 0                | 0            | 0                      | 0               | 0                | 0                | 0             |
| Rehires                    | 97               | (37)         | (51)                   | (9)             | 0                | 0                | 0             |
| Pick Ups*                  | 0                | 0            | 0                      | 0               | 0                | 26               | 26            |
| <b>Net Change</b>          | <b>(379)</b>     | <b>(115)</b> | <b>(15)</b>            | <b>240</b>      | <b>(1)</b>       | <b>69</b>        | <b>(201)</b>  |
| <b>As of June 30, 2016</b> | <b>5,123</b>     | <b>2,103</b> | <b>875</b>             | <b>11,527</b>   | <b>28</b>        | <b>1,171</b>     | <b>20,827</b> |

\*Pickup beneficiaries are primarily new DROs.

<sup>1</sup> Expiration of two dependent benefits and one DRO participant who became a beneficiary.

## Section 5.4 Schedule of Active Member Data

| Valuation Date | Number | Annual Earnings (000's) | Annual Average Earnings | Percent Increase/ (Decrease) in Average Earnings | Number of Participating Employers |
|----------------|--------|-------------------------|-------------------------|--|-----------------------------------|
| June 30, 2016  | 5,123  | \$ 435,222              | \$ 84,954               | 2.4%   | 58                                |
| June 30, 2015  | 5,502  | 456,636                 | 82,995                  | 2.4%   | 58                                |
| June 30, 2014  | 5,861  | 474,873                 | 81,023                  | 2.1%   | 58                                |
| June 30, 2013  | 6,352  | 504,260                 | 79,386                  | 2.6%   | 58                                |
| June 30, 2012  | 6,845  | 529,468                 | 77,351                  | 3.6%   | 58                                |
| June 30, 2011  | 7,303  | 545,155                 | 74,648                  | 3.5%   | 58                                |
| June 30, 2010  | 7,832  | 564,887                 | 72,125                  | 6.5%   | 58                                |
| June 30, 2009  | 8,226  | 557,026                 | 67,715                  | 5.2%   | 58                                |
| June 30, 2008  | 8,531  | 549,148                 | 64,371                  | 5.8%   | 58                                |
| June 30, 2007  | 9,107  | 554,245                 | 60,859                  | 2.9%   | 58                                |

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

## Section 5.5 Active Member Payroll Reconciliation

| Payroll Field   | Payroll Data (000s) |
|---|---------------------|
| a) DRB actual reported salaries FY16 – employer list  | \$ 773,291          |
| b) DRB actual reported salaries FY16 – valuation data | 694,948             |
| c) Include October data adjustment for rehires        | 707,437             |
| d) Annualized valuation data                          | 721,075             |
| e) Valuation payroll as of June 30, 2016              | 759,663             |
| f) Rate payroll for FY17                              | 750,379             |
| g) Rate payroll for FY19                              | 784,420             |

- a) Actual reported salaries from DRB employer listing showing all payroll paid during FY16, including those who were not active as of June 30, 2016
- b) Payroll from valuation data for people who are in active status as of June 30, 2016
- c) Payroll from (b) including additional people added who were listed as active as of October 1, 2016 and were run as active in the valuation
- d) Payroll from (c) annualized for both new entrants and part-timers
- e) Payroll from (d) with one year of salary scale applied to estimate salaries payable for the upcoming year
- f) Payroll from (e) with the part-timer annualization removed
- g) Payroll from (f) with two years of assumed decrements and salary scale, and 0% population growth



## Section 5.6 Summary of New Pension Benefit Recipients

| During the Year Ending June 30                        | 2012     | 2013     | 2014     | 2015     | 2016     |
|---|----------|----------|----------|----------|----------|
| <b>Service</b>  |          |          |          |          |          |
| 1. Number   | 426      | 461      | 146      | 791      | 422      |
| Average Age at Commencement                           | 59.41    | 59.88    | 60.43    | 59.87    | 60.32    |
| Average Monthly Pension Benefit                       | \$ 3,100 | \$ 3,084 | \$ 2,433 | \$ 3,363 | \$ 3,190 |
| <b>Survivor (including surviving spouse and DROs)</b> |          |          |          |          |          |
| 1. Number   | 39       | 108      | 76       | 89       | 104      |
| Average Age at Commencement                           | 66.09    | 68.46    | 70.21    | 70.22    | 72.15    |
| Average Monthly Pension Benefit                       | \$ 1,945 | \$ 1,561 | \$ 1,658 | \$ 1,715 | \$ 1,633 |
| <b>Disability</b>                                     |          |          |          |          |          |
| 1. Number   | 8        | 7        | 4        | 8        | 4        |
| Average Age at Commencement                           | 52.95    | 49.61    | 50.80    | 53.62    | 50.48    |
| Average Monthly Pension Benefit                       | \$ 3,615 | \$ 3,625 | \$ 3,945 | \$ 3,808 | \$ 3,616 |
| <b>Total</b>  |          |          |          |          |          |
| 1. Number   | 473      | 576      | 226      | 888      | 530      |
| Average Age at Commencement                           | 59.85    | 61.36    | 63.55    | 60.85    | 62.56    |
| Average Monthly Pension Benefit                       | \$ 3,013 | \$ 2,805 | \$ 2,199 | \$ 3,202 | \$ 2,888 |

## Summary of New Pension Benefit Recipients

### Average Pension Benefit Payments

|                                       | Years of Credited Service |          |          |          |          |          |          |
|---------------------------------------|---------------------------|----------|----------|----------|----------|----------|----------|
|                                       | 0 – 4                     | 5 – 9    | 10 – 14  | 15 – 19  | 20 – 24  | 25 – 29  | 30+      |
| Period 7/1/15 – 6/30/16: <sup>1</sup> |                           |          |          |          |          |          |          |
| Average Monthly Pension Benefit       | \$ 245                    | \$ 1,002 | \$ 1,535 | \$ 2,540 | \$ 3,445 | \$ 4,472 | \$ 6,168 |
| Number of Recipients                  | 11                        | 31       | 82       | 69       | 105      | 74       | 54       |
| Period 7/1/14- 6/30/15: <sup>1</sup>  |                           |          |          |          |          |          |          |
| Average Monthly Pension Benefit       | \$ 349                    | \$ 1,041 | \$ 1,342 | \$ 2,205 | \$ 3,267 | \$ 4,220 | \$ 5,900 |
| Number of Recipients                  | 11                        | 33       | 70       | 67       | 137      | 125      | 94       |
| Period 7/1/13- 6/30/14: <sup>1</sup>  |                           |          |          |          |          |          |          |
| Average Monthly Pension Benefit       | \$ 235                    | \$ 904   | \$ 1,435 | \$ 2,398 | \$ 3,016 | \$ 4,073 | \$ 7,485 |
| Number of Recipients                  | 8                         | 31       | 31       | 28       | 22       | 18       | 12       |
| Period 7/1/12- 6/30/13: <sup>1</sup>  |                           |          |          |          |          |          |          |
| Average Monthly Pension Benefit       | \$ 253                    | \$ 1,030 | \$ 1,496 | \$ 2,450 | \$ 3,281 | \$ 4,384 | \$ 6,052 |
| Number of Recipients                  | 10                        | 57       | 67       | 90       | 101      | 79       | 64       |
| Period 7/1/11- 6/30/12: <sup>1</sup>  |                           |          |          |          |          |          |          |
| Average Monthly Pension Benefit       | \$ 353                    | \$ 1,064 | \$ 1,512 | \$ 2,241 | \$ 3,276 | \$ 4,320 | \$ 5,739 |
| Number of Recipients                  | 11                        | 43       | 62       | 61       | 118      | 81       | 58       |
| Period 7/1/10- 6/30/11: <sup>1</sup>  |                           |          |          |          |          |          |          |
| Average Monthly Pension Benefit       | \$ 146                    | \$ 902   | \$ 1,432 | \$ 2,328 | \$ 3,131 | \$ 4,283 | \$ 5,496 |
| Number of Recipients                  | 5                         | 68       | 63       | 77       | 118      | 104      | 67       |
| Period 7/1/09- 6/30/10: <sup>1</sup>  |                           |          |          |          |          |          |          |
| Average Monthly Pension Benefit       | \$ 482                    | \$ 1,020 | \$ 1,343 | \$ 2,263 | \$ 2,992 | \$ 4,120 | \$ 6,263 |
| Number of Recipients                  | 14                        | 50       | 63       | 85       | 109      | 79       | 49       |
| Period 7/1/08- 6/30/09: <sup>1</sup>  |                           |          |          |          |          |          |          |
| Average Monthly Pension Benefit       | \$ 230                    | \$ 950   | \$ 1,168 | \$ 2,239 | \$ 2,957 | \$ 3,897 | \$ 4,860 |
| Number of Recipients                  | 13                        | 35       | 64       | 52       | 67       | 54       | 18       |
| Period 7/1/07- 6/30/08: <sup>1</sup>  |                           |          |          |          |          |          |          |
| Average Monthly Pension Benefit       | \$ 209                    | \$ 945   | \$ 1,248 | \$ 2,226 | \$ 2,966 | \$ 3,832 | \$ 5,057 |
| Number of Recipients                  | 13                        | 44       | 62       | 92       | 95       | 87       | 33       |

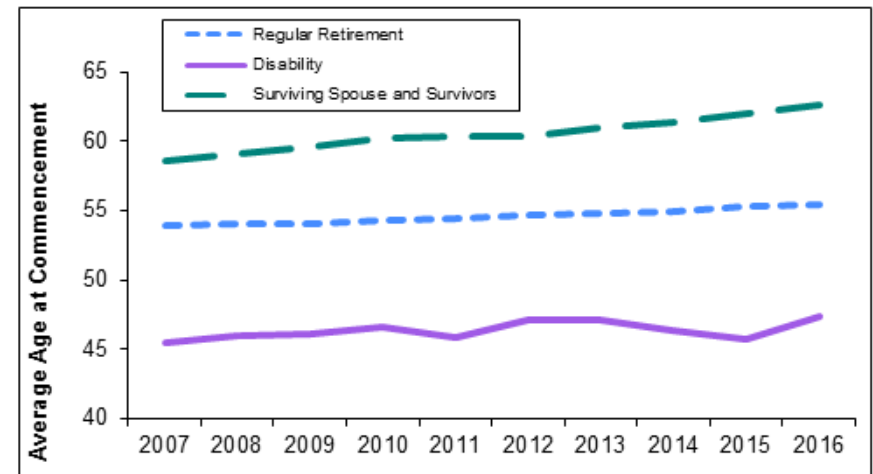
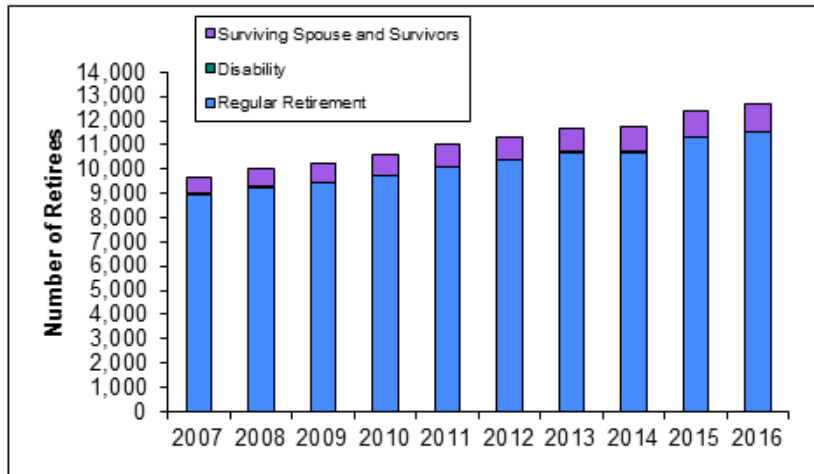
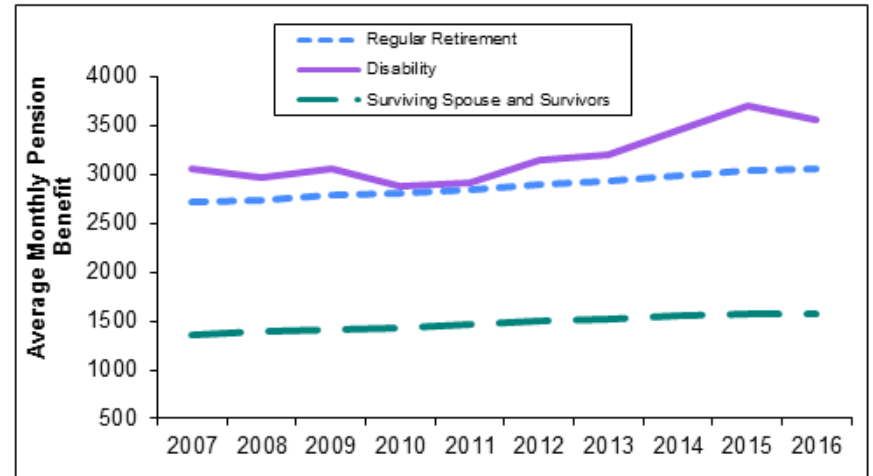
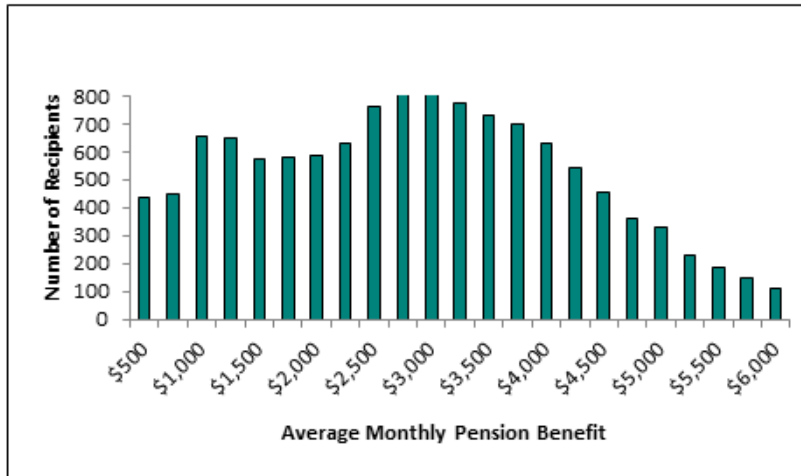
<sup>1</sup>“Average Monthly Pension Benefit” includes postretirement pension adjustments and cost-of-living increases

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

## Section 5.7 Summary of All Pension Benefit Recipients

| As of June 30                                      | 2012     | 2013     | 2014     | 2015     | 2016     |
|--|----------|----------|----------|----------|----------|
| <b>Service</b>                                     |          |          |          |          |          |
| 1. Number, Fiscal Year Start                       | 10,094   | 10,371   | 10,688   | 10,681   | 11,287   |
| Net Change   | 277      | 317      | (7)      | 606      | 240      |
| Number, Fiscal Year End                            | 10,371   | 10,688   | 10,681   | 11,287   | 11,527   |
| Average Age at Commencement                        | 54.65    | 54.87    | 54.91    | 55.28    | 55.43    |
| Average Current Age                                | 67.67    | 68.17    | 68.87    | 69.09    | 69.58    |
| Average Monthly Pension Benefit                    | \$ 2,901 | \$ 2,939 | \$ 2,986 | \$ 3,040 | \$ 3,056 |
| <b>Surviving Spouse's Benefits (includes DROs)</b> |          |          |          |          |          |
| 1. Number, Fiscal Year Start                       | 882      | 893      | 980      | 1,034    | 1,096    |
| Net Change   | 11       | 87       | 54       | 62       | 72       |
| Number, Fiscal Year End                            | 893      | 980      | 1,034    | 1,096    | 1,168    |
| Average Age at Commencement                        | 60.45    | 61.07    | 61.47    | 62.04    | 62.66    |
| Average Current Age                                | 71.04    | 71.40    | 71.98    | 72.54    | 73.07    |
| Average Monthly Pension Benefit                    | \$ 1,504 | \$ 1,517 | \$ 1,548 | \$ 1,576 | \$ 1,580 |
| <b>Survivor's Benefits (other than spouses)</b>    |          |          |          |          |          |
| 1. Number, Fiscal Year Start                       | 6        | 4        | 5        | 5        | 6        |
| Net Change   | (2)      | 1        | 0        | 1        | (3)      |
| Number, Fiscal Year End                            | 4        | 5        | 5        | 6        | 3        |
| Average Age at Commencement                        | 31.90    | 38.32    | 39.19    | 49.91    | 52.81    |
| Average Current Age                                | 35.71    | 42.20    | 44.07    | 54.06    | 57.22    |
| Average Monthly Pension Benefit                    | \$ 711   | \$ 1,272 | \$ 1,302 | \$ 1,128 | \$ 746   |
| <b>Disabilities</b>                                |          |          |          |          |          |
| 1. Number, Fiscal Year Start                       | 34       | 33       | 32       | 30       | 29       |
| Net Change   | (1)      | (1)      | (2)      | (1)      | (1)      |
| Number, Fiscal Year End                            | 33       | 32       | 30       | 29       | 28       |
| Average Age at Commencement                        | 47.16    | 47.13    | 46.32    | 45.67    | 47.34    |
| Average Current Age                                | 51.61    | 50.99    | 50.40    | 49.16    | 51.56    |
| Average Monthly Pension Benefit                    | \$ 3,154 | \$ 3,213 | \$ 3,461 | \$ 3,699 | \$ 3,568 |
| <b>Total</b>                                       |          |          |          |          |          |
| 1. Number, Fiscal Year Start                       | 11,016   | 11,301   | 11,705   | 11,750   | 12,418   |
| Net Change   | 285      | 404      | 45       | 668      | 308      |
| Number, Fiscal Year End                            | 11,301   | 11,705   | 11,750   | 12,418   | 12,726   |
| Average Age at Commencement                        | 55.08    | 55.36    | 55.45    | 55.85    | 56.07    |
| Average Current Age                                | 67.88    | 68.38    | 69.09    | 69.35    | 69.85    |
| Average Monthly Pension Benefit                    | \$ 2,791 | \$ 2,820 | \$ 2,860 | \$ 2,912 | \$ 2,921 |

## Summary of All Pension Benefit Recipients



## Summary of All Pension Benefit Recipients

### Distribution of Annual Pension Benefits for Benefit Recipients

#### Annual Pension Benefit by Age

| Age          | Number        | Total Annual Pension Benefit | Average Annual Pension Benefit |
|--------------|---------------|------------------------------|--------------------------------|
| 0 – 19       | 0             | \$ 0                         | \$ 0                           |
| 20 – 24      | 0             | 0                            | 0                              |
| 25 – 29      | 0             | 0                            | 0                              |
| 30 – 34      | 0             | 0                            | 0                              |
| 35 – 39      | 3             | 82,047                       | 27,349                         |
| 40 – 44      | 4             | 150,690                      | 37,673                         |
| 45 – 49      | 59            | 2,068,313                    | 35,056                         |
| 50 – 54      | 285           | 10,681,410                   | 37,479                         |
| 55 – 59      | 966           | 35,246,029                   | 36,487                         |
| 60 – 64      | 2,397         | 78,784,328                   | 32,868                         |
| 65 – 69      | 3,278         | 108,858,697                  | 33,209                         |
| 70 – 74      | 2,619         | 94,150,648                   | 35,949                         |
| 75+          | 3,115         | 116,061,613                  | 37,259                         |
| <b>Total</b> | <b>12,726</b> | <b>\$ 446,083,775</b>        | <b>\$ 35,053</b>               |

#### Annual Pension Benefit by Years Since Commencement

| Years Since Commencement | Number        | Total Annual Pension Benefit | Average Annual Pension Benefit |
|--------------------------|---------------|------------------------------|--------------------------------|
| 0                        | 489           | \$ 16,877,828                | \$ 34,515                      |
| 1                        | 571           | 21,396,743                   | 37,472                         |
| 2                        | 529           | 18,945,677                   | 35,814                         |
| 3                        | 539           | 19,278,886                   | 35,768                         |
| 4                        | 481           | 17,294,170                   | 35,955                         |
| 0 – 4                    | 2,609         | 93,793,304                   | 35,950                         |
| 5 – 9                    | 2,235         | 73,313,188                   | 32,802                         |
| 10 – 14                  | 2,320         | 72,107,778                   | 31,081                         |
| 15 – 19                  | 2,358         | 80,414,189                   | 34,103                         |
| 20 – 24                  | 1,392         | 53,176,079                   | 38,201                         |
| 25 – 29                  | 1,134         | 47,317,290                   | 41,726                         |
| 30 – 34                  | 454           | 18,662,802                   | 41,107                         |
| 35 – 39                  | 179           | 5,970,554                    | 33,355                         |
| 40+                      | 45            | 1,328,591                    | 29,524                         |
| <b>Total</b>             | <b>12,726</b> | <b>\$ 446,083,775</b>        | <b>\$ 35,053</b>               |

#### Years Since Commencement by Age

| Age          | Years Since Commencement |              |              |              |              |              |            |            |           | Total         |
|--------------|--------------------------|--------------|--------------|--------------|--------------|--------------|------------|------------|-----------|---------------|
|              | 0-4                      | 5-9          | 10-14        | 15-19        | 20-24        | 25-29        | 30-34      | 35-39      | 40+       |               |
| 0 – 19       | 0                        | 0            | 0            | 0            | 0            | 0            | 0          | 0          | 0         | 0             |
| 20 – 24      | 0                        | 0            | 0            | 0            | 0            | 0            | 0          | 0          | 0         | 0             |
| 25 – 29      | 0                        | 0            | 0            | 0            | 0            | 0            | 0          | 0          | 0         | 0             |
| 30 – 34      | 0                        | 0            | 0            | 0            | 0            | 0            | 0          | 0          | 0         | 0             |
| 35 – 39      | 2                        | 1            | 0            | 0            | 0            | 0            | 0          | 0          | 0         | 3             |
| 40 – 44      | 3                        | 0            | 1            | 0            | 0            | 0            | 0          | 0          | 0         | 4             |
| 45 – 49      | 49                       | 7            | 1            | 2            | 0            | 0            | 0          | 0          | 0         | 59            |
| 50 – 54      | 188                      | 73           | 22           | 2            | 0            | 0            | 0          | 0          | 0         | 285           |
| 55 – 59      | 509                      | 281          | 141          | 31           | 3            | 1            | 0          | 0          | 0         | 966           |
| 60 – 64      | 962                      | 702          | 470          | 235          | 26           | 1            | 0          | 0          | 1         | 2,397         |
| 65 – 69      | 530                      | 716          | 981          | 745          | 236          | 66           | 2          | 1          | 1         | 3,278         |
| 70 – 74      | 183                      | 303          | 482          | 874          | 466          | 286          | 19         | 5          | 1         | 2,619         |
| 75+          | 183                      | 152          | 222          | 469          | 661          | 780          | 433        | 173        | 42        | 3,115         |
| <b>Total</b> | <b>2,609</b>             | <b>2,235</b> | <b>2,320</b> | <b>2,358</b> | <b>1,392</b> | <b>1,134</b> | <b>454</b> | <b>179</b> | <b>45</b> | <b>12,726</b> |

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

| Amount of Monthly Pension Benefit | Number of Recipients | Type of Pension Benefit |       |    | Option Selected |       |       |     |
|-----------------------------------|----------------------|-------------------------|-------|----|-----------------|-------|-------|-----|
|                                   |                      | 1                       | 2     | 3  | 1               | 2     | 3     | 4   |
| \$ 1 – \$ 300                     | 218                  | 154                     | 64    | 0  | 132             | 44    | 35    | 7   |
| 301 – 600                         | 380                  | 274                     | 106   | 0  | 194             | 78    | 88    | 20  |
| 601 – 900                         | 660                  | 528                     | 132   | 0  | 347             | 140   | 136   | 37  |
| 901 – 1,200                       | 798                  | 647                     | 151   | 0  | 448             | 176   | 141   | 33  |
| 1,201 – 1,500                     | 720                  | 565                     | 155   | 0  | 387             | 160   | 149   | 24  |
| 1,501 – 1,800                     | 699                  | 559                     | 140   | 0  | 372             | 155   | 145   | 27  |
| 1,801 – 2,100                     | 698                  | 584                     | 114   | 0  | 344             | 160   | 168   | 26  |
| 2,101 – 2,400                     | 826                  | 731                     | 95    | 0  | 370             | 199   | 231   | 26  |
| 2,401 – 2,700                     | 1,018                | 939                     | 78    | 1  | 460             | 240   | 287   | 31  |
| 2,701 – 3,000                     | 1,001                | 951                     | 48    | 2  | 421             | 237   | 310   | 33  |
| 3,001 – 3,300                     | 942                  | 900                     | 33    | 9  | 397             | 208   | 312   | 25  |
| 3,301 – 3,600                     | 867                  | 848                     | 15    | 4  | 363             | 176   | 306   | 22  |
| 3,601 – 3,900                     | 811                  | 786                     | 18    | 7  | 344             | 165   | 272   | 30  |
| 3,901 – 4,200                     | 654                  | 646                     | 7     | 1  | 288             | 111   | 242   | 13  |
| Over \$4,200                      | 2,434                | 2,415                   | 15    | 4  | 933             | 391   | 1,037 | 73  |
| Totals                            | 12,726               | 11,527                  | 1,171 | 28 | 5,800           | 2,640 | 3,859 | 427 |

### Type of Pension Benefit

1. Regular retirement
2. Survivor payment
3. Disability

### Option Selected

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

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

| Year Ended    | Added to Rolls   |  | Removed from Rolls |  | Rolls – End of Year |                           | Percent Increase in Annual Pension Allowances | Average Annual Pension Allowance |
|---------------|------------------|--|--------------------|--|---------------------|---------------------------|---|----------------------------------|
|               | No. <sup>1</sup> | Annual Pension Allowances <sup>1</sup> | No. <sup>1</sup>   | Annual Pension Allowances <sup>1</sup> | No.                 | Annual Pension Allowances |   |                                  |
| June 30, 2016 | 530              | \$18,364,581                           | 222                | \$6,144,109                            | 12,726              | \$446,083,775             | 2.82%   | \$35,053                         |
| June 30, 2015 | 888              | 34,120,658                             | 220                | 3,531,501                              | 12,418              | 433,863,303               | 7.59%   | 34,938                           |
| June 30, 2014 | 226              | 5,964,256                              | 181                | (1,150,187)                            | 11,750              | 403,274,146               | 1.80%   | 34,321                           |
| June 30, 2013 | 576              | 19,387,542                             | 172                | 1,652,575                              | 11,705              | 396,159,703               | 4.69%   | 33,845                           |
| June 30, 2012 | 473              | 17,104,564                             | 188                | (617,561)                              | 11,301              | 378,424,736               | 4.91%   | 33,486                           |
| June 30, 2011 | 564              | 19,546,369                             | 146                | 1,464,766                              | 11,016              | 360,702,611               | 5.28%   | 32,744                           |
| June 30, 2010 | 533              | 16,980,817                             | 190                | 5,495,399                              | 10,598              | 342,621,008               | 3.47%   | 32,329                           |
| June 30, 2009 | 368              | 9,788,639                              | 139                | (2,857,118)                            | 10,255              | 331,135,590               | 3.97%   | 32,290                           |
| June 30, 2008 | 481              | 14,265,236                             | 133                | 806,945                                | 10,026              | 318,489,833               | 4.41%   | 31,766                           |
| June 30, 2007 | 432              | 12,388,703                             | 140                | (14,114,559)                           | 9,678               | 305,031,542               | 9.52%   | 31,518                           |

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

# Section 6 Basis of the Actuarial Valuation

## Section 6.1 Summary of Plan Provisions

### 1. Effective Date

July 1, 1955, with amendments through June 30, 2016. 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 57 employers participating in the TRS, including the State of Alaska, 53 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



- 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.

## 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.

Employer rates cannot be less than the normal cost rate.

## 7. Additional State Contribution

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

## 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 in (5) 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 (13) below). Supplemental contributions are only refundable upon death (see (13) 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 the TRS prior to July 1, 2010. Interest accrues on refunds until paid in full or members retire.

## 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.

**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.

**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. The TRS pays a minimum benefit of \$25.00 per month for each year of service when the calculated benefit is less.

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

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

## 10. 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 the 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 the TRS, Public Employees' Retirement System (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.

## 11. Postemployment Healthcare Benefits

When pension benefits begin, major medical benefits are provided by the 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. 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.

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

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

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

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

## 12. 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.

## 13. 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 nonoccupational 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 nonoccupational 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 the 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 the 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.
- 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.

#### 14. 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.

#### **15. Alaska Cost of Living Allowance**

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

- a. members who were first hired under 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.

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

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

## Section 6.2 Description of Actuarial Methods and Valuation Procedures

The funding method used in this valuation was adopted by the Board in October 2006. Changes in the amortization of unfunded actuarial accrued liability were made in 2014. The asset smoothing method used to determine valuation assets was changed effective June 30, 2014.

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

### **Actuarial Method – Entry Age Normal Cost.**

Liabilities and contributions shown in the report are computed using the Entry Age Normal Actuarial Cost Method. Any funding surpluses or unfunded accrued liability are amortized over a closed 25-year period (established June 30, 2014) as a level percentage of payroll amount. State statutes allow the contribution rate to be determined on payroll for all members, defined benefit and defined contribution member payroll combined.

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

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

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

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

### **Valuation of Assets**

The actuarial asset value was reinitialized to equal Fair Value of Assets as of June 30, 2014. Beginning in 2015, 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.



## Valuation of Medical and Prescription Drug Benefits

This section outlines the detailed methodology used to develop the initial per capita claims cost rates for PERS postemployment healthcare plan. Note that methodology reflects the results of our annual experience rate update for the period July 1, 2016 to June 30, 2017. Healthcare cost trend and retiree contribution increase assumptions for the period after June 30, 2017 remain unchanged from the June 30, 2014 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 historic 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 as those are retiree-pay all benefits where rates are assumed to be self-supporting. Conduent relies upon rates set by a third-party for the DVA benefits. Conduent reviewed historical rate-setting information and believes that contribution rate adjustments made are not unreasonable.

### Administration and Data Sources

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

- Claims incurred and enrollment data for July 2012 through June 2016 (FY13 through FY16), with claims paid through July 2016 were provided by HealthSmart and Aetna and are included in our analysis.
- Aetna provided census information identifying Medicare Part B only participants. These participants are identified when hospital claims are denied by Medicare; Aetna then flags that participant as a Part B only participant. Conduent added newly identified participants to our list of Medicare Part B only participants. Conduent assumes that once identified as Part B only, that participant remains in that status until we are notified otherwise.

For the June 30, 2016 valuation, Aetna provided a snapshot file as of July 1, 2016 of retirees and dependents that included a coverage level indicator. After analysis of this file during the valuation census data preparation, Conduent learned that dual coverage participants are reflected in eligibility files multiple times to administer coordination of benefits. This method carries over to enrollment reporting. This resulted in higher per capita costs to address the removal of the dual coverage membership and to cover the value of any additional coordinated benefits. This was offset by a reduction in the number of unique members valued.

Available historic management level reporting from HealthSmart does not show claims or enrollment separately for Medicare and non-Medicare plan participants, but does include overall statistics as to the percentage of claims and enrollment attributable to both groups. Historical claim level reporting and estimated impacts of Medicare coordination and plan design were used to augment more recent cost data by Medicare status. Aetna does provide separate experience by Medicare status and is incorporated into per capita rate development for each year of experience included in our claim base with corresponding weights applied in the final per capita cost.

### Methodology

Conduent developed per capita costs and projected historic claim data to fiscal 2017 for retirees using the following summarized steps:

1. Develop historic annual incurred claim cost rates – an analysis of medical costs was completed based on claims information and enrollment data provided by Aetna and HealthSmart for each year in the experience period of fiscal 2013 through fiscal 2016.
  - 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 upcoming year (e.g. from the experience period up through fiscal 2017).
  - Conduent applied an estimate to the medical claims in fiscal year 2016 to estimate incurred but not reported claims based upon a review of claim lags through July 2016. Pharmacy claims are deemed fully incurred.
  - An offset for costs expected to be reimbursed by Medicare was incorporated beginning at age 65. Available management level reporting does indicate claims and enrollment separately for Medicare and pre-Medicare plan participants, but only since January 1, 2014. HealthSmart data does not, but we did have overall statistics as to the percentage of claims and enrollment attributable to both groups. Alaska retirees who do not have 40 quarters of Medicare-covered compensation do not qualify for Medicare Part A coverage free of charge. This is a relatively small and closed group. Medicare was applied to State employment for all employees hired after March 31, 1986. For the “no-Part A” individuals who are required to enroll in Medicare Part B, the State is the primary payer for hospital bills and other Part A services. Claim experience is not available separately for participants with both Medicare Parts A and B and those with Part B only. For Medicare Part B only participants, a lower average claims cost was applied to retirees covered by both Medicare Part A and B vs. retirees covered only by Medicare Part B based upon manual rate models that estimate the Medicare covered proportion of medical costs. To the extent that no-Part A claims can be isolated and applied strictly to the appropriate closed group, actuarial accrued liability will be more accurate.
  - Based on census data received from Aetna, 0.39% of the current retiree population was identified as having coverage only under Medicare Part B. For future retirees, we assume their Part A eligible status based on a combination of date of hire and/or re-hire, date of birth, tier, etc.
  - Based upon a reconciliation of valuation census data to the Aetna July 1, 2016 snapshot eligibility file, Conduent adjusted member counts used for duplicate records where participants have dual coverage; i.e. primary coverage as a retiree and secondary coverage as the covered spouse of another retiree. This is to reflect the total cost per distinct individual/member which is then applied to distinct members in the valuation census.
  - Conduent understands that pharmacy claims reported do not reflect rebates. Based upon reported rebates in proportion to incurred claims for State of Alaska retiree plans, Conduent

reduced reported pharmacy incurred claims by 9% to estimate the rebates for the retiree population beginning January 1, 2014. We reduced historic pharmacy incurred claims by 5.5% to reflect rebates on experience prior to January 1, 2014. These estimates were based upon reported rebates for retirees from Aetna and Envision Rx.

2. Develop estimated Retiree Drug Subsidy reimbursement - actual subsidy payments to the State were received for CY2009-CY2015, and the first six months of CY2016. Conduent obtained this information based upon recorded and available information in the RDS Subsidy website and as provided by the State. The projected subsidy for FY 2017 was determined based on the historic 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 network change – based upon additional experience and updated reporting from Aetna (through March 31, 2016), we updated the adjustment to reflect the impact of the better network discounts realized. Conduent referenced administrator reports provided by Alaska to compare the proportion of network savings to covered charges under Aetna and the prior administrator. We found the discounts to be approximately 6% higher under Aetna as a proportion of covered charges as compared to the prior administrator.
4. Adjust for claim fluctuation, anomalous experience, etc. – explicit adjustments are often made for anticipated large claims or other anomalous experience. Due to group size and demographics, we did not make any large claim adjustments. We do blend both Alaska plan-specific and national trend factors as described below. Conduent compared data utilized to lag reports and quarterly plan experience presentations provided by the State and Aetna to assess accuracy and reasonableness of data.
5. Trend all data points to the projection period – project prior years' experience forward to fiscal 2017 for retiree benefits on an incurred claim basis. Trend factors derived from historic Alaska-specific experience and national trend factors are shown in the table in item 6 below.
6. 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. Greater credibility is given to the past 24 months' experience. We have some run-out claims data, thus less estimation for complete claims in fiscal 2016 that is consistent with last year. We did not adjust the credibility weight further. Note also that we averaged projected plan costs using Alaska-specific trend factors and national trend factors, assigning 75% weight to Alaska-specific trends and 25% to national trends:

| Alaska-Specific and National Average Weighted Trend from Experience Period to Valuation Year |         |              |                   |
|--|---------|--------------|-------------------|
| Experience Period  | Medical | Prescription | Weighting Factors |
| FY2013 to FY2014   | 8.9%    | 7.1%         | 10%               |
| FY2014 to FY2015   | 7.7%    | 6.5%         | 20%               |
| FY2015 to FY2016   | 6.4%    | 7.1%         | 35%               |
| FY2016 to FY2017   | 5.3%    | 8.5%         | 35%               |

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 (mitigating historic gains), we are not proposing an update to the valuation healthcare cost trend assumption.

7. Develop separate administration costs – no adjustments were made for internal administrative costs. Third party retiree plan administration fees for fiscal 2017 are based upon rates in effect at the midpoint of the year, January 2017, based upon negotiations with Aetna as communicated by the State. Medical fees increased 1.4% and pharmacy admin was reduced to \$0. We included a small fee for estimated fees that occur on a per occurrence basis (i.e. prior authorization, retiree direct bill). We also include PCORI fees under the Affordable Care Act. We estimated the 2017 rates based upon the 2016 rate of \$2.26 per member per year increased by 4%. The annual per participant per year administrative cost rate for medical and prescription benefits (including PCORI) is \$206.88.
8. Healthcare Reform legislation passed on March 23, 2010 included several provisions with potential implications for the State of Alaska Retiree Health Plan liability. Conduent evaluated the impact of the following provisions; however, none of the impacts have been included in the valuation results.
  - 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.
  - As 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); however, the impact is not expected to significantly impact the OPEB liability. Based upon guidance available at the valuation date, Conduent 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 2016 enrollment data provided by Aetna, and 2016 valuation headcount projections for future years.
    - We included administrative fees and applied Retiree Drug Subsidy reimbursements to the Medicare rates.
  - We assumed claim costs would increase according to valuation trend assumptions from the June 30, 2016 valuation, and that the tax cost thresholds would increase at 3.0%. The first year increased at 4% to reflect the additional 1% over inflation assumption.
  - Conduent determined the impact to be less than \$275,000 (0.01%) of the projected June 30, 2016 healthcare actuarial accrued liability for the defined benefit plans. In addition, any additional per capita costs due to the tax were not expected to significantly impact trend over the long term.

The Trump administration has clearly announced its intention to repeal Healthcare Reform. As one of his first acts in office, President Trump issued an executive order that states that federal agencies can grant waivers, exemptions, and delays of “Obamacare” provisions that would impose costs on states or individuals. On February 15, 2016, CMS issued proposed rules that are intended to

minimize adverse selection, but which might disrupt the fragile balance of the healthcare exchanges. We can expect more information about what is being altered.

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. As additional guidance on the legislation is issued, we will continue to monitor any potential impacts.

The following table summarizes data sources and assumptions and the relative impact changes in each have on healthcare cost projections for 2016 as compared to 2015:

| Healthcare Cost Rate Data Source or Assumption Change, 2016 vs. 2015 | Gain / Loss Impact on 2015 Valuation Results   |
|--|--|
| Claim lag specific to medical and prescription experience            | Small  |
| Individual claims level data   | <ul style="list-style-type: none"> <li>– No impact on cost data used for 2016, though potentially a source of future modifications</li> <li>– No impact on morbidity assumptions used for 2016, though potentially a source of future modifications</li> </ul> |
| Explicit TPA fees  | Negligible   |
| Actual RDS payments received   | Negligible   |
| Aggregate claims data  | Loss due to adjustment for removal of dual coverage/duplicate members in reported enrollment counts, offset by gain due to experience  |
| Census Data  | Small gain due to updated census   |

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

- The Division of Retirement and Benefits provided pension valuation census data, which for people currently in receipt of healthcare benefits was supplemented by coverage data from the healthcare claims administrator (Aetna)
- Certain adjustments and assumptions were made to prepare the data for valuation:
  - Some records provided on the Aetna data were associated with a participant social security number not listed on the RIN-to-SSN translation file. We did not add these records to the retiree medical valuation data as they were unable to tie with our pension valuation data (and therefore were unable to be associated with a specific plan or participant).
  - Some in pay participants and beneficiaries on the pension valuation data who were previously assumed to be receiving medical benefits were not listed on the provided Aetna data. We have updated these records to only be valued under the pension valuation.
  - Some records in the Aetna data were duplicates due to the dual coverage (i.e. coverage as a retiree and as a spouse of another retiree) allowed under the Plan. Records were changed for these members so that each member was only valued once. Any additional value of the dual coverage (due to coordination of benefits) is small and reflected in the per capita costs.
  - Covered children included in the Aetna data were valued until age 23, unless handicapped. We assumed that those dependents over 23 were only eligible and included due to being handicapped.

- Conduent understands that retiree medical coverage/eligibility is in place while a pension benefit is payable. If a participant dies, dependent coverage is only assumed to continue if they have ongoing pension/survivor benefits.
- For individuals included in the pension data expecting a future pension, we valued health benefits starting at the same point that the pension benefit is assumed to start.
- Future retirees' level of coverage is estimated according to valuation assumptions regarding spousal coverage.
- Limitations on the use of the valuation results due to uncertainty about various aspects of the data: Excluded records due to file mismatches are noted above but not are expected to have a material impact on the results.

Unresolved matters: None.

## Description of Actuarial Methods and Valuation Procedures

### June 30, 2016 Valuation – FY 2017 Claims Cost Rates

|   | Medical               |                      |                     | Prescription Drugs   |                       |                   | Total                 |
|---|-----------------------|----------------------|---------------------|----------------------|-----------------------|-------------------|-----------------------|
|   | Pre-Medicare          | Medicare A&B         | Medicare B Only     | Pre-Medicare         | Medicare A&B          | Medicare B Only   |                       |
| <b>Fiscal 2013 Incurred Claims</b>                              | <b>\$ 239,986,289</b> | <b>\$ 73,469,050</b> | <b>\$ 1,901,151</b> | <b>\$ 49,738,435</b> | <b>\$ 93,999,808</b>  | <b>\$ 538,020</b> | <b>\$ 459,632,753</b> |
| Membership  | 23,522                | 32,984               | 217                 | 23,522               | 32,984                | 217               | 56,723                |
| Paid Claims Cost Rate   | \$ 10,203             | \$ 2,227             | \$ 8,761            | \$ 2,115             | \$ 2,850              | \$ 2,479          | \$ 8,103              |
| Trend to FY2017   | 1.313                 | 1.313                | 1.313               | 1.325                | 1.325                 | 1.325             |                       |
| FY 2017 Paid Cost Rate  | \$ 13,399             | \$ 2,925             | \$ 11,506           | \$ 2,801             | \$ 3,775              | \$ 3,284          | \$ 10,670             |
| Manual Adjustment*  | 0.940                 | 0.940                | 0.940               | 0.934                | 0.934                 | 0.934             |                       |
| <b>FY 2017 Incurred Cost Rate</b>                               | <b>\$ 12,595</b>      | <b>\$ 2,750</b>      | <b>\$ 10,815</b>    | <b>\$ 2,616</b>      | <b>\$ 3,526</b>       | <b>\$ 3,067</b>   | <b>\$ 10,010</b>      |
| <b>Fiscal 2014 Incurred Claims</b>                              | <b>\$ 224,167,427</b> | <b>\$ 68,834,329</b> | <b>\$ 2,428,446</b> | <b>\$ 39,572,896</b> | <b>\$ 115,011,779</b> | <b>\$ 605,633</b> | <b>\$ 450,620,510</b> |
| Membership  | 21,322                | 36,843               | 223                 | 21,322               | 36,843                | 223               | 58,388                |
| Paid Claims Cost Rate   | \$ 10,514             | \$ 1,868             | \$ 10,890           | \$ 1,856             | \$ 3,122              | \$ 2,716          | \$ 7,718              |
| Trend to FY2017   | 1.205                 | 1.205                | 1.205               | 1.237                | 1.237                 | 1.237             |                       |
| FY 2017 Paid Cost Rate  | \$ 12,673             | \$ 2,252             | \$ 13,126           | \$ 2,295             | \$ 3,861              | \$ 3,359          | \$ 9,386              |
| Manual Adjustment*  | 0.970                 | 0.970                | 0.970               | 0.967                | 0.967                 | 0.967             |                       |
| <b>FY 2017 Incurred Cost Rate</b>                               | <b>\$ 12,293</b>      | <b>\$ 2,184</b>      | <b>\$ 12,733</b>    | <b>\$ 2,220</b>      | <b>\$ 3,733</b>       | <b>\$ 3,248</b>   | <b>\$ 9,095</b>       |
| <b>Fiscal 2015 Incurred Claims</b>                              | <b>\$ 222,942,485</b> | <b>\$ 73,220,895</b> | <b>\$ 3,066,493</b> | <b>\$ 55,314,988</b> | <b>\$ 118,431,447</b> | <b>\$ 651,667</b> | <b>\$ 473,627,975</b> |
| Membership  | 20,920                | 38,263               | 242                 | 20,920               | 38,263                | 242               | 59,425                |
| Paid Claims Cost Rate   | \$ 10,657             | \$ 1,914             | \$ 12,671           | \$ 2,644             | \$ 3,095              | \$ 2,693          | \$ 7,970              |
| Trend to FY2017   | 1.120                 | 1.120                | 1.120               | 1.162                | 1.162                 | 1.162             |                       |
| FY 2017 Paid Cost Rate  | \$ 11,940             | \$ 2,144             | \$ 14,197           | \$ 3,071             | \$ 3,595              | \$ 3,128          | \$ 9,050              |
| Manual Adjustment*  | 1.000                 | 1.000                | 1.000               | 1.000                | 1.000                 | 1.000             |                       |
| <b>FY 2017 Incurred Cost Rate</b>                               | <b>\$ 11,940</b>      | <b>\$ 2,144</b>      | <b>\$ 14,197</b>    | <b>\$ 3,071</b>      | <b>\$ 3,595</b>       | <b>\$ 3,128</b>   | <b>\$ 9,050</b>       |
| <b>Fiscal 2016 Incurred Claims</b>                              | <b>\$ 225,325,571</b> | <b>\$ 83,147,336</b> | <b>\$ 1,892,894</b> | <b>\$ 57,222,142</b> | <b>\$ 135,947,721</b> | <b>\$ 803,500</b> | <b>\$ 504,339,164</b> |
| Membership  | 20,049                | 40,480               | 275                 | 20,049               | 40,480                | 275               | 60,804                |
| Paid Claims Cost Rate   | \$ 11,239             | \$ 2,054             | \$ 6,883            | \$ 2,854             | \$ 3,358              | \$ 2,922          | \$ 8,295              |
| Trend to FY2017   | 1.053                 | 1.053                | 1.053               | 1.085                | 1.085                 | 1.085             |                       |
| FY 2017 Paid Cost Rate  | \$ 11,830             | \$ 2,162             | \$ 7,245            | \$ 3,096             | \$ 3,643              | \$ 3,169          | \$ 8,833              |
| Manual Adjustment*  | 1.000                 | 1.000                | 1.000               | 1.000                | 1.000                 | 1.000             |                       |
| <b>FY 2017 Incurred Cost Rate</b>                               | <b>\$ 11,830</b>      | <b>\$ 2,162</b>      | <b>\$ 7,245</b>     | <b>\$ 3,096</b>      | <b>\$ 3,643</b>       | <b>\$ 3,169</b>   | <b>\$ 8,833</b>       |
| Weighted Average 7/1/2016-6/30/2017 Incurred Claims Cost Rates: |                       |                      |                     |                      |                       |                   |                       |
| At average age  | \$ 12,037             | \$ 2,219             | \$ 11,133           | \$ 2,864             | \$ 3,632              | \$ 3,160          | \$ 9,079              |
| At age 65   | \$ 14,380             | \$ 1,707             | \$ 8,562            | \$ 3,320             | \$ 3,320              | \$ 3,320          | \$ 8,783              |

\*"Manual Adjustment" is the estimated savings due to the change in claims administrator effective January 1, 2014.

## Description of Actuarial Methods and Valuation Procedures

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, 2016 through June 30, 2017**

| Age | Medical and Medicare Parts A & B | Medical and Medicare Part B Only | Prescription Drug | Medicare Retiree Drug Subsidy |
|-----|----------------------------------|----------------------------------|-------------------|-------------------------------|
| 45  | \$ 7,964                         | \$ 7,964                         | \$ 1,751          | \$ -                          |
| 50  | 9,010                            | 9,010                            | 2,080             | -                             |
| 55  | 10,194                           | 10,194                           | 2,470             | -                             |
| 60  | 12,108                           | 12,108                           | 2,864             | -                             |
| 65  | 1,707                            | 8,562                            | 3,320             | 614                           |
| 70  | 2,077                            | 10,417                           | 3,577             | 661                           |
| 75  | 2,466                            | 12,369                           | 3,815             | 706                           |
| 80  | 2,657                            | 13,325                           | 3,911             | 723                           |

### Changes in Methods Since the Prior Valuation

There were no changes in valuation methods except for the changes described in the healthcare sections above.



## Section 6.3 Summary of Actuarial Assumptions

The demographic and economic assumptions used in the June 30, 2016 valuation are described below. These assumptions were adopted by the Board in December 2014. These assumptions were the result of an experience study performed as of June 30, 2013.

|                                   |  |
|-----------------------------------|--|
| Investment Return / Discount Rate | 8.00% per year (geometric), compounded annually, net of expenses.  |
| Salary Scale                      | Inflation – 3.12% per year.<br>Productivity – 0.50% per year.<br>See Table 1 for salary scale rates.   |
| Payroll Growth                    | 3.62% per year. (Inflation + Productivity).  |
| Total Inflation                   | Total inflation as measured by the Consumer Price Index for urban and clerical workers for Anchorage is assumed to increase 3.12% annually.  |
| Mortality (Pre-termination)*      | Based upon the 2010-2013 actual experience. (See Table 2).<br>68% of male rates and 60% of female rates of post-termination mortality.<br>Deaths are assumed to result from non-occupational causes 85% of the time.   |
| Mortality (Post-termination)*     | Based upon the 2010-2013 actual experience. (See Table 3).<br>94% of male and 97% of female rates of RP-2000, 2000 Base Year projected to 2018 with Projection Scale BB, with a 3-year setback for males and a 4-year setback for females.   |
| Turnover                          | Select and ultimate rates based upon the 2010-2013 actual withdrawal experience. (See Table 4).  |
| Disability                        | Incidence rates based upon the 2010-2013 actual experience, in accordance with Table 5. Post-disability mortality in accordance with the RP-2000 Disabled Retiree Mortality Table, 2000 Base Year, projected to 2018 with Projection Scale BB. (See Table 7).  |
| Retirement                        | Retirement rates based upon the 2010-2013 actual experience in accordance with Table 6. Deferred vested members are assumed to retire at their earliest unreduced retirement date.<br><br>The modified cash refund annuity is valued as a three-year certain and life annuity.   |
| Marriage and Age Difference       | Wives are assumed to be three years younger than husbands. 85% of male members and 75% of female members are assumed to be married.  |
| Dependent Children                | Benefits for dependent children have been valued only for members currently covering their dependent children. These benefits are only valued through the dependent children's age 23 (unless the child is disabled).  |
| Contribution Refunds              | 5% of terminating members with vested benefits are assumed to have their contributions refunded. 100% of those with non-vested benefits are assumed to have their contributions refunded.  |
| Imputed Data                      | Data changes from the prior year which are deemed to have an immaterial impact on liabilities and contribution rates are assumed to be correct in the current year's client data. Nonvested terminations with appropriate refund dates are assumed to have received a full refund of contributions. Active members with missing salary and service are assumed to be terminated with status based on their vesting percentage. |
| Active Rehire Assumption          | Starting with the June 30, 2016 valuation, 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 % loads (which were developed based on the prior 5 years of rehire loss experience):<br>- Pension: 18.49%<br>- Healthcare: 10.39%  |
| Teacher 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 as of June 30.  |

\*The mortality assumptions include an allowance for future mortality improvement. The mortality table used was set in 2014 with an Actual Deaths to Expected Deaths ratio of 110%.

| COLA                              | Of those benefit recipients who are eligible for the COLA, 60% are assumed to remain in Alaska and receive the COLA.  |              |                     |  |  |                |              |              |           |          |                      |          |          |                      |          |          |                 |     |        |
|-----------------------------------|---|--------------|---------------------|--|--|----------------|--------------|--------------|-----------|----------|----------------------|----------|----------|----------------------|----------|----------|-----------------|-----|--------|
| Sick Leave                        | 4.5 days of unused sick leave for each year of service are assumed to be available to be credited once the member is retired, terminates or dies.   |              |                     |  |  |                |              |              |           |          |                      |          |          |                      |          |          |                 |     |        |
| Postretirement Pension Adjustment | 50% and 75% of assumed inflation, or 1.56% and 2.34% respectively, is valued for the annual automatic Postretirement Pension Adjustment (PRPA) as specified in the statute.   |              |                     |  |  |                |              |              |           |          |                      |          |          |                      |          |          |                 |     |        |
| Expenses                          | The investment return assumption is net of all expenses.  |              |                     |  |  |                |              |              |           |          |                      |          |          |                      |          |          |                 |     |        |
| Part-time Status                  | Part-time employees are assumed to earn 0.75 years of credited service per year.  |              |                     |  |  |                |              |              |           |          |                      |          |          |                      |          |          |                 |     |        |
| Re-employment Option              | We assume all re-employed retirees return to work under the Standard Option.  |              |                     |  |  |                |              |              |           |          |                      |          |          |                      |          |          |                 |     |        |
| Service                           | Total credited service is provided by the State. We assume that this service is the only service that should be used to calculate benefits. Additionally, the State provides claimed service (including Bureau of Indian Affairs Service). Claimed service is used for vesting and eligibility purposes as described in Section 2.1.  |              |                     |  |  |                |              |              |           |          |                      |          |          |                      |          |          |                 |     |        |
| Final Average Earnings            | Final Average Earnings is provided on the data for active members. This amount is used as a minimum in the calculation of the average earnings in the future.   |              |                     |  |  |                |              |              |           |          |                      |          |          |                      |          |          |                 |     |        |
| Per Capita Claims Cost            | Sample claims cost rates adjusted to age 65 for FY17 medical benefits are shown below: <table border="1"> <thead> <tr> <th></th> <th colspan="2" style="text-align: center;"><b>Prescription</b></th> </tr> <tr> <th></th> <th style="text-align: center;"><b>Medical</b></th> <th style="text-align: center;"><b>Drugs</b></th> </tr> </thead> <tbody> <tr> <td>Pre-Medicare</td> <td style="text-align: right;">\$ 14,380</td> <td style="text-align: right;">\$ 3,320</td> </tr> <tr> <td>Medicare Parts A &amp; B</td> <td style="text-align: right;">\$ 1,707</td> <td style="text-align: right;">\$ 3,320</td> </tr> <tr> <td>Medicare Part B Only</td> <td style="text-align: right;">\$ 8,562</td> <td style="text-align: right;">\$ 3,320</td> </tr> <tr> <td>Medicare Part D</td> <td style="text-align: center;">N/A</td> <td style="text-align: right;">\$ 614</td> </tr> </tbody> </table> |              | <b>Prescription</b> |  |  | <b>Medical</b> | <b>Drugs</b> | Pre-Medicare | \$ 14,380 | \$ 3,320 | Medicare Parts A & B | \$ 1,707 | \$ 3,320 | Medicare Part B Only | \$ 8,562 | \$ 3,320 | Medicare Part D | N/A | \$ 614 |
|                                   | <b>Prescription</b>   |              |                     |  |  |                |              |              |           |          |                      |          |          |                      |          |          |                 |     |        |
|                                   | <b>Medical</b>  | <b>Drugs</b> |                     |  |  |                |              |              |           |          |                      |          |          |                      |          |          |                 |     |        |
| Pre-Medicare                      | \$ 14,380   | \$ 3,320     |                     |  |  |                |              |              |           |          |                      |          |          |                      |          |          |                 |     |        |
| Medicare Parts A & B              | \$ 1,707  | \$ 3,320     |                     |  |  |                |              |              |           |          |                      |          |          |                      |          |          |                 |     |        |
| Medicare Part B Only              | \$ 8,562  | \$ 3,320     |                     |  |  |                |              |              |           |          |                      |          |          |                      |          |          |                 |     |        |
| Medicare Part D                   | N/A   | \$ 614       |                     |  |  |                |              |              |           |          |                      |          |          |                      |          |          |                 |     |        |
| Third Party Administrator Fees    | \$206.88 per person per year; assumed trend rate of 5% per year.  |              |                     |  |  |                |              |              |           |          |                      |          |          |                      |          |          |                 |     |        |
| Medicare Part B Only              | For actives and retirees not yet Medicare-eligible, participation is set based on whether the employee/retiree will have 40 quarters of employment after March 31, 1986, depending upon date of hire and/or re-hire.  |              |                     |  |  |                |              |              |           |          |                      |          |          |                      |          |          |                 |     |        |

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, 8.8% is applied to the FY17 pre-Medicare medical claims cost to get the FY18 medical claims cost.

|       | <b>Medical<br/>Pre-65</b> | <b>Medical<br/>Post-65</b> | <b>Prescription<br/>Drugs</b> |
|-------|---------------------------|----------------------------|-------------------------------|
| FY17  | 8.8%                      | 5.8%                       | 5.4%                          |
| FY18  | 8.2%                      | 5.7%                       | 5.1%                          |
| FY19  | 7.6%                      | 5.6%                       | 4.8%                          |
| FY20  | 7.0%                      | 5.6%                       | 4.6%                          |
| FY21  | 6.5%                      | 5.6%                       | 4.4%                          |
| FY22  | 6.0%                      | 5.6%                       | 4.2%                          |
| FY23  | 5.6%                      | 5.6%                       | 4.0%                          |
| FY26  | 5.6%                      | 5.6%                       | 4.0%                          |
| FY51  | 4.4%                      | 4.0%                       | 4.0%                          |
| FY101 | 4.4%                      | 4.0%                       | 4.0%                          |

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 effectively begins estimating trend amounts beginning in 2014 and projects out to 2090. The model has been populated with assumptions that are specific to the State of Alaska.

Aging Factors\*

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

\* Note that pre-65 the factor represents the amount to increase from the ages noted to the next age. However post-65, the factor represents the adjustment to get to the ages noted up to age in the range. That is, 2.5% is used to age from 54 to 55, but 1.5% is use to age from 83 to 84.

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 FY17 contributions based on monthly rates shown below for calendar 2016 and 2017 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 2017<br>Annual Contribution | Calendar 2017<br>Monthly<br>Contribution | Calendar 2016<br>Monthly<br>Contribution |
|------------------------|--------------------------------------|--|--|
| Retiree Only           | \$ 9,324                             | \$ 777                                   | \$ 777                                   |
| Retiree and Spouse     | \$ 18,648                            | \$ 1,554                                 | \$ 1,554                                 |
| Retiree and Child(ren) | \$ 13,164                            | \$ 1,097                                 | \$ 1,097                                 |
| Retiree and Family     | \$ 22,500                            | \$ 1,875                                 | \$ 1,875                                 |
| Composite              | \$ 13,848                            | \$ 1,154                                 | \$ 1,154                                 |

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, 6.2% is applied to the FY17 retired member medical contributions to get the FY18 retired member medical contributions.

| Trend Assumptions |      |
|-------------------|------|
| FY17              | 6.2% |
| FY18              | 5.8% |
| FY19              | 5.4% |
| FY20              | 5.0% |
| FY21              | 4.7% |
| FY22              | 4.4% |
| FY26              | 4.1% |
| FY51              | 4.0% |
| FY101             | 4.0% |

Graded trend rates for retired member medical contributions were reinitialized for the June 30, 2014 valuation. Note that actual FY17 retired member medical contributions are reflected in the valuation so trend on such contribution during FY17 is not applicable.

Healthcare Participation

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

**Table 1**  
**Alaska TRS**  
**Salary Scale**

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

**Table 2**  
**Alaska TRS**  
**Mortality Table (Pre-termination)**

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

**Table 3**  
**Alaska TRS**  
**Mortality Table (Post-termination)**

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

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

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

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

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



**Table 5**  
**Alaska TRS**  
**Disability Table**

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

**Table 6**  
**Alaska TRS**  
**Retirement Table**

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

**Table 7**  
**Alaska TRS**  
**Disabled Mortality Rates**

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

# Glossary of Terms

|   |   |
|---|---|
| Actuarial Accrued Liability                   | Total accumulated cost to fund pension or postemployment benefits arising from service in all prior years.  |
| Actuarial Cost Method                         | Technique used to assign or allocate, in a systematic and consistent manner, the expected cost of a pension or postemployment plan for a group of plan members to the years of service that give rise to that cost.   |
| Actuarial Present Value of Projected Benefits | Amount which, together with future interest, is expected to be sufficient to pay all future benefits.   |
| Actuarial Valuation                           | Study of probable amounts of future pension or postemployment benefits and the necessary amount of contributions to fund those benefits.  |
| Actuary                                       | Person who performs mathematical calculations pertaining to pension and insurance benefits based on specific procedures and assumptions.  |
| Annual Required Contribution (ARC)            | Disclosure measure of annual postretirement benefit cost under GASB 43 and 45.  |
| GASB 25 and 27                                | Governmental Accounting Standards Board Statement Number 25, which specifies how the Annual Required Contribution (ARC) is to be calculated, and Number 27, which specifies Employer reporting of Pension Cost.   |
| GASB 43 and 45                                | Governmental Accounting Standards Board Statement Number 43, which specifies how the ARC is to be calculated, and Number 45, which specifies Employer reporting of Other Postemployment Benefit (OPEB) Cost.  |
| GASB 67 and 68                                | Governmental Accounting Standards Board Statement Number 67 amends Number 25 effective for the fiscal year beginning after June 15, 2013, and defines new financial reporting requirements for public pension plans.<br><br>Governmental Accounting Standards Board Statement Number 68 amends Number 27 effective for fiscal years beginning after June 15, 2014 and defines new accounting and financial reporting requirements for employers sponsoring public pension plans.                                |
| GASB 74 and 75                                | Governmental Accounting Standards Board Statement Number 74 amends Number 43 effective for the fiscal year beginning after June 15, 2016, and defines new financial reporting requirements for public postemployment benefit plans.<br><br>Governmental Accounting Standards Board Statement Number 75 amends Number 45 effective for fiscal years beginning after June 15, 2017, and defines new accounting and financial reporting requirements for employers sponsoring public postemployment benefit plans. |
| Liquidity Factor                              | Is calculated as the average annual Fair Value of Assets divided by the total annual benefit payments. This measures the approximate number of years that assets will cover benefit payments without contributions or investment return. Trend shows solvency risk.   |

|   |   |
|---|---|
| Maturity Ratio                              | The ratio of the actuarial accrued liability for members who are no longer active to the total actuarial accrued liability. A ratio of over 50% indicates a mature plan. The higher the maturity ratio, the more volatile the contribution rate will be from year to year given actuarial gains and losses. |
| Normal Cost                                 | That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual participant or the plan as a whole.   |
| Rate Payroll                                | Members' earnings used to determine contribution rates.   |
| Unfunded Actuarial Accrued Liability (UAAL) | The portion of the actuarial accrued liability not offset by plan assets.   |
| Valuation Payroll                           | Members' earnings used to determine Normal Cost and Actuarial Accrued Liability.  |
| Vested Benefits                             | Benefits which are unconditionally guaranteed regardless of employment  |